Sacred Spaces

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This issue provides articles from pastoral theologians and counselors who have spent considerable time and thought trying to integrate neuroscience research and pastoral practice. Their pioneering work represents the field's initial steps toward making use of the insights of brain science for pastoral care and counseling.

Thanks to Jason Whitehead, Ph.D., who served as guest editor for this issue. Thanks also to all the contributors for their hard work and insights. I wish to extend a special thanks to Dr. Cody Sanders, Pastor of Old Cambridge Baptist Church in Harvard Square, who has agreed to serve as co-editor for the next four years.

Sacred Spaces articles contain the views and opinions of their authors and do not necessarily reflect the views or policies of AAPC.

Submission Guidelines:
The Sacred Spaces Editorial Board is looking for more articles for future issues. If you are interested in submitting an article, please review the submission guide, located on the AAPC website.

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Editor's Note

Ryan LaMothe, Ph.D.

Many pastoral theologians and ministers are aware of the vast gains made in neuroscience during the last three decades, but for most of us this knowledge remains outside our areas of expertise, which means we cannot make use of it to inform pastoral methods and practices. This issue of Sacred Spaces gathers together pastoral theologians and counselors who have spent considerable time and thought trying to integrate neuroscience research and pastoral practice. Their pioneering work represents the field's initial steps toward making use of the insights of brain science for pastoral care and counseling. I wish to thank them for their contributions and especially for the work of Dr. Jason Whitehead whose leadership was crucial in the completion of this issue.

I would also like to thank Dr. Cody Sanders for his willingness to serve as co-editor for the next four years. Cody is an accomplished scholar who recently accepted a coveted position as pastor of Old Cambridge Baptist Church in Harvard Square. This church has a proud and long legacy of social justice. In addition to his duties as pastor, Cody will be teaching at Andover Newton Seminary. I am delighted that he has decided to accept the position as co-editor.

And just to entice you, we have some interesting issues scheduled for the next few issues. Cody is currently serving as a guest editor for the next issue on GLBTQI and pastoral counseling. This will be followed by two issues that deal with scripture and pastoral care and counseling. Dr. Denise Dombkowski and Dr. Michael Koppel will serve as guest editors for these issues.

Guest Editor's Introduction

Jason Whitehead, Ph.D.

Twenty years ago, I sat in my first, and really only, class on neuropsychology. Two weeks in and I was called to the front of the classroom to draw a picture of a neuron and label its parts. I remember forming the elegant and simple cell that is the cause of so much of who we are. First, I formed the soma with its starry shape, each point ending in a maze of dendrites. Next, came the axon, coated with the myelin sheath, leading to a gaggle of terminal buttons. These terminal buttons reach out to the dendrites of multiple neighboring neurons, with electric pulses jumping from cell to cell via a synaptic gap aided by neurotransmitters. Moreover, some neurons are thought to connect to as many as 200,000 others, while most connect to a mere thousand or so (Wellcome Trust, 2014). Given the sheer number of neurons in the brain, roughly 85 billion, this means that the possible number of synaptic connections in the human "connectome" numbers in the hundreds of trillions (Seigfried, 2014). The sheer beauty and complexity of the brain and its myriad connections should give us pause as we ponder and describe the human being that houses these connections.

We stand today, 15 years removed from the "Decade of the Brain" as declared by President George Bush, in midst of the **BRAIN** (**B**rain **R**esearch through **A**dvancing **I**nnovative **N**eurotechnologies) initiative started by President Obama. After countless fMRIs (functional Magnetic Resonance Images), PET (Positron Emission Tomography) and CT (Computed Tomography) scans, and EEGs (Electroencephalograms) we know much about the inner workings of the brain. However, with every advancement we are reminded how little we know about the brain as well. Each year new studies probe and prod our imaginations about this organ

that regulates our bodies, houses the mind, interprets the environment, creates meaning from our experiences (including how we interpret God and the world), and gives rise to some sense of self. Today, we look to those studying the brain to help us understand compassion and empathy, emotions and trauma, and even the origins and impact of religion; but, it may be that the most important claims made by those who study the brain have to do with conclusions about what it means to be human. It is out of these claims that this issue of *Sacred Spaces* takes shape.

The first thing you will notice about this issue is that it seems short on pastoral counseling practices. Despite 25 years of a concerted effort to explore the brain and its many functions, the exploration of the brain by theologians and pastoral counselors is still relatively new. I believe much of this reluctance to engage neuroscience research has to do with seeing a preponderance of reductionism in the conclusions of neuroscientists, as well as, the overall complexity of the subject. Our study of the neurosciences as theologians and pastoral counselors is nowhere near as broad or detailed as other subjects; yet, maybe it should be. Neuroscientists are making a variety of anthropological claims that impact how we understand the person that may be seeking our counsel. Many of their findings are shaping what we come to understand as best practices, and we are drawing numerous conclusion about human capabilities through the conclusions of their research. This conversation between the neurosciences and pastoral theology and counseling is long overdue, and I am thankful to the American Association of Pastoral Counselors and the Editorial Board of Sacred Spaces for the chance to explore this topic with you.

The articles curated for this issue are meant to provide a starting point for our exploration of the connection between the neurosciences and pastoral theology and counseling. They range from ideas about method to understandings of human beings using the neurosciences; we have

included articles that explore neuroplasticity, ritual, and concepts about human understanding and formation; finally, we have included articles that begin to tease out our understanding of how the neurosciences might influence who we are as therapists in the room with our clients. It is my firm belief that at the end of this issue you will have explored many of the broad and specific issues those of us writing in this area face when relating two seemingly disparate disciplines that seek the same goal, to understand what it means to be human.

Somewhere in those trillions upon trillions of neural connections who we understand ourselves to be arises; moreover, in this human connectome we develop a sense of what it means to be connected to the sacred, to the holy, to a sense of meaning that steps beyond that same sense of self. As pastoral theologians and counselors it is time to take our seat at the table and continue to tease out these connections and make sense of what we are beginning to understand about human beings, their brains, and our religious and sacred connections.

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Gray Matters: Exploring the Relationship between the Neurosciences and Pastoral Theology, Care, and Counseling through Method

Rev. Jason C. Whitehead, PhD[1]

Abstract All things being equal method is not the most glamorous of subjects pertaining to the neurosciences and its relationship to pastoral theology, care, and counseling. However, it may be one of the most important if we are to continue our conversations with this burgeoning field that seeks to explain human beings and our thoughts, emotions, and behaviors. In this article I want to explore how we integrate neuroscientific studies and data into our theological frameworks. To do that we will explore the strengths and limits of a number of methodological approaches including the scientific method, the levels of analysis approach, and the critical correlational method. As a result of looking at what each brings to the table as well as what they leave behind, I want to propose a novel approach that pays attention to the shifting conversations and processes between theology and the neurosciences. I call this approach the creative collaborative method. As a methodological approach it seeks to build wisdom through the collaboration between disciplines by exploring how our knowledge of human beings becomes more complex through the conversation between a number of disciplines whose primary responsibility is the exploration and explanation of human beings in their myriad contexts.

Keywords Methodology; neurosciences; method; critical correlational; levels of analysis; creative collaboration; scientific method; pastoral theology; pastoral counseling

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Introduction

There is something intimate and sacred about being invited to hear another's stories; diving into memories and experiences, yet remaining just outside enough to see the themes that cut across these varied narratives. The ability to be present to the narratives, but also see how they relate is a perspective that I carry with me wherever I go, and one that served me well in my graduate education. Doctoral work became the act of taking pieces of knowledge from here and there to create a more complex view of a subject. It was about trying to tell one multifaceted story out of the parts of four of five others. This where I find value in my work, living in the themes, the bright and shadowy parts of life, the bits and pieces of stories that can be woven together into a narrative that speaks some small truth about the core of a variety of issues. Occasionally, I struggle to connect the dots though; sometimes the information feels so disparate that it is difficult to fit the pieces together without feeling like they are forced. Other times the amount of information is so staggering that it is difficult to get a handle on what is important without wandering down rabbit trails.

One of these overwhelming times happened three months after the acceptance of my dissertation proposal as I found myself sending off the second chapter to my readers. Those first seventy-five pages felt like they typed themselves. I was filled with boundless energy and a feeling of accomplishment, and I was looking forward to the next chapter. This was the crux, the lynchpin, and to some extent the wild card of my dissertation. It was a whole chapter devoted to the neuropsychology and evolution of the emotion of fear. I couldn't wait to get started; neuropsychology has always occupied a space in my thinking. From the moment I drew my first neuron on the blackboard in my undergraduate program there was a curiosity and a fascination

with the brain that ebbed and flowed through my life. I completed a cursory journey into the research for my proposal and it was time to really dive into the literature and find the patterns and themes I knew were part of the story of fear.

Six months later I had little to nothing to show for my efforts. My first foray into neuropsychological research garnered over 16,000 articles about fear. I read books, reviews, and article after article. Nine months after my proposal was accepted, the end of the year was drawing near, and I still only had those first two chapters and a few pages of notes. Images of neurons and fMRIs (functional Magnetic Resonance Images) blurred together; hypotheses about the genesis of fear, its location in the amygdala, and its impact on our behavior created a disjointed narrative in my memories. My lynchpin and the crux of my doctoral work became an anchor. I floundered under the weight of the research and my writing stalled. Days became weeks and weeks became months as I read introductions, methods, findings, conclusions, and calls for more research. I would start to write, find a resource, and it would propel me down another rabbit trail of articles and possibilities. Thousands of pages later, my work ground to a halt.

I developed a working knowledge of the brain and the emotion of fear, but sometimes it was a battle to connect the research to theology and practice. Neuroscience is not easy, understanding the findings and their implications for pastoral theology, care, and counseling can be even harder. It is not as simple as taking a picture of the brain and drawing a conclusion. Every little thing we learn about the brain has meaning and larger implications for theology, counseling, and care. As I write this, books about the brain and how to tame and train it proliferate. I think this attests to the fact that we feel as though there is something comforting in knowing how that dense bundle of neurons inside our skull works.

Maybe your clients are reading books about how to train their brains, or how meditation impacts their neural structures and changes their worldviews. Maybe you are prescribing some of these new sources of knowledge as homework for certain clients. Many of these works have solid research behind them, yet most of these books are probably written by neuropsychologists or others in the neurosciences field.

The truth is, for the most part, pastoral theologians and counselors see the neurosciences as a secondary or even tertiary concern. Whether this is a lack of interest or understanding, or a general confusion or frustration with the field, there are very few people exploring the connection between pastoral theology and the neurosciences in a sustained and meaningful way. There are a few notable exceptions including: Jim Ashbrook's (1984, 1996) seminal texts on theology and the brain; David Hogue's (2003) work on memory and imagination; Kirk Bingaman's (2007, 2014) texts on the new anxiety and neuroplasticity; Andy Lester's (2003) book on anger, and my (2013) book on fear and hope. More, we are seeing some articles filter through journals that explore the brain and theology connection written by theologians and neuroscientists who have theological training.

Many of these authors have worked hard to develop ideas about the intersection of pastoral theology and the neurosciences; it is not as simple as wrapping an idea in neuroscientific research and calling it integration. Dialogue is vital, yet often lacking. Like a puzzle, our theology has to help provide meaning for what we are learning about human beings; likewise, what we are learning about the human brain and mind should impact our theology as well. To be fruitful, conversations about the brain, the mind, and theology ought to be mutually constructive and undertaken with the genuine hope of creating a better understanding what it means to be human, as well as being human in relationship with the Holy Other. Thus, method, the way we

have conversation and draw conclusions and understand research, is important. Method is what enabled me to begin writing again after being overwhelmed with research.

The purpose of this issue of *Sacred Spaces* is to explore the connection between the neurosciences, pastoral theology, pastoral care, and pastoral counseling in practical, theoretical, and theological ways. In this issue you will find familiar names and new authors exploring these connections and how they impact our lives and work. Familiar questions will arise as you read these articles. How do we understand the work of those in the neurosciences without reducing humanity to a series of neurochemical reactions? How do we understand the complexity of these neurochemical reactions in relationship to embodied theologies and embedded narratives? What does the brain tell us about what it means to be human, and what do our unique interpretations about human experience tell us about the complexity of the brain?

These are the questions that live at the edge of our vocation, questions that will loom larger in future years as the body of literature about the brain continues to grow. In light of these questions, I feel the best way to open this journal is to explore some of the bigger issues around the relationship between the neurosciences and pastoral theology, counseling, and care. For me, that means exploring method. In order to develop the connections between the neurosciences and pastoral theology, counseling, and care in ways that respect the contributions of both disciplines, we have to understand our methods. These are the rationales we use to blend sources of knowledge constructively, while "minding the gap" (Doehring, 2010, p.93) between these two sources of understanding humanity.

Methodology, in this case, has to do with how we constructively bring together sources of knowledge. As a therapist, why might you use a cognitive approach with one client and an affective one with another? What in your experience tells you that psychodynamic, narrative,

solution-focused, CBT, or any combination therein works with a particular person? Out of experiences and knowledge, we blend and apply and construct the ways we meaningfully move within the therapeutic space. We create and live into methodologies that drive our practice and even our life to some extent. Methodology is important precisely because, as Bonnie Miller-McLemore (2010) stated when talking about epistemology and methodology, "*They are as much about power as they are about precision because they determine where knowledge and truth reside*" (p.68, *italics author's)*.

I harbor no illusions about our interest in methodology (in fact your eyes may be glazing over at this moment), after all we are practical people, practical theologians, and/or therapists in a variety of practice settings. However, methodology may be most important to people just like us. It was methodology that saved me from the chaos of neuroscience during my dissertation. Understanding my sources of knowledge, their relationship to one another, and the creative and constructive possibilities I was seeing helped narrow some of my attention so that I could write effectively without being reductionistic.

Pastoral theologian Seward Hiltner is purported to have said that, "a theory without a practice is irrelevant and a practice without a theory is non-correctable" (Graham, unpublished, p.1). Methodology, in many ways functions as the theory that guides our practice. We cannot unreflectively swing a single hammer at every problem or narrative or feeling, and hope for a constructive outcome. Therefore, we need a method, a way of talking about and relating the resources at our disposal in order to relate to those who seek care. Simply put, we must attempt to understand how things are related and what we tend to privilege as sources of information that guide our practice and care of one another. To this end, I want to briefly explore three different

methodologies from three disciplines, propose an alternative methodology, and provide an example of how this might work in research and practice.

Before we begin, I simply want to acknowledge that all of these methodologies have strong and weak points to them. None are necessarily wrong or right, they just arise from a variety of social-historical contexts, privilege different things, and utilize power in unique ways as a result. As you read through each method – scientific, levels of analysis, critical correlation – you will get a basic understanding of each methods along with a brief critique along the lines of how they use power and privilege. At the end, I want to advocate for an approach that relies on complexity as a core value. As we seek practical outcomes for our deliberations, complex narratives become vital for any conversation between the neurosciences and pastoral theology, care, and counseling becomes reductionistic.

Three methodologies

The scientific method

Our first methodology is one many of us have grown up with, learning it from the time we were in elementary school. The scientific method is often utilized in order to explore questions that arise about the world around us. However, this method is also being adopted as a primary way of knowing and understanding the efficacy of various ideas and programs. In an article about how the scientific method can guide early approaches to learning, authors Gerde, Schachter, and Wasik (2013) describe the scientific method as comprising of seven steps: "Observing, Asking questions, Generating hypotheses and predictions, Experimentation or testing of a hypothesis, Summarizing or analyzing data to draw a conclusion, Communicating discovery and process to others: verbally and/or in writing, Identifying a new question" (p.317).

The scientific method is one that is taught early and often as the primary way of discovering what is materially (observably) true or untrue. That is, what we can actually observe, touch, experience, and/or claim about the world.[2]

When applied rigorously, the scientific method engages us in a process of discovery that yields testable and repeatable sets of data or facts, enabling us to have confidence about our scientific outcomes; and, where the method produces results that are inconclusive or unsupported, it allows for the researcher to ask further questions in order to test new hypotheses. At its best, the scientific method of inquiry produces results that open a doorway to constructive thinking and exploration of the known world that yields new knowledge and avenues of growth. On the flip side, the scientific method, when adhered to faithfully or religiously, is used to reduce the world to its materialistic properties. That is, what becomes true are only those things that are testable, felt, observed, etc. At times, this can limit the views of those who hold dearly to this methodological approach and reduce humanity to our materialistic nature rather than seeing us in all of our complex glory.

Thus, while the scientific method often works for describing and understanding many phenomena, alone it does not fully describe the meaning of our experiences or even the full complexity with which we engage the world. At best it provides information, data about the world. From this information, theories, hypotheses, even conclusion arise. Often these studies might give us solid footing with which we can begin to ascribe meaning based on the unique experiences we bring to a certain set of data. While the scientific method can give us valuable

[2] To be clear, the scientific method has a long history and has gone through numerous philosophical revisions. It is applied differently in different disciplines, but almost always follows the pattern described so that results can be seen as repeatable and valid based on particular experimental controls.

information about the knowable world, it is sometimes applied uncritically, as though true objectivity is something achievable.

I want to propose that we consider two categories of methodological critique, power and privilege. That is, what does each methodology privilege and how does it use its power when reaching conclusions. Describing the rise of science as the primary standard and method of inquiry into understanding the world, philosopher Philip Kitcher (2012) remarked "To derive one's notion of human knowledge from the most striking accomplishments of the natural sciences easily generates a conviction that other forms of inquiry simply do not measure up" (p.21). Culturally, there is still a reliance on science to describe the "truth" of the world, sometimes rather uncritically. This gives the scientific method (despite the varieties of ways it is utilized) a lot of power and privilege in describing what we understand and can predict about the world and humanity. Sometimes this privilege comes at the exclusion of alternative ways of knowing, such as through the arts and humanities. As scientists moved to describing human behavior utilizing a scientific method of inquiry, a skepticism ensued. Kitcher wrote,

> Their efforts, and the attitudes of unconcealed disdain that often inspired them, prompted a reaction, from Vico to Dilthey and into our own time: the insistence that some questions are beyond the scope of natural scientific inquiry, too large, too complex, too imprecise, and too important to be addressed by blundering oversimplifications (p.21).

Researchers in the natural sciences frequently enjoy a place of power and privilege in our culture today, while other methods of inquiry are often seen as lacking. While there is a certain level of external power and privilege enjoyed by those who employ a scientific method, I am also interested in what the method itself privileges. My sense is that the method itself places a premium on material knowledge that is testable and repeatable. That is, for knowledge to true

and worthy of being shared, I must be able to tangibly experience the results, as well as repeat them so that they might be seen as general truths rather than specific ones. Thus, we might surmise that there is a privilege towards materialism. By privileging this information, that which is unknown, unobservable, untestable, unrepeatable becomes suspect at best (see also Johnson & Jones, 2000, p.27). Additionally, I also sense that there is a privileging of questions and observations. The scientific method begins and ends with questions, leaving me to believe that truth is a moving target. Thus, there is something dynamic about the knowledge derived through scientific experimentation. While a "truth" might be discovered, that truth is nothing more than a tentative conclusion and grounding point through which further exploration begins.

I think a major difficulty many of us might experience with this method of knowing is when observations are overstated as objective fact or determining criteria.[3] Thus, there are times when particular knowledge is generalized in ways that overpower unique capabilities and experiences. The results of studies about the efficacy of particular approaches to counseling might help us derive an understanding of best practices; however, those best practices may not be applicable to every client with the same presenting issues. We see this with insurance companies who wish to dictate a homogenized version of counseling based on tested best practices. However, on the frontlines of clinical practice we see how these practices must be adapted to the particularities of clients and the narratives they bring with them. Therefore, while the scientific method may produce results that are theoretically correct, in practice these same results may fall apart. Uncritically adopting specific techniques may do more harm than good.

[3] Stanton Jones (1996) articulates four philosophical critiques of the positivistic scientific method: (1) data is laden with theory; (2) facts are rarely scrutinized enough to provide confirmation of theory; (3) science is a cultural and human phenomenon and thus value-laden; and (4) science progress not because of new facts but through refinement of theories. (pp.119-121).

That said, we can also see that there are some overlaps with pastoral theology, especially when we understand that both require observation or experience as their starting point. Furthermore, implicit in our observations and experiences as theologians is a question and/or hypothesis that informs the path forward for us. From there, methods of inquiry begin to depart as the materialistic approach tends to dictate what is considered an appropriate test in order to achieve specific kinds of measurable data. Finally, it is worth considering that the scientific method alone would privilege any knowledge found in the conclusions of scientific studies. Thus, the only conversation between the neurosciences and theology would revolve around what the neurosciences could dictate to theology. There is no dialogue, just the rendering of "facts" that a theologian must accept as true and then adjust accordingly.

The levels of analysis approach

Leaving the natural sciences, we move to explore a methodological approach prevalent in the field of psychology of religion. Belzen and Hood (2006) identified two primary paradigms as the standard bearers in the field, the "empiricist-analytical and the hermeneutical orientations" (p. 6). These approaches are prevalent in both psychological research and the sub-discipline of psychology of religion. The easiest way to understand these approaches may be to associate the empiricist-analytical tradition with quantitative research, or the seeking of psychological information. This approach is more closely related to the scientific method and is designed to produce data concerning a particular hypothesis. The hermeneutic approach, on the other hand, is more akin to a qualitative approach to research and discovery, whereby the results often seek to describe the meaning of particular phenomena. As psychologists often seek to legitimate their field among natural scientists, there has been a general focus on the empirical tradition, much to the chagrin of postmodernists and others who emphasize the uniqueness of human experience. In

order to better describe the findings of the field, Belzen and Hood (2006) proposed a needed revolution in psychology of religion methodology, "a shift from or at least an expansion of the existing paradigm could occur through a greater integration of the hermeneutical tradition into the field" (p.8).

The most promising methodological advancement, proposed a number of years earlier, was termed a *levels of analysis approach*. Emmons and Paloutzian (2003) pointed to the idea of "the *multilevel interdisciplinary paradigm*" which "recognizes the value of data at multiple levels of analysis while making nonreductive assumptions concerning the value of spiritual and religious phenomena" (p.395). The key of their method is a purported nonreductive stance towards conclusions reached in particular studies. It takes all of the information about a particular phenomena and explores their connections in the attempt at drawing some creative and complex responses. Thus, we begin to move beyond some of the limitations of a pure scientific method when trying to understand experiences or answer particularly vexing questions.[4]

While this approach provides some promise, there are always questions of power and privilege. Belzen and Hood (2006) state one of the issues with this approach clearly by telling us that "The psychology of religion is psychology" (p.6). Whatever the methodology reveals in this discipline – empirical, hermeneutic, or levels of analysis – the results will privilege psychological findings; that is, psychology informs religion without a clear reciprocity. Thus, the power to interpret religious phenomena lies with those who experiment upon it psychologically; theology has little to offer psychologists when it comes to the anthropological claims being made. A clear example of this may be in the field of neurotheology, a field that "uses

[4] Historically speaking, 3 years prior Johnson & Jones mention a method entitled a "Levels-of-Explanation" approach (2000, p.38) as one way of understanding the relationship between psychology and theology. As I understand it, these levels are more distinct than those mentioned by Belzen and Hood (2006) and Emmons and Paloutzian (2003) where the disciplines remain distinct with little to no conversation between them.

neuroscientific data from brain scans of people engaging in religious or spiritual practices like meditation in order to (1) understand what is going on in the brain during religious experiences, (2) raise theological questions, and, in some cases, (3) make theological propositions based on this data" (Doehring, p.95). In this instance we have psychological data utilized in order to form specific theological ideas and questions. Psychology is needed and necessary to understand and interpret religious phenomena. This is where minding the gap, as Doehring (2010) puts it, becomes vital to methodological approaches to the neurosciences and theology. In other words, we need to be careful in how we ascribe meaning to information. This is the gap we must continually monitor, because the tendency has often been to overpower meaningful interpretations with generalized data.

Even with an approach that seeks to identify multiple strands of understanding, like the levels of analysis method, there is a privileging of information as religion and psychology meet. Therefore, while there is much to applaud in this multilevel methodological approach, the lack of reciprocity leaves much to be desired. Power rests with psychologists to explain religious experiences.[5] It may very well be that the metaphor which describes it reveals that hierarchy of knowledge. Thus, when the levels of analysis approach is used by psychologists with a modern, rather than postmodern approach to knowledge, particular sources of knowledge are automatically thought to provide more or less authoritative input to the central themes of a project.

However, this approach does bring us closer to understanding how a pastoral theological method may help us understand the connections between the neurosciences and pastoral care and

[5] One notable exception may be the work on theistic approaches to psychotherapy edited by Richards and Bergin (2005) in which they advocate for a "methodological pluralism" (p.14) in order to explore psychology and theology in order to better explain human personality.

counseling. With the levels of analysis approach, we see the beginnings of the need for dialogue. While the privileging of certain information seems to permeate the possibilities of this approach, there is a distinct emphasis on the possibilities of creating complexity through the intersection of meaning and information-oriented approaches to knowledge. This will be something important to carry with us as we continue to explore possible ways of relating these two disciplines for the practice of pastoral care and counseling.

