THE PSYCHOLOGY AND NEUROBIOLOGY OF MEDIATION

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I. INTRODUCTION

This article grew out of a moment in mediation when a party became furious with me after receiving the opening offer from the other side. As I tried to understand what was happening, I suddenly realized it was not about the offer at all. It was about *him.* He feared a loss of "face" in front of the other parties.

Treating him with utmost respect, I took him through what the admittedly complex offer actually said. After about fifteen minutes, he was fine with it. We moved on.

From this point on, I began to look at mediation through the lens of "face," self-esteem and self-identity. I was struck by a repeating pattern. At the outset of mediation, parties often had unrealistically optimistic hopes for resolution in their own favor, and on their own terms. This was also coupled with an attitude of "I am a winner, and I can do this!"

Mediation was, I found, in large measure the process of helping parties, and often their attorneys, work through their initially exaggerated sense of themselves and the possibilities for settlement in order to arrive at a realistic resolution of the dispute. Some level of deflation was endemic to this process. In my publications on the psychology of mediation, I called this cycle of *inflation, deflation* and *realistic resolution* the IDR cycle.[1]

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Later, after studying the work of Stephen Porges[2] and Peter Levine,[3] I came to understand that much of what I had seen in mediation also could be described effectively in terms of the nervous system's response to threat and challenge. This link between the physiological and the psychological dimensions of mediation is explored here.

II. A NEUROBIOLOGY OF MEDIATION: AN OVERVIEW

From a neurobiological perspective, a distinctive feature of mediation is that parties in mediation experience both threat and safety at the same time. The sympathetic nervous system, the branch

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[1] *See my Psychology of Mediation: Issues of Self and Identity and the IDR Cycle,* 10(2) PEPP. DISP. RES. L. J. 183 (2010) [hereinafter *Psychology of Mediation*], and *Self, Identity and the IDR Cycle: Understanding the Deeper Meaning of "Face" in Mediation,* 8(4) INT'L J. OF APPLIED PSYCHOANAL. STUDIES, May 2011, doi.10.1002/aps.295 [hereinafter *Deeper Meaning of "Face"*].

[2] *See* STEPHEN PORGES, THE POLYVAGAL THEORY: NEUROPHYSIOLOGICAL FOUNDATIONS OF EMOTIONS, ATTACHMENT, COMMUNICATION AND SELF-REGULATION (2011) (an edited collection of articles by Porges).

[3] *See* PETER A. LEVINE, IN AN UNSPOKEN VOICE, HOW THE BODY RELEASES TRAUMA AND RESTORES GOODNESS (2010) (one of Levine's many books on trauma).

For a recent article discussing the neurobiology of Levine's approach to trauma, *see* Peter Payne, Mardi A. Crane and Peter Levine, *Somatic Experiencing: Using Interoception and Proprioception as Core Elements of Trauma Therapy,* FRONT. PSYCHOL., February 4, 2015; doi: 10.3389/fpsyg.2015.00093, and *Corrigendum: Somatic Experiencing: Using Interoception and Proprioception as Core Elements of Trauma Therapy,* FRONT. PSYCHOL. doi: 10.3389/fpsyg.2015.00423.

of the nervous system that produces the fight-or-flight response,[4] is aroused as parties confront and negotiate with their adversaries. Yet, at the same, the sympathetic nervous system is soothed and calmed through the process of social engagement[5] and communication with the mediator.

Ideally, as parties' fighting and self-protective impulses are managed and controlled, they become more able to think clearly about the dispute, and to reach realistic resolution. This is the magic of mediation.

This is what happened with my angry client. His felt need for self-protection played out as an issue of "face," self-esteem and self-identity. He became aroused and indignant. Through our dialogue he settled down. He stopped taking the offer personally. He weighed options. We moved on.

Some people may not experience sympathetic arousal easily, or the IDR cycle, for a number of reasons. As Peter Levine and others have explained, not everyone can easily mobilize the healthy fight or self-protective responses characteristic of the sympathetic nervous system.[6] Gender may also be a factor.[7] Yet for others, especially high-functioning individuals involved in high-conflict civil litigation, the IDR cycle may actually be required as a matter of physiology.

It is my hope that what follows can help mediators and lawyers, understand more about parties' reactions during mediation, learn to read subtle elements of body language, help decide whether to caucus separately or apart, and become sensitive to the all-

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[4] For a basic anatomy of the sympathetic nervous system, *see infra* Part III.C. For a discussion of sympathetic arousal in the course of mediation, *see infra* Part IV. B.-E.

[5] On social engagement and the "social engagement system," *see infra* Part III. E.

[6] LEVINE, *supra* note 3, at 102 and 104 ("[h]ighly traumatized and chronically neglected or abused individuals are dominated by the immobilization/shutdown system," which shuts down other nervous system functions such as fight/flight responses).

[7] *See infra* Part IV.B.2.

important dimension of timing as they work with the IDR cycle and its variations.

III. ELEMENTS OF NEUROBIOLOGY RELEVANT TO CONFLICT AND CONFLICT RESOLUTION

For the purpose of this discussion, it is important to understand some basic facts about the human nervous system. For that reason, they are presented here. Some basic concepts from the work of Porges and Levine are also presented. Technical terms will be defined in footnotes, as necessary, to keep the material accessible and readable.

A. *The Autonomic Nervous System*

To begin with basics, the autonomic nervous system[8] ("ANS") controls the fight-or-flight response and is deeply implicated in the way we respond to trauma. Often a first responder in cases of threat or challenge, it also controls the viscera, internal organs such as the gut and heart.[9] By necessity, then, it operates largely outside our cognitive control. We don't need to tell our heart to beat faster when a car is approaching in our lane.

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[8] The peripheral nervous system connects the central nervous system to the body. The autonomic nervous system is a branch of the peripheral nervous system. DAVID SHIER, JACKIE BUTLER AND RICKI LEWIS, HOLE'S HUMAN ANATOMY AND PHYSIOLOGY 338 (10th ed. 2004).

[9] SHIER ET AL., *supra*, note 8, at 339.

B. *Neuroception: Scanning the Environment for Threat*

Stephen Porges has coined the term "neuroception" to describe the way in which the autonomic nervous system continually monitors the environment to distinguish whether situations or people are safe, dangerous, or life threatening.[10] This process takes place rapidly, outside of awareness, in primitive parts of the brain.[11]

As a result, our bodies can respond very quickly to the environment. Through neuroception, we can also determine whether to communicate and act in a prosocial way within a social group. Thus, "neuroception . . . connects the evaluation of risk with social behavior."[12]

C. *The Sympathetic Nervous System: Mobilization for Action*

The sympathetic nervous system ("SNS"), one of the two major branches of the ANS, mobilizes the body for action.[13] When we are confronted with a potential or actual threat, it stimulates the heart to beat faster, the respiration rate to increase, and the

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[10] PORGES, *supra* note 2, at 11 ("I have coined the term *neuroception* to describe how neural circuits distinguish whether situations or people are safe, dangerous or life threatening.")

[11] *Ibid.* ("Because of our heritage as a species, neuroception takes place in primitive parts of the brain, without our conscious awareness.")

[12] William Singletary, MD, *Models of ASD, A Remarkable Confluence*, 152 *in* AUTISM SPECTRUM DISORDER, PERSPECTIVES FROM PSYCHOANALYSIS AND NEUROSCIENCE (Susan P. Sherkow and Alexandra M. Harrison, with contributions by William M. Singletary, 2014).

[13] The SNS works through two columns which run down vertically alongside the spinal cord, one on each side of the spinal cord. Each column includes a number of ganglia, groupings of nerve cells. Nerve fibers collect within the ganglia and then synapse with other neurons that extend to the viscera. This enables impulses to branch out into and down the body to innervate organs and limbs. SHIER, *supra* note 8, at 410. This facilitates rapid behaviors such as, for example, fight or flight, and quick movement of the limbs. PORGES, *supra* note 2, at 153.

neuroendocrine system to produce adrenaline[14] and other stress hormones.[15] Blood pressure rises. Blood is shunted to the muscles of the arms and legs. Energy is conserved by shutting down areas such as the digestive system not needed during the emergency.[16] This is the fight-or-flight response.

