

## **Reflection: The Connection between Mediation and Neuroscience**

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The following is a reflection on my own work as I make connections between what I do in mediation and my acquired understanding of neuroscience. No area of understanding is more relevant and important for mediator competency than a basic awareness of how the human brain functions, perceives events, processes emotional reactions and cognitive responses, and formulates decisions. This new neuroscientific understanding can change the heart of our work in managing conflict and problem solving.

The revolutionary discovery that the human brain can change itself will, in my opinion, have the biggest impact on how mediation can be an empowering process. In the book *The Brain That Changes Itself*, Doidge writes, "... thinking, learning, and acting can turn our genes on or off, thus shaping our brain anatomy and our behavior" (p.xix).

Mediators can capitalize on the realization that the architecture of the brain changes in the course of a person's life, and, therefore, also in the course of a mediated conversation. If mediators consider that neuroplasticity renders parties' brains not only resourceful but also vulnerable to outside influences, they will understand that it has the power to produce flexible but also rigid behaviors – in Doidge's words, "the plastic paradox" (p.xx).

The brain's overarching organizing principle of minimizing danger and maximizing reward governs *towards* and *away* motivation and drives our social behavior. David Rock identified key patterns of social threats and rewards in the SCARF (status, certainty, autonomy, relatedness and fairness) model. He built on the recognition that social pain and pleasure are experienced similarly to physical pain and pleasure. Conflict between parties arises frequently from a lack of certainty or predictability, a lack of autonomy and choice, and the absence of fairness. Since we do not have the neural resources to process the world moment-by-moment 'fresh', we need the ability to predict. In mediation, being unable to predict the opposing party's negotiation tactics arouses a strong threat response and impairs decision-making. At the same token, a perceived threat imposed by these unknown factors can be dampened down by a sense of relatedness, when a party resonates with something that is similar in the other party. A mediator attempts to build rapport and trust by identifying and labeling parties' common interests, the similarities of their underlying needs, so that a sense of relatedness can be achieved.

The multiplier effect, that a social threat in one area can affect another area and start to add up, may also be important for mediators; for example, since parties keep track of where they stand in relation to others, when a party perceives that his/her status (competence) has dropped in the eyes of the other party it may trigger an unfairness response and uncertainty about the mediation process. This ripple effect can be offset by a benefit in another area; in my example, by increasing autonomy for the party perceiving a social threat; the mediator might be able to balance the choice or control between the parties over certain areas of discussion. The mediator is tasked with the integration of all parties' needs; these needs are identified by SCARF-induced threats and rewards, including the mediator's own SCARF tendencies.

The limbic system constantly makes *towards* and *away* decisions automatically. Appendix A<sup>i</sup> explains how an aroused limbic system can create false confidence interferes with the brain's braking system and misinterprets incoming data.

When the limbic system becomes aroused by anxiety or fear, resources available for the prefrontal cortex decrease and vice versa. The two work like a seesaw. Emotional escalation reduces the ability to think and reason. Brain-based techniques can reverse and even nullify the impact of arousal. Cognitive change allows parties to think differently about the situation by two methods: a) putting a label on their emotions and b) reappraising and changing their interpretation of an event (Gross, cited in Rock, 2009).

A labeling technique called symbolic labeling can be used to help the parties make a switch by trying to find the right word to identify an emotional sensation. Dr. Matthew Lieberman found that describing an emotion with words, using symbolic language which means using indirect metaphors and simplifications of our experience, less activity occurred in the insula, cingulate and amygdala, but activation in the right ventrolateral prefrontal cortex, the brain's braking system and central to inhibition, without consciously trying to inhibit, was noticed (2010, lecture slides).

Reappraising and changing the interpretation of an event can also be used powerfully in mediation. It turns out that conscious control over the limbic system is possible not by suppressing a feeling but rather by changing the interpretation that creates the feeling in the first place. Cognitive reappraisal, also known as re-contextualizing or reframing, helps to reduce the impact of bigger emotional hits; it has a stronger emotional braking effect than labeling. Dr. Kevin Ochsner studies neuroscience of reappraisal and found that we can control our interpretation of the meaning of a situation. The four main types of reappraisal are 1) reinterpreting, 2) normalizing, 3) reordering information and 4) repositioning (2005, cited in Rock, 2009). It is so easy to become fixed in a way of thinking, as we know from people reaching impasse. However, when we take another person's perspective, we are changing the context through which we view a situation. Even the smallest perception of choice seems to impact limbic system arousal. It is the perception of choice that matters to the brain. Emotional states are surprisingly easy to change at times; one different word or phrase can make a big difference.

