

THE IMPACT OF BRAIN SCIENCE ON CONFLICT AND ITS RESOLUTION

How does brain functioning get us into disagreement, conflict and dispute? Why do seemingly rational and logical solutions not always work in mediation, negotiation or conflict resolution more broadly? What are the most effective strategies for the practitioner to use in either settlement or resolution? How can brain science become our trusted friend?

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I. Introduction

1 Experienced negotiators, mediators and dispute resolvers rely heavily on a logical, rational process to resolve disputes. They also rely on their instinct, intuition and experience to assist disputants and counsel the parties involved in the conflict or dispute. A necessary part of the work of settlement and resolution is often to manage high-conflict personalities and heightened emotions, deeply held beliefs, over-confident case assessments, and other barriers to seemingly rational deals.

2 Brain science¹ is a 21st-century phenomenon; it suggests insights and strategies to assist conflict resolution. It adds to the ideas gained from psychology, psychotherapy and sociology the insights from pure neuroscience, and in many cases challenges many of the myths surrounding conflict and its resolution. And it is evolving.

3 Brain science is rapidly gaining popularity and providing different and valuable insights into human behaviour. It is being used to help understand how the nervous system functions in health and

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1 The term "brain science" used in this article includes the broad fields of neuroscience, neurobiology, neurophysiology and neuropsychology, each of which has their own definitions and focus.

disease. Studying the brain involves investigating fundamental questions as to the nature of consciousness, or how one forms and retains memories. It is also being used to help us understand the nature of conflict and the role that the brain plays both in initiating conflict, as well as resolving it.

4 Almost all conferences and seminars now include presentations and workshops on the topic. It is being used to train negotiators and mediators (and conflict resolvers more generally); it is being used by sales and marketing organisations to inform strategy and customer communications; it is a powerful tool in the training of leaders and managers; it supports psychologists and therapists in their clinical work; and it is rapidly developing its academic focus.

5 To this latter point, a study of neuroscience papers² showed that the number of papers and core neuroscience journals had grown significantly from 2006 to 2015. In this article, China emerged as a major neuroscience contributor, jumping from 11th place in 2006 to second place in 2015 on the list of most productive countries for neuroscience research. Over this period the number of articles and papers relating to the sides of the brain increased linearly, according to the researchers.

6 Through the advent of rapidly expanding brain science (and the technologies that underpinned it, for example, Functional Magnetic Resonance Imaging (“fMRI”) (among many)), some of the conclusions may prove in time to be somewhat erroneous, and contradictory. The science of the brain is by no means settled, but what is already known dramatically helps the understanding of how humans make decisions. It is through this exploration of decision-making that conflict resolvers can now better understand the impact of the human brain on conflict and its resolution.

7 It is also well recognised by conflict resolvers, and other ADR practitioners, that the tools at their disposal for better understanding and resolving conflict have increased in number and expanded in reach and use over the last ten years. Additionally, the term “ADR” has become increasingly mutated in its use – from its original definition as *alternative* dispute resolution (being an alternative to litigation and the court) to that of *appropriate* dispute resolution (most appropriate choice of dispute resolution process) or *assisted* dispute resolution (where conflict resolvers use a range of tools to assist clients reach an outcome which best meets their needs).

2 Conn Hastings, “Study Shows Rapid Growth in Neuroscience” *Frontiers Science News* (21 April 2017).

8 The difference between these three words “alternative”, “appropriate” and “assisted” is not just nomenclature or a play on words; it represents a shift in philosophy and approach to dispute resolution. Brain science is encouraging and supporting the rate at which this shift takes place.

9 This article aims to explore the brain science, and specifically what is known about the role of the “social brain”,³ behind success and failure in conflict resolution: good and poor outcomes. More importantly it explodes many of the myths on which many practitioners rely, and explains why rational processes do not always work. It begins with an exploration of rational processes – starting with interest-based negotiation (“IBN”) – and then takes the journey through deeper resolution processes. This journey focuses very much on the role of the “social brain” in conflict and in conflict resolution.