Full throttle sympathetic activation such as the fight-or-flight response, is, of course, not necessary in many situations. For example, even in high-conflict cases in mediation people generally do not come to blows or run out of the room.

Give-and-take and prosocial behavior is possible precisely because we are capable of flexibly arousing and soothing defensive and self-protective responses without the necessity for full-on sympathetic activation.[17] This capacity developed through the course of evolution.[18]

However, the sympathetic nervous system can still be aroused to a high degree. The extent of arousal will depend upon the situation but also on the particular individual's psychology and neurobiology.[19]

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[14] I use the term "adrenaline" here, but it is also called epinephrine. ELAINE N. MARIEB AND KATJA HOEHN, HUMAN ANATOMY & PHYSIOLOGY 533 (9th ed. 2013).

[15] SHIER ET AL. *supra* note 8, at 501.

[16] *Id.* at 500-501.

[17] PORGES, *supra* note 2, at 266 (mammals have developed the capacity to "cue" others of safety and danger "while promoting transitory mobilization and the expression of sympathetic tone without requiring [full] sympathetic or adrenal activation").

[18] "The mammalian nervous system did not develop solely to survive in dangerous and life-threatening environments but also to promote social interactions and social bonds in safe environments. To accomplish this adaptive flexibility, a new neural strategy requiring safety emerged while the more primitive neural circuits to regulate defensive strategies were retained." *Id.* at 121.

[19] On the relationship between an individual's neurobiology and their psychology, *see generally*, ARLENE MONTGOMERY, NEUROBIOLOGY ESSENTIALS FOR CLINICIANS, WHAT EVERY THERAPIST NEEDS TO KNOW (2013) (containing case studies and theoretical discussions).

D. *The Parasympathetic Nervous System: Calming Down*

After a threat has passed, the slower moving parasympathetic nervous system ("PNS"), which is calming and active under ordinary conditions, counterbalances the effects of the sympathetic activation.[20]

For example, during an emergency the sympathetic nervous system increases heart and breathing rates; when the emergency has passed, the parasympathetic nervous system decreases them.

This is possible because many organs have nerve fibers from both the sympathetic and parasympathetic branches. Sympathetic fibers can activate the organ, as needed, while parasympathetic fibers can inhibit or calm it when this is no longer necessary.[21] Varying degrees of sympathetic and parasympathetic activity, acting together, regulate our physiology at any moment.

E. *The Social Engagement System: Neural Bases of Social Communication*

Stephen Porges has argued that in the course of evolution a *brain-face-heart circuit* emerged in mammals that is capable of controlling our range of emotional expression, quality of communication and concomitant bodily states.[22]

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[20] SHIER ET AL., *supra* note 8, at 409. ("The sympathetic division primarily prepares the body for energy-expending, stressful or emergency situations. Conversely the parasympathetic division is most active under ordinary, restful conditions.")

[21] *Id.* at 409. ("[M]any organs have nerve fibers from each of the divisions. Impulses on one set of fibers may activate an organ, whereas impulses on the other set inhibit it. Thus, the divisions may function antagonistically, regulating the actions of some organs by alternately activating or inhibiting them.")

[22] PORGES, *supra* note 2, at 249 (arguing "the evolution of the mammalian ANS . . . "determines the range of emotional expression, quality of communication and the ability to regulate body and behavioral state, including the expression and recovery of stress-related responses. . . .[T]hese phylogenetic [evolutionary] principles illustrate the emergence of a brain-face-heart-circuit . . . ")

As a result, according to Porges, human beings are always potentially ready for primitive, self-protective strategies such as fight-or-flight**.** But when it is *safe* the brain-face-heart circuit — which he calls the social engagement system — puts a "brake" on (i.e. inhibits) these primitive impulses and the extent of mobilization for fight-or-flight.[23]

Specifically, this is done by the ventral part of the vagus nerve, which modifies the heart rate through its control of the pacemaker, the sinoatrial node.[24] As our heart rate decreases, our physiology "downregulates" defensive behaviors and promotes spontaneous social engagement.[25]

Conversely, when the "brake" is removed, heart rate increases and defensive and self-protective responses, including fight-or-flight responses, are rapidly activated.[26]

Note here the hierarchical nature of this system: the social engagement system effectively trumps, or puts a brake on, sympathetic nervous system arousal and the fight-or-flight response.

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[23] "[I]f the environment is perceived as safe, [the mammalian nervous system] inhibit[s] the more primitive limbic structures that control fight, flight or freeze behaviors." PORGES, *supra* note 2, at 194.

[24] PORGES, *supra* note 2, at 121-122 (vagal influences on the sinoatrial node (the pacemaker) act as a brake and can control heart rate).

[25] *Id.* at 219 (the vagal brake provides a mechanism to rapidly switch between physiologic states that . . . support social communication …")

See also Shari Geller and Stephen W. Porges, *Therapeutic presence: Neurophysiological mechanisms mediating feeling safe in therapeutic relationships*. 24(3) J. PSYCHOTHERAPY INTEGRATION, 179 http://dx.doi.org/10.1037/a0037511: ("once features of safety are detected, the client's physiology . . . down-regulates their defenses and promotes spontaneous social engagement behaviors.")

[26] "For healthy mammals, the response [to a stressor] is . . . characterized by rapid withdrawal of vagal tone. This functionality removes the potent *vagal brake* from the heart and facilitates an instantaneous increase in metabolic output (i.e. increased heart rate) to mobilize energy resources for the classic flight-or-flight response." PORGES, *supra* note 2, at 92.

Porges argues that effective social communication can *only* occur during such times.[27]

1. The Face as an Element of the Social Engagement System

According to Porges**,** during the course of evolution brainstem nuclei that regulate the ventral vagus nerve (and thus the vagal brake) became integrated with nuclei that regulate the muscles of the face and head.[28] The result is that the ventral vagus nerve, working with other cranial nerves,[29] is linked to and controls the nerves and muscles of the face and head.

An anatomical link was established, in other words, between the nervous system's control of the heart and the fight-flight response, and the organs we use in social communication. This is an "integrated social engagement system."[30]

It turns out, then, that "face" in mediation is more than just a metaphor. If face-to-face contact occurs in an environment of safety and respect, the social engagement system is strengthened, and able to play a "downregulating" or "deflating" force in a mediation.[31]

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[27] Geller and Porges, *supra* note 25, at 181 (emphasis supplied); *cf. also* PORGES, *supra* note 2, at 284 ("social behavior, social communication and visceral homeostasis are largely incompatible with neurophysiological states and behaviors that are regulated by circuits that support the defense strategies of both fight or flight and immobilization.")

[28] "[T]hrough the process of evolution, the brainstem nuclei that regulate the . . . vagus became integrated with the nuclei that regulate the muscles of the face and head . . . . " PORGES, *supra* at note 2, at 55.

[29] Porges calls these nerves, together, the ventral vagal complex. *Id.* at 163.

[30] *Id.* at 57 (noting that as a face-heart connection evolved, this resulted in an anatomical linkage between the ventral vagus nerve and the regulation of the face and head, forming an integrated social engagement system).

[31] *Cf.* Fay C. M. Geisler *et al. Cardiac Vagal Tone is Associated with Social Engagement and Regulation*, 93 BIOL. PSYCH. 279 (2013) (study supporting the association between cardiac vagal tone and self-regulatory behavior, which promotes social bonds).

But when "face" is lost — that is when the vagal brake is lifted — conflict physiology dominates.[32] On the flip side, "face-to-face" contact with a safe person, such as a mediator, in an environment of safety functions as "a buffer against the raging seas of inner turmoil," and can calm emotional turbulence.[33]

2. Mutuality and the Social Engagement System

Due to the way the social engagement system evolved in the course of evolution, signals not only move downwards from the brainstem to the face and heart, but also back up the chain from the heart and face to the brain.[34]

There is also bidirectional communication *between* the nervous systems of different people.[35] Thus, one person's facial expression, tone of voice, and body posture, for example, implicitly or explicitly communicate messages of safety or threat to others. These signals will in turn impact the brain-face-heart circuit in others, often outside the bounds of awareness.[36]

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[32] *Cf.* Gewnhi Park *et al.*¸ *Cardiac Vagal Tone Predicts Inhibited Attention to Fearful Faces,* 12(6) EMOTION 1292 (2012) (finding a relationship between heart rate variability, an index of the condition of the vagal nerve, and responses to facial expressions).