The critical correlational method

Our final methodological approach is exemplified by Don Browning and Terry Cooper, and is considered one of the more widely used forms of inquiry in the pastoral theological world. In articulating this critical correlational method, Browning and Cooper (2004) hope to develop a critical distance from theories in order to derive the implicit assumptions that undergird said theories. They do this acknowledging that "No one begins their theorizing from a neutral place, and a pretense to pure objectivity must be exposed as hubris" (p.x). Out of this self-acknowledged lack of neutrality their hope is to create or develop a critical distance from the disciplines sufficient enough to be able to make certain claims about "comprehensiveness, moral and metaphysical adequacy, and empirical plausibility when investigating alternative psychological theories" (p.xi).

This critical distance is important as we seek to correlate the knowledge of theology and science. Miller-McLemore (2010) believed that a correlational method, when applied to the relationship between science and theology almost always "includes moments of independence" (p.76). For Miller-McLemore this method relies on a dialogical approach to each of these disciplines which begins with those moments of independence. Moreover, it is through those moments that we can see more clearly the contributions that one discipline might make to

another.[6] She cites four areas where dialogue is necessary and/or needed between science and religion:

> when theology makes statements about the empirical world (what Browning calls the "rhythms of nature," 2010, p.151) to which sciences may contribute; when science becomes dogmatic or ideological and begins to form culture; when science requires normative and philosophical guidance for its goals and direction; and, finally, when visions of the "good life" in theology and science conflict (p.76).

Furthermore, the goal of these dialogical moments is "neither integration nor triumph of science over religion (or vice versa) but clear articulation of boundaries, corrections, and intersections" (p. 76).

Indeed, when thinking about the intersection of neuroscience and religion, this correlational method holds a lot of promise for dialogue. Yet, there is something about the term independence that strikes me as antithetical to what we are about as pastoral theologians, caregivers, and counselors. It seems as though the power of this methodological approach lies with our ability to achieve a critical distance from the subjects we seek to dialogue with in our research. The further we carry our critical separation from a subject, the more valid our approach and conclusions become. Thus, privileged results are those that adequately name presuppositions without being consumed by them. To be sure, this method has been critiqued from a liberationist, postmodern and practical point of view (see Miller-McLemore, pp.77-78; Graham, 1996, p.93); mainly, these points of view assert and insert ideas about the power of culture and lack of voice of the oppressed. While the promise of the critical correlational model is obvious in its self-limiting of proclamations about reductionistic or moralistic truths from science or religion, there

[6] Elaine Graham (1996) critiques this practice of critical distance as overly rational and forgetting "the symbolic, ritualistic and mythical dimensions of religion" (p.88).

is something that troubles me about its sense of critical distance and seeming lack of collaboration to create meaning. Thus, I feel the need to offer an alternative resting place when it comes to method as it relates to science and religion.

A creative collaborative method

The main question that I feel needs to be answered is why we need a different method in order to describe the relationship between the brain and our beliefs, science and religion, neuroscience and humanity at all. The first clue is found in Miller-McLemore's words, the "sciences are not just tools. They are hermeneutical culture-defining conceptual systems and practices" (p.82). The neurosciences and religion are ultimately seeking to define humanity, our flaws, capabilities, possibilities, and limits. We utilize different terminology often to the same purpose, understanding ourselves and one another. Both have descriptive and prescriptive components, and sometimes these can be collaborative and others times they may contradict one another. Thinking about the results, assertions, and long held beliefs of each discipline requires us to be creative, collaborative, empathic, tentative, relational, and interdependent. Thus, any method that seeks to work with both religion and neuroscience should be about creating complexity through an interdependent reading of the contributions of a variety of disciplines.

As a pastoral theologian, trained therapist, professor, father, brother, son, white man with the time and economic ability to study things that interest me, I spent a lot of time with the neurosciences. I recognize the privilege I have in making particular assertions, and the power my position in the world gives me. I also understand the perspective this gives me, as well as the one I have adopted based on my education and beliefs about the world and how it should work. This is first step in any methodology, understanding and naming bias, beliefs, and perspectives. These

are many of the things that shade or color my ability to read a topic or make claims about ideas. Jones (1996) claimed that "We need to approach our subject matter with presuppositions and expectations and to be explicit and accountable in that process" (p.132). Of course naming biases is not the same as recognizing and claiming the impact of biases. I often explain to my students that everything is theological to me. I see the world in a way that looks for the theological assumptions and meanings of every experience. Recognizing how I am grounded by certain assumptions does one critical thing for me, it enables me to claim my biases and be comfortable when they are challenged by what I experience, learn, or read. Elizabeth Schussler Fiorenza (1985) terms this idea as "conscious partiality" where we "replace the 'view from above' with a 'view from below' that has both scientific and ethical-political dimensions" (p.75). As I think about this view in relation to a constructive theological position regarding science and religion, the idea of a "view from around" comes to mind. That is, rather than a stationary view, the lure and pull of learning, experience, creativity, and ideas requires us to move positions from time to time relative to the information we are exploring. In the end, meaning and interpretation becomes a moving target.

Moreover, by acknowledging the space we inhabit, we offer the disciplines we study the chance to speak the truth they know. Secure in acknowledging our own places of power and privilege, we can begin to be open to what we can learn and experience. In essence we utilize relational power when it comes to our reading of the materials. Philosopher Robert Mesle (2008) described relational power as:

> (1) the ability to be actively open to and affected by the world around us; (2) the ability to create ourselves out of what we have taken in; and (3) the ability to influence those around us by having first been affected by them (p.73).

This may function in some ways as the opposite of critical distance, replacing it with a critical interdependence. We certainly do not want to become so myopic that we lose the possibility of seeing what a discipline offers to discourse, even as we recognize that one discipline cannot speak to the fullness of an issue. We create more complex narratives of meaning when we can discern the varieties of truths each source of knowledge brings to the table. This requires us to do our best to see what a source of knowledge can contribute, but always with the understanding that one source of knowledge cannot provide a complete picture of "truth." Thus, we create meaning, derive conclusions having been affected by the discipline as it challenges and/or confirms certain beliefs or notions we understand to be true.

In addition, we need to be aware of the need for creativity. Every answer we offer to a question posed requires creative engagement with the material we are responding to. Whether conscious or not, we weave together varieties of knowledge even when we respond to the simplest of questions. Honoring the place of creativity in the process of developing meaning helps us understand the tentativeness of our conclusions. Furthermore, it leaves us open the possibilities that new information and novel discoveries can have on the changing landscaping of our understanding.

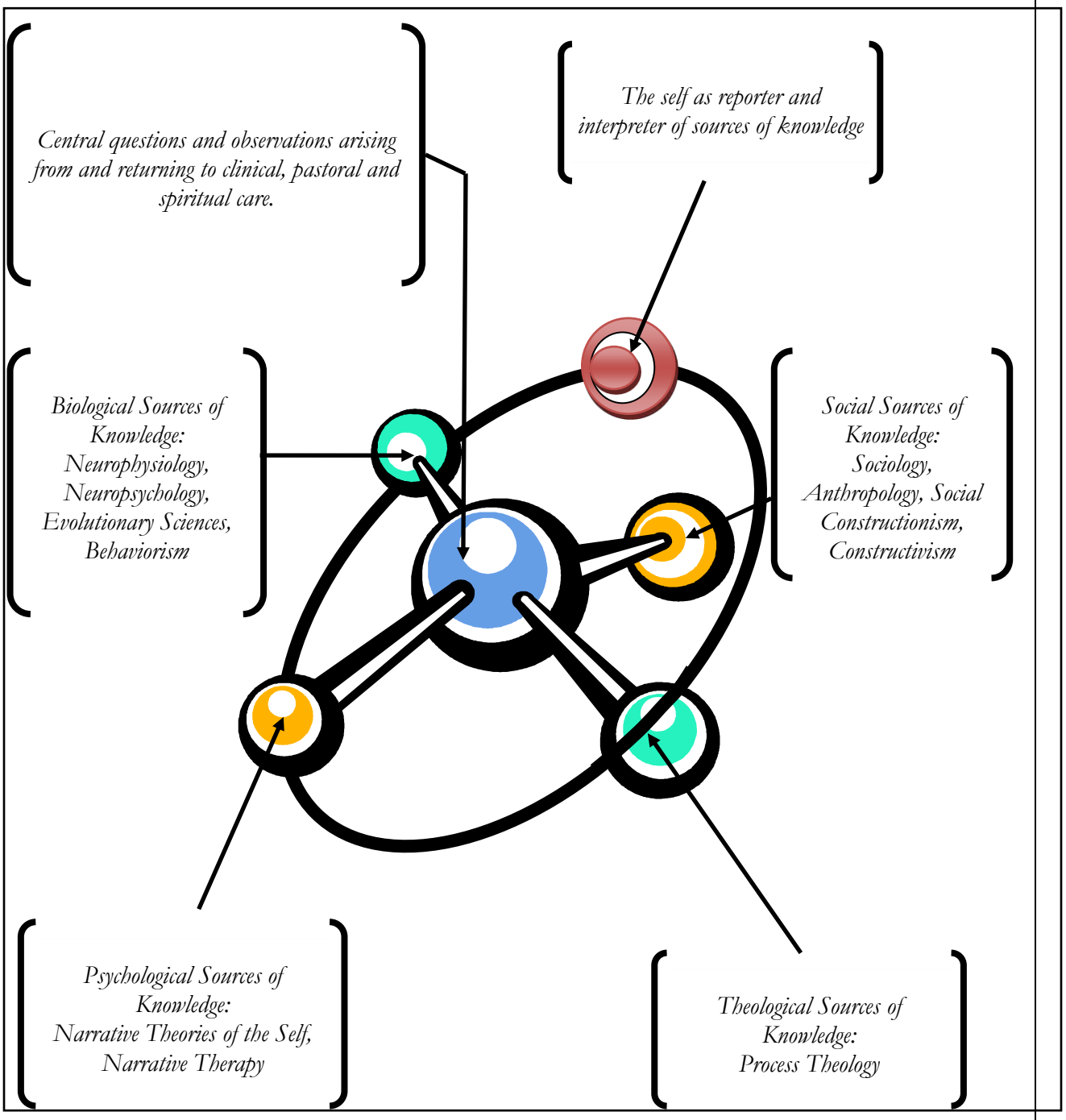
All of this points to a specific way of reading and relating materials in the neurosciences and in religion. It is an attempt to mind the gap, by discovering, to our best abilities, the information and meanings proposed by certain disciplines or sources of knowledge; but also, it is an attempt to inhabit the gap without overstating the importance of one discipline over another. Moreover, how can I, as interpreter, understand the sacredness of each source of knowledge without privileging one source as completely reliable over and above another? As a theologian, this was a difficult place to find myself inhabiting. Not only did I want to know how theology

can speak to our findings about the brain, but I also wanted to begin to think about how neuroscience challenges our theology and makes it more complex. Inevitably, that is the goal of this method, complexity.

Jones (1996) explored the need for a dialogical approach to psychology and religion, which has some parallels to this approach. He proclaimed that in order for dialogue to work there must be a "willingness of scientists and professionals to become theologically and philosophically literate and for theologians and philosophers to become scientifically and professionally literate" (p.137). There is a necessity of thoroughness in fully exploring the critical interdependence of knowledge between disciplines. Moreover, by exercising this dialogical approach with relational power there is the possibility of experiencing the full range knowledge before drawing specific conclusions or meanings.

We might even say that a cigar is never a just a cigar; someone grew the tobacco; someone cut and dried the leaves; someone developed a process specific to a brand about rolling and folding the leaves; the cigar was sold based on particular attitudes about brand, taste, and economics; the person to whom it now belongs carries assumptions about the cigar and what they hope to experience, as well as what situation must arise in order to partake of it. All of these people and processes operate with various assumptions, theories, and ideas. Thus, there is no way to tell the story of a cigar, and have it only be a cigar at the end. In its place is a complex web of narratives that give broader meaning to a simple object. Without exploring the varieties of experience that go into explaining a phenomena; without some form of collaboration or

creativity, that full[7] story remains limited or even untold. Thus, I tend to imagine this method and its resulting procedures in this way:



[7] By full, I am referring to complex or multifaceted rather than complete. No story is ever told in its entirely, there are always novel remembrances, forgotten paths of exploration, and so forth. The best we can hope for is an authentically explored, yet tentative, resting place.

What I like about thinking of method in this way is the openness to novelty and possibility. It means that new understandings or experiences inform our basic question we are called to ask new questions and propose creative solutions. Pastoral theology, care, and counseling begin and end with experience and practice. Furthermore, I think method accurately portrays the importance of understandings one's own changing context during the process of exploring and relating disparate sources of knowledge. Finally, I believe that by thinking of method in this manner, we can be open to how, not only neuroscience and religion relate, but also how they challenge and support one another to change and grow as new information about personhood is revealed.

Like our three previous methods, this one does not escape the bonds of privilege or power. First and foremost, it privileges the dialogue between sources. The process of relating material, and the ability to do so creatively, almost outweighs the material itself. As a result, outcomes and novel propositions and practices determine the successful utilization of this method with the neurosciences and religion. In some ways, this requires us to step into the gap and claim what we see while honoring as sacred the various perspectives that contribute to what is before us. Miller-McLemore (2010) stated that, "Sometimes mere information about sexism or racism or heterosexism by itself does not produce empathy. One must inhabit the stigmatized position" (p. 67). Acknowledging the ground we stand on enables us to empathize with other ideas and perspectives present in the research we study. Collaborative methods require empathy, relationality, and connection out of our own experience and understanding of self. Collaboration doesn't look for rightness or wrongness based on a single fundamental position or idea. Rather it seeks to relate out of the understanding of the wholeness and brokenness that we all experience. A collaborative method exposes the myopia of all of our singular experiences to the multitude of

possible interpretations in order to help us propose tentative solutions or new practices or novel constructions of knowledge.

A brief case example

Imagine sitting in your office when Sandra walks through the door. She seems tired, and a bit forlorn. She sits, actually collapses may be a better way of describing it, into the chair across from your desk. With great effort she tells you of being mugged outside of her apartment while walking home from work. She tells you how she cannot be out after dark; how she is afraid of every shadow; how she no longer goes out with friends and has moved into the safe basement of her parents' house. Sandra tells you that she jumps every time a man appears at her office door at work. She is exhausted from always being "on" or "aware". She wonders where God was, why this happened to her, and what to do with this fear she constantly lives with now.

Being on the receiving end of that question and experience propelled me into two plus years of research on what it meant to be afraid, theologically, psychologically, and physically. At that time, Sandra's question, and my lack of experience as a therapist and theologian, left me impotent. I did my research and muddled through helping her establish some places and practices of safety. However, her query stuck with me as I moved from clinical practice to doctoral work. As my studies progressed, I read Andy Lester's book on anger, where he utilizes neuroscience research to help readers fully understand the emotion and its physiological impact. His work drew me back to my experience with Sandra. Again, I asked myself "What does it mean to be afraid?"

The question wasn't just an academic one, but an empathic and sacred one as well. It was born out of Sandra's experience and my own feelings of inadequacy to help, wondering what I

would do differently today. As I framed the question, I began to search for partners to help me answer it. That search led me down several pathways.

First, I was underwhelmed by the theological complexity with which the emotion of fear had been explored. Most of the work I found dealt with anxiety or tended to denigrate the emotion of fear. Finding little to no help in this literature, I expanded my search. Rather than solely asking what it means to be afraid, I wondered what it meant to be an emotional human being in relationship with God. With that in mind, I turned to the neurosciences to begin to understand the physiological components of fear. This pushed me to explore evolution and the conservation of certain parts of the brain in our history. Continuing to ask the question about what it meant to be an emotional human being led me to search narrative therapy and the narrative concepts of identity. Seeing the self as constructed through stories pushed me back into the neuroscience of memory, beliefs, and imagination. As each discipline spoke, a broader picture began to develop. Each one answered part of the question; some helped me explore what I understood about human identity and its formation and re-formation; some research answered questions about embodiment and what it means to believe ourselves made in the image of God (a loaded term, I know, but appropriate to that conversation); as I began to understand the embodied and embedded self I was able to return to theology and begin to ask again, what does it mean to be afraid? This led me to particular understandings about human beings and the creation of meaning, and on to process theology.

This was a collaborative process, no one discipline had the right or responsibility to speak the whole truth about what it meant to be afraid, or even what it meant to be human. Process theology helped me understand about the dynamic nature of the world and need to recognize the possibilities and capabilities of change; it gave me language about trauma and evil, hope and

creativity; the neurosciences taught me about the amygdala and the embedded emotional content of our lives and the physiological responses we experience when threatened; narrative work enabled me to see the incompleteness of our stories and the resistant and resilient ways that we fight against certain experiences without us even being conscious of it; evolutionary thought helped me ground my sense of the importance of fear in preserving our lives, giving the emotion a positive edge for me that I had not experienced elsewhere. As each of these sources of knowledge spoke their wisdom about the question I was asking, a large complex narrative formed in response. As a result of this creative conversation, I was able to propose and develop a relationship between the emotion of fear and our ability to experience hope as meaning-making creatures.[8]

Conclusion

If you have made it this far, congratulations. If you find yourself curious or concerned, even better. What I have proposed is, simply put, a way of seeing. Too often, we make mental leaps between disciplines disregarding the gaps between them. There are distinct differences between the sources of knowledge we use to navigate the world. However, that should not deter us from letting them speak their truths into our lives. As therapists and theologians, we need to be aware of how we relate the various knowledges and truths that inform and shape our lives. What you have here are four different ways of seeing the world, of understanding the power and privilege that shapes the space we inhabit, and of creating and speaking meaning into places where the world begs us to respond. If there is any hope in creating a relationship between the neurosciences and religion, for me, that hope relies on our ability to be collaborative and creative

[8] See Jason C. Whitehead, *Redeeming Fear: A Constructive Theology for Living into Hope* for my explanation of this connection.

in our theology and thinking. This means privileging the discussion while respecting the voices rather than maintaining a critical distance. Boundaries are important, and understanding the role and responsibility of particular sources of knowledge is vital, but what is more important is developing a healthy and creative relationship that can speak a complex set of truths and answer questions with well-informed meanings.

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The Physical Nature of Pastoral Care and Counseling: Toward a Post-Cartesian Pastoral Counseling

Brad D. Strawn & Warren S. Brown[1]

Abstract While a dualist model of anthropology (i.e., persons are made up of a body and a soul) has dominated Christian thinking from the time of St. Augustine, recent work in biblical studies, neuroscience, and psychology have suggested that a monist anthropology (humans are hyper-complex bodies) better captures what it means to be human. Where dualism understands the "real person" to be inner, individual, and private (i.e., a soul, self, or mind), a monist anthropology understands humans as *whole-embodied-persons-embedded-in-the-world*. Persons are both embodied and inextricably contextualized in relational and cultural networks. It is within relational and cultural networks that persons are formed, malformed and reformed. A post-Cartesian pastoral counseling must increase its focus on relational factors such as imitation, attachment, empathy, and language/narrative – as opposed to treatment of inner souls or selves – in order to bring change to human persons. Counseling cannot be understood as directed at isolated and inner Cartesian minds, but as transformation of whole embodied persons embedded in intersubjective fields. This post-Cartesian model will demand a rethinking of counseling concepts such as self and therapeutic cure. This model changes concepts of the role of the pastoral counselor, as well as emphasizing the role of congregations in the reformation of persons.

Keywords psychotherapy, pastoral care, pastoral counseling, post-Cartesian

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Since the middle of the twentieth century, psychology (arguably the central academic discipline for the study of the nature of human nature) has moved in its emphasis from *behaviorism* (focused exclusively on expressed action) to *cognitive psychology* (the experimental and theoretical study of the structures of the mind) to *cognitive neuroscience* and *neuropsychology* (study of the functions of the brain that undergird basic properties of mind) to what is now *social cognitive neuroscience* (study of brain processes involved in human social interactions). The latter development is particularly important in its impact on theories of human nature. While cognitive neuroscience dealt with basic properties of mind like perception, motor control, memory, executive function, language and emotion, social cognitive neuroscience has emerged based on the ability to ask research questions regarding brain activity involved in specifically human capacities such as social comprehension, understanding of the intentions and feelings of other persons (i.e., theory of mind), empathy, decision-making, moral regulation of action, virtue, and religious experience. The methodological advance that has opened the door to the study of these critical human capacities has been the development and availability of methods of observing the ongoing brain functioning in awake, normal, intact persons – methods such as functional magnetic resonance imaging (fMRI) and positron emission tomography (PET) (Brown & Strawn, 2010).

The outgrowth of these advances in social cognitive neuroscience is increased confidence in belief in the fundamental embodiment of human personhood. Any sort of mind-body dualism seems to be increasingly denied by modern neuroscience. Although the science is, as yet, incomplete, human mental, emotional, and interpersonal actions and experiences are being shown to emerge from complex patterns of ongoing activity of the nervous system. The devastating effects on the cognitive and social capacities of persons resulting from even small

areas of damage to the brain make this conclusion difficult to deny. However, it is also becoming increasingly clear that embodiment of the depths of our humanness does not imply determinism, but rather that science supports theories of emergent human agency and personhood (Murphy & Brown, 2007).

This presupposition of embodiment is in contradiction to the body-soul dualism of more traditional forms of theological anthropology that presume humanness and personhood to be due to the existence of a non-material mind or soul – that is, body-soul dualism. All of the capacities that at one time or another in theological history had been presumed to be the exclusive domain of the soul – that is, rationality, relationality, morality, and religiousness – are now implicated in an extensive neuroscience literature demonstrating their neural substrates and embodied nature. In each case, we find phenomena of brain disorders described in clinical neurology, and research studies involving brain imaging in normally functioning individuals, that make a strong case that these properties of humanness are not the result of having a non-material soul, but are the outcome of the functioning of a highly complex brain and body. For example, there exists a strong body of research in neuroscience that supports the idea that religious experiences are outcomes of embodied processes in the sense that there are identifiable patterns of brain and body activity underlying these states and experiences (Jeeves & Brown, 2009).

Augustinian-Cartesian residuals

Despite recent movements away from body/mind dualism by most neuroscientists, and from body/soul dualism by many philosophers, theologians, and Biblical scholars, there remains an implicit residual of dualism that is difficult to recognize and escape. This residual is constituted by the presupposition that everything important and central about human nature must be both

internal and individual. Within dualism, the inner non-material entity (whether understood as a soul or a mind) is presumed to be that which is most clearly and uniquely human. We must therefore look within individual persons for the roots of all that is characteristically human. Even physicalists, particularly within neuroscience, presume that the brain (rather than the soul or mind) must be the source of all of human nature. Philosopher Daniel Dennett (1991) has argued that this merely substitutes brain/body dualism for mind/body dualism. In the end, all discussions of human nature focus on that which is resident within (the soul, mind, or brain) and emanates out of individual persons – humanness is defined by that which is inward and individual. Despite the loosening of allegiance to dualism on many fronts, the residual presupposition of individuality and inwardness has a strong determinative influence on how we imagine human life, including our imaginations regarding the nature and function of the church and the roots of Christian life. More importantly for the present article, we argue that this residual dualism can be found in most theories of counseling and psychotherapy.

Dualism, gnosticism and modern Christianity

For many centuries, the majority view of human nature, and by implication views of Christian formation, emerged from a philosophical and theological commitment to body-soul dualism. Most Christians have presumed that body-soul dualism is a central Christian belief. However, the origins of this view are not in Hebrew-Christian thought, but are found in the philosophy of the ancient Greek philosopher Plato. The Platonic, and thus dualist, view of human nature was elaborated and Christianized in early Church history by St. Augustine, and later asserted most robustly by René Descartes during the Enlightenment. While some believe this view of human nature is supported in the Bible, most modern scholars believe that body-soul dualism is not the

view of the Bible, but rather has been taken as an *a priori* premise and read into scripture (see Brown, Murphy, & Malony, 1998; Brown & Strawn, 2010; Green, 2004, 2008; Jeeves, 2004; Murphy, 2006; and Wright, 1992 for theological, psychological, and philosophical treatment of this issue).

Despite its extra-Biblical origins, dualism has had a strong influence on the church in the form of the heresy of Gnosticism, fought by the early church fathers. The presupposition that the aim of Christian life is the servicing and eternal preservation of an internal, non-material, and hierarchically soul (rather than the nature of one's physical behavioral life), easily leads to the sort of other-worldly orientation and inward focus that undergirds the search for special inner knowledge or spiritual experience that is characteristic of Gnosticism. Versions of this sort of Gnostic spirituality have hung around the church throughout the centuries, and continue to have a strong influence on modern religious life, as well as Christian counseling and psychotherapy.

Based on a body-soul framework for understanding persons, and the Gnosticism that is fostered by this view, much of the focus of the life of the Christian church and Christian counseling/psychotherapy has been on the inner and individual subjective experiences of each believer as the index of the status of the soul. The private, inner experience of each individual believer has been privileged as the *sine quo non* of what it means to be a Christian, and Christian flourishing has been understood as an ongoing life of inward experiences. Harold Bloom (1992) writes in his book, *The American Religion*, "…the real American religion is and has always been in fact…Gnosticism. …It is a knowing by and of an uncreated self… and [this] knowledge leads to freedom…from nature, time, history, community, and other selves…" (p. 49).