The neuroscience approach is to involve people earlier in the change process and in a targeted way. Controlling the emotional climate in mediation is important for trust and openness to develop between parties. Being able to effectively manage anger, fear and anxiety is a cornerstone for a mediator in attaining credibility with others and confidence in oneself. Knowing that techniques such as symbolic labeling and reappraisal can reduce the emotions that hinder conscious thought and awareness, mediators can learn to apply these techniques correctly. Enhancing the mediator's emotional vocabulary and learning perceptual position shift questioning (shifting to another person's view, an overall view, a time shift, and situation shift etc.) should become important elements of mediation training in the future. The exchange of information, experiences and facts to enhance parties' understanding of each other, is also a feedback giving and receiving process. However, a large number of conditions must be satisfied for feedback to have a positive effect. Therefore, no feedback is valuable if there is low trust or a highly political environment (Ghorpade, 2000).

David Creswell of UCLA found that with people who are more mindful, more of their brain becomes part of the inhibition process in the right ventrolateral prefrontal cortex and other prefrontal cortical regions, facilitating an openness towards feedback (Rock, 2009). Training in mindfulness will become a necessity in mediation training as it underlies the ability to accept 'what is' nonjudgmentally, to be 'in the present' and to focus on parties' needs with an open mind.

Aside from influencing a positive emotional climate and becoming mindful, a mediator's knowledge of the similarities of social pain and physical pain, the first of which most always involves one or more areas of the SCARF model, can increase opportunities for insight solutions. Probing for unmet social needs by focusing on the parties' perception of their status in relation to the presenting conflict, their level of uncertainty, lack of autonomy, as well as their sense of loss of relatedness (including business relationships), and/or unfair treatment by the other, all play into the depth of understanding that leads to collaboration. The activation of mirror neurons through conscious observation of an opposing party's actions and behaviors in face-to-face encounters can create sufficient empathy to affect a 'break through' between the parties. The recall of social memories (remembering people) stored in semantic (facts) and episodic (a personal experience) brain networks correlates with the formation of new impressions in the dorsomedial prefrontal cortex to which the amygdala attaches new emotional impressions. These impressions will be consolidated to form new memories. Emotions enhance memory, however, if a person or event is too emotional, the hippocampus' memory consolidation shuts off and a person may be left with vivid emotional memories without 'conscious access', as is the case in posttraumatic stress disorder (PTSD).

How the brain functions, the complexity of countless interconnections and integrated functions that manage the simplest perceptions, emotions and decision-making, has been particularly useful with regard to understanding decision making and the power of insight over analytical problem solving. This learning has increased my awareness of the downside of a problem-focused approach in mediation. Limbic arousal impairs cognitive functions such as memory recall, understanding and deciding. The ability to stop oneself inhibit distractive thoughts is reduced and rational thinking, therefore, highly overrated. An outcome-focused approach on the other hand, activates implicit goal pursuit. The process of implicit goal pursuit can be summarized as an activation of a goal representation, which works due to the concept of associated learning. If we pursued something in the past successfully thinking about it will activate the other (current need for similar behavior). Through priming we manipulate attention. For example, priming by visualization of a past successful pursuit prepares the brain for action and detects the reward signal. Thinking about it will also prime the motor area of the brain as well as associated muscles to carry out the action. This leads to goal pursuit outside awareness.

From my perspective, the rationalist paradigm of the logical and determined disputant, coming to the table to work collaboratively, objectively engage in cost-benefit analyses, and methodically move to creatively solve problems, has had its difficulties as it minimizes/suppresses the emotions parties bring to the table. This does not mean rational analysis is not of significant value and worthy of pursuit, only that it is not sufficient in and of itself for dealing with complex issues. Mediators are change agents and I am prepared to adapt my current mediation style to incorporate my insights gained through this program.

Returning to the statement above that rational analysis is not sufficient in and of itself for appreciating and dealing with complex issues, I have noticed a cognitive dissonance affecting my critical faculties (Crawford, 2008) in regards to research methodologies used in neuroscience; on one hand I have developed 'neuro enthusiasm' as professors shine a light on the 'magical' effects of brain scans and use the results to impart legitimacy to their efforts, and on the other hand I believe it is necessary to disentangle the science from scientism – entrepreneurs grasping at some kind of authority through neuroscience, presented as neuro-talk. Such talk is often accompanied by a picture of a brain scan, in Crawford's words, "that fast-acting solvent of critical faculties." (Crawford, 2008) See Appendix B<sup>ii</sup> for Crawford's concerns with fMRI research methodology. Additional research on brain scans can be found in Appendix C<sup>iii</sup>.