[33] LEVINE, *supra* note 3, at 108. This probably has evolutionary and developmental origins. As Levine has noted, numerous experiments have shown that babies are highly attuned to their mother's faces, and face-to-face contact is one of the most important experiences of early life. *Id.* at 107.

[34] *See* Geller and Porges, *supra* note 25, at 182 ("discussing bidirectional communication between brain and body).

[35] *Ibid.* ("Not only is there bidirectional communication between brain (i.e., central nervous system) and body, but also a bidirectional communication *between* the nervous systems of the people who constitute our social environment.")

[36] One of Porges' main points, grounded in his reading of evolution, is that in response to threat, mammals, including human beings, first resort to social engagement and only if this fails will engage in the fight response. He emphasizes a *hierarchical* model of threat response. Yet he also consistently points to the social engagement system as a means for dealing with and modulating more ordinary instances of sympathetic arousal. PORGES, *supra,* note 2, at 101.

For our purposes, we mostly emphasize the latter aspect of the social engagement system as it is most relevant to mediation.

On a simple level, this is why when one person smiles or nods the other is tempted to do so as well. Alternatively, it explains why a menacing look from one person can cause another's heart to beat rapidly.

F. *The Freeze/Immobility Response and Disassociation*

Although Porges' work has stimulated research in a wide variety of areas,[37] most importantly for our purposes, Peter Levine has incorporated it into the form of therapy he has developed to heal trauma.[38]

An important part of Levine's work deals with the problem that when a threat seems or is inescapable, *immobility* — playing "dead" — often becomes the body's last, best form of passive resistance. Levine argues, following Porges, that the dorsal part of the vagus nerve (as opposed to the ventral part, discussed above) controls the immobility response or "freeze" response, as it is sometimes called.[39]

With extreme forms of immobility, dissociation occurs, as the parasympathetic nervous system completely shuts down the sympathetic.[40] In effect, the person simply leaves the body rather than experience what is happening to it.

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[37] Geller and Porges note that Porges' work has stimulated research in, among other areas, neonatology, obstetrics, bioengineering, pediatrics, psychiatry, psychology and exercise physiology, and other areas. Geller and Porges, *supra* note 25, at 181.

[38] LEVINE, *supra* note 3, at 97-102.

[39] *Id* at 102.

[40] *See* M. Schauer and T. Elbert, *Dissociation following traumatic stress.* 218(2) ZEITSCHRIFT FÜR PSYCHOLOGIE/J. OF PSYCHOL. 109-127 (2010); doi: 10.1027/0044-3409/a000018 (the stage of shutdown or flaccid immobility (which some call "freeze") is dominated by the complete inhibition of the sympathetic nervous system by the parasympathetic system).

Later, these seriously traumatized people may have trouble mobilizing the sympathetic nervous system[41] and healthy self-protective defenses.

IV. A PROFILE OF THE PROCESS OF MEDIATION FROM THE PERSPECTIVE OF NEUROBIOLOGY

The following is a profile of the mediation of a high-conflict, litigated dispute from the perspective of neurobiology.[42] The dynamics described here occur most consistently when the parties are high-functioning, and, often, highly competitive. However, the basic dynamic described here also occurs in a wide range of other cases as well.

A. *The Opening Session*

In the opening session, the mediator's "face" is seen by the parties and their attorneys, and she see them as well. Much of the experience is nonverbal as the parties scan the mediator to see if

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[41] LEVINE, *supra* note 3, 102-106 (chronically traumatized people, dominated by the immobilization/shutdown system, have difficulty activating the sympathetic nervous system),

[42] In previous articles, I discussed select findings from neuroscience in my discussion of the psychology of mediation. *See my Psychology of Mediation*, *supra* note 1 at 197-198, and *Deeper Meaning of "Face*," *supra* note 1. In this article, I focus on including the perspective of trauma, and the autonomic nervous system.

For those interested in other discussions of the connection between neuroscience and mediation, *see also*, in order of their appearance, Richard Birke, *Neuroscience and Settlement: An Examination of Scientific Innovations and Practical Applications* 25 OHIO ST. J. DISP. RESOL. 477 (2010); Daniel Weitz, *The Brains Behind Mediation: Reflections on Neuroscience, Conflict Resolution and Decision-Making*, 12 CARDOZO J. CONFLICT RESOL. 471 (2011), and Jeremy Lack and Francois Bourgacz, *The Neurophysiology of ADR and Process Design: A New Approach to Conflict Resolution?* 14 CARDOZO J. CONFLICT RESOL.33 (2012).

he/she is credible, capable and informed. This scanning happens very quickly.[43]

Obviously, the parties also come face-to-face with their adversaries, perhaps for the first time ever, or the first time in a long time, during the opening session. From a neurobiological perspective, the question is whether this is helpful or potentially retraumatizing, as discussed below.[44]

B. *Joint Sessions vs. Caucusing*

A question frequently debated is whether parties and their attorneys should always be "face-to-face," that is, in the same room with each other and with the mediator (joint sessions), or whether they should be allowed to speak privately with the mediator (caucusing).[45]

In my view, when feasible, joint sessions are ideal. They allow the mediator to facilitate direct, constructive discussions between the parties and their attorneys. Real peacemaking becomes possible.

However, not everyone can live up to this peacemaking ideal. A number of factors, including the extent to which a person has been or is traumatized, should be considered when deciding whether to proceed by joint sessions or by caucusing.

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[43] For example, it takes just one to ten seconds, according to Daniel Stern, "to make meaningful groupings of stimuli emanating from people, to compose functional units of our behavior performances, and to permit consciousness to arise." DANIEL N. STERN, THE PRESENT MOMENT IN PSYCHOTHERAPY AND EVERYDAY LIFE, 41 (2004).

[44] *Cf.* PORGES, *supra* note 2, at 253 ("However, for some clients especially those who have been traumatized, face-to-face interactions can be threatening and may not elicit a neuroception of safety.")

[45] Although most mediators use caucusing at least some of the time, those who argue for joint sessions are quite vocal and influential. *See, e.g.,* GARY FRIEDMAN & JACK HIMMELSTEIN, CHALLENGING CONFLICT, MEDIATION THROUGH UNDERSTANDING, 171-197 (2008). Often those who favor joint sessions also do not require that the parties' attorneys be present at the mediation. Instead, consulting attorneys may be used.

1. The Role of Trauma

The problem of trauma is hard to overestimate because trauma is so prevalent in the population. Some studies show that almost 90% of the people in this country have experienced at least one traumatic event in their lifetime.[46] A very large percentage of these people experienced traumatizing events when they were children, when it is most devastating.[47] Additionally, a national survey found that more than one in three women and more than one in four men have experienced rape, physical violence, and/or stalking by an intimate partner in their lifetime.[48]

Trauma can impact parties in mediation indirectly as well as directly. For example, even a simple case such as a rear-end collision car accident can invoke residues of earlier childhood abuse for some people.[49] Thus, from a psychological point of view, the mediation of even a simple whiplash case can implicate deeper trauma.

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[46] Dean G. Kilpatrick, *et al*., *National Estimates of Exposure to Traumatic Events and PTSD Prevalence Using DSM-IV and DSM-5 Criteria*, 26:5 J. TRAUMATIC STRESS 537–547 (2013). ("Traumatic event exposure using *DSM-5* criteria was high (89.7%), and exposure to multiple traumatic event types was the norm.")

[47] BESSEL VAN KOLK, THE BODY KEEPS THE SCORE, BRAIN, MIND AND BODY IN THE HEALING OF TRAUMA, 145 (2014) (noting that in one very large study, even though the respondents were mostly white, middle aged, well-educated and financially secure enough to have good medical insurance, only one third reported having no adverse (traumatic) childhood experiences).

[48] MICHELLE C. BLACK, *et al.*, THE NATIONAL INTIMATE PARTNER AND SEXUAL VIOLENCE SURVEY, 2010 SUMMARY REPORT, 2 (National Center for Injury Prevention and Control, Center for Disease Control and Prevention, 2011); http://www.cdc.gov/violenceprevention/pdf/nisvs_report2010-a.pdf, last visited, July 28, 2015 (noting more than 1 in 3 women (35.6%) and more than 1 in 4 men (28.5%) in the United States have experienced rape, physical violence, and/or stalking by an intimate partner in their lifetime.)