An example of the primacy of inwardness and individuality in the modern imagination about Christian life is the belief that the inner life of the soul is of first concern. Christian

literature, both ancient and modern, includes a plethora of books aimed at helping Christians focus on and enhance their inner spiritual life. Such books have been particularly popular in recent years. About this genre of Christian literature, Owen Thomas (2000) comments,

> In the tradition of writing about the Christian life or spirituality, commonly known as ascetical theology, down to the present burgeoning of this literature, a pervasive emphasis and focus has been on the inner or interior life as distinct from the outer, bodily, and communal life. …My thesis…is that this emphasis is mistaken philosophically, theologically, and ethically… (pp. 41-42)

Thomas believes that this modern Christian emphasis on inwardness poses "one of the greatest paradoxes of Christian history. On the one hand, the biblical tradition seems to emphasize the primacy of the outer – the bodily, speech and action – while, on the other hand, the Christian tradition under the influence of … Augustine and Dionysius, among others, tends to emphasize the inner" (p. 51). Thomas argues that one of the negative outcomes of this view of Christian spirituality is the ethical problem created when the goal of the moral life is the perfection of the souls of individual persons. Moral behavior and Christian virtue become merely a means to an end.

The formation of embodied persons

If body-soul dualism is not necessarily a Christian view of human nature, and if there are reasons both from Biblical scholarship and modern science to abandon this notion, then what aspects of Christian life and pastoral care need to be reconsidered? Might Christian life be better understood and more robustly formed if we understood ourselves to be physical beings

(*embodied*) that are deeply nested in formative social networks (*embedded*) (see also Whitehead, 2013)?

To understand Christian formation and pastoral care from the point of view of embodiment, an important place to start is to focus on the mental and social development of children. It is obvious that child development is paced by the maturation of the physical structure of the brain and body. Children mature mentally and socially as their brains form and become more mature. However, because of the unusual, and to some degree unique, openness and plasticity of the developing human brain, social influences are particularly critical to the development of personhood in all its cognitive, social, and interpersonal manifestations. Development of newborn infants into fully adult persons is strongly influenced by interactions of the child with the physical and social environment. Most influential on the development of human persons are interpersonal interactions, including such interactive modes as imitation, shared attention, attachment, and empathy, as well as the formative impact of language and story.

It is also important to consider the implications of embodiment for understanding the dynamics of continuing adult personality and character development, particularly with respect to Christian formation. Happily for all of us, it is not only children that are open to change and reformation. The character and personhood of adults are continually changed and transformed (for better or worse) as they experience life, although change is typically slower and less dramatic than that of children. As with children, these formative forces in adults are almost exclusively interpersonal, and include many of the same formative social processes that are at work in children: imitation, attachments, and life-forming narratives. What is at stake in ongoing adult development is the degree to which wisdom and virtue come to characterize persons.

We view both child and adult development from the point of view of dynamical systems theory (Johnson, 2001; Thelen & Smith, 1996). Ultra complex and highly interactive systems – from ant colonies, to biological organism, to cities – have the capacity to self-organize in response to environmental pressures, particularly when there is a threat to the survival or flourishing. Such self-organization is not a one-time event, but is a lifetime process of formation and reformation. Systems (and persons as systems) are forced into reorganization by a 'catastrophes' – that is, in dynamic systems language, experiencing a mismatch between previous patterns of self-organization and the current demands of the environment. Persons are changed and transformed as they experience new and challenging situations in life (frequently so for young children, and occasionally so for adults). When persons are viewed as dynamical systems, formation and development occur in response to catastrophe, and the role of the therapist or counselor is to be an aide in the appropriate management of the change inducing encounters.

Processes of human change and reformation are most readily visible in the context of those persons for whom prior development and formation have gone awry, often causing them to seek professional help. Personal transformation in psychotherapy is a particularly rich source to help understand the physical (embodied) and social (embedded) processes by which adults can change and be reformed in some measure. Persons often find themselves out of sync with their environment (or the properties of their environment that have become resident in their memories and habits) and are not able to flourish, as expressed in the sorts of problems that bring them to seek counseling and psychotherapy. What is needed is a social-relational context in which re-formation can occur. Within psychotherapy of all kinds, the critical processes that induce transformation and change are the quality of interpersonal relationships. Group therapy, for

example, provides an important context for understanding the power of interpersonal interactions in aiding processes of change in ways that are not like what is usually encountered in other contexts.

The Cartesian foundations of modern psychotherapy and counseling

It is our contention that much of the psychotherapy and pastoral care literature is replete with remnants of anthropological dualism that systematically miss the point of the nature of personal formation and transformation. As noted above, whereas Christian dualism often separates soul and body, secular psychology and psychotherapy/counseling separates mind and body. So for example, in classic psychoanalysis we find that Freud conceptualized the mind as in a state of conflict. He posited that conflict occurred between one's biological drives (i.e., sex and aggression), the id, and the internalized prohibitions of the one's parents and society, the superego. Attempting to manage this conflict, Freud (1923/1960) postulated a mediating process he called the ego. Over time, these processes became reified as separate internal agents that where seen as raging war *inside* the mind of the person. While it could be argued that in Freudian psychoanalysis the mind and body are connected, nevertheless, it is *inside* the mind where all the action really takes place. A dualism develops between what is really going on inside a person's mind and what is external (one's body and behavior) that are really only secondary to the internal life of one's mind. And while it is true that most contemporary psychotherapists or pastoral counselors are not classical Freudians, psychoanalytic concepts such as unconscious influence, dream analysis, transference/countertransference, defense mechanisms, and others so permeate most therapies that it may be safe to say that at some level we are all Freudians (Mitchell & Black, 1995). Consequently the dualism of inner and outer remains.

Dualistic tendencies can also be seen in the humanistic schools of psychotherapy (e.g., Rogers, Maslow, Perls), which have also had a profound influence on the practice of contemporary psychotherapy and pastoral counseling. Perhaps Rogers' *On Becoming a Person* (1961) is one of the clearest examples. According to Rogers, we are all born with a unique set of preprogrammed potentialities that we are meant to actualize. It is by discovering this real or actual self that we become all that we are meant to be. We are equipped with one primary motivational force: self-actualization. This motivation, if given the correct interpersonal soil, will drive a person toward realizing their full potential. But the real or actual self gets damaged as we traverse our perilous childhoods and, instead of becoming real, we develop an ideal self. This self is made up of the injunctions we hear from our families and society, and they encourage us to deny aspects of our real self. It is the discrepancy between the ideal and actual self of a person that causes pain and pathology. "Psychopathology results when we become more externally oriented than internally oriented…The congruence between what we really are and what we are trying to be creates psychological pain" (Jones & Butman, 1991, p.259). Rogerian and other humanistic schools, therefore, turn one's focus inward. It is by becoming more in touch with an inner "real self" that one becomes whole. This not only reifies the concept of a wholly inward autonomous self whose goal is differentiation from the other (and perhaps alienation from others), but creates self-actualization as a moral imperative, and ethical egoism becomes the ideal (Browning, 1987).

Perhaps surprisingly, remnants of dualism may also be found within contemporary Cognitive Behavioral Therapy (CBT). CBT has gained great popularity due to empirical evidence indicating its efficacy with certain populations and diagnoses. Part of its "charm" is the clarity and distinctness of its theory. CBT is fairly simple to understand and relatively easy to

learn and practice. While there is nothing wrong with a theory being readily comprehendible, one may wonder what gets lost when human behavior and growth are reduced to paradigms of learning and reinforcement, or the correction of irrational thoughts. Does this not result in distancing therapy from the messiness (and embeddedness) of human life? CBT runs the risk of reductionism as it attempts to explain all pathology ("it all comes down to") in terms of irrational or maladaptive *inner* cognitions.

Our main concern with CBT is not that it is ineffective, influential, or even cognitive (all therapies are cognitive at some level). Our problem is the reductionism that emerges from its dualistic assumptions and the manner in which it may be practiced. CBT may lend itself to a kind of *medical model* in which the therapist is an external force working on *internal* cognitions of the patient (e.g., replacing and challenging irrational or maladaptive cognitions). Even if one allows for the idea that cognitions are developed in interpersonal interactions, the focus of CBT is still on an *inner* process within the patient. The "I" that must be healed is exclusively inside where cognitions lie. In some sense, CBT may have too quickly abandoned its behavioral roots that, despite its weakness, at least focused on embodied action and the contextual embeddedness of persons.

Toward a post-Cartesian psychotherapy and pastoral care

One of the major consequences of dualism, that is particularly cogent for psychotherapy and pastoral care and counseling, is its impact on contemporary understandings of the self. The concept of the modern self has been around now for a long time (Taylor, 1992), but nevertheless remains a challenging concept. In one sense, "self" evades definition. That is not to say that writers have not attempted to define it, but no one definition seems to ever fully stick. Is self the

same as identity? Is it consistent with mind? Does it stand for the whole person? Is it a thing, an experience, or even a spiritual attribute? Stephen Mitchell (1993) describes the complexity of the self in this way.

> The self is referred to variably as: an idea, or set of ideas in the mind; a structure in the mind; as something experienced; something that does things; one's unique life history; even an idea in someone else's mind; and so on. (p. 98)

Self has been critically important in clinical psychology from Freud's topographical and structural models, to Heinz Kohut's nuclear self, to self and other representations in Object Relations, to the "Self-in-Relation" work of feminist psychologists (Jordan, Kaplan, Miller, Stiver, & Surrey, 1991), to the Person-Centered self of Carl Rogers, to the angst driven self of existentialism, to the embedded self in systems of family and couples therapy. How can something so central to clinical psychology avoid a consensus definition?

Of course, the self has also been important to social psychologists. But here again there is diversity, plurality and confusion. Roy Baumeister (2010) writes:

> The study of the self is a large tent containing many other areas of study, and these have waxed and waned over the years. As an incomplete list, consider these terms self-affirmation, self-appraisal, self-awareness, self-concept, self-construal, self-deception, self-defeating behavior, self-enhancement, self-esteem, self-evaluation maintenance, self-interest, self-monitoring, self-perception, self-presentation, self-reference, self-regulation, self-serving bias, and self-verification. (p.141)

Baumeister reported that he personally searched the literature for a single core construct to capture the self, but that he failed. Trying to describe the "Self" brings to mind the old saying, "I don't know how to define it, but I know it when I see it." And yet, it is striking how often the

term is evoked or utilized in the literature with no operational definition, but an assumption that when the term is used, everyone knows what is meant and everyone agrees.

However one defines the self, it is arguably a central issue in psychology and theology. Charles Taylor (1992) argues that the birth of the modern self can be traced historically to the periods of the renaissance and reformation. Paul Vitz (2006) describes the characteristics of this self that became prominent in modern thinking.

> The modern self is characterized by such things as freedom and autonomy, by a strong will, and by the presumption that the self is self-created by the will, operating freely in its construction. The self is assumed to be strong, capable, and above all coherent; it is also largely conscious and heavily indebted to reason or at least reasonableness. (p. XI)

Of course this view of the self has also been highly criticized. It has been suggested that this model leads to social alienation, the breakdown of societal ties – including neighborhoods, civic organizations, and even religious communities. It also fails to understand how persons are created within cultures and through language (Vitz, 2006). And of course this description of the self is very Western and very male.

It is the argument of this paper that the modern Western self is a Cartesian self which leads naturally to a form of Cartesian psychology where the real "me" is not my whole embodied-person-embedded-in-the-world (Brown & Strawn, 2012), but is an inward, autonomous, thinker/feeler/perceiver. While theorists may, at times, use the term self metaphorically, it tends to become reified in clinical work and research, as well as in the practices of spiritual formation with what we believe to be potentially troubling consequences.

Stolorow, Atwood, and Orange (2002) have advanced a cogent critique of this kind of Cartesian psychology, what they call the "Cartesian Mind" and we call the Cartesian self. They argue that this Cartesian psychology naturally leads to an objectivist epistemology.

> An objectivist epistemology envisions the mind in isolation, radically separated from an external reality that it either accurately apprehends or distorts. The image of the mind [self] looking out on the external world is actually a heroic image or heroic myth, in that it portrays the inner essence of the person existing in a state that is disconnected from all that sustains life. This myth, pervasive in the culture of Western industrial societies, we (1992) have termed the *myth of the isolated mind.* (pp. 41-42)

Because this Cartesian self is alienated from nature and social life it is also unrelated to others and self-enclosed. In this view, human development (pathological or normal) and spiritual formation is understood as something happening *inside* a person. This leads to a split between inner and outer reality. This split locates human development, psychopathology and spiritual formation as issues of the *inner self*, rather than a whole-embodied-person-embedded-in-the-world (Brown & Strawn, 2012).

Another consequence of this Cartesian psychology is that it insists on clarity and distinctiveness (Stolorow et al., 2002). Descartes' famous thought experiment began with the search for that which can be absolutely and foundationally known. After ruling out all other possibilities through a process of doubt he arrived at his famous conclusion, "I think therefore I am." This press for clarity and distinctiveness can lead to reductionism by advancing an "it all comes down to" approach, resulting in therapeutic theories that attempt to manage the complex messiness of life and its vicissitudes by the creation of orthodox technique or empirically validated treatments.

A third possible consequence of this Cartesian psychology is an absence of temporality. Stolorow et al. (2002) defines this as "…the idea of an individual isolated as a point in time in space from other human beings and from the natural world. Worst of all, such a point in space is atemporal and thus has no developmental history, no story to tell" (pp.28-30).

In summary, Cartesian psychology is constituted by a type of dualism where the *real* person/self is not the unitary whole human that is both embodied in physicality and embedded in the world around them (Brown & Strawn, 2012). The real person is somehow inward, autonomous, and private. The mind, the self, or even the soul is reified as a distinct and separate part of the person. The real "me" is inside and must be reached, brought out, given space to become, or somehow actualized.

An alternative model of self

Is there an alternative to this autonomous, private, and inner Cartesian self? Stephen Mitchell (1993) suggests that there is a new emerging model of self that has fundamentally different metaphors than the modern self. The Cartesian self is conceptualized in spatial metaphors. It is seen as a nested, or layered, singular structure *in* the mind. This perspective views the person as an onion made up of different layers that can be peeled away to find the "true self", or the "authentic core", or the "heart" of the person lying in the deep center. These metaphors naturally lead to the kinds of dualistic thinking noted above in which the *inner* world of the person is given precedent over the *outer* public, behaving, social person.

If the modern self is characterized using *spatial metaphors*, the emerging model of self is conceptualized in *temporal metaphors*, including notions of multiple and discontinuous selves emerging over time in different contexts (Mitchell, 1993). Persons are more like rivers moving

through time than they are like onions with a static core to be discovered. In temporal terms, selves are to be understood as "what people do and experience over time rather than something that exists someplace" (Mitchell, 1993, p.101). Harry Sullivan, from the interpersonal tradition, exemplifies this most forcefully by rejecting "…the traditional unitary, unique self and its contained inner world" (Stern, 1997, p.149). For Sullivan, self, or what he called the self-system, can never exist outside the interpersonal field. A self-system cannot be understood individually but only in relation to others. "For all I know every human being has as many personalities as [he/she] has interpersonal relations…" (as cited in Stern, 1997, p.148).

In a similar vein Al Dueck (1995) uses the notions of culture and community to speak of the self. He states, "I want to argue that our sense of self is constitutionally social. The individual is composed of a myriad of internal subpersonalities. In this model, we are all perambulating congregations" (p. 202). There is no private or isolated self or mind apart from the world of community and culture. What Dueck calls the communal self is not just a self formed and sustained by community and culture but is in fact a community itself. "The self is a plurality. We are never the same for long. We are continually changing" (p.204). Dueck even suggests that they idea that we are a singular autonomous "I", what we have called the Cartesian self, is a mesmerizing myth in that it is simply a version of individualism and reflects the arrogance of the modern world (p.206).

This view is resonant with Philip Bromberg (1998) who writes of the multiplicity of self, or what he describes as decentered self "…and the mind as a configuration of shifting, nonlinear, discontinuous states of consciousness in an ongoing dialectic with the healthy illusion of unitary selfhood" (p.270). He believes in a normative multiplicity of self in that self-experience is made up of "…unlinked self-states, each coherent in its own right, and the experience of being a

unitary self is an acquired, developmentally adaptive illusion" (p.273). The healthy individual has the capacity to *stand in the spaces* "…between the realties [of various self-states] without losing any of them – the capacity to feel like one self while being many" (p.274). These self-states are perhaps most clearly exhibited in bilingual patients who report feeling different emotions and self-experiences depending on which language they are utilizing (Mitchell, 1993).

Sullivan, Dueck and Bromberg's views of the person avoid the reification of the self and Cartesian dualism in that the concept of the "self-system" is always relative to one's social embeddedness. Persons experience different subjective *senses of self*, contingent upon the current social or environmental context. Interactions with others and culture, not only deeply shape, impact and form persons, but evoke different self-experiences in individuals. Furthermore, different historical self-experiences can be induced when encountering a present situation that harkens back to a past context.

Mitchell (1993) suggests that this model moves away from what has been called a *one-person psychology* towards a *systems psychology* or what he calls a relational-model. A relational model suggests that "…all selfhood – including enduring patterns of personality and pathology – develops and is maintained within, and as a function of, the interplay between subjectivities" (Orange, Atwood, & Stolorow, 1997, p.6).

Individual subjectivity is a kind of self-experience which is essentially the elicitation of historical memories of behavioral patterns and emotions that are triggered within embedded contexts. Intersubjectivity then is the interplay between the subjectivities of two or more persons. From this perspective, human development and pathology are not conceived of as arising inside a private reified Cartesian self, but as something that happens when subjectivities (including culture) interact. Each person's subjectivity, or self-experience, is in a continual and ever-

fluctuating state of being co-constructed with the subjectivity of the other. Whole-embodied-persons-embedded-in-the-world have relational *self-experiences* that are always being impacted in temporal ways by the past and the present in reciprocal feedback loops. To amend Descartes we might say, "I relate, therefore I am." Instead of speaking of "the self", we speak of "selving.". The term "self" becomes merely a placeholder for selving – the lived human experience of embodied and embedded temporal interaction.

While space does not permit a detailed exploration, we have argued elsewhere (Strawn & Brown, 2004) that this contemporary post-Cartesian approach to psychology resonates with research in cognitive science and neuroscience. Current developments in social cognitive neuroscience and the philosophy of embodied cognition provide strong support for both the embodiment and social embeddedness of the processes encompassed by "self" and "person" as well as basic neurocognitive processes – such as memory, and automatic behavior. These advances are changing the way we think about thinking (Clark, 1997).

Implications for changes in psychotherapy and pastoral care and counseling

A post-Cartesian psychotherapy, as well as pastoral care and counseling, must rethink several important concepts. We invite practitioners to consider these concepts and the ways they might relate to clinical understandings, interventions, and even diagnoses. First, a post-Cartesian approach must rethink its general understanding of the *focus* of therapy. Is therapy working on an isolated individual mind disembodied from its physicality and disembedded from its cultural context, or is the focus of therapy on a whole person that cannot be conceived of apart from physical embodiment and social contexualization?

This leads to a related second point. As noted above, the concept of self must be reconsidered. Self is not a static, inward, thinker/perceiver/feeler/interpreter, but is better understood as a kind of experience that is changeable and malleable depending on context. When working with clients a better question than "*What is going on inside the patient?*" is "*What is going on around here?*" This takes into account both the client's past experience and the current social context. Selving will change based on the nature of the current context and on the accumulation of interactional memories.

Third, a post-Cartesian pastoral care and counseling model will reconsider healing and health. Healing will not be understood as something taking place within an individual. As noted above, we are not really individuals but persons-in-relations. For persons to change requires new formative relational experiences. Similarly, for persons to become mature in Christian character (what some would call sanctification) requires the formative experiences of being embedded within a Body of Christ. We can't do this alone but must do it within communities. It is the reciprocal dynamics of community (assisted by counseling) that is primarily responsible for the restoration of persons. An important role of the counselor or therapists may be helping individuals reenter important social contexts (a major consequence of all Jesus' healings), or become more open to important formative relational experiences.

Because the church is essential to the healing and restoration of whole-embodied-persons-embedded-in-the-world (Brown & Strawn, 2012), it must rethink its model of formation. Rather than churches existing as mere loose association of independently spiritual persons who come together every Sunday to be filled up with cognitive information and warm affective experiences, the church must make use of the naturally occurring developmental processes described above that are central in child development and still operative in adult formation.

Concepts such as attachment, imitation, and shared narrative, must be intentionally engaged as the primary focus of Christian formation in the members of a congregation (see Brown & Strawn, 2012). Strong interpersonal relations, mentors and role models, and a common understanding of the story we are trying to live together open persons to change and signals the critical direction. Understood this way, processes of change and formation of embodied persons are largely social and relational and not solely the province of individual formational efforts, cognitive exercises, or counseling. The role of pastoral care and counseling must also include helping to create communities of formation, and then to aid individual parishioners in reentering these congregations so that they move toward spiritual flourishing.

In the end, what does this embodied spiritual flourishing look like? It is our contention that when humans are viewed in dualistic and individualistic ways, spiritual flourishing leans strongly toward being understood as a kind of *internal felt experience*. This perspective lends itself to measuring spiritual health based on feelings about the internal state of their soul. However, if humans are in fact bodies, then we must understand spiritual flourishing as a bodily and social state. Spiritual health is not an inward feeling state but an outward evidence of grace. We are not advocating "saved by works", but rather a sense that "They will know we are Christians by our love" for which the "fruits of the spirit" give evidence. What shapes and forms us is not primarily what we think or believe. Rather, it is the embodied practices that we engage in and the narratives we enact within our embedded communities that have the power to form us into the image and likeness of Christ.

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Performativity and Plasticity: Storying "Self" Bi-directionally in the Embodied Brain Ecosystem

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Abstract This article uses the narrative theory of "storying" to examine neuroplasticity within the neurobiological processes of the embodied brain ecosystem, noting one's performative and transformative capacity to "story" oneself bi-directionally through the use of the neuromotor processes in practices of wellness. Bi-directional storying emphasizes the often overlooked physiological and unconscious ("bottom-up," starting in the central and peripheral nervous systems) quality of constructing self in addition to the cognitive and conscious ("top-down," starting the command center of the prefrontal cortex) processes. Such storying occurs as persons engage in regular practices of wellness – particularly through attunement, movement, and physical activity. The research suggests that such practices have the potential to induce neuroplasticity and impact one's sense of self; relationality with self, others, and God; and one's ability to care for self and others. Additionally, this article names the direct correlation between the care of self and the care of other, proposing that one's capacity for empathy, compassion, and connection in (inter)relationships is directly tied to one's own attunement and connection with the various aspects of one's embodied self – (intra)relationship.

Key Words Neuroplasticity, holistic storying, neurobiological and neuromotor processes, intra/inter-connected relationality, embodied brain ecosystem, wellness

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"The idea that activity might change the heart or muscles is seldom questioned. The possibility that behavior could change the structure and function of the brain is seldom considered" (Kolb, 1995, p.5).

Introduction: The embodied brain ecosystem and neuroplasticity

Neuroscience is a relatively new conversation partner for pastoral theologians and caregivers; however, in its short tenure it is one that is quickly and powerfully re/shaping our constructions of self-identity and relationality by providing new lenses and new layers of understanding. No longer is it realistic nor possible to compartmentalize the various aspects of human personhood; rather, we now realize the complexity and interdependence of them – each informing, forming, and reforming the others in an ongoing and dynamic process of construction. Furthermore, through the neuroscience literature we now realize that self-identity and meaning are constructed via one's whole embodied being as one "stories" oneself cognitively and physiologically. In other words, how we construct and continually reconstruct our identities and our lives is the product of a holistic interconnected and dynamic flow of information within our *embodied brain ecosystem*.