The mediator has the ability to help parties' transfer new learning to future events for long-lasting, sustainable behavior change. To hard-wire new behaviors in basal ganglia, the mediator helps parties (through various perceptual positions) visualize 'transferring' new behaviors to future situations. This is also known as Lewin's 3-Step Change Theory of unfreezing (the existing situation), movement (towards new perspective) and refreezing (hard-wiring new behaviors and beliefs).

In summary, to convene the table in mediation, parties and mediators need to develop a new set of circuits:

- Observe their thinking process
- Label their emotions
- Calm themselves for insight to occur.

With the advent of neuroplasticity new hope for insight solutions has arisen. Based on a large amount of research it is now possible, if not even necessary, to rewrite a mediation process that integrates the adaptive brain.

Looking through the eyes of a mediator I am mindfully aware of the evolutionary nature of my study in neuroscience of leadership and the responsibility that accompanies ethical and educational dissemination of newly acquired knowledge in my effort to create peaceful communities, one conversation at a time.

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<sup>i</sup> APPENDIX A: Emotions such as anxiety, sadness and fear are *away* responses. As we experience emotions, the limbic system automatically becomes aroused. The hippocampus is part of the network and links new experiences to memories of whether something is a danger or a reward. It doesn't just remember facts but also feelings about facts. The amygdala is the brain's thermometer for feelings and becomes aroused in proportion to the strength of an emotional response. This information is particularly interesting for the mediation process as it can even create false confidence. For example, increased adrenaline when experiencing fear might make parties feel focused and more confident in their decisions, when their ability to make the best decisions has actually been reduced. (Rock, 2008)

When the limbic system is overly aroused, reduced resources are available for prefrontal cortex functions. These functions involve memorizing, understanding, recalling and inhibiting thoughts, stopping oneself to think something. It is the executive control centre of the brain and the seat of the working memory, an energy draining, small part of the brain which holds on to information short-term. To assist the prefrontal cortex in preserving energy, we use 'low resource' tools, for example motor and routine tasks are handled by the basal ganglia. When not enough resources are available for conscious processing in the prefrontal cortex, three problems arise: 1) the brain becomes more automatic, drawing on deeply embedded functions (habitual behavior), or recent events temporarily stored in working memory; 2) the loss of executive control to help keep unwanted thoughts away; 3) the limbic system looks out for even more danger when aroused by threats, starting a downward spiral, also known as amygdala hijack.

An aroused limbic system can also make links where there may not be any, for example 'accidental connections', misinterpreting incoming data. Accidental connections also happen when we are anxious due to limited information processing called attentional blink. This is a time gap of over half a second for most people required between identifying different stimuli. If we hear a few words and then our attention goes to an internal voice, as arousal tends to do, we might not have time to hear the next few words said to us.

<sup>ii</sup> APPENDIX B: Crawford correctly identifies weaknesses in interpreting fMRI results. He makes the point that "[a] brain scan, known as fMRI (functional magnetic resonance imaging), is a research method the validity of which depends on a premise. That premise is that mental processes can be analyzed into separate and distinct components or modules, and further that these modules are realized in localized brain regions. Brain scans do, in fact, reveal well-defined areas that "light up" in response to various cognitive tasks. In the case of functional (as opposed to structural) neuroimaging, what we see when we look at a brain scan is the result of the baseline measurement being subtracted from the on-task measurement. The reasoning is

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that whatever shows up in the subtraction represents the metabolic activity associated solely with the cognitive task in question. However, this method eliminates the fact that the entire brain is active in both conditions and the presentation of differential brain scans subtracts out all the distributed functions. At its most basic interpretation this subtractive method provides neuroscientists with a working hypothesis that allows mental processes to be analyzed into separate modules in localized brain regions.” (Crawford, 2008)

<sup>iii</sup> APPENDIX C: A paper published in the Journal of Cognitive Neuroscience. The authors of “The Seductive Allure of Neuroscience Explanations,” a team of Yale scholars, offered their subjects various explanations for certain psychological phenomena that are familiar to everyday experience. Some of these explanations were contrived to be pointedly bad explanations. Their subjects consisted of three groups: neuroscientists, neuroscience students, and lay adults. The study found that all three groups did well at identifying the bad explanations as bad, except when those explanations were preceded with the words, “Brain scans indicate”. Then the students and lay adults tended to accept the bad explanation (Skolnick Weisberg, et al., 2008). A complementary set of experiments by David P. McCabe and Alan D. Castel in the journal Cognition found that “readers infer more scientific value for articles including brain images than those that do not, regardless of whether the article included reasoning errors or not.” (cited in Crawford, 2008) These findings suggest that we are culturally predisposed to surrender our own judgment in the face of brain scans.