[49] Robert Scaer, a neurologist, interviewed 250 whiplash patients about their backgrounds. He found that childhood physical and sexual abuse was the most powerful predictor of the number, severity and duration of post-whiplash complaints. ROBERT SCAER THE TRAUMA SPECTRUM, HIDDEN WOUNDS AND HUMAN RESILIENCY 228 (2005).

Some people who have suffered acute trauma may be predisposed to react or overreact aggressively in the face of threat.[50] These people are more likely to experience sympathetic arousal or hyperarousal during the mediation.

However, as Peter Levine has emphasized, other seriously traumatized people, especially those dominated by the immobilization/freeze response, will have trouble mobilizing the sympathetic nervous system.[51] As a result, they may not be able to arouse healthy, active forms of self-protection.[52] They thus may enter the mediation in a state of deflation, not inflation, which puts them at a disadvantage.

A theory advanced by Blascovich and colleagues, known as the Biopsychosocial Model of Challenge and Threat, analyzes this issue from a somewhat different angle. According to the theory, people have a tendency to experience challenges to self-related goals as *threats* not *challenges* when they recognize the task but do not feel their resources, internal or external, are up to the task. People who are threatened, rather than challenged, are more likely to have problems with self-esteem, and to withdraw or feel defeated during a task that others would find challenging, even exhilarating.[53]

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[50] "The traumatic experience functionally retunes neuroception to conservatively detect risk when there is no risk." PORGES, *supra* note 2, at 53.

[51] LEVINE, *supra* at note 3, at 105-6 (chronically traumatized people, those trapped in shutdown, have difficulty activating the sympathetic nervous system).

[52] *Ibid.*

[53] Jim Blascovich and Wendy Berry Mendes, *Social Psychology and Embodiment, in* HANDBOOK OF SOCIAL PSYCHOLOGY, 195, 207-208 (Susan T. Fiske, Daniel T. Gilbert, Gardner Lindzey eds. 5th ed. 2012).

The Biopsychosocial model, which is based on neuroendocrine responses to challenge and threat, is a fascinating model, one well worth an article of its own. It argues that although both threat and challenge result in sympathetic arousal, during threat there is vasoconstriction due to changes in cardiovascular responses. Thus, among other things, blood pressure increases during threat but not challenge. This a complex theory. The best review of the basic principles for lay people can be found on psychlopedia, an internet encyclopedia. *See* http://www.psych-it.com.au/Psychlopedia/article.asp?id=281, last accessed July 30, 2015.

a) *Mediating in the Shadow of Trauma*

Learning to read simple signs of sympathetic arousal, hyperarousal or freeze can help provide important information about whether people are capable of negotiating for themselves. Here are some general indicators. Again, there will be variations depending upon whether a full-on fight-or-flight or freeze/immobilization response is involved, or, more commonly, something less severe.

Healthy sympathetic arousal: As Blascovich and colleagues have noted, a healthy sympathetic arousal in response to a challenge that does not feel overwhelming produces effects similar to aerobic exercise.[54] The sympathetic nervous system is aroused, but the blood vessels do not constrict, and the blood pressure is not high.[55] My experience is that the person actually looks something like a person who has been exercising. There is a lot of energy and perhaps redness in the face and skin.

Sympathetic hyperarousal: Sympathetic *hyperarousal* can be indicative of a person locked in fight-or-flight response as a result of previous acute trauma, or simply a result of what is happening in the mediation. Peter Levine's list of physical signs of sympathetic hyperarousal includes: tightening of the muscles in the front of the neck, stiff posture, darting eyes, increased heart rate, dilation of the pupils, choppy quick breathing and coldness in the hands.[56]

Freeze/immobilization: Again, physical signs of freeze/shutdown or dissociation will vary, depending upon the severity of the condition. According to Levine, the physical signs include fixed or spaced-out eyes, a physical posture of collapse or

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[54] Jim Blascovich, Wendy Berry Mendes, and Sarah B. Hunter, *Social "Facilitation" as Challenge and Threat,* 77(1) J PERS. SOC. PSYCH. 68, 70 (1999) (in response to a challenge, sympathetic neural stimulation of the myocardium enhances cardiac performance . . . This pattern mimics cardiovascular performance during aerobic exercise and represents the efficient mobilization of energy for coping.")

[55] *Cf. ibid.*

[56] LEVINE, *supra* note 3, at 105.

slumping, a constriction of the pupils, and reduced breathing. The skin may even turn pasty or even gray.[57]

An important warning signal occurs when a party seems to lack focus or to gaze off into the distance ("the thousand yard stare"), or shows other signs of disassociation.

In one case I mediated, for example, I was struck by the fact that even in separate sessions, both parties avoided eye contact, and spent the entire time looking out the window. One of the parties, in particular, was sitting in a collapsed posture.

Since I felt his postural collapse was an expression of utter hopelessness, I emphasized the possibility of getting the case over with, and moving on. I also made a point of touching him lightly on his shoulder in an encouraging way.

While I think these were appropriate interventions when dealing with a person in freeze/immobility, the reality of the situation was that he was facing several lawsuits from different parties, most of whom were not a part of the lawsuit at issue in the mediation. He did not significantly come out of his immobility/freeze. However, the attorneys were quite active in the process, which, I felt, meant the mediation should not be discontinued.

2. The Role of Gender

A new model of the human threat response argues that in addition to fight, flight and immobilization/freeze, our responses to threat may also include a "tend and befriend" response — a type of protective response more characteristic of women. This strategy includes trying to affiliate with others in one's group for mutual defense, presumably to protect offspring.[58]

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[57] *Id.* at 105.

[58] *See* Shelly E. Taylor *et al., Biobehavioral Responses to Stress in Females: Tend-and-Befriend, Not Fight-or-Flight.* 107(3) PSYCHOL. REV. 411 (2000) ("We suggest that female responses to stress may build on attachment/caregiving processes that downregulate

The model is based, in part, on existing knowledge regarding the effects of oxytocin on affiliative behavior. Oxytocin is a hormone generated in great volumes in the female body during childbirth and breastfeeding. As a neurotransmitter in the brain, it is also known to promote nurturing, couple bonding and trust.[59]

To the extent tend and befriend includes a tendency to respond to threat by seeking affiliation, rather than competition, it may put certain people, especially women, at a disadvantage when dealing with a high-functioning, highly competitive, ego-inflated person on the other side. [60]

There is an overlap here between issues of trauma and gender. Although our culture tends to equate PTSD with men returning from war, women are twice as likely as men to develop PTSD.[61] This

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sympathetic and hypothalamic-pituitary-adrenocortical (HPA) responses to stress. . . [A] tend and befriend pattern may be oxytocin-mediated and moderated by [among other things] sex hormones ….") *See also* Shelley E. Taylor, *Tend and Befriend Theory, in* HANDBOOK OF THEORIES OF SOCIAL PSYCHOLOGY, VOL. 1. 32, 42 (Paul A. M. Van Lange, Arie W. Kruglanski and E. Tory Higgins, eds. 2012) (tend and befriend appears to be more consistent with women's hormonal profiles.)

[59] MARIEB AND HOEHN, *supra* note 14, at 599; *cf. also* PORGES, *supra* note 2, at 293 ("oxytocin can counter the defensive behavioral strategies associated with stressful experiences).

[60] As noted in an influential article:

> If two parties are forced to engage with one another, and one has a more relational sense of self than the other, that party may feel compelled to maintain her connection with the other, even to her own detriment. For this reason, the party with the more relational sense of self will be at a disadvantage in a mediated negotiation.

Tina Grillo, *The Mediation Alternative: Process Dangers For Women*, 100 YALE L.J. 1545, 1550 (1991).