In using this term – embodied brain ecosystem[2] – I highlight that the brain functions like a complex and dynamic system rather than a personal computer with direct causal relationships. Input does not always lead to predictable or predetermined output. Rather, the brain is largely composed of maps, neural networks, and vast communication systems of perception, sensation, attention, cognition, coconsciousness, functionality (memory, movement, emotion, language, and relationality), and identity constructions (Ratey, 2001). As such, the brain works with whole

[2] This term is an expansion of psychiatrist, John Ratey's (Harvard School of Medicine), argument for the neuroscience community to revise its understandings of the brain. Ratey writes, "The sooner we replace our mechanistic model of the brain with an ecologically centered, systems-based view, the better off we will be, for such a model better accounts for much of human experience (Ratey, 2001, p.4).

concepts and whole images examining them for similarities, differences, or relationships between them (Ratey, 2001). Additionally, and most significantly for this essay, in using this term I highlight that the brain is literally located throughout the body via the central and peripheral nervous systems (Siegel, 2010). Consequently, all of the brain's functions are actually mediated in and through the human body. In other words, we perceive, think, feel, construct meaning, and know ourselves, others, and God as, and only as, embodied beings. Therefore, as we experience, reflect on and make sense of that experience cognitively, linguistically, bodily, and relationally, our brains grow new neurons and new neural connections, providing greater capacity and ability for connection and dynamic integration. Neuroscientists refer to this dynamic capacity for life-long growth and change as *neuroplasticity*.[3]

More precisely, neuroplasticity is the term used to describe the brain's malleability, or "plastic" quality because, as described above, it changes (in structure and function) every second of every day as a result of our experiences – thoughts, emotions, actions, and so on (Ratey, 2001; LeDoux, 2002; Howard, 2006; Siegel, 2010). Neuroplasticity is the science that encourages persons to incorporate brain fitness exercises into their daily lives such as Sudoku and crossword puzzles to stave off illnesses such as dementia, Alzheimer's disease, and other brain diseases (see "The Nun Study" Snowdon, 2001; 2003). This research is based on the finding that though genes or biological makeup is important, it is not deterministic and that we do have the ability to shape our brains in life-giving ways through repetitive practices and experiences. Brain function and behavior mutually inform one another in a two-way process. In other words, "dynamic changes

[3] Evidence for neuroplasticity has been observed in persons who have suffered brain injury and those who specialize in a particular skill. This is because as one learns, studies and uses repetition the wiring and firing patterns of this particular skill in the brain are strengthened and made more efficient. For example, brains scans of London taxi drivers revealed a larger hippocampus in the temporal lobe than London bus drivers; and the hippocampus is important in forming and assessing complex (and spatial) memories. Likewise, the areas in the prefrontal cortex, those affecting the motor control of the left hand, light up in brain scans of violin players (Ratey & Hagerman, 2008; Le Doux, 2002; Howard, 2006); and structural changes (plasticity) are seen in the left inferior parietal cortex of people who are bilingual (Mechelli et al., 2004).

in the brain most likely reflect a concomitant change in behavior, cognition, or emotion" (Barth, 2001). In short, neuroplasticity describes how every thought and experience in one's life alters the brain's architecture and function; thus, impacting one's sense of self and one's relation to the world. What this means for a pastoral theology and pastoral/spiritual care and counseling is that regular practices (behavior) have the potential to change the structure and function of the brain to be more aware, receptive, and empathic in caregiving situations.

In this essay, I bring the concepts of neuroplasticity, neuromotor learning and training, and narrative theory into conversation with pastoral theology to illustrate how the embodied brain ecosystem model offers an expansion of our theories and practices of pastoral caregiving and offers exciting possibilities for rethinking the scope of our practice. In so doing, my hope is that we continue to expand our repertoire of practices of pastoral/spiritual caregiving – with self and with others – and that we note the direct correlation between the care of self and the capacity to care for others.

Before I turn to examining the embodied brain ecosystem and bi-directional storying, it is helpful to name the particular vantage point in which I engage this conversation, as it is somewhat unique in the field of pastoral theology, care and counseling. I say this because part of what informs my work (in addition to my seminary and pastoral theological education, and my clinical training and experience) is my previous experience as a certified personal trainer and fitness professional for the American Council on Exercise (ACE) for ten years prior to completing my doctoral work. What I found in working with persons to improve their "physical" health and well-being was that time and again my clients would share how much the physical activity and exercise impacted their "whole" sense of self, confidence, and overall well-being. In such cases, clients entered the initial assessment filled with negative images of themselves and

their abilities. Their current story was essentialized and "problem saturated" with self-critical messages. However, as we worked together – particularly as persons learned, challenged, and changed their physiologies through weight loss, increased musculature, improved cardiovascular capacities and flexibility, and reduced stress and tension – the previous problem-saturated understandings of self were reauthored into stories and identities of self-confidence, self-accomplishment, and self-love. I would literally watch them perform themselves into a new identity through regular, life-giving practices and experiences. At the time I did not realize what I do now – that these clients were storying themselves bi-directionally, physiologically through neurobiological process of neuroplasticity, and cognitively through self-reflective capacities – and it had profound effects on their sense of identity, relationality, and well-being.

In the following exploration, I will first provide a brief overview of narrative theory in general and then explain why I think an expansion is helpful in naming the neurobiological processes of storying self. After having established bi-directional storying within the embodied brain ecosystem as a helpful model for pastoral theologians and caregivers, I will close with a section on the potential implications of this model for our theories and practices of pastoral and spiritual care and counseling.

"Storying" bi-directionally: ("bottom-up" and "top-down")

Human beings are meaning seekers and makers. As we encounter ourselves, others, and the world, we make sense of our experience by weaving together events into a coherent narrative – a story (Espton & White, 1990). Narrative theory is a product of the "linguistic turn" and "poststructuralist" or "social constructionist" movements of the postmodern era. The theory is based on the work of Gregory Bateson, Kenneth Gergen, and French philosophers, such as

Foucault, Derrida and Jean-Francois Lyotard. These thinkers saw through the hidden biases and assumptions of dominant discourses and sought to expose the myths of objectivity and name the partiality and situatedness of all knowledge. Thus, narrative theory, as its name indicates, is built on the metaphor of "storying" or "authoring." It is a theory that asserts persons make sense or make meaning in their lives through the stories they tell and the stories that are told about/around them (see White 2000; 2007). And these stories shape and construct the realities and identities persons live into. Narrative therapists and authors Jill Freedman and Gene Combs state:

> We think that people's experience of the meaning of their lives and relationships changes through changes in their life narratives. As their narratives change, what they do and what they perceive change as well. (1996, p.38)

Moreover, such stories and identities are multilayered and infinitely rich in possibilities for new meanings and discoveries. No single descriptor can capture the entirety of the lived experience of such diverse persons in this world. Objective reality has given way to epistemological understandings that are located in particularity, difference, and hybridity. Therefore, in the narrative approach one comes to see the limitations of power laden hegemonic discourses and how to see previously unseen aspects of experience and local knowledge.

From a neurological perspective one's storying capacity occurs via the brain's structure and functionality. Pastoral theologian and author of numerous works on the intersections of neuroscience and pastoral theology, David Hogue, touches on this as he describes the "storying" capacity of human beings as mediated by two key brain functions: memory and imagination. Hogue writes:

> We are our memories; the events of life that we recall give us a sense of personal identity and movement through time. *For better or worse, we are shaped and transformed by our*

> *experiences through the synaptic patterns with which our brains record those experiences.* As we recall the stories that have brought us to any given moment in time, we are both rediscovering and proclaiming who we are. (Hogue, 2003, p.4, italics mine)

Hogue's description is enlightening and helpful; yet, it appears that often the embodied quality of these processes remain overlooked. We assume that all of this processing occurs in the "grey cabbage" in our skulls (Ratey, 2001). Therefore, I would like to highlight the two-way process of storying and emphasize the bottom-up physiological quality of "storying" to this process that tends to be overlooked. In other words, persons story themselves physiologically and unconsciously ("bottom-up," starting in the central and peripheral nervous system), as well as cognitively and consciously ("top-down," starting the "command center" of the prefrontal cortex). As such, the way that persons "thicken" or "strengthen" a physiological narrative is through neuroplasticity – motor learning and motor training, which is a part of procedural memory.

Storying "bottom-up": Motor learning and training induced plasticity

Movement in human beings is a complex, finely regulated, process of coordinated neural signals and recruitment of muscle fibers via the "neuromotor system" (McArdle, Katch & Katch, 1999). The neuromotor system, more commonly called the central nervous system, is really made up of two parts: the central nervous system and the peripheral nervous system (or autonomic nervous system). The central nervous system includes the brain and spinal cord; and the peripheral nervous system includes the nerves that exert their influence beyond the cranial nerves and spinal cord throughout the body – where the brain truly becomes "embodied" (McArdle, Katch & Katch, 1999). Together the central nervous system and peripheral nervous system provide the

"bottom-up" somatic information – voluntary and involuntary – that make movement possible and meaningful.

Movement is such a typical part of our daily lives that it often goes unnoticed; however, it is certainly not a simple process. A basic task like tapping one's index finger (a common task asked in neuroimaging studies) requires the processing of motor information to flow through the sensorimotor divisions of the basal ganglia and thalamus, such as the primary (M1), supplementary (SMA), premotor (PMC), and cingulate (CMA) motor areas; as well as the cerebellum and its motor associated structures – the somatosensaory motor cortex and ventral PMC (Doyon et al., 2009). Following this, the hippocampus stores the movement in the memory. Over time, and through repetition, a particular movement becomes easier and easier, to the point that it is eventually completed with almost no conscious effort. The way this occurs is through motor learning or motor training.

Motor learning and motor training are forms of movement based memory that induce neuroplasticity in the embodied brain. Motor learning "relates to the acquisition of a new skill and is therefore associated with attentional demands and the building of new motor plans and commands" while motor training "relates to the repetition of a learned motor skill, for example, in order to fine-tune or improve this skill" (Bezzola et al., 2012, p.189). While slightly different, both motor learning and motor training are vital aspects of "consolidation" in motor memory – moving from fragile short term memory to more stable long-term memory (Brashers-Krug, Shadmer, & Bizzi, 1996, p.252). Eventually, a consolidated motor memory becomes "automatized" or "when actions are carried out effortlessly with little attentional resources needed for their successful completion" (Doyon et al., 2009, p.62).

Another way to think about the automatization process is that the movement, the procedural memory, becomes embodied. In fitness circles this is often referred to as "muscle memory" and is used to describe increases in performance (strength, efficiency, endurance, or expertise). For instance, the first time one attempts a lay-up in basketball, performs the bench press, or runs a mile, his or her embodied brain will not be as skilled in this particular activity. Through practice and repetition, one becomes more skilled as the memory of this particular movement is processed and stored, and is thus able to increase his or her ability and capacity for that particular skill. After repeated practice and training, one becomes so efficient and skilled, the movement or activity occurs nearly unconsciously and the level of performance increases dramatically. In neuroscientific terms, the embodied brain has "automatized" the neuromotor process of this particular skill or activity and moved it from an initial fragile memory to a long-term embedded/embodied memory. The result: neuroplasticity – the brain changes and grows new neural connections. In other words, the embodied brain needs to adapt and change in response to the motor learning process in order to meet new requirements (Bazzola et al., 2012, p.189).

Research has shown that anatomically motor learning and motor training (in both experts and novices) leads to increased grey matter volume, changes in white matter architecture, and neural wiring adaptation (Schlaug et al., 1995; Gaser & Schlaug, 2003; Imfeld et al., 2009; Bezzola et al., 2012). Motor learning and motor training have been shown to induce neuroplasticity in both "expert populations" such as highly trained musicians and athletes, and "novice" populations (see Bezzola, et al., 2012). In fact, neuroplasticity occurred in novice golfers even while they only mentally rehearsed a slow motion golf swing without actually moving their arms and bodies. This led the study's authors to conclude that even low-to-

moderate intensity leisure activities might be valid intervention types to induce structural and functional neuroplasticity (Bezzola et al., 2012). This study also illustrated that motor learning and training induced neuroplasticity is not strictly task specific; rather, "an active lifestyle, comprising regular physical activity, delays the clinical onset of dementia;" and cardiovascular fitness in the elderly is related to good cognitive abilities – particularly in the executive control processes (Bezzola et al., 2012, p.194). Moreover, research has shown that similar practices of wellness (such as an active lifestyle, cardiovascular fitness, resistance training, movement, and so on) help regulate the key neurotransmitters serotonin, dopamine, and norepinephrine (which are vital in one's thoughts, mood, and emotions); help regulate cortisol (the key chemical is the stress response); and increase the proteins which build the growth factors in the brain (BDNF, VEGF, and IGF-1) (Evans & Burghardt, 2008). All of which lead to changes in brain structure and functionality and one's sense of identity – particularly through thought, mood, and emotion.

The neuromotor processes of e-motion

The processes described above do not merely alter brain structure and function, but impact thought, mood, and emotion. For centuries we have thought of human beings as being above the animals because of our ability to think and reason; whereas, animals simply act instinctually. Action and movement were thought to be lower brain functions, while cognition was a higher brain function (Ratey, 2001). However, some neuroscientists are clarifying that movement is fundamental to the very existence of *any* brain (Ratey, 2001; Seigel, 2010). Previously, it was commonly thought that the "motor brain" does not do anything but react to incoming stimuli and instruct motor functions. The cerebellum, which coordinates physical movement, also coordinates the movement of thoughts, thus illustrating that the old view of isolation and

particularization of brain function no longer applies. Rather, the "ecosystem" is constantly communicating across brain regions and many functions of the brain share the same parts of systems (Ratey, 2001). Another way to say this is that mind and body movements are so inextricably connected and the correlation between our movement and our emotions are so intertwined that one leading neuroscientist believes the word emotion should really be thought of as a physical expression, as *e-motion*, because the root of the word literally means "to move" (Ratey, 2001, p.163). In neuroscientific terms this means that feedback between the layers of the brain is bidirectional (both "bottom-up" and "top-down"); if you activate a lower level, you will be priming an upper level, and if you activate a higher level, you will be priming a lower level. So smiling, or exercising and training your body can improve your mood (p.164). Furthermore, research suggests that our brains produce and secrete the very chemical compounds that pharmaceutical companies produce artificially in antidepressants when we participate in aerobic exercise[4] (Howard, 2006; Ratey & Hagerman, 2008). What this means for pastoral theologians and pastoral/spiritual caregivers is that there is tremendous potential within the embodied brain ecosystem to alter and regulate emotion, mood, and even constructions of self through practices of physical activity and exercise and their ability to reshape the brain through neuroplasticity. Therefore, I propose that we pastoral and spiritual caregivers consider the potential implications for how bi-directional storying might inform our practices of caregiving in conjunction with other treatment modalities and medication (when necessary).

[4] The chemicals are dopamine, norepinephrine, endorphins, serotonin, and "gamma aminobutyic acid" (GABA) (Howard, 2006). The pharmaceutical companies call them "selective serotonin reuptake inhibitors" (SSRIs) and use them to treat depression, anxiety disorders, and personality disorders (Howard, 2006).

Potential implications for pastoral theology and pastoral/spiritual care and counseling

Having established the importance of embodied, two-way processes in storying self identity and relationality I will turn to highlighting the potential implications for pastoral theology and pastoral/spiritual care and counseling. There are three implications I would like to highlight in how this research shapes our constructions of identity, relationality, potentiality in plasticity, and practices of pastoral and spiritual caregiving. I have organized these implications into three areas: (1) Multilayered, Embodied Ontology, (2) Performative and Transformative Capacity, and (3) Intra/Inter-Connected Relationality.

Multilayered, embodied ontology

Neuroscience challenges and expands our theologies of embodiment as it illustrates and asserts a profoundly complex and embodied being. Everything about us – our thoughts, emotions, sensations, intuitions, actions, and even our spiritualities – is mediated through a complex, interconnected neural wiring and firing communication system. Furthermore, neuroscientists now know that meaning, identity, and the ability to relate are all constructed in/through/with our physical embodiment (Siegel, 2010). In short, we live and move and have our being, as, and only as, embodied creatures.

I realize that as I make the case for expanding embodiment there is a danger to reduce and essentailize persons, minimizing and overlooking important systemic factors (culture, race, class, gender, sexual orientation, and so on). However, while highlighting embodiment as normative, I also hope to attend to embodiment in ways that actually raise critical awareness of difference and particularity, and the need to attend to whole persons contextually. For instance, if the soul/spirit is actually embodied, rather than disembodied, and identity, relationality, meaning,

faith, and wholeness/wellness are mediated only through the embodied processes, then issues of justice in the here-and-now take on new meaning and theological importance. In other words, the questions of who has access to healthful nutritional choices and recreational resources; and who has access to adequate medical care and who does not; and whether or not our social policies favor certain forms of embodiment and ignore or devalue others are all deeply theological questions. Consequently, I am not simply interested in the reality of embodiment; rather, I am urging us to consider the particular quality of our embodiment and the way in which we enact our embodiment as human persons.

More specifically, I am interested in naming the multilayered and complex quality of our embodied being, and our call to relational justice. There are many aspects to our embodied identity: the brain; the nerves running throughout our central and peripheral nervous systems; the body of organs, bones, and physical characteristics; the mind; and the spirit/soul – all of which come together in a dynamic and complex integration of neurobiological and self-reflective properties. Given this complexity, no single descriptor of the human person will suffice; rather, each particular person combines the various aspects for a unique constellation of identity in her or his context. Each aspect is but one account, one layer, of the multiplicity of our lives and identities, which we inhabit and enact at various points. Thus, one's identity cannot be constructed flatly, but is situated within the web of human relations in the system/social structures (Miller-McLemore, 1993; 2004). As a result, our pastoral theologies of embodiment should attend to contextuality and particularity and work to deconstruct systems and power structures that devalue certain forms of embodiment and/or use one's embodiment to do harm to others. In short, a pastoral theology that takes embodiment seriously reveals how we are called to care for the whole person systemically and contextually, and that includes liberation from

systems and structures of oppression. Consequently, we pastoral and spiritual caregivers are challenged to enlarge the vision of our role to include advocacy in the public domain and to enlarge our constructions of "spiritual" wholeness/wellness to include the everyday realities of the here-and-now.

Additionally, expanding a pastoral theology of embodiment is important because it deconstructs the lingering dualistic residue in Christian theological anthropologies and reconstructs a holistic, embodied being as the human person. In so doing, it empowers persons to reclaim the "goodness" of the entire being and trust the wisdom of the body; to attune to one's embodiment. As such, expanding embodiment avoids the danger of self-alienation, opens possibilities for "other" ways of knowing, and identifies new ways of experiencing oneself and God. Often our "intuitions," "sensations," and "gut senses" are the seat of profound spiritual experience. If we continue to ignore the embodied quality to our being, we risk limiting our ability to connect with self, others, and particularly with God.

Performative and transformative capacity

The second important area of implication is the performative and transformative capacity of persons. Human persons are creative, active, and agentic authors who construct meaning and identity performatively, which, transforms the self. In narrative theory this process is known as "storying." In this essay, I extended our storying capacities to include the entirety of our embodied being. We story ourselves bi-directionally – linguistically and consciously, and physiologically and unconsciously. James L. Griffith, professor of psychiatry at the University of Mississippi School of Medicine and Melissa Elliot Griffith, director of the Family Therapy Program at the University of Mississippi School of Medicine, touch on this in their work on

"mind-body problems" using narrative theory and ethological pharmacology.[5] In their text, *The Body Speaks* (1994), they describe how problem saturated self-narratives are intimately connected to somatic symptoms and hold a person in a double bind that silences both verbal expression and expressions of the body (p.113). In other words, self-narratives like "I am bulimic," or "I'm a depressive type person" are literally located and felt within the body in what the Griffiths call "emotional postures" of somatic symptoms. Within the Griffiths' theory, their task is "a search for counter-practices, effective antidotes that disable a destructive story's bind on the body" (p.118). These counter-practices "are new habits, rituals, and lifestyles that obstruct participation in a destructive story" (p.118). In turn, counter-practices of wellness produce "emotional reposturing" in life-giving, rather than destructive ways.

The Griffiths touch on physiological authorship; however, their approach while acknowledging that the constructive capacity flows in both directions – "language is a complex form of gesturing, a way of touching the body from a distance. Language can reconfigure the physiological state of the body and vice versa" (p.184) – focuses on the pharmacological way of changing physiology. In other words, while acknowledging that "changing physiology can create new possibilities for change through language," the initial source of the physiological change is medication (p.188). For example, in treating a careseeker with panic attacks, a medication to "turn down the sensitivity of the brain's systems for monitoring threat" such as Xanax, causes alterations in the noradrenergic and GABA systems, which would create a new "emotional posture" (p.188). The process is correct, yet I fear that in this approach we are overlooking the power of the physiological to "write (with) the body" (Graham, 1999, addition mine). By this I mean that the neurobiological research reveals that we can actually do the very same thing that

[5] The Griffiths describe ethological pharmacology as "the planned effort to bias the occurrence of particular classes of social behavior, such as increasing assertiveness or diminishing irritability, by resetting these brain systems with medications" (1994, p.184).

the psychotropic medications do through regular practices of wellness such as physical activity and exercise via the neuromotor processes. We change the structure and function of the brain through our experiences and practices. This, of course, does not discount the usefulness and appropriateness of medications in some circumstances, but does help to expand our thinking about and the scope of our authorship and construction of self.

Recent studies in the neuroscience literature reflect motor trained induced neuroplasticity as well. They show how physical activity and exercise are vital components to not only treating, but preventing depression and anxiety (Evans & Burghardt, 2008; Ratey & Hagerman, 2008). In fact, some neuroscientists claim that exercise is the single most powerful tool we have to optimize our brain function (Ratey & Hagerman, 2008; Arden, 2010). There a few reasons for this. The most basic one is that physical activity increases the volume of blood (i.e. fuel and nutrients) that gets to the brain. With more oxygenated blood available, the brain does not run out of fuel and it can perform it's multitude of functions quickly and efficiently. Additionally, physical activity and exercise secrete powerful neurotransmitters (dopamine, norepinephrine and serotonin) and neuropeptides (proteins) which regulate brain activity, control stress and anxiety, improve mood and self-esteem, and build the cellular circuitry in the brain (Ratey, 2001; Howard, 2006). Aerobic exercise has been shown to reduce anxiety and some of the symptoms of PTSD, as well as increase self-esteem (Arden, 2010, pp.120-121; Clinebell, 1991).

Research also indicates that physical activity that incorporates learning complex movements like dance, sports, and martial arts can sharpen memory and increase the capacity to master new information (Ratey, 2001, p.360; Ratey & Hagerman, 2008). Add to this that there is mounting evidence that movement is crucial to every other brain function, including: memory, emotion, language, and learning, and we see how vital movement is our lives (Ratey, 2001). In

fact, the parietal and frontal cortex (regions of the brain which are known for movement) also play a significant role in activity related to planning, calculating, and forming intentions. And the cerebellum, which coordinates physical movement, also coordinates the movement of thoughts (Ratey, 2001, p.148). Clearly movement and physical activity highlight the interconnection and two-way flow (top-down and bottom-up) of the embodied brain.

There are two meaningful aspects of the performative and transformative capacities of persons for pastoral theology and pastoral/spiritual care and counseling. The first is the spiritual quality to performative rituals and practices of wellness, and the second is the potentiality and hopefulness of neuroplasticity.

First, every act of faith whether clinical, liturgical, kerygmatic, prophetic, inter-personal, or intra-personal is embodied and performed (Hogue, 2003; Graham, 1999). Pastoral theologian David Hogue clarifies that, "until we go through the prescribed symbolic actions of the ritual, we have no experience of the ritual or of the grace it makes available to us" (2003, p.133). The point is that our regular and habitual practices have a transformative quality and that engaging in the wellness practices described here has the potential to rewire our brains and reshape our sense of self, how we relate to others, and how we relate to God.

The late professor emeritus and founder of the Institute for Religion and Wholeness at Claremont School of Theology, Howard Clinebell, illustrates the spiritual and transformative quality of what I call practices of wellness. In his text, *Well Being*, Clinebell (1991) observed, "It's obvious that we can ignore the fact that we are embodied selves only at a high cost to our physical wholeness. What's not so self-evident is that neglect of bodily self-care usually has deleterious impact on our mental and spiritual wholeness as well (Clinebell, 1991, p.76). In addition to increased mood, self-esteem, sense of control and ability to relax, the "most

intriguing finding" Clinebell names is that "those who work out regularly are more open to spiritual experiences than nonexercisers" (p.82).

Additionally, my own research conducted with pastors and pastoral/spiritual caregivers who participated in a six week "pastoral wellness program" revealed a newfound sense of connection to and calling from God as part of a lifestyle with regular practices of wellness including: attunement, nourishment, physical activity and movement, rest and renewal, and relationships (Roozeboom, 2013). This "spiritual" reconnection was in conjunction with: increases in attunement with self; improved nourishment; increased movement and physical activity; increased hours of sleep each night and increased time of Sabbath taking, and fewer hours worked each week; and improvement in key inter-relationships (Roozeboom, 2013, pp.118-135).

From a Christian theological perspective movement is built into the very fabric of our understandings of God, of life, of worship, of healing, and of wholeness/wellness. In the creation narratives of Scripture we read of a God who hovers over the waters of the deep, creates from dust, breathes life into being, and walks with us in the garden. Likewise, practices of faith and worship for the faithful are often expressed through movement and actions, and as described previously the performative capacity of these expressions of life and faith, actually "re-author" and transform one's sense of self and connectedness to self, others, and God. Yet, ironically our approaches to providing care as pastoral and spiritual caregivers often overlook the physicality and transformative quality of movement.

The second important aspect of the performative and transformative capacity is potentiality and hopefulness. If every moment and every experience changes the structure and function of the brain (and thus meaning making processes and one's sense of self and

relationality), then one is no longer "stuck" in any particular place of pain or suffering. No matter the circumstances, there remains a certain measure of hopefulness that embraces the "paradigm of plasticity" and one's agentic and performative ability to reauthor his or her identity in life giving ways through intentional practices of wellness. My Christian expression of faith, names this hope-filled capacity for transformation as part of, and in partnership with, God's liberative love, sanctifying power, and grace in our lives. Accordingly, we co-participate with the Spirit of God in our lives and transformation occurs through a blend of personal agency and God's grace working in concert.