10 My intention has been to keep brain science simplified. All the fields associated with the science of the brain have become complicated very quickly, to the point where the “lay-person” can become lost in the myriad of terms and abbreviations used, the chemistry and physiology involved, and the language used by academics to explain brain functioning. Ultimately, practitioners want materials that they can understand, and pathways that take them from what they know to an exploration of new possibilities in their own practice – workable strategies and useful tools.

II. Conflict and resolution

11 As a starting point, we now know the following things about conflict and its resolution:

- (a) It is usually a battle between reason and emotion.
- (b) It results from disappointment, loss, grief, betrayal and perceived injustices.
- (c) It usually has a rational element (associated with economic loss), as well as an emotional element.
- (d) Emotions have a profound effect on negotiation and mediation.
- (e) Reason fails to control emotion (for example, “I’m so angry I cannot think straight”).

3 A term used by Dr Gerald Hüther, Brain Scientist, Germany, and by Prof Dr Mario Patera, Konfliktkultur, Austria.

- (f) The higher the stakes, the greater the emotion, the greater the conflict.
- (g) Emotions are connected to our values, beliefs, ideologies and self-concepts (hopes, dreams, and aspirations).
- (h) The exploration of emotions is the key to successful resolution of conflict.
- (i) Rational decision-making can only occur once emotional issues have been resolved.

Brain science helps explain why this is so, and why conflict resolution – particularly of deeply ingrained conflict – is so difficult.

A. *Interest-based negotiation (IBN)*

12 The starting point for most ADR practitioners has been the Harvard Negotiation Project, and the advent of IBN. This project was initiated in 1979 in the Law Faculty at Harvard University, and was led by William Ury and Roger Fisher. It is based on the idea of “principled negotiation”, and, as the authors note in their Introduction to *Getting to Yes*, the method “employs no tricks or posturing” (contrasting it with other popular negotiating methods which were in vogue at the time, and still are today).

13 *Getting to Yes*⁴ was first published in 1981 and has become the text for negotiation and mediation training at Harvard University, and in which the so-called “Seven Elements” were initially proposed.⁵

14 *Getting to Yes* has sold over 20 million copies worldwide and has been translated into 20 languages. It applies mutual game theory (win-win), and its central concepts have been used in negotiation and mediation training in the US, UK, Australia, New Zealand, Europe, India, Asia, Middle East and Africa. The book has had a profound effect on negotiation and mediation training and practice worldwide.

15 Most educators and trainers have the view that IBN is a rational process, and this is also reinforced by the words of the authors: “It [that is, the method] suggests that you look for mutual gains wherever

4 Roger Fisher & William Ury, *Getting to Yes: Negotiating Agreement Without Giving In* (London: Random House Business Books, 1991).

5 To recap the Seven Elements for the sake of completeness: best alternative to a negotiated agreement (BATNA); interests; options; legitimacy; acceptance; relationships; and communications. A detailed explanation of these terms can be found in Roger Fisher & William Ury, *Getting to Yes: Negotiating Agreement Without Giving In* (London: Random House Business Books, 1991).

possible ... and that the results should be based on some fair standards independent of the will of either side”.

16 IBN differentiates itself from the (often resorted to) process of “positional bargaining” in which each side takes a position, argues for it and ultimately makes concessions and trade-offs to reach a compromise.

17 At its centre is the idea of “interests”, and in *Getting to Yes* “interests” are defined as wants, goals, desires, concerns and needs. It is the meaning and use of these terms (wants, goals, desires, concerns and needs) which require further definition and explanation.

18 From a brain science perspective, IBN is a highly cognitive process that requires “separating people from the problem”⁶ which is a strategy for shifting the focus of parties away from their negative personal emotions connected with the matter to their possible mutual needs, and options that may satisfy them both.

19 Importantly, Fisher and Ury do acknowledge the impact of emotions on the negotiation process:⁷

People often come to a negotiation realising that the stakes are high and feeling threatened. Emotions on one side will generate emotions on the other. Fear may breed anger, and anger, fear. Emotions may quickly bring the negotiation to an impasse or an end.