As noted in a recent article, these concerns have not been much discussed more recently but that may need to change. *See generally* Danya Shocair Reda, *Critical Conflicts Between First-Wave and Feminist Critical Approaches to Alternative Dispute Resolution* 20 TEXAS J. WOMEN AND LAW, 193 -229 (2011)

[61] Sabra Inslicht *et al*., *Sex differences in fear conditioning in posttraumatic disorder*, 47(1) J. PSYCHIATR. RES. 64–71 (January 2013) (women are twice as likely to have PTSD than men, citing studies); DAVID J. MORRIS, THE HOURS, A BIOGRAPHY OF

may be due in part to the invasive type of trauma women are more likely to experience, namely childhood sexual abuse and rape.[62]

At least some women may also be disadvantaged by having less confidence during competition. A recent study found that when presented with difficult feedback in competitive situations, women found it more difficult than men to recover their effectiveness; women were less able to inhibit the amygdala[63] and activate the prefrontal cortex[64] after receiving the challenging feedback.[65] Research suggesting that men lawyers tend to be more overconfident than women lawyers also supports this view.[66]

POST-TRAUMATIC STRESS DISORDER 64-65 (2015) (noting that although rape is the most common and injurious form of trauma, "the bulk of PTSD research is directed toward war trauma and veterans.")

[62] Maria Gavranidou and Rita Rosner, *The Weaker Sex? Gender and Posttraumatic Sex Disorder*, 17 DEPRESSION AND ANXIETY, 130-139 (2003).

[63] The amygdala is a part of the brain that helps stimulate the brain stem to activate the sympathetic nervous system in response to threat. Robert Sapolsky, *Taming Stress, An Emerging Understanding Of The Brain's Stress Pathways Points Toward Treatments For Anxiety And Depression Beyond Valium and Prozac* 289 SCI. AMER. 8695 (September 2003) doi:101038/scientificamerican090386.

[64] On the prefrontal cortex, *see* MARIEB AND HOEHN, *supra* note 14, at 437 (the prefrontal cortex is a complicated region of the brain, which is involved in intellect, complex learning and personality). It is in a unique position to control both cognitive and social processes because of its extensive connections with other parts of the brain. Jennifer S. Beer *et al., Frontal Lobe Contributions to Executive Control of Cognitive and Social Behavio*r, 1091 *in* THE COGNITIVE NEUROSCIENCES III (M.S. Gazzaniga ed. 2006).

[65] Kishida *et al*. took small groups of people of equal intelligence, as determined by IQ, and gave them a set of problems to solve. They then broadcast how they performed relative to their peers on the problems. This depressed everyone's performance.

Some people were, however, able to recover, and were identified as "high performers." These people were able to inhibit the amygdala through activation of the dorsolateral prefrontal cortex. Most notably, many fewer women were able to recover even though, as noted above, all participants were equally equipped to solve the problems in terms of intelligence.

For the full study, *see* Kenneth Kishida *et al., Implicit signals in small group settings and their impact on the expression of cognitive capacity and associated brain responses*, 367 PHIL. TRANS. R. SOC. B. 704–716 (2012) doi:10.1098/rstb.2011.0267.

[66] Jane Goodman-Delehanty *et al., Insightful or Wishful: Lawyers' Ability to Predict Case Outcomes,* 16(2) PSYCHOLOGY, PUBLIC POLICY AND LAW, 133-157 (2010) (female lawyers showed evidence of less overconfidence).

Thus, there is recent support for concerns raised decades ago about the potential unfairness of mediation for women due to their tendency to be more "relational" (as opposed to adversarial) than men, or for other reasons.

a) *Reflections on the Role of Gender*

My own experience as a mediator has been primarily in commercial and civil disputes which differ markedly from family or divorce disputes. Women are not as numerous in these cases, either as litigants, as lawyers or as mediators. Yet many of the women one does encounter are quite able to be aggressive, and do not seem overly conciliatory.

However, both as a woman and a mediator, I have also seen, and heard from other mediators, that women are often more relationally oriented than men. Sometimes this works to a woman's advantage, as, for example, when a woman mediator attempts to thaw hostility between warring parties. However, some women may have more difficulty representing their own interests.

As an example, in a case I mediated many years ago, a family was suing their real estate broker. Only the wife attended the mediation. Although both sides were represented by attorneys, the attorneys were fighting. As a firm believer in self-determination, I decided to have the parties speak together away from the attorneys in a room with me.

In retrospect, it seemed to me that the male real estate broker was driving a hard-nosed bargain, albeit with a smiling face at times, while the woman was trying to negotiate with a more open heart and mind. I felt in retrospect that she had been disadvantaged by her willingness to be more sincere and relational. I also felt it was a gender issue.

Thus, joint sessions, and perhaps even mediation, may not be advisable and may be potentially unfair for some women.

3. Toward a Case-By-Case Approach

I believe most people can survive and even do well in mediation, especially with the right help and in the right context.

The lawyers are crucially important. Even if a person is deflated, or even if they are in "freeze," if they are represented by an attorney, the attorney's attitude and advocacy may be supportive for the client. The team together may be able to mobilize an adequate, effective, healthy, sympathetic response.

However, if the lawyers are not able to strike an effective balance between competition and collaboration, it may make settlement quite difficult, if not impossible.

For example, in the real estate case I described above, I was in a real conundrum. The lawyers were at each other's throats. It was logical for me to assume we would do better without them in the room. However, if I had it to do again, I would not have had the parties negotiate without their lawyers.

I would have engaged, instead, in extensive caucusing – which I believe works better for women and others who may have trouble articulating their own interests directly in front of an adversary.

In a separate caucus, a party can affiliate or bond with the mediator. This helps provide a format for giving voice to her/his needs and interests.

Clearly, these issues need to be resolved on a case-by-case basis. And here our own idealization of mediation and/or ourselves as mediators can be an obstacle. Had I not been a true believer in self-determination, would I have handled the real estate case described above differently? Probably, the answer is yes.

In summary, mediators should at least learn to consider, and hopefully to recognize, when factors such as gender or trauma are operating in a way which unfairly disadvantages either side during the course of mediation.

C. *Overconfidence and Sympathetic Arousal*

Returning to the discussion of our prototypical mediation, assuming parties are capable of healthy sympathetic responses, they are likely to experience some level of sympathetic arousal when facing their adversaries.[67] The degree of arousal and tension will vary depending upon the nature of the dispute and the psychology of the individual.[68]

In terms of the IDR cycle, this will also be the time of initial ego-inflation or overconfidence. The fact that people are frequently overconfident in predicting future events has been called "[o]ne of the most robust findings in research on social perceptions and cognition over the last two decades.[69] It has been demonstrated, reportedly, by hundreds of studies.[70] It has been called "the most significant psychological impediment to settlement in mediation," even when taking posturing into consideration.[71]

1. Examples of Overconfidence

The most common example of overconfidence occurs when each party firmly believes a case will settle for much more or much

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[67] In Porges' terms, this is a function of neuroception: the body scans the environment for threat or challenge and responds accordingly. *See* discussion *supra* Part III.B.

See also Part IV. C. 3 and 4 for a discussion of overconfidence from the perspective of neurobiology and neuroscience.

[68] For a discussion of the way that the psychology and the neurobiology of an individual relate, with case examples, see MONTGOMERY, *supra* note 19.

[69] Russell Korobkin, *Psychological Impediments to Mediation Success: Theory and Practice*, 21 OHIO ST. J. ON DISP. RESOL. 281, 284 (2006) (quoting David A. Armour & Shelley E. Taylor, *When Predictions Fail: The Dilemma of Unrealistic Optimism*, *in* HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT 334 (Thomas Gilovich et al. eds. 2002).

[70] *Id.* at 284.

[71] *Id.* at 291. This problem is also discussed at length, with many supporting references, in my *Psychology of Mediation, supra* note 1, text surrounding notes 151-153, and *Deeper Meaning of "Face," supra*, note 1.

less than is realistic given the circumstances of the particular dispute. But overconfidence goes deeper than that: it also extends, implicitly or explicitly to each party's belief in their own capacity to "win" or to force settlement on advantageous terms. Here are some examples:

- From an attorney: "I've thought this through and the other side will have to accept what we're offering. I know they will agree."
- From a businessman: "I'm a great negotiator. I am smarter than my attorneys. There is no problem with my negotiating directly with the other side of the dispute, even though they are attorneys."
- From a pro per litigant: "Sure, the statute of limitations may be a problem, and the other side is represented by a large firm. However I have some experience in court from another case where, admittedly, I was represented by an attorney. But I have some legal arguments. I will win in court."
- Attorneys for the defense: "The plaintiff's attorneys are so stupid they don't know about a recent case from the Court of Appeal which is solidly against them. Don't tell them."
- Attorneys for the plaintiffs: "By the way, we know there is a recent case on this. The Supreme Court accepted it for review in part at our urging. Obviously, we are going to win in the Supreme Court."