Knowing the importance of the performative and transformative capacity of human persons should inform our clinical practice in pastoral/spiritual care and counseling. For instance, incorporating training for a local 5k, 10k or half marathon into the treatment with someone struggling with depression may be a powerful supplement to the work "in session." Likewise, the utilization of mindful awareness practices such as body scans, progressive relaxation, mental rehearsal, and grounding in session could aid the healing process in those who have experienced trauma. One might also consider incorporating focused, attentive rhythmic movements such as Tai Chi and yoga, or walking meditation into treatment to assist a client's ability to self-soothe and regulate in the face of anxiety and stress. Ultimately, embracing our performative and transformative capacity challenges our theories and practices of pastoral/spiritual caregiving to expand our repertoires to include "preventive" approaches in addition to "restorative" ones. In other words, encouraging regular practices of attunement and physical activity regardless of symptomology has the potential to increase one's threshold for and creative capacity to navigate difficult circumstances and regulate mood and emotion.

Intra/inter-connected relationality

The third and final area that is helpful to reflect on is how new insights from neuroscience inform our understandings of intra/inter-connected relationality. Both neuroscientific and theological literature claim that human persons are essentially and inherently relational. However, we must also ask what is the particular quality of this relationality? I propose an answer to this question through an understanding of human persons as intra/inter-relational. In using this term, I emphasize not only the two elements of relation – with self (intra-relationality) and with others (inter-relationality) – but their enduring connection. The ability to embody and enact just ways of inter-relational connectedness (loving and caring for our neighbor) is directly tied to our capacity for intra-relational connection (loving and caring for ourselves).[6] This connectedness flows in both directions – we come to know ourselves better as we are known in relationships and vice versa.

Intra-relationality: Self-reflectivity, reconnection, and regulation in self-care

Attunement is the term that neuroscientists use to describe one's ability to relate and "tune in" – with oneself and with others. In intra-relationality attunement is a process of reflection and reconnection with ourselves wherein we "check-in" with the various aspects of our embodied selves – our bodily sensations, our mental images, our emotional state, our thoughts, and so on (Siegel, 2010). The key component in attunement with self is self-reflexivity. A self-reflective capacity trains us to be able to be aware of awareness itself and pay attention to our own intentionality (Siegel, 2010, p.86).

[6] Feminist theologian Beverly W. Harrison noted a similar concept in her work on the importance of inter-connection, naming the role and power of one's own internal experience in the work of loving others in just ways. (See *The power of anger in the work of love: Christian ethics for women and other strangers*, 1981).

Within self-reflexivity are key components of reflection, reconnection, and regulation. One of the most profound areas of self-reflexivity is the unconscious sympathetic processes of escalation which occur during the fight-flight-freeze response. The process is commonly referred to as the stress response or HPA (Hypothalmic-Pituitary-Adrenal) Axis response. In this process, the neurochemical, cortisol, is released to prepare us for action – and sometimes for survival. This nearly instantaneous process is absolutely necessary for life and wellness. However, if our embodied brain remains on high alert chronically, cortisol becomes toxic. Thus, the counter-process – the parasympathetic process of de-escalation – is also vital. This is the process wherein our brain secretes GABA (gamma aminobutyric acid) and other chemicals to counteract cortisol. The ability to be aware of each process and utilize self-reflective practices of wellness to self-sooth is known as regulation. Essentially, attunement with self is how we regulate and dynamically integrate the myriad of experiences and information that our embodied brain ecosystem constantly produces, which assists our de-escalation process and self-soothing.

Attunement with self is not only important for self-soothing, it is vital because it prepares us to connect with and attune to others (Siegel, 2010). In other words, our awareness of and ability to connect with another person's internal world of meaning depends on how well we know our own (Siegel, 2010, p. 62). The key to this process is the insular cortex, a part of the brain called the "middle prefrontal cortex" which is folded deeply within the cerebral cortex (Siegel, 2006; 2010). The insular cortex is known to be influential in many aspects of consciousness, but most specifically in emotional states and bodily states, such as the heartbeat, blood pressure, and sensation of pain (Critchley et. al., 2004; Lamb et. al., 2006; Baliki et. al., 2009). In light of this, the insular cortex is considered by some neuroscientists to be the superhighway of information flow between the mirror neurons, limbic region, brain stem, and the

central nervous system (Siegel, 2010). The insular cortex is described in this way because it is the region of the brain responsible for what some scientists call "emotional contagion," or why we can resonate emotionally and physiologically with others – our respiration, blood pressure, and heart rate can actually rise and fall in sync with other's around us (Siegel, 2010, pp. 61-62). This is why and how we feel heaviness and sadness when sitting with someone who has suffered a loss, or why we smile and feel happy when another person smiles at us. Meaning, in short, is that inter-relationality is interwoven into the very fabric of intra-relationality and visa versa. Consequently, our own capacity to provide effective care for/with others is directly tied to our capacity to regulate, attune, and care for ourselves. Neuroscientifically, this is known as the mirror neural processes.

Inter-relationality: Mirror neurons and empathy

One of the more recent developments within neuroscience is the study of the social or inter-relational brain. Social neuroscience developed as a sub-field within neuroscience as researchers began to draw on cognitive and social psychology, development neurobiology, and physical anthropology in their efforts to study the processes and structures the brain employs in human relational processes (Insel & Fernald, 2004); as well as how the social context shapes the development, function, and structure of the brain (Cacioppo et al., 2007; Hogue, 2010).

Given the scope of this essay I cannot go into depth here (see Hogue, 2010 for a more in-depth examination of the mirror neural processes), but want to briefly describe how mirror neurons are brain cells that "re-create" the experience and emotions of others that we observe within ourselves (Iacoboni, 2008, p.5, Hogue, 2010). It is as if we are trying on the other's experience or "mirroring" his or her internal state, activity, and response within our experience.

As social creatures, this mirroring capacity is vital to our ability to relate to others and the world around us. Recent research with persons on the autism spectrum illustrates what happens when the mirror neural system does not function adequately. Impairment in the ability to perceive and connect with the emotional expressions and states of others has been tied to diminished mirror neural activation (Dapretto et al., 2006; Siegel, 2006). Additionally, research in developmental and attachment theory illustrates the importance of the mirror neural system in developing secure attachments (Schore, 1994). In short, intra/inter-relationality names how our ethical capacity to see and connect with others depends on the attuning and mirroring processes of our middle prefrontal cortex. Without both processes functioning well, our capacity for meaningful empathic encounters is limited.

In my previous research (Roozeboom, 2013) one participant in the pastoral wellness program noted the importance of this connection in his experience. This participant had "one of those days" where the demands and deadlines exceeded his capacity and became overwhelming. He tried as best he could to prioritize and balance all of the items which needed his attention (and did so fairly well while at the church). However, once he got home he could not keep it together as all the pressures were adding up, and he "blew up" at his daughter for no apparent reason. The neuroscientific way to describe this is that this participant's brain was dis-regulated and he "lost his mind," or at least his ability to regulate his experience and thought processes and behavioral response. The result: pain and damage to a valuable relationship in his life. Fortunately, he was able to repair this relationship with his daughter, but in chronic, repetitive episodes of dis-regulation such is not always the case. In short, there is strong evidence that the capacity to care for others (love one's neighbor) is directly tied to one's capacity for his or herself.

The clinical implications of intra/inter-relationality are fairly direct: our ability and commitment to love and care for our "self" (or lack-there-of) will have a significant impact on our capacity to provide effective, empathic pastoral/spiritual care and counseling for/with others. I propose that regular practices of wellness – particularly attunement, physical activity, and movement – are crucial in maintaining and increasing this capacity.

Some cautions to consider

Before concluding this essay, I need to note a few particularly important cautions in what I am presenting. First, I am not promoting the type of physical activity and lifestyle that becomes destructive in its own right – a form of idolatry, addiction, and obsession. Like many aspects of human living, exercise and training one's body has a threshold of diminishing returns, and when taken to extremes such activities can become life draining rather than life giving. Narcissism, eating disorders, body image distortions, objectifying the body, and other "illusions" of well-being are the result of such extremes (Toombs, 2006). Therefore, I am promoting a dynamically integrative and balanced approach to wellness, not an extreme form of self-focus.

The second caution is that life-giving practices of wellness must always be contextualized and attentive to one's physical abilities and particularities – and this includes finitude, limitation, and vulnerability. Being "well" does not always mean without symptoms or difficulties (Kornfeld, 1988). For example, my two siblings suffer from a chronic, muscle degenerative disease called Muscular Dystrophy. Consequently, it is physically impossible for them to perform practices that more able-bodied persons can. Thus, there are limitations to what is possible through physical activity. However, for those persons who cannot move their bodies as freely, the mindful awareness exercises of attunement, body scans, and meditative prayer are

alternative practices which have been shown to increase one's connectedness with self, others, and God. Additionally, as described previously, the mental rehearsal of movement has been shown to induce neuroplasticity as well.

Third, we must remember that no matter which particular lens we use to view the human person, there will always be a certain amount of mystery to persons. Neuroscience continues to expand the ability to map the brain's activity in various experiences; however, even as new discoveries expand understandings, most neuroscientists readily admit that there are many things we simply do not know – and likely will never know. While some neuroscientists allow room for this mystery and even refer to that which is beyond empirical verification as "religious" or "spiritual" experience (see d'Aquili & Newberg, 1999, 2000; Beaureagard, 2007; Bergemann et al., 2011), for others, the quest to map all realms of experience neurologically remains compelling. In contrast, those of us in theological circles tend to be much more comfortable with the unknown and embrace the mystery of persons as part of the larger mystery of God as "Other." In either scenario, the point is that there are realms of human experience that we simply cannot quantify empirically; yet, these moments are profoundly meaningful in self-construction and understanding. Therefore, I consider what I present here illustrative and not exhaustive, and I anticipate further transformations in our understandings, or ways of looking at identity and relationality, as the conversation between neuroscience and pastoral theology continues to deepen.

Conclusion

In this essay I explored the neurobiological processes of motor learning and motor training as part of a two-way, dynamic process of storying self bi-directionally in the embodied brain

ecosystem. Furthermore, I noted how paying particular attention to the embodied quality of these processes invites us to expand our thinking about identity and relationality, as well as our practices of pastoral and spiritual caregiving – paying particular attention to treatment modalities that invite attunement and physical activity with the embodied self. Through such practices I propose that we have the capacity to transform and reauthor our sense of identity and relationality through neuroplasticity. Additionally, and perhaps more importantly, I propose that such practices are for vital for the caregiver and not just the careseeker, and that our capacity to love and care for/with our neighbor is directly tied to our capacity and performance of caring for ourselves.

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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:

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

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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Neuroscience Can Contribute to Pastoral Care and Counseling

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Abstract The neuroscience literature supports the idea that spiritual transformation is a powerful behavioral and cognitive change process involving fundamental alterations in the sense of self. Brain regions that are known to mediate the sense of self are activated during religious experiences that in turn underwrite spiritual transformation. Because religious experiences are fundamental to spiritual transformation, pastoral care workers can facilitate spiritual transformation by encouraging their clients to discuss and reflect on their religious experiences. The decentering perspective discussed in McNamara 2009 provides details on the phenomenological experiences people undergo when they have a religious experience. The pastoral care worker can use this decentering model to identify the key transformative processes within religious experiences.

Keywords religious experience, spiritual transformation, decentering, pastoral care, neuroscience, sense of Self

Introduction

People in religious communities who work in pastoral care settings see a similar range of human dilemmas, sufferings, dysfunctions and problems as do therapists or physicians in traditional

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biomedical settings. The pastoral care worker can be seen at the bedside of the hospital patient, with the mourners after the death of a loved one; sitting with the family on the verge of a divorce and grappling with the cravings of the addict. In addition to all of this the pastoral care worker is also in a position to facilitate or support the religious growth or sanctification of the persons he or she works with. The two areas of effort may be connected. It may be that to assist the addict in abstaining from his drug and to comfort the afflicted the best thing pastoral care workers can do is to facilitate a spiritual transformation of the individual. To assist the mourners at a funeral the pastoral care worker may need to help mourners pray through the event in order to discover acceptance and meaning. It may be that the pastoral minister introduces religious coping strategies if the patient in the hospital bed is to make a more speedy recovery and so on. As these examples illustrate I define pastoral care as that ministry within a religious community that focuses on spiritual counseling and care delivered to people in crisis or to people seeking spiritual growth and spiritual transformation.

If and only if the individual requests such assistance the pastoral minister could and should help the individual use resources from his or her religious tradition to grow in that tradition and perhaps even undergo a spiritual transformation. By spiritual transformation I mean a change in behavior and spiritual outlook such that the individual involved reports that he or she has turned away from a previous behavior and spiritual orientation in order to move toward a deeper relationship with God or with whatever that person considers ultimate in value. The transformation is typically slow and laborious but for some it is dramatic and swift. In both cases the transformation is fruitful in that the individual reports increased well-being due to the transformation. That transformation may help the individual live through the crisis they are facing in such a way to come out the other side enriched rather than exhausted and depleted.

Can neuroscience help the pastoral care worker understand spiritual transformation? If so how might pastoral care interventions use this knowledge to facilitate spiritual transformations? The answer to these questions are currently unknown but understanding neural correlates of spiritual transformation and related processes involved in religious cognition and religious experiences may at least help the pastoral care worker understand the processes more deeply and thereby identify ways in which it could be helped or hindered, undermined or diverted into less healthy channels. In what follows I present a neurocognitive model of religious cognition insofar as it is implicated in spiritual transformation. I then attempt to draw a few lessons from the model relevant to pastoral care.

Religious experiences and spiritual transformation

Religions promote the continuous transformation of the self by encouraging the use of religious practices and by encouraging participation in the central rituals of the religious tradition. What are religious practices? Examples include but are not limited to prayer, meditations, participation in religious rituals like the sacraments in the Christian tradition, reading and studying scriptural texts, individual devotional practices, praying with beads, adopting ritual gestures and postures such as kneeling and 'making the sign of the cross' and many others besides. All of the above examples of religious practices produce transient religious experiences. It is the religious experiences themselves that produce the spiritual transformation of the individual. If you want to facilitate spiritual transformation then facilitate religious experiences. Part of the power that religious experiences carry comes from their functional characteristics and phenomenology and it is to those topics I now turn.

Religious experiences as transformative processes

In an effort to identify the special impact religious experiences have upon people I and my colleagues (see Wildman & McNamara, 2010) investigated the phenomenology of religious experiences. We had volunteers recount for us a recent religious experience (if they had one), a recent happy experience, and a recent emotionally neutral experience. We then had the volunteers rate their experiences along 21 dimensions of cognitive and phenomenologic characteristics such as the extent to which the experience was meaningful, intense, filled with positive or negative emotion, whether it involved an alteration in the time sense or in memory or in attentional control and so forth. These particular phenomenologic properties were not chosen by us to study religious experiences. They were put together by Pekala (1991) in the 'Phenomenology of Consciousness Inventory (PCI)'in order to study ordinary and non-ordinary states of consciousness. Therefore the set of phenomenological properties that we scored in the religious experiences obtained from our participants were not biased by our own conceptions concerning spiritual transformation. Instead they were chosen by Pekala and validated by him as cognitive and affective constructs that reliably appear in everyday experiences.

The PCI is a self-report 53 item questionnaire on phenomenological aspects of a selected state of consciousness. The subject is asked to complete the inventory while recalling a previous state of consciousness. The PCI yields a quantitative profile of the contents and quality of personal consciousness along 21 measures, grouped into 12 major dimensions (positive affect, negative affect, altered experience, imagery, attention, self-awareness, altered state of awareness, internal dialogue, rationality, volitional control, memory, and arousal). The PCI has been repeatedly tested and its domain of validity extended in numerous studies since it was first introduced. Pekala provides detailed validity and reliability data on the instrument.

After our participants filled out the PCI, their experiences were transcribed and then subjected to further narrative analyses. We had experts in religious studies, post-doctoral and doctoral students in religious studies, rate these same experiences along the same dimensions. The raters were blind to the category (religious, happy, neutral) of experiences they were rating. We wanted to see if religious experiences were rated any differently from happy or neutral experiences by both the experts and the experiencers themselves. Thus we had ratings from participants themselves about their own experiences as well as expert analyses of those same experiences as narrated by the subjects themselves. After controlling for the time it took to recall an experience and self-assessed intensity of the experience, we found that, relative to both happy and ordinary experiences, participants rated their religious experiences as significantly more meaningful, with stronger altered states of awareness, increased inwardness of attention, higher amounts of imagery, more internal dialogue, lower volitional control, and more negative affect. Levels of positive affect in religious experiences fell between levels for ordinary and happy experiences.

In order to assess the extent to which these results contributed to potential spiritual transformation in our participants, we next had independent raters who were blind to the purposes of our studies identify the order in which each of these elements (altered awareness, internal dialogue, high imagery, etc.) occurred in narratives of religious experiences and in narratives of happy experiences. Independent ratings of both religious and happy narratives revealed that the distinctive features associated with religious experiences did indeed occur in a particular sequence in the religious narratives. Religious experiences begin with specific cognitive content in the form of enhanced levels of imagery and also with Negative Affect. Next, internal dialogue ensues and attention is directed inwardly. Volitional control is then relaxed, and

Positive Affect rises. Finally, a significant alteration in Awareness and Perception occurs. Subjects later refer to the effects of this religious experiences as filled with significance and meaning.

How does this phenomenology help us to understand spiritual transformation? In McNamara (2009) I argued that the way that religious experiences transform individuals was via a process I called decentering. In this cognitive process the 'self" (i.e. the self-construct or the self-concept) is temporarily taken 'off-line' or decoupled from its control over attentional and behavioral goals of the individual while a search is conducted in semantic memory o s (or in a 'possible worlds' space) for a more ideal or complex self-concept that can better match the needs and behavioral goals of the individual. The old self is replaced and integrated into a more ideal self. Story or narrative grammars help to integrate the old into the new self. New meaning is created and the individual is enriched by the experience. In short the process involves 4 steps: 1) there is a reduction in agency when the current elf transiently gives up overall control; 2) this self structure is then transferrred to a "possible worlds" box in the cognitive system –metaphorically a place where it is held in temporary abeyance while a new higher self is found to replace this old self; 3) to find the higher self a search ensues for possible selves in semantic memory and then once found 4) the old self is integrated into a new higher self. Decentering is a process that temporarily takes the aware, executive self off-line. The "one in charge" takes a temporary break. When the central executive relaxes inhibitory control over other cognitive processes the brain/mind then processes all kinds of emotional material. As this emotional wave begins to wane, the executive self eventually comes back online and orchestrates integration of this emotional material into a new enriched self. One can observe similar emotional and cognitive

integrative memory reconsolidation processes occurring in individuals healing from trauma (Yehuda & LeDoux, 2007).

In religious experiences the initiating event, the event associated with enhanced imagery, negative affect and inwardly directed attention in our above described phenomenological studies, appears to be a reduction in intentionality or volitional control. This is the beginning of the decentering process. This latter effect is typically an unpleasant experience (thus, the negative affect associated with it). It was consciously registered by participants in our studies as a reduction in volitional control, but is noticed only after imagery levels are enhanced and attention is directed inward. This reduction in intentionality/volitional control can be either voluntary or drug induced or perhaps facilitated by religious practices, nevertheless it appears to be the event that triggers the decentering process in consciousness. The enhancement of internal attention and dialogue, as well as the alteration in awareness and perception, are correlated with search of semantic memory for the ideal self. The final sense of positive affect, insight and meaningfulness, presumably, reflects successful integration of the old into the new self. All of these phenomenologic properties of typical religious experiences support the notion that religious experiences are about transforming the self. After all what else can it mean to say that attention is directed inwardly or that volitional control is reduced or that positive and negative affect levels change or that perception and awareness is altered—unless we mean that all these experiences involve the self. The self undergoes a reduction in volitional control, increases in positive affect and alterations in awareness and perception.

To deepen our understanding of spiritual transformation and religious experiences we can ask: How is the transformation accomplished neurologically? One simple answer to this question is that religious practices enhance the acquisition of the so called executive cognitive functions

mediated by the prefrontal lobes. These are the functions that support self-regulation and autonomy-among many other qualities in an individual. Religious practices often operate to support transformation of the self such that the self becomes more like an 'ideal self' or the ideal selves the individual hopes to become. Religious practices also help one to avoid becoming a 'feared self'. This combination of a positive 'approach' motivational element towards hoped- for selves and a negative 'avoidance' motivational element away from a feared self makes religion a powerful tool for processes of self-regulation more generally.

In addition, the decentering process that I described above that occurs in religious experiences may be mediated by neural systems associated with both religiosity and the sense of self. There is considerable anatomical overlap between the brain sites implicated in religious experience and the brain sites implicated in the sense of self and self-consciousness. The close neural connections between regions that support religious experiences and regions that support the sense of self make it more likely that the sense of self can be both enhanced by religious experiences and deranged by them. The decentering process, for example, can go terribly wrong. One of the steps in the process, (e.g., taking the current self "offline", or the search in semantic memory for a more complex ideal self or integration into the ideal self) can be blocked, damaged or skipped thus producing aberrant religious phenomena. Fanaticism or dedication to cult leaders, to take just one example, may result from failure to posit an ideal self, from premature termination of the search process, or fusion and integration into a cult leader's personality rather than an ideal self and so on. Another example may be negative spirit possession which involves fusion with a 'feared self' or identity and a failure to find, move towards or integrate into an ideal identity and so on.

Neurology of religious experiences

My (McNamara, 2009) review of the literature on religion and the brain in 2009 suggested that the most important regions of the brain for studies of religious expression appear to be a circuit known to support the sense of self and that links up the orbito and dorsomedial prefrontal cortex, the right dorsolateral prefrontal cortex, the ascending serotoninergic systems, the mesocortical dopaminergic system, the amygdala/hippocampus and the right anterior temporal lobes. There is a huge literature which documents the connectivity patterns of each of these anatomical sites (reviewed in Ghashghaei, Hilgetag & Barbas, 2007). They are all interconnected one with another but they all operate in an inhibitory or regulative mode relative to other parts of the brain. The posterior orbitofrontal cortex appears to regulate the limbic system (the emotional brain) and is densely interconnected with the insular, temporal polar, and parahippocampal cortices as well as with basal forebrain structures like the ventral striatum, nucleus basalis of Meynert, and amygdala (Nauta, 1962; Van Hoesen et al, 1981). The medial orbitofrontal cortex is reciprocally connected to the rostral portion of the insula, the medial basal amygdala, ventromedial temporal pole area 38 and medial subcallosal cingulate areas 24, 25 and 32. The anterior entorhinal area 36 is interconnected with the hippocampal formation. The lateral orbitofrontal region is interconnected to dorsal and caudal portions of the basal amygdala which is a source of projections of emotional information to the visual processing centers in inferior temporal cortex; supracaollosal areas 24 and 32, the auditory association cortex area 38 in the temporal lobe, inferior temporal cortex area 20 and prefrontal dorsal area 6. The amygdala, anterior temporal and orbital frontal regions play a key role in the modulation of emotion, with the amygdala being especially important for the comprehension of negative emotions, particularly fear (Adolphs, Tranel, Damasio, & Damasio, 1994; Adolphs, Russell, & Tranel,

1999). In summary, the circuit which mediates religiousness involves primarily limbic, temporal and frontal cortices on the right. This proposal is congruent with those of other authors who have studied potential brain correlates of religiosity (e.g., Bear & Fedio, 1977; d'Aquili & Newberg, 1993; Devinsky & Lai, 2008; Persinger, 1987; Ramachandran, Hirstein, Armel, Tecoma, & Iragui, 1997; Trimble, 2007). The important point to note with respect to this neural circuit that is reliably associated with religious experiences is that the circuit appears to regulate or control many other areas of the brain. Therefore when we undergo religious experiences and engage this circuit the circuit in turn is sending messages to these other widespread areas of the brain thus making substantial behavioral and cognitive changes more likely.

Implications for pastoral care and counseling

All of these neuroscience data support the idea that religious cognition and experiences can facilitate spiritual transformation and that spiritual transformation is very likely associated with pervasive brain changes that in turn support a change in the sense of self. Recall that the religion circuit we identified above operated as a regulator of several other key brain systems including those that support emotional change, executive centers and regions associated with the sense of self. When people undergo a religious experience several cognitive and affective processes ensue that I summarize as a decentering process wherein the old self is put off and an attempt is made to move toward more complex ideal selves. In short, the spiritual transformation process appears to involve a series of decentering events that occur over long periods of time and that are triggered or facilitated by religious experiences. Once religious experiences occur they engage the "religion circuit" I outlined above and this circuit ensures that widespread areas of the brain

are recruited to mediate behavioral and cognitive change with regard to one's fundamental sense of self.