With regard to the latter two examples, the case did not settle, and it turned out both sides were overconfident. While it was true that the state supreme court had accepted the case for review in part at the urging of the plaintiffs, it ended up ruling against their position. Meanwhile, the defense ended up being unhappy with the result of the litigation for other reasons.

As these examples illustrate, overconfidence and inflation of one's own sense of prowess and ego often occurs simultaneously

with deflation or devaluation of the other side or the other side's case. This is why overconfidence often coincides with ego-inflation, or narcissism, a point discussed at length in my previous articles.[72] This is a major barrier to settlement.[73]

2. Lawyers and Overconfidence

As these examples also show, often lawyers, not just their clients, are overconfident.[74] In general, the greater the skill of the lawyer, the greater the awareness of risk, and the less the likelihood of overconfidence.[75]

There are many possible permutations. Sometimes the client is overconfident, but the lawyer is not, sometimes both are overconfident, etc.

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[72] *See, generally*, my *Psychology of Mediation*, *supra* note 1, and *Deeper Meaning of "Face," supra* note 1.

[73] "To the extent negotiators believe they are better negotiators than others, they may invest less effort toward an agreement. One potential consequence is that it takes the negotiators longer to reach an agreement or that suboptimal agreements follow from the negotiation." Vera Hoovens, *The Social Consequences of Self-Enhancement and Self-Protection*, Ch. 11 *in* HANDBOOK OF SELF-ENHANCEMENT AND SELF-PROTECTION," 246 (Mark D. Alicke and Constantine Sedikides eds. 2011).

[74] As Richard Birke and Craig Fox have noted: "lawyers at all skill levels are very likely to overestimate their abilities relative to those of their peers." Richard Birke & Craig Fox, *Psychological Principles In Negotiating Civil Settlements,* 4 HARV. NEG. L. REV. 1, 18 (Spring 1999).

[75] The famous Roman general Belisarius warned against overconfidence, even when the odds are in one's favor:

> For many men have been deceived by the hope of victory when it seemed certain that it would come to them, while men who, to all appearances, have met with disaster, have many a time had the fortune to triumph unexpectedly over their adversaries. Consequently I say that men deliberating with regard to peace should not put before them only the expectation of success, but reflecting that the result will be either way, they should make their choice of policy on this basis.

PROCOPIUS, HISTORY OF THE WARS, VOL. I. 126-127 (H. B. Dewing trans. 1914).

For our purposes, if a client is unable to form a healthy defensive response that fosters overconfidence, it may actually be a good thing to have an overconfident lawyer, or at least one capable of sympathetic arousal in the service of their cause. This can help to counterbalance the client's fear or reluctance to speak up. However, this can be problematic if the lawyer is too emotionally involved with the client.

3. Overconfidence from the Perspective of Neurobiology

From the perspective of neurobiology, the overconfidence seen in mediation can be viewed as the psychological correlate of the arousal of sympathetic nervous system. Fueled by neuroception,[76] that is, by a visceral sense of threat or challenge, the organism rises to the task of confrontation with adversaries by assuring itself of the likelihood of its success.

This view of overconfidence is well supported by the literature. It is well accepted that a basic function of the sympathetic nervous system is to mobilize energy to protect the organism from challenges and threats.[77] Sympathetic arousal and/or the fight-or-flight response can be activated by psychosocial stimuli.[78] Clinically, it has also been recognized that the defense of feeling one has special powers or is superior to others is connected to the sympathetic nervous system.[79] Litigation, presumably, exacerbates this tendency.[80]

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[76] See *supra* notes 10 and 11, for a discussion of this term.

[77] LEVINE, *supra*, note 3, at 106 ("noting the "defensive/self-protective activation that underlies sympathetic" activation).

[78] GEORGE S. EVERLY, JR. AND JEFFREY M. LATING, A CLINICAL GUIDE TO THE TREATMENT OF THE HUMAN STRESS RESPONSE, 33 (2013) (citing a number of studies).

[79] *See, e.g*, MONTGOMERY, *supra* note 19, at 47.

[80] Among the reasons for this, fighting is endemic to the adversarial process. Lawyers are paid to promote their client's "interests" with "interests" generally narrowly construed to be purely selfish or monetary interests.

Proponents of the Biopsychosocial Model of Challenge and Threat argue that sympathetic arousal occurs whenever a person attempts to pursue self-related goals and they feel they have sufficient resources, internal and/or external, to meet the task.[81] From this perspective, overconfidence is a way of increasing one's "internal" resources to meet the challenge.[82]

Finally, some studies have linked the level of tension ("tone") of the vagus nerve with the level of a person's self-esteem [83] and the extent of pro-social behavior.[84] This work also inferentially supports a link between the functioning of the vagus nerve and *excessive* self-esteem (overconfidence).

4. Findings from Cognitive Neuroscience

Overconfidence and similar egocentric biases have also been explored by neuroscientists who focus on the brain. For example, Tali Sharot, one of the leading experts on the "optimism bias,"

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[81] Blascovich and Mendes, *supra* note 53, at 207.

[82] *Ibid.* (noting that factors such as optimism, control, and self–esteem can be viewed as resources that help determine whether a person experiences a situation as threatening or challenging).

[83] Andy Martens e*t al., Self-esteem and autonomic physiology: Self-esteem levels predict cardiac vagal tone,* 44(5) J. RES. PERS. 573-584 (Oct. 2010) (higher self-esteem predicted higher cardiac vagal tone in four studies); Andy Martens, Jeff Greenberg and John B. Allen, *Self-esteem and Autonomic Physiology, Parallels Between Self-Esteem and Cardiac Vagal Tone as Buffers of Threat,* 12(4) PERS. SOC. PSYCHOL. REV. 370-89 (Nov. 2008) (discussing theoretical implications).

[84] *See, e.g.,* Geisler *et al., supra,* note 31, at 284 (2013) (finding association between cardiovagal tone and self-regulatory behavior which supports social bonds; citing Porges' theories); Mona El-Sheikh & Stephanie A. Whitson, *Longitudinal Relations Between Marital Conflict and Child Adjustment: Vagal Regulation as a Protective Factor,* 20 J. OF FAMILY PSYCHOL.30 (2006) (child vagal regulation can contribute to the aggravation or amelioration of risk of maladjustment in the context of exposure to marital conflict); Lynn Fainsilber Katz & John M. Gottman, *Vagal Tone Protects Children from Marital Conflict,* 7 DEVELOP. AND PSYCHOPATH. 83 (1992) (children with low vagal tone showed a strong link between the amount of marital hostility and children's subsequent acting out).

which is essentially what we describe as overconfidence,[85] working together with colleagues, used functional magnetic resonance imaging (fMRI) to examine the neural underpinnings of the optimism bias.[86]

They found that "pervasive optimism bias"[87] was related specifically to enhanced activation in the amygdala and in the rostral anterior cingulate cortex. This may be an important finding because the amygdala is directly related to the cascade of responses that activate the SNS and the fight response.[88] The rostral anterior cingulate cortex is a part of the brain that contributes to performance evaluation.[89]

In another line of research, Jennifer Beer and her colleagues found a connection between "exaggerated positivity," i.e., the majority of people thinking they are better than their average peer,[90] and the orbitofrontal cortex ("OFC"). This part of the brain, located above the eyeballs and their muscles,[91] is directly connected to both

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[85] Unfortunately, often the authors of these studies use different names to refer to similar or the same phenomena. For example, terms such as "optimism bias" or "exaggerated positivity" overlap significantly with overconfidence. This problem has been decried by experts. *See* James A. Shepperd *et al*., 8 PERSP. PSYCHOL. SCI., *Taking Stock of Unrealistic Optimism* 395, 400 (2013) (decrying the fact that researchers use inconsistent terminology when describing "optimism bias" and similar or identical phenomena.)

[86] An FMRI, a functional magnetic resonance imager, is a powerful technology that can create near-moving pictures that allow researchers to study the location, intensity and duration of brain activity. Birke, supra note 42, at 480.