This neuroscience perspective can assist pastoral care workers' understanding of spiritual transformation. The neuroscience perspective supports the idea that spiritual transformation is a powerful behavioral and cognitive change process involving fundamental alterations in the sense of self. Brain regions that are known to mediate the sense of self are activated during religious experiences that in turn underwrite spiritual transformation. Because religious experiences are fundamental to spiritual transformation, pastoral care workers can facilitate spiritual transformation by encouraging their clients to discuss and reflect on their religious experiences. The decentering perspective discussed above provides details on the phenomenological experiences people undergo when they have a religious experience. The pastoral care worker can use this decentering model to identify the key transformative processes within religious experiences. When speaking with a client the pastoral care worker might attempt to help the client identify the initial decentering event wherein the current self is acknowledged as no longer working effectively and then help the client engage in a search for more complex ideal selves that are informed by the client's religious tradition.

In conclusion, the neuroscience perspective deepens our understanding of spiritual transformation as a powerful process that can fundamentally alter the sense of self. Pastoral care workers can benefit from this deeper understanding of spiritual transformation and therefore more confidently assist clients engaged in such transformations.

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The Ritualizing Mind: Neuroscientific Insights into Pastoral Care and Counseling and Other Ways of "Doing Religion"

Hogue, D. Ph.D.[1]

Abstract A wide range of religious practices, including pastoral care and counseling and other ritual-like practices, rely on critical human capacities for memory and attachment. Recent discoveries in the neurosciences deepen our understanding of these processes, as well as what can go wrong, and suggest important directions in which they can be explored and enhanced. Memories, for instance, are more fluid than had previously been thought, and early experiences of human connection shape the brains of developing infants. This article explores ways in which personal and group identities are shaped and reshaped by rituals and ritual-like practices such as pastoral counseling.

Key Words ritual, memory, neurobiology, attachment

Introduction

Both religion and spiritual practices have flourished in recent decades despite premature speculations about their demise. As a result, evolutionary psychology, anthropology, and the neurosciences have focused increasing levels of attention on the origins, maintenance, and anticipated future of religion and religious experience, variously defined. Ritual practices constitute a central feature of religious traditions and at least one noted

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anthropologist argues that it is religion and ritual that distinguish humanity from other species (Rappaport, 1999). We will address two domains of human experience that are central to the practices of pastoral counseling and other religious and ritual practices with which pastoral counseling is related - memory and attachment. That is, pastoral psychotherapy will be considered as a subset of a wide range of religious practices and our discussion will concern some common dimensions that underlie each. (For a fuller discussion of the ritual nature of pastoral psychotherapy, see Hogue, 2003, 2006.) Pastoral counseling, like other ritual-like practices, provides both caregiver and care receiver with unique access to both memory and deep attachments (which are in fact a form of memory). It is this process of knowing and being known, of being heard and remembered, of being seen and recognized, of ruptured emotional connections and their repair, that underscore the sacred work of the pastoral counselor. We will begin with a brief review of memory's "types" followed by a consideration of attachment, highlighted in both domains by selected neuroscientific discoveries. We will then consider the role of ritual and ritual-like experiences in eliciting and reforming memories and consider their importance for the work of the pastoral counselor.

Memory

The neurosciences have provided important new avenues for understanding both the processes and disturbances in developing and maintaining a sense of self, including the central roles of memory. Researchers have known for some time that memory relies on the strengthening of synaptic connections between neurons. At the cellular level, when two neurons fire repeatedly, they increase the likelihood that they will fire again -

"neurons that fire together wire together."

Substantial work by neuroscientists like Eric Kandel (e.g., 2007) have uncovered many of the molecular changes in neurons that produce the structural and neurochemical mechanisms that undergird what we know as learning. But most of us think about memory in much broader categories. Memory, as we now know, involves several distinct capacities related to the general tasks of storing and retrieving information over different lengths of time. And the neurosciences are confirming that they generally rely on different brain structures.

Memory functions can be categorized according to their duration, their content, and their openness to conscious awareness. *Working memory* is that information we hold "in mind" for immediate use. It requires our attention, and usually disappears when no longer needed. Also referred to as *short-term memory*, working memory includes the information we can retain, but not for long. *Long-term memory*, on the other hand, involves the storage of information for weeks, months, or even a lifetime.

Considering memory's contents, *semantic memory* refers to the knowledge of concepts and facts, regardless of whether we have directly experienced them and whether we can recall any personal stories associated with learning them. *Procedural memory* involves the development of skills and habits, such as playing the piano or reciting multiplication tables or the Lord's Prayer. *Autobiographical memory*, or *episodic memory,* describes the recall of explicit personal incidents that help shape our lives.

Two further distinctions in the domains of memory are relevant to our discussion: their availability to consciousness and their grounding in cognitive or affective memory. *Explicit memories* are those that emerge in awareness, including in large part all of the

categories reviewed above. *Implicit memories* are encoded in the brain, but are unavailable to conscious awareness, roughly corresponding to Freud's unconscious. Increasingly social scientists are reclaiming the importance of implicit memories in shaping experiences and behavior along with a realization that not all implicit memories can, or perhaps even should, be made explicit. A related development at least as important is the burgeoning interest, in areas as diverse as the social and political sciences, literary theory, neuroscience, and the therapeutic disciplines, in the role of *affect* – a highly significant move beyond the narrow focus on cognitive and behavioral processes which most pastoral counselors have been required by licensing bodies and third-party insurers to learn and adopt.

Personal identity, a core concern in pastoral psychotherapy, relies on the entire range of memory processes. Neurologist Antonio Damasio (1994, 1999), for example, has outlined a multi-tiered concept of the self that includes both implicit and explicit memories and representations. He describes a non-conscious "proto-self" consisting of the brain's multiple representations of the organism itself, a conscious but transient "core self" which represents the organism's non-verbal awareness of its own agency and capacity for "knowing", and finally an autobiographical (or extended) self which depends on working memory and its capacity to access both episodic and declarative long-term memories to construct a coherent sense of both self and the environment (Damasio, 1994 pp. 199-200; Cozolino, 2002, p.156.). Damasio believes that the core self is generally impervious to change (other than through neurological damage due to injury or disease), but that conscious autobiographical memories are capable of some malleability, a point we will return to when we revisit the unique opportunities presented in pastoral

counseling.

Conscious Memory and the Left Brain

Scholars in a variety of disciplines have noted the central role of narrative (a central dimension of autobiographical memory) in the formation of personal identity. Psychologist Dan McAdams (1993) has argued for the identity of self with personal stories. Pastoral theologian James Ashbrook (Ashbrook & Albright, 1997, p.173) argues that memories are the basis of soul, and the loss of memories results in loss of the soul. Psychologist Louis Cozolino also notes the role of autobiographical memories in defining the self, and describes in some depth the relationship of narrative and neural structures (2002, 34). Such a position makes intuitive sense, and few of us would underestimate the central role of memories in experiences of the self. Indeed narrative theories and therapies have come into their own among approaches to the treatment of individuals and families.

What is less evident subjectively is the malleability of memories (including the narrative self), which is based on an accumulating body of data demonstrating that memory recall is in fact a reconstructive process; i.e., we never remember exactly the same event twice (Schacter, 1996, 69-71). Discrete dimensions of individual memories are stored throughout the brain in areas that receive and process those sensory inputs; e.g., visual images are stored in the occipital visual cortex, auditory memories in the temporal lobes, etc., and medial temporal lobe structures appear to coordinate their encoding and recall (Greenberg & Rubin, 2003). At the moment of recall, the mind/brain draws together these discrete dimensions to create the subjective experience of a seamless memory. Whether an event is recalled intentionally or spontaneously, it is essentially

reconstructed anew each time it is retrieved. A significant literature has developed also around notions of false memory which demonstrates the ways in which different details in a story, or even entire event memories, can be inserted which still produce high levels of subjective credibility for the experiencer (cf. de Rivera & Sarbin, 1998; Schacter, 1995).

The work of neurosurgeon Wilder Penfield in the 1960s suggested that human memories are never lost, but that they are stored in perpetuity in the recesses of the brain and, under the right circumstances, can be recalled. These discoveries came while operating on conscious patients and electrically stimulating brain structures and inviting patients to describe their responses. There was, it turns out, no way to document the validity of those recalled memories, and more recent research suggests that memories may not necessarily be held forever (Schacter, 1996, 77-81). Forgetting is in fact an adaptive response, particularly as years of lived experience accumulate. Intentional recall and repetition of memories appears to be critical to their being maintained.

One possible mechanism for memory change has been suggested by Walker and associates (Walker, Brakefield, Hobson, & Stickgold, 2003). They have described a three-stage process in the formation of procedural memories. Following initial learning, a period of stabilization occurs that requires up to six hours. However, learning another skill within less than six hours may interfere with consolidation of the first learning. Sleep plays a critical role in consolidation of those memories in ways that an equivalent passage of time without sleep does not. Even more relevant to our current discussion, their research also suggests that recalling a memory might re-introduce a state of lability so that such memories must be reconsolidated or they may be lost. Ironically, recall might

lead then to memory loss or modification rather than to consolidation, as is more commonly the result of rehearsal (Schacter, 1996, 112). The authors acknowledge that similar mechanisms could in fact underlie consolidation for autobiographical or semantic memory as well, though that claim awaits confirmation (Walker et al., 2003, 619).

The brain's ability to "re-wire" itself, to be reshaped by repeated practices – *neuroplasticity* – underscores the importance of ritual practices. We now know, for instance, that experience – particularly repeated practice – changes our brains. One of the most common illustrations of neuroplasticity is a ten-year-old study of London cab drivers. To be licensed, drivers spend three years in study of the streets within a six-mile radius of Charing Cross. Brain imaging revealed that the hippocampus was significantly larger in these drivers than in others – and the difference increased with experience. One cabbie said, "I never noticed part of my brain growing - it makes you wonder what happened to the rest of it." We also know that the motor cortex of violin players dedicated to their left hand is much larger than the general population. What we do changes our brains. One could argue, in fact, that "right practice" (orthopraxis) might now replace "right belief" (orthodoxy) as a core commitment of all religious communities. In any case, it seems likely that engaged ritual practice, including pastoral counseling, both encodes and recalls procedural, semantic, and autobiographical memory; in doing so, renewal of personal identity and corporate belonging are both maintained and, at least at times, made available for transformation.

An impressive body of research suggests that memories encoded under particular circumstances may be recorded with greater reliability and ease of recall. In settings in which emotional arousal is increased, like engaging rituals or experiences of deep

connection between counselor and client, some evidence suggests those events are recorded more reliably and with greater vividness than events experienced under neutral emotional stimulation. Such encoding has been called "flashbulb" memory, in light of the fact that brief bursts of attention are focused on the event. More recent research suggests that even flashbulb memories are subject to distortion, though the gist of the story is generally more reliable than memories of day-to-day events (Schacter, 1996, 195-201). Flashbulb memories generally occur when subjects experience a deeper sense of personal involvement (including personal risk). Such memories can be either pleasant or unpleasant, and appear to involve the amygdala-hippocampus-medial temporal lobe system of fear response (LeDoux, 1996, 206-08; Dolcos, LaBar, and Cabeza, 2005).

Emotionally charged memories are more accurately retrieved up to a year later, and such recall involves the amygdala, entorhinal cortex, and hippocampus (Dolcos et al., 2005; McGaugh, 2004). When similar experiences are encountered frequently, the brain collapses multiple repetitions of events into a limited number of recollections, or even into a single template for all such experiences, reminiscent of the ways in which computer operating systems compress files by eliminating redundant information. In this way, memories of regularly repeated events become part of semantic memory, and it becomes less likely that a single event will be recalled as such. So it would follow that personal identity consists substantially in the remembered narratives held by persons, but also in the semantic and procedural memories that may not be immediately available to conscious recall. Ritual practices designed to form and transform persons will attend to the different consequences afforded to procedural, semantic and episodic memory.

One particular promising implication of these findings for pastoral

counseling is this: deep emotional engagement, within the context of an empathic "holding environment", likely accomplishes much more than simply recall painful, or even traumatic, memories; like the recall of "flashbulb" memories, these memories also become available for re-scripting in those moments when the safety of the counseling environment permits a re-membering that can subtly, or even profoundly, reshape the client's relationship to the events recalled.

Within that broad range of memory types, we turn now to a more complex form of "memory" that involves both explicit and implicit memories, but relies much more than we used to believe on the unconscious, affective memories of our earliest connections to others – our early attachments.

Attachment

So far our discussion has focused on the processes and development of individual brains and on conscious memory. Yet an increasing body of research is uncovering the capacities and requirements for the social brain. Human brains are formed by the quality of caretaker-infant interactions, requiring at minimum an effectively empathic responsivity which serves to help regulate the infant's affect, particularly influencing development of the orbitofrontal cortex which then enables the maturing infant to regulate its own emotional responsiveness (Schore, 1994, 2012; Siegel, 1999).

Infants arrive in the world with basic minimal capacities for emotional communication, and it takes decades to achieve the capacity for mature empathy. One of the most important to survival is the infant's exquisite sensitivity to the emotional climate, particularly the emotional state of a primary caregiver. Young babies are quite

attuned to the emotional cues around them. “Emotional contagion” describes the global affective processes that shape the infant’s early emotional life, and this early emotional responsiveness serves as the foundation for more mature empathic competence, particularly as cognitive skills develop into adulthood.

Psychologist Allan Schore (1994) outlines key developments during the first months of life. In a child’s first twelve months, the nurturing parent mirrors the young child’s experiences of joy, excitement, sadness and pain, matching them and giving both verbal and physical expression to them on the child’s behalf (Schore, 1994). The caregiver strengthens and consolidates the child’s awareness of his own feelings by amplifying them; by mirroring the child’s feelings she helps bring order to them and also helps make them a safe part of the child’s emerging sense of himself. This emerging capacity for “affect regulation” correlates with the development of a very specific circuit in the right frontal lobe of the brain (the orbitofrontal cortex, or OFC) and forms a vital connection between the emotion-signaling limbic system with the developing frontal lobes of the neocortex (Schore, 1994). The maturing OFC helps the infant begin regulating the emotional responses from the limbic system by introducing order, inhibiting emotional responses, and shaping more appropriate “prosocial” expression.

In a later volume (2012) Schore has expanded our clinical and neuroscientific understandings of the ways attachments are re-engaged in the therapeutic setting to allow the client to develop tolerance for a wider range of emotional stimulation (particularly in cases of a history of abuse) or depletion (in the case of neglect). Such deep personal interaction requires that the therapist be able to tolerate strong affective responses as well, utilizing the implicit memories of his or her right hemisphere, a reminder that will not

surprise pastoral counselors who have long been expected to have undergone their own personal therapeutic work as central to their own professional, as well as personal, formation. While Schore's work is oriented toward more several forms of psychopathology, his general model calling for the development of more integrated affect regulation though an attuned, empathic relationship of care, undoubtedly holds true across the range of clients with whom pastoral counselors work.

Psychologists of religion have drawn on attachment theory in intriguing attempts to understand religious experiences through the lens of attachment patterns developed in infancy (e.g., Kirkpatrick, 2005, 2006; Granqvist, 2006). Granqvist notes both the validity and risk in claiming too much for the correlations between attachment styles and religious experiences, preferring to refer to relationships with a personal God as "attachment-like" (119). He distinguishes between close relationships and attachments based on four primary characteristics of an attachment relationship: proximity maintenance (resisting separations), safe haven (turning to God in distress), and secure base (sense of well-being after contact or conversion). Bowlby adds, he notes, that the attachment figure "is perceived as stronger and wiser during stress" (117).

While correlations between attachment styles and ritual practices have yet to be fully developed, the links between the child's fear of separation and pleasure in reunion play a critical affective role, and may well account for the "attachment-like" behaviors that ritual embodies. Pastoral theologian James Ashbrook (1994), for example, suggested that the roots of faith and of our religious imagination grow from the experience of separation as infants. "The cry for the other, then, arises out of the experience of distance between ourselves and those with whom we are connected, those upon whom we depend

for safety and satisfaction….That consciousness releases the imaginative powers of the infant and later the creative powers of the adult" (299). Granqvist, in fact, does note that a believer's first response when confronted with distress is likely to be prayer, but he also acknowledges participation in religious rituals as a means of re-experiencing a sense of closeness to God. Given earlier research on relationships between parental images and images of God (e.g., Rizutto, 1979) it seems quite likely that engaged ritual processes recruit many of the same neural networks that we use in relating to others.

Further support for ritual's role in affect regulation can be found in older studies which demonstrated the influence of social context on labeling emotional responses. Michael Gazzaniga (2000) describes research conducted by Schacter and Singer in 1962 in which subjects were injected with epinephrine, resulting in activations of the sympathetic nervous system with increased heart rate, hand tremors and facial flushing (1316). Subjects were then placed with confederates who expressed either euphoria or anger. Those subjects who were with euphoric confederates described their feelings as euphoric, and those with the angry confederate described themselves as angry. He suggests that language centers in the left hemisphere (which he calls the "left brain interpreter") are at work interpreting otherwise ambiguous data about the self. Such a proposition suggests that in ritual practices (including counseling), participants who experience emotional arousal might tend to interpret those experiences as similar to those around them or in ways that are consistent with the stories which they are constructing or hearing. The narrating and naming of such experiences therefore is formative in the work of pastoral counseling, especially when

Though much further empirical research is needed, it is hard to escape four

tentative conclusions: 1) attachment styles are founded on early relationships, influence later relationships, and are grounded in neurobiological structural and neurochemical changes; they constitute, therefore, a form of early implicit memory; 2) attachment styles, founded on the child's earliest intimate relationships, shape the ways we understand and relate to the divine; 3) ritual practices (including psychotherapy) as "extraordinary" events, serve at least in part, as strategies for reunion, driven by felt separation – from others, from the divine; and 4) the social context of ritual practices deeply inform both the cognitive and affective dimensions of religious experiences, perhaps even to the extent of defining them as religious or sacred.

Ritual – and what does it have to do with pastoral counseling?

At first glance, defining ritual appears to be an easier task. We know rituals when we see them, whether we are participating or watching others participate. And yet attempts to define rituals have produced much debate under the light of postmodern analysis. The late anthropologist Roy Rappaport offered arguably the most succinct definition in the literature: "the performance of more or less invariant sequences of formal acts and utterances not entirely encoded by the performers" (1999, 24), a definition which at first glance seems far removed from the spontaneity and surprise of contemporary pastoral counseling. The late historian of religion Catherine Bell, on the other hand, argued persuasively that the field of ritual studies has been unable to define the abstract notion of ritual, but she does recognize processes of ritualization, by which she means "the very drawing, in and through the activity itself, of a privileged distinction between ways of acting, specifically between those acts being performed and those being contrasted,

mimed, or implicated somehow " (1992, 90). That is, ritualizations call attention to themselves as distinct from other human behaviors, much as pastoral counseling requires the construction of a ritual-like space in which the "normal" practices of human interactions become focused and take on deep meaning. This distinctiveness gives ritual, and psychotherapy, its power. The definitional problem, however, is less relevant to our discussion today than her description of the nature of ritual practices. First, she argues that the performance of ritual practices far outweighs the ideologies or beliefs they appear to express or reinforce. That is, doing is more important than believing. A second claim of importance for us is her description of a basically circular process of ritualization. She states that "...through a series of physical movements ritual practices spatially and temporally construct an environment organized according to schemes of privileged opposition. The construction of this environment and the activities within it simultaneously work to impress these schemes upon the bodies of participants" (98-99).

It is this creation of a ritualized body that is of interest as the neurosciences become increasingly adept at depicting brain processes under a variety of circumstances. Two acknowledgements must be made at the outset. The brain is not the whole body, of course, and much of its activity involves monitoring the body's own status. The brain is, however, the body's interpretive center, connected deeply to the rest of the body and coordinating the body's survival in the natural and social worlds we inhabit. It is also true that the research studies have been limited by the very technology that makes them possible; undergoing a functional Magnetic Resonance Imaging (fMRI) scan requires lying still inside a noisy machine, constraints which effectively rule out a number of ritual practices. Nonetheless, intriguing discoveries are emerging as scientists are

devising creative methods of studying practices other than meditation. (Newberg, in McNamara [ed.], 2006).

Ritual structures and participation, including those that occur in psychotherapy, set time and space apart from the ordinary –distinctive experiences often referred to as *liminal* (van Gennep, 1960; Turner, 1969). Such participation engages the body's autonomic nervous system, frequently alternating between the sympathetic and parasympathetic subsystems. These processes then arouse or quiet subcortical neural processing and hormonal involvement, resulting in emotional engagement (d'Aquili & Newberg, 1999, pp.112-116). Here we find a significant correspondence between the affective attunement that makes deeper forms of psychotherapy and participation in corporate religious rituals. Most of the interpersonal neurobiological research focuses on two-person encounters, but it is not much of a stretch to imagine that similar processes occur in larger group configurations. d'Aquili and Newberg (1999), for instance, suggest that in ritual participation and in meditation, input into the left superior parietal lobe is decreased. Since that neural structure is in part responsible for a sense of separation between self and others, they argue that ritual practices decrease the sense of separation and enhance a feeling of belonging to the group.

McCauley and Lawson (2002) argue in fact that maintenance of communal memories is a central function of ritual. While such functions are likely more critical in non-literate cultures, they likely provide insight into the functions of ritual in literate societies as well (38). Citing research supporting the relative reliability of "flashbulb" memories, they extend and critique the ritual frequency hypothesis. This theory, most clearly articulated by Harvey Whitehouse (2004), argues that less-frequently performed

rituals require higher levels of pageantry in order adequately to encode both the details and significance of a given ritual. Noting that emotional arousal alone provides an inadequate explanation of variable reliabilities in flashbulb memories, they outline two key dimensions of such memories that are relevant to our discussion here. First, a sense of participation in the episodes being encoded strengthens their reliability; secondly, the role of narrative construction that unfolds in the days and weeks following an event are critical in establishing the meaning and ongoing impact of personally encountered events. Combining both dimensions, they outline a "cognitive alarm hypothesis," which "holds that when current circumstances are the cause of our emotional arousal, we will increase the attention and cognitive resources we devote to them, which, in turn, will increase the probability of their subsequent recollection. But that sort of memory consolidation may only arise if that initial, heightened alertness receives ongoing vindication in subsequent experience concerning our sense of the event's significance" (McCauley and Lawson, 2002, 78).

Boyer and Liénard (2006) sound a similar note when they sharply distinguish ritual from habit, observing that ritual requires high cognitive input and attention to detail, and is anything but automatic. They also link ritual to the brain's fear system, grounding both ritualization and obsessive-compulsive disorder in the adaptive "Hazard Precaution System" (595-650). While fear-reduction outcomes are likely a critical component of rituals, those descriptions do not seem to explain more direct positive, even ecstatic, experiences that many report during ritual practice.

What seems likely, at this stage of the research, is that ritual practices engage implicit and explicit memory systems, including procedural, semantic, and episodic

memories; that they reinforce and transform them; and that ritual plays a critical role in memory by creating a sense of extraordinariness that attracts the attention of participants and so helps shape both bodies and brains.

Conclusion

We have briefly explored two central dimensions of human experience that have clear neurobiological substrates – memory and attachment. Ritual practices, including pastoral psychotherapy, involve and heighten the activation of both memory and attachment, and often provide opportunities for encoding new memories, recalling older memories, and at least occasionally, providing opportunities for profound personal change. Pastoral counselors, it would seem, have a particular expertise in ritual practice which can, and should, inform their work with clients and congregants. This dimension of pastoral practice may have been undervalued by training programs that focused on "the talking cure" and that have inherited an early psychoanalytic distrust of ritual process as symptomatic of obsessive-compulsive disorders or of "acting out." Yet the role of ritual and spirituality have been embraced by other psychotherapeutic traditions, often neglecting the ritual experience held by contemporary religious practitioners who are the beneficiaries of literally millennia of experience and wisdom. Such a conviction should prompt pastoral counselors to revisit the ways in which ritual-like behaviors or included, and perhaps even encouraged, in the therapeutic session. Likewise, careful attention should be paid to the ways in which psychotherapy is inherently a ritualized practice, including awareness of the ways ritual enhances or impedes the processes of healing and reconciliation (Hogue, 2003).

Perhaps we can be much more open to exploring explicitly the role of rituals in the lives of our clients and the experiences those elicit. More importantly, we can judiciously employ ritual practices ourselves in our work, practices such as meditation or more performative acts that construct a ritual space to welcome deeper affective responses in ourselves and in our clients.

Such a conviction should also prompt us to value again the role of implicit activity, thought, and emotion in the therapeutic setting. Talking and correct interpretation may in fact be an overvalued feature of our work and call us to return to the critical function of empathic connection – of "being with," or attuned to, those we serve. The level of attunement to our own deeper selves, shaped by the interpersonal space constructed in the therapy setting, is demanding work, as well as the long years of personal and professional preparation. But such attunement is at the center of what we do, and what we have to offer.