[87] See *supra* note 85 on the variations in terminology for the "optimism bias" and related biases.

[88] See *supra* note 63 on the amygdala.

[89] Frida E. Polli *et al., Rostral and dorsal anterior cingulate cortex make dissociable contributions during antisaccade errors,* 102(43) PROC. NATL ACAD. SCI. USA 15700 (October 2005) doi: 10.1073/pnas.0503657102

[90] Jennifer S. Beer, *Exaggerated Positivity in Self-Evaluation: A Social Neuroscience Approach to Reconciling the Role of Self-esteem Protection and Cognitive Bias,* 8(10) SOC. PERS. PSYCH. COMPASS 583 (2014) doi: 10.1111/SPC3.12133.

[91] Sabine Windmann and Martina Kirsch, *The Orbitofrontal Cortex and Emotional Decision-Making: The Neglected Role of Anxiety, in* PREFRONTAL CORTEX: ROLES, INTERVENTIONS AND TRAUMAS, 146 (Lorenzo LoGrasso and Giovanni Morretti eds. 2009).

the amygdala[92] and goal-related thinking centers within the brain.[93] A prominent theorist has suggested that the OFC may be an intrinsic part of the social engagement system described by Porges.[94]

5. The Primacy of Issues of Self -Esteem

Beer and her colleagues also found that the OFC works in opposite ways depending upon whether there is a threat to self-esteem. It is reduced in the absence of such a threat and *increased* when interpersonal self-esteem is on the line. Thus, Beer and her colleagues warn, taking a phenomenon such as exaggerated positivity as a unitary construct can be misleading. [95]

This may have profound implications for the emerging study of study of the connections between the various cognitive biases and the mindsets of negotiators.[96] In "interpersonal" settings such as mediation, issues of self and identity can fundamentally inform and, potentially, profoundly change the way the brain and its cognitive biases operate.

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[92] On the amygdala, *see supra* note 63.

[93] Windmann & Kirsch *supra* note 91, at 183. (The OFC, with its bilateral connections to the amygdala on the one hand and goal-related thinking centers . . . on the other is best suited to mediate" fear, risk or anxiety in connection with risks perceived in the environment).

[94] ALLAN N. SCHORE, AFFECT DYSREGULATION AND DISORDERS OF THE SELF, 109 (2003) ("deduc[ing]" that the orbitofrontal cortex, the anterior cingulate and the central amygdala are among the higher structures in the brain that feed mobilization of energy resources or calming in Porges' model).

[95] Beer, *supra* note 90. Beer has also suggested that amygdala activation may correlate with what she calls "interpersonal self-esteem defense." Jennifer S. Beer, *Neural Systems of Intrapersonal and Interpersonal Self-Esteem Maintenance, in* THE OXFORD HANDBOOK OF SOCIAL NEUROSCIENCE, 599, 606-607 (Jean Decety and John T. Cacioppo eds. 2011).

[96] *See e.g.*, Birke, *supra* note 42, at 493–494 (listing many of the relevant biases, such as confirmation bias, naïve realism, biased assimilation and others); David A. Hoffman & Richard N. Wolman, *The Psychology of Mediation*, 14 CARDOZO J. CONFLICT RESOL. 759, 788-802 (2013) (discussing same).

D. *Toward A Neurobiology of the Process of Mediation*

Returning again to our prototypical mediation, for those capable of healthy self-protective responses, each offer from the other side will have a tendency to stimulate, indeed to increase, sympathetic nervous system arousal — often manifested as a fighting spirit, and indignation at the affront to one's self-esteem.[97]

Yet simultaneously, during each face-to-face discussion of the offer with the mediator, the parties will experience safety and social engagement. Through this process, the mediator's own brain-face-heart circuit (social engagement system) – not just her words – helps to evoke calmer responses in the parties even in the midst of conflict.

Mediation thus calms sympathetic arousal even while it provokes it by exposing parties to rapidly alternating moments of sympathetic arousal and social engagement. I believe this explains the IDR cycle, and much of what we see in mediation.

This dynamic is similar to what Peter Levine calls *pendulation* in therapy. This is the strategy of having clients rapidly shift between sensations of safety and danger in order to reduce states of arousal.[98] In mediation, we help parties "pendulate" more indirectly – by offering a zone of objectivity and safety within the midst of conflict.

As lawyers and mediators, we may tend to take this aspect of the process of mediation for granted. However, it is actually hard to find these very same dynamics in any other human activity.

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[97] See the discussion in my *Psychology of Mediation*, *supra* note 1, at 206-207 and *Deeper Meaning of "Face*," *supra* note 1.

[98] As Levine describes pendulation: "If the person's discomfort shifts, even momentarily,"… [c]hoice and even pleasure becomes a possibility . . . as new synaptic connections are formed and strengthened." LEVINE *supra* note 3, at 79.

E. *Allowing Parties to Take The Time They Need to Process and Go Through the IDR Cycle.*

Of course, during the mediation, cognitive strategies are employed, such as mirroring, reframing, and encouraging perspective taking and reappraisal of the situation. These tools and strategies lie, indeed, at the heart of social engagement.

The reality is, however, that cognitive strategies will have a much more limited impact until sympathetic arousal has been calmed down. As Raio and colleagues have noted, high sympathetic arousal can interfere with cognitive function. As a result, there is a paradox: "cognitive regulation may be ineffective at controlling emotional responses precisely when such control is needed most."[99]

Thus, it is wise not to push people too hard to be "rational," or to offer evaluative insights, during the early stages of the mediation. Each person should be given the time they need to process the issues involved in the dispute. The amount of time will differ, depending upon the person and the situation.

Conversely, it is good to remember that the adamant people we encounter in the early stages of mediation will often hold different views a bit later on.

F. *Deflation*

As the vagal brake is applied and reapplied, the level of arousal decreases. There is a corresponding increase in the ability to take in the other side's perspective and requirements, and, often, a lessening of ego-inflation, or overconfidence. This is the time of deflation.

During this period, remarkably, people who just hours earlier triumphantly proclaimed they were "winners" may now begin to

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[99] Candace M. Raio, *et al., Cognitive Regulation Fails the Stress Test,* 110(37) PROC. NAT. ACAD. SCI. 15139 (Sept. 10, 2013) doi: 10.1073/pnas.1305706110.

feel badly, to see themselves as "losers" or to exhibit less confidence in other ways. The primacy of issues of self and identity has remained the same, only the content has shifted.[100]

Deflation does not always manifest as disappointment. At least initially, it may be expressed as anger or indignation, which can actually be a defense against feelings of deflation. The important point, psychologically, is that the person begins to become aware that their overconfident expectations may not be met.

This is a good time for a mediator to demonstrate respect. Respect mirrors and validates each party on a fundamental level of being, as a human being. Yet it simultaneously addresses the psychological issue stimulated by interpersonal conflict — the validity, stability, and value of the party's sense of self.

Sometimes, perhaps with the mediator's assistance, a party is able to move past the sense of deficiency to find a deeper sense of themselves, a sense of identity not dependent upon the outcome of the mediation or what others think. When this happens, it is, in effect, an awakening to a deeper truth of the self, even in the midst of conflict. However, the profound meaning of these moments most often goes unnoticed.

As Richard Birke points out, one does not wish to force concessions or take advantage of a sense of weakness at this time.[101] Yet, one also does not wish to foreclose constructive, objective

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[100] As this example demonstrates, from one perspective, we have many "parts," "selves" or identities. *Cf.* Leonard L. Riskin, *Managing Inner and Outer Conflict: Selves, Subpersonalities and Internal Family Systems*, 18:1 HARV. NEG. L. REV. 1-68 (Spring 2013) (discussing selves and subpersonalities in personal practice and negotiation).

From the perspective of neurobiology, the "self" of self-protection is not the same self as the self of deflation, or realistic resolution. Each will have different neurobiological signatures, and different psychological issues. In the course of mediation, they relate and react to each other. Thus, as the IDR cycle demonstrates, there can be and often is a lawfulness to the order in which the sense of self or identity unfolds during the difficult process of mediation.

[101] Birke, *supra* note 42, at 515.

discussions either. This is one of the balancing, choice points in mediation.

G. *Impasse*

Sometimes the parties must travel through a time of impasse – a time where it seems the dispute is irreconcilable because their positions are simply too far apart. In some cases, the impasse is a defense to inflation; one or more parties simply refuse to let go.

Impasse is a difficult time for the parties. Yet in many ways it is the true goal of the mediation. Everyone finally knows the real — not the imaginary — choices that must be made.

Ironically, this may also be the time when the parties will be most receptive to the mediator's efforts. They are now convinced that their own previous goals and strategies are not workable.

1. Impasse and the Mediator's Issues of Self and Identity

During the impasse, the apparent failure to achieve "success"– in the form of settlement – can trigger the mediator's own feelings of loss of "face," as I have discussed elsewhere.[102] The basic dynamic is that the mediator's own inflated "professional ego ideal" – self-image as a great or powerful mediator – may be threatened. There is an irony here, as we are forced to develop the same humility we have, implicitly, urged upon others.[103]

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[102] See my *Psychology of Mediation*, *supra* note 1, at 201-202, 209-210, and *Deeper Meaning of "Face*," *supra* note 1, and *The Psychology of Mediation, Part I: The Mediator's Issues of Self and Identity*, http://www.mediate.com/articles/baderE2.cfm, last visited July 28, 2015.

[103] I use word "humility" here fully aware that the word has many connotations, including theological and philosophical. *See* Bradley P. Owens, Wade C. Rowatt & Alan L. Wilkins, *Exploring the Relevance and Implications of Humility in Organizations*, 260 - 272, *in* THE OXFORD HANDBOOK OF POSITIVE ORGANIZATIONAL SCHOLARSHIP (Kim S. Cameron and Gretchen M. Spreitzer eds. 2012).

The important message of impasse is: we can help the parties but not rescue them. They must decide how to proceed, and take responsibility for the consequences. This, often, is just what is needed to resolve the impasse.

2. Impasse from a Neurobiological Perspective

From a neurobiological perspective, it is tempting to explain impasse as a time when the sympathetic and parasympathetic systems are active simultaneously, with neither able to command the field. Stated another way, although the parties' aggressive and fighting instincts remain intractable, they are contained within the field of social engagement, that is, within the field of the mediation.

But the struggle inside the parties between their own more primitive responses and the higher cortical, reasoning part of their brains is also a part of the deadlock.[104] Thus, another dimension of impasse is the struggle between the higher cortical areas of the brain and the more primitive parts, parts which are more reactive and potentially more related to sympathetic arousal.[105]

3. The Relationship Between Impasse and Insight

Resolution by insight during or after impasse is relatively common in meditation, perhaps more so than in other areas of life. Ironically, I believe, it is impasse that, often, makes insight possible. In my view, this is because there is a unique blend of openness to

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[104] The word "cortical" in this context means relating to the cerebral cortex, a part of the brain that plays a critical role in consciousness.

[105] "[I]n humans . . . [brain] regions that generate and maintain affective arousals are in a two-way dialogue with higher cortical areas: on the one hand, emotional processes affect . . . cortical areas . . , on the other hand, these cortical areas also participate in the unconscious regulation of impulses and emotion. . . ." Mark Solms and Margaret R. Zellner, *Freudian Affect Theory Today*, 133, 141 *in* FROM THE COUCH TO THE LAB, TRENDS IN PSYCHODYNAMIC NEUROSCIENCE (Aikaterini Fotopoulou, Donald Pfaff and Martin A. Conway eds. Oxford 2012).

new ideas and a sense of urgency during mediation impasse. The critical role of impasse in stimulating insight is supported by recent thinking on insight.[106]

In general, during impasse one needs to find a way to keep the continuity going without anyone losing face – to "incubate" the creative tension between "yes" and no" – without giving up on the process or the search for resolution.

In line with insights from the work of Peter Levine, *titration*,[107] taking small, even tiny, steps, can help hasten resolution. Thus, taking breaks, changing the subject, talking about something else, these may seem counterintuitive or "inefficient" to lawyers. But at the right time they can be very effective in helping to move things along. They can help the nervous system to pendulate,[108] and decrease the powerful grip of high sympathetic arousal. Parties can then return to disturbing subjects from a calmer place. Recent research supports this view.[109]

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[106] According to Simone Sandkühler and Joydeep Bhattacharya, there is a general agreement among psychologists that insightful problem solving is characterized by four salient features:

1. Mental impasse: [T]he problem solver experiences an impasse in the process of solving the problem, wherein the solver is mentally stuck on an unsuitable construct of the problem and fails to progress further …".
2. Restructuring: The problem solver breaks out of mental impasse… It is a transition from an initial inappropriate and thus misleading representation of a problem and state of not knowing how to proceed in solving a problem to a state of knowing how to solve it . . .
3. Deeper understanding: An insight is a form of deeper or more appropriate understanding of the problem and its solution. . .
4. Suddenness: An insight is often perceived by the problem solver as being spontaneous or sudden and without any predictable forewarning . . .

Simone Sandkühler & Joydeep Bhattacharya, *Deconstructing Insight: EEG Correlates of Insightful Problem Solving*, 3(1) PLOS ONE. e1459 (2008) Published online 2008 Jan 23. doi: 10.1371/journal.pone.0001459 (citing numerous studies).

[107] LEVINE, *supra* note 3, at 82.

[108] On the meaning of pendulation, *see supra* note 98.

[109] Linden J. Balla *et al*., *When distraction helps: Evidence that concurrent articulation and irrelevant speech can facilitate insight problem solving*, 21(1) THINKING

H. *Realistic Resolution*

Realistic resolution happens after sympathetic arousal has been reduced, some measure of deflation has probably occurred, and the strong feelings related to the dispute are brought more into balance. There will still be arousal, but hopefully it will be tolerable and productive.[110]

On the level of the brain, it is a time when, hopefully, higher levels of the brain, such as the medial prefrontal cortex, are able to gain control precisely because the strength of fear and emotion-based inputs connected to the fight-and-flight response from parts of the brain such as the amygdala,[111] have been regulated and managed.[112]

As the higher cortical areas increasingly exert control, there is a decrease in "overly positive self-perceptions," i.e. ego-inflation and overconfidence.[113] By the time of realistic resolution, the parties no longer focus solely on their own needs and demands. They begin to take stock of what the other side is saying and demanding. The development of the capacity to see both sides – to see both what

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& REASONING, SPECIAL ISSUE: CREATIVITY AND INSIGHT PROBLEM SOLVING 76-96 (2015). Published online: 16 Jul 2014.

[110] MONTGOMERY, *supra* note 19, at 33 ("In ideal circumstances the regulation of affect is the achievement of optimal and tolerable levels of arousal. This . . . occurs via the maintenance of autonomic balance between sympathetic . . . (high) and parasympathetic . . . (low) states of arousal, citing SCHORE, *supra* note 94, at 26.")

[111] On the amygdala, see *supra* note 63.

[112] According to many neuroscientists, successful emotion regulation occurs when the prefrontal cortex is more active and thus able to modulate (moderate) the activity of the amygdala. *See* M. Justin Kim *et al., The Structural and Functional Connectivity of the Amygdala: From Normal Emotion to Pathological Anxiety* BEHAV. BRAIN NEUROSCI. 403, 408 (2010).

[113] *Cf.* Virginia S. Y. Kwan et al., *Assessing the neural correlates of self-enhancement bias: a transcranial magnetic stimulation study* 182(3) EXP. BRAIN. RES. 379-385 (2007) ("Our findings show that TMS [transcranial magnetic stimulation] to MPFC [medial prefrontal cortex] decreased participants' tendency to self-enhance. . .")

I want and what you want – can be a significant psychological achievement. [114]

Hopefully, with the mediator's help, settlement will result.

V. CONCLUSION

From a psychological perspective, mediation is a journey—a profound journey—from self to self-and-other. From the perspective of neurobiology, it is also a journey from sympathetic arousal to social engagement and to higher level thinking and self-regulation. Ideally, by the end of the journey each party has been able to make important decisions with a relatively calm nervous system and a relatively clear mind.

[114] This point is discussed at length in my previous articles. *See, generally, my Psychology of Mediation, supra* note 1, and *Deeper Meaning of "Face*," *supra* note 1.