Deeper understandings of the neurobiology of memory provide important insights into the roles they play in both our sense of personhood and in our deep connections with others. Human beings never outgrow a need for human connection, and empathic relationships provide a rich context for human flourishing; the more fully we can understand their early development, unfolding impact on human living and loving, the more competently we can nurture healthy relationships and seek ways to repair disrupted attachments. Our early attachments indeed shape our most intimate relationships throughout life, including our relationships with the divine. In human ritualizing, both corporate and dyadic, we create times and spaces where we seek to overcome the separation from others (including God) that we fear. In Catherine Bell's words, we

construct an environment that in turn changes our bodies, and especially our embodied minds.

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Of Unequal Temperament: What Neuroscience Suggests about Pastoral Care with Artists[1]

Laura Rosser Kreiselmaier[2]

Abstract Whether they are church staff musicians, other creative congregants, or fall into the increasing "spiritual but not religious" category, pastoral caregivers frequently encounter the dual joy and challenge of working with **artists.** I argue that just as we encounter unexpectedly rich musical nuances when we expand beyond the modern standard of tuning keyboard instruments to "equal temperament," we open ourselves to gifts of spiritual sensitivity, intuitive depth, and transcendent experience when we seek to understand the artistic temperament and use this understanding to inform our pastoral care. To do so I draw upon the work of the late Australian psychologist Michael A. Thalbourne, whose concept of **transliminality** has opened new vistas of research examining the neuropsychology of highly creative people. Because transliminal artists' brains and personalities have certain characteristics, they require pastoral therapists and spiritual directors who 1) take unusual experiences seriously and can connect them with resources in their faith tradition; 2) encourage contemplative spiritual practices, but with certain precautions; 3) can help balance esoteric perceptions with grounding in the body, nature, and community; 4) recognize that "New Age" or complementary/alternative medical (CAM) practices encompass a broad territory and take care to distinguish between wheat and chaff; and who 5) dare, following the example of Jesus, to use suggestibility and altered states in God's service.

Keywords transliminality, Michael Thalbourne, artists, temperament, creative

[1] This article is dedicated to English novelist and theologian Susan Howatch, whose historic-fictional Starbridge series has profoundly influenced my perspective on Christianity and transliminality.

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"*Unequal temperament* (Mus.), that in which the variations are thrown into the keys least used. [1913 Webster]"

A portrait of the artist as a young man

Jacob[3] is a concert-level guitarist in his early twenties whose work is in high demand throughout his mid-size Southern city. While not a regular churchgoer, he often plays for worship services and has gotten to know members of choirs and praise bands, which is how you two met. Now he is describing a recording session held in a local church sanctuary last night.

Usually focused and professional, Jacob had trouble keeping his attention on his part; he was distracted by a feeling of "something spiritually wrong" going on in the room. Fortunately, the producer was patient with him, but Jacob was not able to perform well until he relocated from his original position near the front altar to the lower ground level of the sanctuary, near the pews, which altered the acoustics. He looks at you with wide yet distant eyes, visibly still spooked. "I can't tell if there was something sinister going on at that church, or if God's trying to get my attention!"

You find yourself wondering about the possible onset of mental illness, but don't want to scare him, and you do have knowledge of some notable dysfunction among the staff members of that particular congregation. Could Jacob be exhibiting acute spiritual or psychological sensitivity? Is he just imagining things? Does the physical location of his malaise hold any significance? You've also been hoping Jacob would find a faith community he feels at home in—easier said than done for a Christian musician whom you suspect is probably gay but not "out." Could God indeed be trying to get Jacob's attention somehow through this episode, or is

[3] Not an actual person, but rather a composite of individuals and episodes I have encountered as a musician and therapist.

Jacob's openness and suggestibility just rubbing off on you? Concepts like spiritual warfare and God's pursuit were so much easier before seminary and those pastoral counseling classes! Now you have some nagging questions about the overlap between psychology and theology, especially with the increasing advances in neuroscience. As an amateur musician yourself, you've always liked "creative types" and have observed that they do seem to pick up on things that others wouldn't have noticed. Their differently-calibrated personalities and peculiar conflicts can make for some pastoral care challenges.

A different beat

I use this opening vignette to provide an example of the types of questions that can arise when we have an opportunity to practice soul care with artists, or people with an "artistic temperament," or "highly creative individuals." As a professional pianist and pastoral psychotherapist living at the buckle of the Bible Belt[4] in Music City,[5] these folks are my community. Yet, aside from various resources on using creative practices as a tool for psychotherapy, little has been written about the dynamics and implications of practicing pastoral care and counseling *with* people who are extremely creative.

I suspect that some of our more analytical readers may be frustrated with me, wondering, "Is she talking about artists? or musicians? or anyone who is highly creative? And if creativity is something we all possess to a certain degree, what are her criteria for determining who has a 'high' amount?" The scope of my topic is admittedly messy and complex. I believe this is so because what we are really talking about is better classified as *transliminality*—the tendency of some persons to be more consciously aware than others of thoughts, emotions, sensory data, and

[4] A colloquial term for the Southeastern United States, whose public culture tends to be more explicitly Evangelical Christian than in other regions of the nation.
[5] A historic nickname for Nashville, Tennessee, due to its significance in the country music industry.

pretty much any so-called psychological material. Creative personality (as differentiated from creative achievement) is a component of it, and most but not all musicians and other artists are highly transliminal.

In this article I will explain what transliminality is, explore its neuroscience, encourage my fellow pastoral counselors and care providers to use it as lens for understanding their extra-creative clients, and offer five concrete suggestions for how we might customize pastoral care with transliminal artists. Before doing so, however, I want to explicate the generative metaphor of my title, "Of Unequal Temperament." Moreover, I am intentionally expressing myself in a transliminal style—definitely less linear, and perhaps more colorful, than the typical academic article—since the best way to grasp this concept is more "right-brain" than "left-brain," less analytically and more intuitively.

Calibrated Background Noise

Temperament is the inherited scaffolding upon which other aspects of personality are built. While different psychologists have different ways of classifying aspects of temperament (introverted/extroverted, moody/easygoing, focused/distractible, and so forth), there is general agreement that we are born with it (Zentner & Shiner, 2012, p. xi); it is the "nature" part of the nature versus nurture continuum. If you are asked to describe what someone is like, after mentioning demographic basics like sex, age, ethnicity, and occupation, you would probably soon move into the realm of temperament—are they shy, angry, laid-back, scatterbrained, aloof? Even more abstract, personality-related statements such as "she's always the consummate professional" imply temperamental traits such as high energy, focus, and emotional regulation.

Where temperament often does *not* show up, however, is in the clinical studies that are used to help determine treatment recommendations for people who suffer mental and emotional

distress. Psychologists have designed numerous intricate experiments to compare and contrast the outcome rates for various types of talk therapies, psychopharmaceuticals, and placebos[6] in order to track what works in alleviating depression and psychosis. These outcomes may be organized by patients' age or gender, but further analysis of their individual differences is unlikely. Yet, both common sense and on-the-ground clinical experience suggest that a person's temperament plays a significant role in affecting the following variables, among others: who tends to get depressed and in what way(s), who develops the conditions we consider to be serious mental illness, who flourishes with various types of psychotherapy and who comes across as "treatment resistant," who responds well to different kinds of psychotropic medicines, who often gets better after taking placebos, and who is most likely to participate in psychological studies in the first place.

At the risk of oversimplification, I would submit that ignoring the role of temperament in conducting psychological evaluations or interventions, particularly for persons with extreme suffering, is akin to performing a blood transfusion without first checking the patient's blood type. And it happens all the time. It also points to an important lacuna within the healing arts where pastoral therapists, with their roots in the care-of-souls tradition and their foliage colored by psychodynamic theory, have considerable expertise to contribute.

Tinkering with Timbre

Now I'd like to introduce another meaning of the word *temperament*, one which will be familiar to those of you who are musicians. Temperament in music refers to the way that the keys of a keyboard instrument are tuned.[7] Since the early 20th century, the standard for most

[6] See, for example, Elkin et al., 1989; Keller et al., 2000; Carpenter and Gold, 2002; Hollon et al., 2002; Hoffman et al., 2003; TADS Team, 2004; DeRubeis et al., 2005; Dimidjian et al., 2006; and Fournier et al., 2008.

[7] Upon reading a draft of this manuscript, theologian and musician Joseph Strausbaugh observed that in both psychology and music, "temperament" concerns how tightly wound a person or instrument is!

Western music has been "**equal** temperament," in which the twelve notes in an octave are spaced out evenly. This method gradually gained popularity during the 1800s for its convenience and versatility, but despite musicians' awareness of it for centuries, equal temperament was long resisted because it was thought to sound bland (Gann, 1997).

Much richer and more tonally colorful, though less utilitarian, was the original Pythagorean tuning (or "**just** intonation") whose intervals were based on mathematical proportions occurring in nature. The problem was that instruments could only sound that wonderful in certain keys, and if you transposed a song higher or lower, the music didn't resonate in the same way and could end up sounding as strange as it originally had beautiful. Somewhere between the "pure" just/Pythagorean method and the "technical" method of equidistant tuning was "**well** temperament," [8] as in Bach's *Well-Tempered Clavier*. Well temperament is, well, good enough—not perfect, either in the aesthetic or the mathematical sense, but with slightly "off" intervals in each key that need not be detrimental and in fact can contribute to the character of the music.[9]

We moved from unequal to equal temperament because we wanted to be able to play any song in any key and have it sound the same: uniformity trumped contrast, sensitivity, the requirement of specialized (musical) knowledge to discern what actually sounds better under what circumstances. Just as our modern and postmodern eras ushered in biochemically-based medicines and globalization-based notions of what is normal (or ideal or "healthy"), they leveled the playing field of the musical keys. It sounds nice . . . in theory. "Equal" brings to mind notions of democracy and impartiality, whereas "unequal" stinks of favoritism and disparity. But people are not tuned the same, and pastoral care worth its name starts with thoughtful

[8] For simplicity's sake I am omitting meantone temperament, which developed around the late 1400s (Gann 1997), over two centuries before well temperament.
[9] This is actually what Bach composed *The Well-Tempered Clavier* (1722/1742) to demonstrate (Rubenstein 2000).

listening to discern the care-seeker's God-given temperament.

More than meets the ear

I would like to propose a comparison between equal temperament and people who are thought of as psychologically "normal," and between unequal temperament—with its potential for sounding incredibly harmonious *or* quite dreadful—and persons who have a wider range of mental, emotional, and spiritual movement. More specifically, I want to examine a particular kind of "unequal" human temperament that some researchers have begun naming *transliminality.*

This word may evoke echoes of Victor Turner (1969)'s concept of liminal space, and rightly so; transliminality also involves occupying both sides of a threshold (*limen*-) or boundary. In this case, however, the threshold is that of consciousness, and the "trans-" part refers to crossing it in both directions. Transliminality is "the hypothesized tendency for psychological material to cross thresholds into or out of consciousness" (Thalbourne & Houran, 2000, p.861), and some people have a lot more of it than others. The more transliminal you are, the more likely you are to be creative[10] and suggestible, feel an extra-wide range of emotions, undergo psychosis, recall numinous dreams, have mystical experiences, and experience sensory overload—quite an array of characteristics.

Transliminality was discovered by accident by the late Australian psychologist (and parapsychologist) Michael Thalbourne. Himself a highly creative, transliminal scholar, Thalbourne struggled throughout his career to secure a respectable academic position because of his self-identity as a parapsychologist and his struggles with bipolar illness (Phillips, 2010, p.383). Thalbourne was trained at the University of Edinburgh, where parapsychology entails the

[10] Here I am referring to creative personality rather than creative achievement; for more differentiation of terms, please see my 2012 paper, pp. 2-3, 8, and 12-13.

same rigorous methodology as its orthodox sister, but diverges in the contents of its scrutiny.[11] Though he built a sizable curriculum vitae of publications by channeling his paranormal research interests into studying various (mainstream) psychological aspects of paranormal beliefs, Thalbourne insisted upon remaining a parapsychologist at heart; a "crisis of religious faith" in his teens had led him to leave his Catholic upbringing (Thalbourne, 2005) and use his scientific training to investigate what William James might call the More (1902, p. 384).[12]

In one of his experiments in 1994, Thalbourne and his colleague Peter Delin were surveying different populations' degrees of paranormal beliefs and experiences. They also measured "degree of creative personality, mystical experience, . . . magical ideation, hypomania, and . . . symptoms resembling mania and depression" (p. 3). To their surprise, every category they tested correlated with all of the others, in most cases significantly so (pp.16-19). Principal components analysis revealed that all of these attributes actually constitute a single factor, meaning they are aspects of one underlying "thing" rather than separate traits coincidentally found together (p. 20). Thalbourne and Delin named this thing *transliminality* (pp. 22*ff*)[13] because all of its features seemed to involve having heightened conscious access to psychological phenomena (ideas, feelings, images, sensations) that most people do not experience to such a strong degree, if at all. Put differently, people with more transliminality have a more permeable threshold into their conscious awareness.[14] Further research revealed that other "core correlates" of transliminality (in addition to the original six) include "general religiosity[,] . . . frequency of dream-interpretation" (Thalbourne & Houran, 2000, p. 854),

[11] For more information, please visit their website at http://www.koestler-parapsychology.psy.ed.ac.uk/index.html.
[12] A tongue-in-cheek referent to Thalbourne's biblical literacy is his christening of the Sheep-Goat Scale, which measures people's degree of paranormal belief (Thalbourne 2010; cf. Matthew 25:31-46).
[13] Apparently not realizing that the term "transliminal" was used as early as 1909 with similar intent (see Phillips, 2010, p.385; Lange et al., 2000, p.592).
[14] Psychoanalytic therapist and psychiatric nurse practitioner Jennifer Scroggie (2014) comments that in psychodynamic terms, high transliminals find it easier to bypass the repression barrier.

"[s]chizotypal personality, fantasy-proneness, absorption and hyperaesthesia[15]" (p. 855).[16]

I suspect that when we talk about someone having a "creative personality" or an "artistic temperament," often what we really mean is that she or he is highly transliminal—extra sensitive, literally seeing or feeling things that others don't, somehow in touch with a reality beyond what most "normal" people access on a given day. There has been quite a bit of scientific speculation, and a limited but increasing amount of experimental investigation, into the neuroscience that accompanies high amounts of transliminality. Most of this research is not directly about transliminality (the term is not yet considered mainstream in psychological literature[17]), but rather falls under the rubric of "creativity and psychosis" studies. Because transliminality encompasses both creativity and psychosis-proneness and is one way of naming the apparently-inherent connection between them, my working hypothesis is that the same neuroscience behind the creativity/psychosis overlap is what is going on with transliminality.

Below I will discuss what we know so far about the neuro*electrical activity* (brain waves), neuro*transmitters*, and hypothesized neuro*cognition* of people who are very transliminal. My hope is that pursuing this avenue of knowledge will help us to better understand—and thus provide better pastoral care for—the people in our communities who have this particular kind of "unequal temperament." The information that follows is fairly technical, and readers who are less interested in the neuroscience of transliminality than in the practical application of this knowledge may wish to skim the next three sections and resume reading at the bottom of p. 17, "Learn to live with what you are."

Picking Up Good Vibrations

[15] That is, acute sensory sensitivity
[16] For an excellent overview of transliminality, please see "The Concept," 2010.
[17] Thalbourne and Storm (2010) found 74 articles related to transliminality at the time of their last online search (p. 194) before publishing their bibliography. My Google Scholar search of "transliminality" on 12 April 2014 resulted in 186 more articles published in 2010 or afterward, though they vary in their degree of relevance.

One way we have of measuring the amount of activity going on in various parts of the brain is with an electroencephalogram (EEG), which records the electrical frequencies of large groups of neurons firing in different areas; these can then be plotted onto a topographical map. Different frequency ranges, as measured in Hertz (waveform cycles per second), are named after the Greek letters *delta* (<4 Hz), *theta* (4-7 Hz), *alpha* (8-15 Hz), *beta* (16-31 Hz), and *gamma* (32+ Hz). Delta waves are generally associated with sleeping, theta with deep relaxation, alpha with calmness or meditation, beta with active thinking and problem-solving (Herrmann, 1997), and the more recently-discovered gamma waves are thought to involve higher-order cognition and consolidation of information (Herrmann et al., 2010, p. 989).

In one of the few physiological studies on transliminality to date, Jessica Fleck and colleagues (2008) took baseline EEG measurements of the brains of people who scored high and low on Lange's (2000) *The Revised Transliminality Scale* (RTS) and found differences in three key areas: the left posterior association cortex, the right superior temporal region, and the frontal-midline region. The first two areas have less alpha, beta, and gamma activity in highly transliminal people, while the third area is marked by more gamma activity in transliminals.

The left posterior association cortex is a "polymodal association region" (Fleck et al., 2008, p.7) thought to be involved with synesthesia, though it is unclear why transliminal people have *less* activity in this part of the brain, since transliminality often involves hyperesthesia and/or synesthesia.[18] Similarly, the right superior temporal lobe is associated with a key characteristic of transliminality—in this case, insight-based creative problem solving (p. 8)—so it is not surprising that brain wave differences show up here as well, yet again the high transliminals actually have lower powers of EEG activity in this region.

[18] Fleck, et al. also comment that the lower amounts of neural firing could be due to lesser brain volume in this region, which other studies have linked to symptoms of schizophrenia, but point out that this is only one of many possible explanations.

However, the brain region where people high in transliminality have *more* gamma activity than their less-transliminal counterparts is the medial-frontal cortex (Fleck et al., 2008, p. 9). There are several theories about what sorts of activities this region coordinates,[19] with the common ground being some sort of careful self-awareness and forethought. Given this information, Fleck and colleagues' hypothesis is that people with high transliminality, who "report an increase in perceptual aberrations and unusual experiences," consequently have a greater "need to utilize higher-level cognitive control to organize incoming stimuli that would otherwise result in sensory confusion" (p. 9).

In contrast with other studies that associate the personality traits of openness and psychoticism/creativity with increased theta wave activity (e.g., Hunt, 2007, p. 221, 226, citing Stough et al., 2001 and Glicksohn & Naftuliev, 2005), Fleck et al.'s EEG study "revealed no significant differences between high- and low-transliminality groups in the delta or theta frequency bands" (2008, p. 6). This difference in results could stem from methodological differences in the experiments, or from differences between transliminality itself versus its correlates of openness and psychoticism/creativity; more research is needed to replicate, refine, and interpret Fleck and colleagues' findings. At present we have evidence that highly transliminal people's neuroelectrical activity is indeed different from that of their less transliminal counterparts, but what exactly this variation translates into phenomenologically is still a matter of conjecture.

A Little Too Much Information

By now neurotransmitters are familiar to most people in the mental health field, between the popularity of selective serotonin reuptake inhibitors (SSRIs) as a remedy for depression and

[19] Ridderinkhof et al. (2007, p. 262-3) list "conflict monitoring," "outcome evaluation," "risk prediction/error avoidance," "cost-benefit analysis," and "regulative control."

anxiety, and studies linking addictions to altered dopamine circuitry (e.g., Lambe & George, 2009). These chemical molecules carry signals from neuron to neuron and are essential micro-messengers for starting the chain reactions (Boron & Boulpaep, 2011, p.331) to organize physical coordination, memory, emotions, language, and all the other functions of our nervous systems. At least three in particular—dopamine, serotonin (e.g., Barrantes-Vidal, 2004, p. 74) and norepinephrine (Folley et al., 2003)—are associated with creativity *and* thought to be involved in the psychopathology of mood disorders and schizophrenia; thus they may be connected with the trait of transliminality, which seems to predispose people to either or both of these possibilities.

Of the three, the most specific linkage to transliminal cognitive and emotional processes appears to be with dopamine. Dopamine in general, and D2[20] receptor expression in particular, has been associated for at least two decades with the "divergent thinking" aspect of creativity (Chermahini & Hommel, 2010, pp.458-9) that involves free association to a wide range of ideas or possible solutions. (Its opposite process, convergent thinking, uses logic to narrow down options to "converge" upon one best answer.)

In a 2010 paper entitled "Thinking Outside a Less Intact Box: Thalamic Dopamine D2 Receptor Densities Are Negatively Related to Psychometric Creativity in Health Individuals," authors Örjan de Manzano and colleagues describe an experiment in which they moved one step closer to understanding the relationship between dopamine and divergent thinking. Building upon past research linking schizophrenia with altered D2 levels in patients' thalamus and striatum regions, de Manzano et al. decided to focus their analysis upon these two areas (p. 2). They used MRI and PET scan imaging to examine the brains of people who score high on measures of divergent thinking—people we might expect to be creative and transliminal.

[20] one of the subtypes of dopamine

While "[t]here was no significant correlation between divergent thinking and D2 B[inding] P[otential] in the striatum" or its subregions (p. 2), the authors discovered that in the *thalamus* regions of highly divergent thinkers there are fewer D2 receptors than usual. This finding is significant because the thalamus is centrally located and extensively connected to several crucial brain regions—"the associative and limbic areas of the cortex, those that receive input from the cerebellum and basal ganglia and project to the motor regions of the frontal lobe, and those that transmit general and special sensory information to corresponding parts of the sensory cortices" (Donnelly, 2014, p.199)—and "direct causal evidence" has been found that "the thalamus exerts regulatory control over ongoing cortical activity" (Malakmohammadi et al., 2014, p. 9). The thalamus is thought to relay information related to physical movement, vision, hearing, touch, sleep and wakefulness, arousal, and consciousness (Crossman & Neary, 2010, pp.122-125). Meanwhile, "[d]opamine D2 receptors constrain communication between brain regions" (Grant, 2010, p. 24).

Thus, de Manzano and colleagues take their finding that highly creative people have fewer thalamic D2 receptors to mean that "the creative bias may . . . bring a risk of excessive excitatory signals from the thalamus overwhelming cortical neurotransmission, with ensuing cognitive disorganization and positive symptoms" (2010, p. 3).[21] This interpretation is strikingly compatible with Fleck and colleagues' hypothesis about why very transliminal people have extra gamma frequencies produced by their medial-frontal cortices. Highly transliminal people's neuroelectrical activity and neurotransmitters appear to be different from the norm in ways that suggest perceptual and sensory overload and an accompanying need for metacognition. So far, the evidence does indicate that their threshold (*limen*-) into consciousness is more crossable

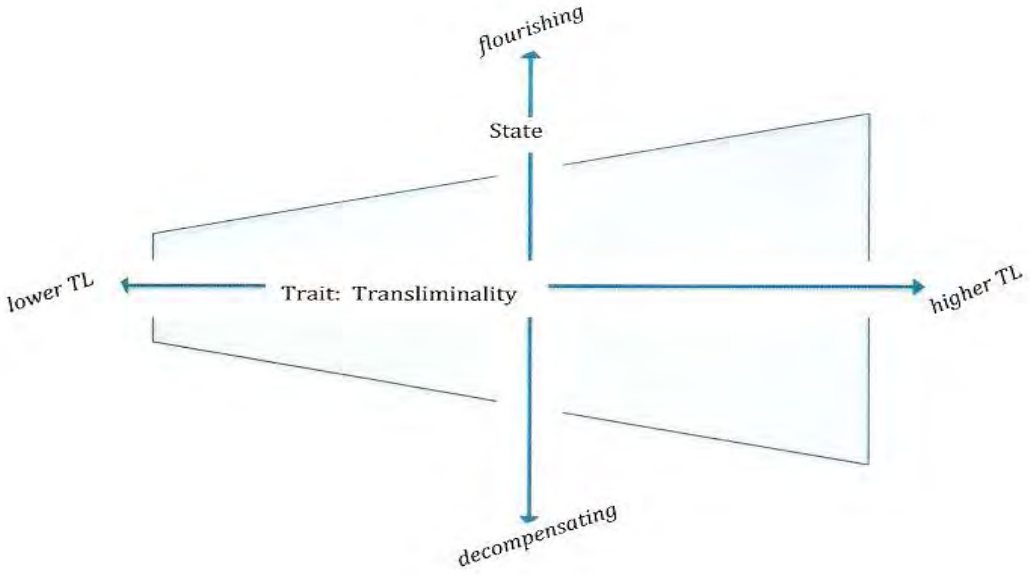
[21] In the context of schizophrenia or psychosis, "positive" and "negative" signify "extra" or "missing" phenomena, respectively, rather than whether a symptom is advantageous or detrimental. Positive symptoms refer to hallucinations or delusions, while negative symptoms can include deficits in memory, cognition, or affect.

(*trans*-) than that of other people. Just as the word "transliminal" suggests, persons with this trait appear to have more psychological material entering their awareness, as well as a corresponding need to expend more mental energy "sifting" and organizing it.

It's All Connected

Now that we have looked at the anatomical and electrical aspects of the neuroscience of transliminality, let's examine how its physiology gets "translated" into the cognitive processes that mark transliminal people's patterns of thinking, feeling, and awareness. Here I am drawing from the psychological literature on "creativity and psychosis," or, more broadly, "creativity and psychopathology." In general, researchers' consensus is that highly creative (and I would posit transliminal) persons' thought processes are more divergent than convergent, as discussed earlier. Another way to describe this pattern is that transliminal thinking is more associative than goal-related, with less "'top-down' or expectation-driven information processing" (Abraham et al., 2005, p. 523) than in other people.

Harvard lecturer Shelley Carson has developed a model to help parse out how exactly the same giftedness of creativity carries a predisposition "for certain forms of psychopathology, including mood disorders, schizophrenia spectrum disorders, and alcoholism" (2011, p.144). Her "shared vulnerability model" encompasses three factors that appear to be inherent to both creativity and psychopathology, and three factors whose ranges determine whether creativity or psychopathology is likely to be dominant in a person. Another way to conceptualize this idea is, if we envision transliminality as a continuum in which higher levels contain a greater range for flourishing versus decompensation,



Carson has identified three factors that help determine a person's horizontal positioning on the map (i.e., how transliminal s/he is), and three that affect the vertical positioning s/he tends to inhabit.

Lower latent inhibition. The first factor in Carson's model shared by people who are "vulnerable" to both creativity and psychopathology involves latent inhibition (LI), which is "the capacity to screen from conscious awareness stimuli previously experienced as irrelevant" (2011, p.147). In high transliminals, with their divergent, free-associative thinking, nearly everything seems potentially relevant. Transliminal people's LI is thus lower than their less creative/psychosis-prone counterparts'. This reduced-LI tendency is related to scoring high on the personality dimension of "openness to experience" (p. 147).

Novelty seeking. Carson's second "shared vulnerability" factor is the tendency to seek out new and complex stimuli. While this description sounds a lot like the first factor, lower LI is more a matter of creating more *availability* of stimuli, whereas novelty seeking involves the emotional predisposition or "intrinsic motivation" to attend to them (p.147). Novelty seeking is

thought to be related to the dopamine system and is associated with creativity, mania, and addictions (p.147).

Neural hyperconnectivity. The third cognitive factor present in both the light and shadow sides of high transliminality is "an abnormal neural linking of brain areas that are not typically functionally connected" (p.147). That highly creative persons have extra neural connections is not surprising, given what we have already seen about their divergent thinking patterns, reduced thalamic dopamine gating, and likelihood of having synesthesia. It also makes intuitive sense that people who are able to see connections that others aren't, have neurological interconnections that others do not.

IQ level. So what elements affect whether a highly transliminal person with lower LI, novelty-seeking inclinations, and neural hyperconnectivity tends more toward creative flourishing, or more toward psychopathology and/or addiction? The first "protective factor" that Carson identifies is a high IQ, which has been shown to be "necessary but not sufficient to explain [high] creativity" (p.148). Given research by Barnett et al. (2006) that demonstrates the protective effect of high IQ against severe psychopathology, she hypothesizes that increased intelligence allows people with extra neural connections and low latent inhibition "to process and manipulate the additional stimuli rather than becoming confused or overwhelmed by it" (Carson, 2011, p.148, citing Carson et al., 2003).

Working memory. Also necessary for this extra processing is having sufficient working memory capacity to hold multiple stimuli, ideas, experiences, and so forth in mind simultaneously. Carson speculates that "enhanced working memory" predisposes a person toward creativity (2011, p.148) by providing the mental scaffolding for disparate ideas to coalesce into relevant insights, while deficits in working memory can contribute to the shifting

states of "disordered cognition."

Cognitive flexibility. Related to IQ and working memory, but distinct in its function, is Carson's third protective factor that predicts whether transliminals tend toward creativity or pathology: cognitive flexibility. Because it entails "switch[ing] mental states" and taking in multiple perspectives and—like reduced LI—is related to "openness of experience" (pp.148-9), cognitive flexibility at first appears to be a "horizontal" feature like divergent thinking that inclines a person toward transliminality in the first place, rather than a "vertical" feature that helps regulate transliminal flourishing versus decompensation. The key difference between the "switching" of cognitive flexibility and that of low latent inhibition is that the former is under a person's conscious control. Carson points out that cognitive flexibility allows someone "experiencing magical thoughts or unusual perceptions" (two hallmarks of transliminality) to "disengag[e] attention" from them or to develop a benign interpretation rather than assuming they are going crazy (p. 149). Similarly, research by Emmanuelle Peters and colleagues has shown that lasting psychopathology is not so much a matter of *having* unusual perceptions or experiences, as it is their content, "the extent to which they are believed, how much they interfere with one's life, and their emotional impact" (1999a, p. 92).[22]

Learn to live with what you are

Now that we have examined the neuroscience associated with transliminality, what do we do with this knowledge? This is not just an academic question. People who fit this personality profile are in our pews, sitting at piano benches and on drum stools, coming to us for counseling or simply a listening ear, or standing in the background because the stimulation of group interaction is just too much, or not attending church anymore because the draw of Buddhist

[22] See also Peters et al., 1992b.

meditation or energy healing or chanting kirtan is more appealing to their needs and tastes. Often but by no means always artists of some sort, they may seem spacy, moody, high-strung—or insightful, devout, spiritual in a more tangible and personal way than the typical congregant (or clergyperson!).

Pastoral care with transliminal people matters because we have lost far too many of them to suicide.[23] Schizophrenia, depression (bipolar and otherwise), and addictions may merely be words on a page when discussing disordered thought patterns and dopamine regulation, but in real life they are devastating, sometimes even deadly. As practitioners, we walk a tightrope between over-pathologizing unconventional experiences or behavior, on the one hand, and, on the other, failing to take deep human pain seriously because we are blinded by the giftedness that accompanies it. Either error can bring serious consequences, and we need more research in this area to increase our *phronēsis* (practical wisdom).

As a beginning step toward this end, below I will offer five suggestions for providing pastoral care to artists and other highly creative, transliminal people. These recommendations stem from a combination of research, anecdotal evidence, personal and clinical experience, and educated guesswork and are by no means exhaustive.

Into the mystic

1) *Take persons' unusual experiences seriously and connect them with resources in their faith tradition.* Transliminal people may see visions, hear voices, sense the presence of spirits, be attuned to energetic variations, and they are likely to have mystical experiences and meaningful dreams (Thalbourne & Houran, 2000, p.854). Their perceptions might seem vague—like the sense of Jacob, in our opening anecdote, that something was "spiritually wrong" in the

[23] Here I am speaking from raw experience: my close friend, my friend's father, my father's cousin, my husband's close friend, our pastor's son. But the list of creative folks in the public eye who have died from drug overdose and/or suicide is long—Philip Seymour Hoffman, Amy Winehouse, Heath Ledger, Kurt Cobain, to name but a few.

sanctuary where he was recording—or definite and specific, such as claiming to see or hear Jesus or God. Unbelievable as these occurrences might seem (at least, in the realm of reality rather than psychological phenomena) to less transliminal folks, our world's religious traditions are filled with saints and mystics who made similar claims. In the Christian tradition, St. Ignatius of Loyola's mysterious encounter with God amid the ten months he lived in a cave at Manresa taught the future founder of the Jesuits "more . . . than he [learned] in the rest of his life" (O'Neal, 2003); Julian of Norwich's last-minute healing from death's door was marked by "showings," beginning with a detailed vision of Jesus' face while he was dying on the cross (Crampton, 1994); and St. Teresa of Avila experienced such raptures during prayer that she would sometimes reportedly levitate, calling the other "nuns to sit on her and hold her down" (Matz, 1996)! Moreover, many of the desert abbas and ammas and early monastics probably would not fit into our contemporary criteria for psychological health.[24]

Offering pastoral care to people of "unequal temperament" may include introducing them to biographies of Mothers and Fathers in the faith who had similar inclinations and experiences, and who learned to channel their energies and interpret their perceptions using spiritual disciplines. St. Teresa of Avila's *Interior Castle* or St. John of the Cross's *Dark Night* and *Ascent of Mt. Carmel* can provide companionship from kindred souls, as well as templates for processing the different seasons and phases in the journey of spiritual formation. Using the prayer practices of Christian mystics, such as following St. Ignatius' *Spiritual Exercises* or listening to the beautiful hymns of St. Hildegard of Bingen[25], may resonate with the introspective, aesthetic nature of many transliminals.

Spiritual emergenc(i)es

[24] For more information and discussion, see Egan, 1991, beginning with his Introduction.
[25] For a full discography, see Roberge, 2013. Recordings of many of Hildegard's chants are also available at song shaman Norma Gentile's website, http://www.healingchants.com/hct.html.

2) At the same time, we should *encourage contemplative spiritual practices, but with certain precautions, and within community.* With artists' and other transliminal people's sensitivity to all kinds of stimuli, whether sensory, spiritual, or unconscious, they are more likely to be overwhelmed by material (for example, feelings, phrases, ideas, images, sensations) that arises during prayer or meditation. This pattern has been observed primarily in the context of Eastern religions, particularly when they are transplanted into Western cultures (Grof & Grof, 1989; Britten, 2011a, 2011b), yet my hunch is that there are enough similarities between the practices of, for instance, Buddhist insight meditation and Christian centering prayer, that highly sensitive people who practice extended forms of contemplation may open themselves to certain "symptoms" regardless of the spiritual tradition of their context.

In 1980, transpersonal psychologists Stanislav and Christian Grof created the term "spiritual emergency" to name the distress that can ensue as an unforeseen side effect of spiritual growth. More recently, clinical psychologist and advanced Buddhist meditation practitioner Willoughby Britten of Brown University has founded the Dark Night[26] Project, now called "The Varieties of Contemplative Experience" (Britten, 2013), to track and study these types of spiritual emergencies. Some of the symptoms commonly reported by people going through "the difficult stages of the contemplative path" (Britten, 2011a) include an "increased sampling rate of reality," "stimulus overload," cognitive disorientation, depersonalization, losing one's sense of time and self, "existential primal fear," manic euphoria, depressive nihilism, feelings of electricity or vibrational energy, other perceptual changes, and usually "a de-repression of [whatever] psychological material" a person carries (2011b). Many sufferers are diagnosed with

[26] The name of the first Buddhist Geeks podcast on this topic was "The Dark Side of the Dharma," presumably a play on words from the term "Dark Night of the Soul" coined from St. John of the Cross's poem *The Dark Night*. Where the "dark nights" of the Buddhist and Christian contemplative paths overlap and diverge psychologically is an open question.

schizophrenia or bipolar disorder by Western doctors unfamiliar with the pitfalls of the meditative path (2011a).[27] While Britten and her team's research has not yet elucidated why some people are more vulnerable to these experiences than others, or why some spiritual emergencies last much longer than others, they have found that the average duration for a "dark night" stage so severe that it interferes with normal life/work functioning is a whopping 3.4 *years* (2011b)—enough to give any spiritual (and/or mental health) practitioner pause. It would stand to reason that highly transliminal people, whose thresholds into conscious awareness are already very open, may be especially susceptible to entering these complex, overaroused states.[28]

While passing through the dark night may be unavoidable if one is to experience spiritual growth (Britten, 2011b),[29] psychologists like Britten, Grof, and Grof are committed to making sure that people who suffer these seasons find the support they need to come out on the other side. Strikingly, I have yet to come across a researcher in this area who recommends that people discontinue their spiritual paths altogether, though temporary breaks from introspective practices are sometimes advised (Lukoff et al., 1998, p.41, citing Grof & Grof, 1989). Likewise, my suggestion here for pastoral care would be to make sure that people who seem especially transliminal have some sort of close-knit community support—or, if possible, an experienced spiritual director—before beginning in-depth engagement with contemplative prayer practices. It also seems advisable to share information with them upfront about the physiological "side effects" that can sometimes come upon sensitive people as they move through intensive spiritual

[27] In a clinical psychology class, when I played an excerpt of the Britten, 2011b podcast where she describes the above "dark night" symptoms, a fellow student who missed the introduction assumed that the topic being discussed was the prodromal phase of psychosis.

[28] For helpful information in discerning whether someone's symptomatology reflects a spiritual emergency or an impending psychotic break, please see Lukoff et al., 1998, especially pp.39-40.

[29] Here I am referencing the Buddhist teacher who answered Britten's question of how many practicing meditators undergo harrowing experiences, "100%." This answer is only one teacher's opinion, and again, it is uncertain how far the phenomenon extends to Christian contemplative practice. Yet the decades-long dark nights of Mother Teresa and, of course, St. John of the Cross come to mind.

practices. And attending shared rituals from deep in the Christian tradition, such as the services of the Daily Office,[30] can help offset dramatic interior events with the calming rhythms of community worship.

I've got my feet in the clouds, got my head on the ground

3) My third recommendation is both for people going through spiritual emergencies and for those whose transliminal experiences are less dramatic: *Balance esoteric perceptions with grounding in the body and nature.* Here St. Teresa of Avila's 16th-century advice for depression still holds—go where you can "see the sky and take a walk" (Matz, 1996). Grof and Grof similarly suggest "regular light exercise" and gardening, as well as a change of "diet to include more 'grounding food' (such as red meat)" (Lukoff et al., 1998, p.41). One ancient Christian practice combining body, mind, and spirit is to prayer-walk around a labyrinth.[31]

Jungian and cognitive psychologist Harry Hunt theorizes that the therapeutic effect of bodily "grounding" involves the vestibular balance system, which was observed by Paul Schilder in 1942 to have specific deficits in people suffering from "psychiatric hallucinatory syndromes" (Hunt, 2007, p.220). Conversely, Hunt's research shows that "the more integrative transformations of consciousness associated with spontaneous mystical experiences, meditative states, and lucid and creative/metaphoric forms of dreaming are correlated with superior performance on . . . measures of physical balance and spatial skills" (pp. 220-1). He "makes a strong case that the emotional tone of unusual psychological states rises or falls proportionally with one's 'sense of embodiment' and spatial orientation or lack thereof" (Kreiselmaier, 2012, p.28). Thus, therapies such as the Alexander Technique, a mind-body method found in many music schools that promotes subtle relaxation through retraining kinesthetic awareness, may

[30] A daily cycle of prayers found in the Anglican tradition
[31] For a brief history, see http://www.creativeprayer.com/labyrinths/history-of-labyrinths/.

exert additional prophylactic benefits on high transliminals by strengthening their sense of *ipseity* (selfhood).

Canary in a Coal Mine

4) Mentioning the Alexander Technique brings me to my fourth point: *"New Age" or complementary/alternative medical (CAM) practices encompass a broad territory, and we need to develop criteria for distinguishing between wheat and chaff.* As we often discuss in pastoral theology circles, these days "spiritual" is a loaded word that can refer to anything from praying the rosary to reading crystals. Many popular CAM practices such as yoga or mindfulness meditation have roots in Eastern religious traditions, leading some Christians to keep their distance even if the popular versions have been secularized. Meanwhile, forms of "energy healing" or "energy work" abound—most commonly Reiki, but also craniosacral therapy, jin shin jyutsu, meridian therapy, and the Brennan method, to name a few—while as yet there is not scientific consensus about what exactly "energy" or *chi* is or how it operates. At the same time, as theologians Tilda Norberg and Robert Webber put it, "much of the evidence for healing would be considered anecdotal (but what anecdotes!)" (1998, p.30).

What is the connection here to transliminality? As I alluded to earlier, people with this kind of temperament are likely to be attracted to things outside the mainstream, which in Western Christian culture encompasses Eastern religions and the plethora of modalities that are often grouped under the rubric of "New Age." Thalbourne and Houran found that people who score high on the Transliminality Scale also score high on "reading about Eastern religions[,] but not Bible-reading"; they note that "an alternative religiosity is thus suggested" (2000, p.855). Transliminality has likewise been linked directly (Lange et al., 2000, p.605) and indirectly (Grandqvist, 2005, p.2) with New Age beliefs and attitudes. I would speculate that there are also

plenty of Christian transliminals out there(!), but that their sensitivity to subtle sensations of all kinds, combined with their strong novelty-seeking tendencies, attracts them to "supplement" traditional Christianity with practices from other spheres that have often been more sympathetic to esoteric ideas and attentive to bodily states than their native faith.[32] Moreover, so-called complementary and alternative medical practices—which often derive from Eastern medicine and culture, whether or not they are deemed New Age—can be a source of life-changing healing for people who are suffering. With their keen awareness of their own physiology, creative, transliminal people tend to be the proverbial "canaries in the coal mine" who notice slight symptoms of dis-ease earlier than most.[33] It makes sense that persons with heightened sensitivity as well as suggestibility[34] would benefit from modalities that are said to involve subtle energetic shifts and clearing.

If part of pastoral care with the artists and other transliminal folks in our communities involves matching them with resources that increase their wellbeing, we need to consider the possibility that some CAM practices may be a source of God's healing in their lives. How do we separate the wheat from the chaff, guarding against superstition and pseudoscience while at the same time taking care not to quench the Spirit's fire (1 Thess. 5:19) by discounting ways that God may be at work? We might exercise the discernment of spirits by asking several questions of each practice:

[32] Here I am speaking primarily of modern Protestantism (which still describes many mainline churches even if we consider ourselves to be living in postmodern times), as this is what seems to be negatively correlated with transliminality in the research. The Catholic tradition, with its respect for mystical theology, may in some aspects of its teachings and practices be more simpatico with transliminal temperament.

[33] I am grateful to holistic physician Dr. David Forbes, MD, of Nashville Integrated Medicine for this insight during a conversation in 2006.

[34] A trait related to magical ideation, one of the components of transliminality. See also Grandqvist, 2005.

- Does it mesh with sound theology? In particular, are there hints of Gnosticism—is healing viewed as contingent upon esoteric knowledge only available to a minority of people, or does it elevate the spirit over the body (or vice versa)?
- Is there science to back it up, and if not, are practitioners aware of and honest about that? If what we usually call the "placebo effect" brings healing, then that too is effective (Frank & Frank, 1991, Chapter 7), but ideally healers will be transparent about the "active ingredients" of their modalities.
- Are there any questionable ethical or financial overtones?
- Does it lead to integration and flourishing, not only of persons (body, soul, and spirit), but also of relationships and community? Some "spiritual but not religious" practices encourage privatization, while others build connection with Godself and other selves beyond our own.

She moves in mysterious ways

5) What I am advocating for in all of these pastoral care recommendations is that we *dare, following the example of Jesus, to use suggestibility and altered states in God's service.* These characteristics may not fit into our current cultural milieu as naturally as in 1st-century Palestine, but they are part of how some of us are "fearfully and wonderfully made" (Psalm 139:14)—and just as we encounter unexpectedly rich musical nuances when we bypass the modern standard of tuning keyboard instruments to "equal temperament," we open ourselves to gifts of spiritual sensitivity, intuitive depth, and transcendent experience when we seek to understand the transliminal artists among us and use this understanding to inform our pastoral care.

If we temporarily bracket our methods of historical and textual criticism and take the gospel texts at face value, we can see many instances where what we now might call transliminality serves as a conduit for healing and meaning-making. During the three or so years of Jesus' ministry, he went around healing people, performing miracles, and proclaiming the kingdom of God. The context of many of his miracles involves conditions where people would be in a more vulnerable or "open" state of consciousness (similar to where extra-transliminal folks live much of the time?): for instance, when he raises Lazarus (John 11:1-45), a widow's son (Luke 7:11-17), and Jairus' daughter (Matthew 9:18-26, Mark 5:21-43, Luke 8:49-56) from the dead, their families and communities have already entered into grief and mourning, with the scriptural accounts describing emotional weeping and wailing. When he walks on water out to his disciples' boat (Matthew 14:22-36, Mark 6:45-56, John 16:21), it is in the middle of a frightening storm, and the disciples' fear has them in such a state of overarousal that at first they think they are seeing a ghost. After each of these events,[35] word spreads, and people come to believe in and follow Jesus, bringing more people to him for healing and exorcism. Additionally, before the excruciating events of his torture and crucifixion, Jesus brings his closest three disciples onto a mountaintop where they see his clothes become blindingly white as he begins a conversation with the long-dead seminal prophets Moses and Elijah (Matthew 17:1-9, Mark 9:2-10, Luke 9:28-36)—an altered state of consciousness if ever there was one!—perhaps to impress upon their minds an indelible image of his glory that they can hang onto during what lies ahead.

In seven out of his eighteen recorded healings, Jesus declares to the person, "Your faith has made you well (Norberg & Webber, 1998, p.42). To the paralyzed man lowered through the

[35] Except for the healing of Jairus' daughter, which is one of the times Jesus tells witnesses not to say anything about what they've seen (Mark 5:43, Luke 8:56)—although if Matthew's account (9:26) is correct, apparently this didn't work!

roof, prior to telling him to take up his mat and walk, Jesus affirms, "Your sins are forgiven" (Matthew 9:2-8, Mark 2:12, Luke 5:17-26). We do not know the causes behind the illnesses and paralyses cured by Jesus, but if there were psychosocial factors involved (for example, a psychosomatic element of being "paralyzed" by guilt), it appears that Jesus—like shamanic healers and psychotherapists the world over (Frank & Frank, 1991)—used the gateway of suffering persons' suggestibility, their vulnerability, their openness to a new and better experience, to transmit divine restoration. Was the means of healing something we do not yet understand? Was it a form of energetic touch or a sophisticated placebo effect? The answer is a holy mystery. But I would assert that making use of placebo and the power of suggestion in our pastoral caregiving need not be feared, only respected and used through prayer, if the fruits these yield are belief, faith, healing, and freedom.

Dal Segno al Fine

I have depicted some of the dual joys and challenges, as well as the complex questions, that can arise when we encounter and participate in soul care with artists and other highly creative people. Using the trait of transliminality as a lens to focus our inquiry, I've discussed some of the particular neuroscientific aspects of persons with this type of "unequal temperament." And from this information, I have proposed five specific pastoral care recommendations as a starting point for ministering to (and with) transliminal people in a way that aligns with their God-given makeup. It is my hope that as our learning increases, we will grow in our ability to appreciate the gifts, and alleviate the sufferings, of these distinctive people—not to help them become more "normal," but more whole; not to render them equal- (or even-)tempered, but *well*.

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Books on Neuroscience and Pastoral Care and Counseling

Ashbrook, J. (1996). ***Minding the soul: Pastoral counseling as remembering.*** **Minneapolis: Fortress Press. ISBN - 0800626737**

Many of us today owe a small debt to Jim Ashbrook for dipping his toe in the neuroscience waters. In this text, probably the most widely known, Ashbrook claims that understanding brain research "relates the objective knowledge of neurocognitive processes with the subjective knowledge of experiential awareness" (p. xviii). While much has changed since the writing of this text, both in the field of pastoral theology, care, and counseling, as well as the neurosciences, we do well to remember the roots of our field from time to time in order to walk again on sacred ground. Ashbrook's focus on remembering still speaks today as neuroscience hones in on the process of remembering and its importance for identity. – *Jason C. Whitehead*

Bingaman, K. (2014). ***The power of neuroplasticity for pastoral and spiritual care.*** **Lanham: Lexington Books. ISBN - 9780739175385**

Kirk Bingaman examines the impact of a contemplative-neuroscientific approach on pastoral and spiritual care and counseling. His work describes contemporary research on neuroplasticity, and how this diverse body of knowledge can help care-givers and therapists in the practice of counseling, mindfulness, and meditation. As Bingaman notes about the promise of neuroplasticity, "Through the regular use of mindfulness meditations, reflective exercises, and contemplative practices, we see it is possible over time to use the mind to rewire the brain" (p. 122). Whether calming the anxiety of a client, helping them recreate, reframe, and reimagine experiences, or normalizing specific brain functions, Bingaman's work puts forth helpful theoretical and theological thoughts about neuroscience and the impact it has on pastoral and spiritual care now and in the future. – *Jason C. Whitehead*

Houge, D. (2003). ***Remembering the future imagining the past.*** **Cleveland: Pilgrim Press. ISBN – 0829814892**

David Hogue explores the ways in which memory and imagination impact how we interpret the world. Utilizing neuroscience as a foundation for understanding the creation of narratives, Hogue examines how we build stories, react to the world around us, and even experience the sacred. For Hogue, "Memory and imagination are not separate processes. Rather, they are linked in a vital and dynamic way. Our imaginations are as essential when we are recalling the past as when we are speculating about or planning for the future" (p. 4). His neuroscientific work leads him to explore ritual experiences and how we can utilize connections between theology and the neurosciences to better understand pastoral counseling and the practice of faith. – *Jason C. Whitehead*

Lester, A. (2003). ***The angry Christian: A theology for care and counseling*****. Louisville: Westminster John Know Press. ISBN - 0664225195**

In this work, Andy Lester explores how "our capacity for anger is one of God's good gifts, intentionally rooted in creation and serving important purposes in human life" (p. 3). To do this

he appeals to theological, historical, cultural, and neuropsychological evidence to reconstruct what it means to be angry and how we can authentically experience this emotion in constructive ways. His challenge is to move beyond the sense that anger is sinful to understanding how anger can provide creative and passionate potential when engaged in ethical and practical ways. – *Jason C. Whitehead*

Whitehead J. (2013). ***Redeeming fear: A constructive theology for living into hope.*** **Minneapolis: Fortress Press. ISBN - 9780800699147**

In our current culture of fear, Jason Whitehead's book is important and timely. Relying on neuroscience, sociology, psychology, and theology, Dr. Whitehead presents an integrated and sophisticated analysis of the constructive and destructive aspects of fear. From this discussion comes a sound theological portrayal of fear that points the way forward to the possibility of redemptive hope. – *Ryan LaMothe*