An impasse or an end in a negotiation or mediation brought about by strong emotions doesn’t necessarily have to be the case, however. Through an understanding of brain functioning, and being equipped with different techniques and tools, an experienced negotiator or mediator can either avoid the impasse or move past it, should it arise.

(1) *Interests*

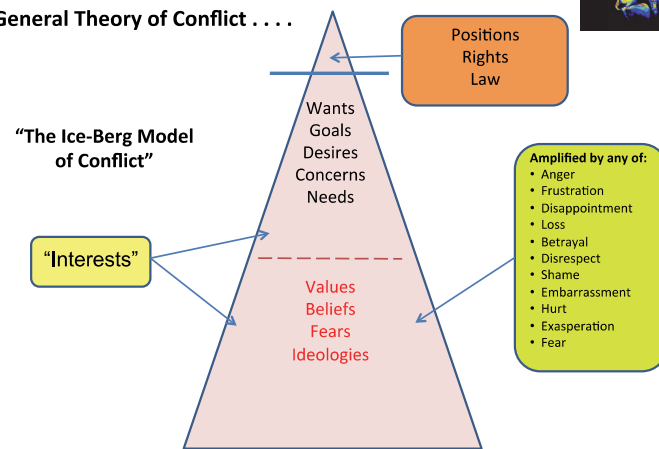
20 Interests are said to underpin “positions” (which include rights and the law), and are often found represented as an “iceberg model”, as shown below:

6 An axiom from Roger Fisher & William Ury, *Getting to Yes: Negotiating Agreement Without Giving In* (London: Random House Business Books, 1991).

7 Roger Fisher & William Ury, *Getting to Yes: Negotiating Agreement Without Giving In* (London: Random House Business Books, 1991) ch 2 at p 30.

"Mediators Masterclass"

A General Theory of Conflict



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21 As the iceberg model depicts, positions (that is, what is seen, heard, and demanded by parties) are above the waterline, whilst interests are found below the waterline and remain to be discovered as part of the negotiation or mediation process.

22 Further, the model also depicts that the further down (below the surface) the interest is, the more "personal" it is: that is, the more important it is for the individual and the more vigorously its satisfaction will be sought. At this level "interests" become very emotional and are shaped by a person's values, beliefs, fears and/or ideologies. This means that disputant parties are less likely to sway from their negative personal emotions connected with the matter until the emotions are adequately recognised, acknowledged and processed.

23 Related to this, some practitioners debate the use of the word "needs", and they interpret needs within the framework of Maslow's "hierarchy of needs" as a theory which explodes the concept of "needs" in non-rational (humanistic and psychological) ways.

24 Maslow's hierarchy of needs is a motivational theory in psychology comprising a five-tier model of human needs, often depicted as hierarchical levels within a pyramid.

25 Needs lower down in the hierarchy must be satisfied before individuals can attend to needs higher up. From the bottom of the hierarchy upward, the needs are: physiological, safety, love and

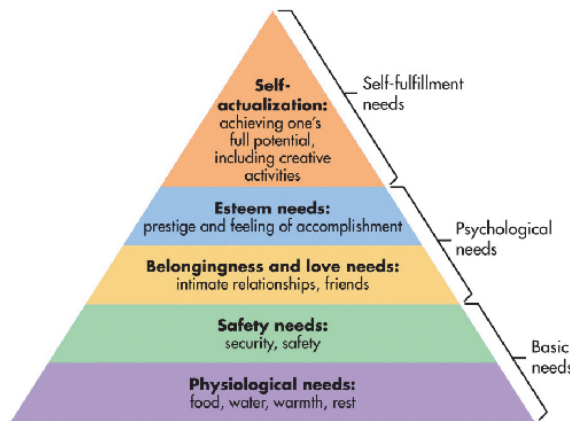
belonging, esteem and self-actualisation. In practice, not every need has to be completely (100%) satisfied, but sufficiently so that a higher-order need can be activated.

26 Maslow's hierarchy (of needs) is depicted in the following diagram.

"Brain Science"



Maslow's Hierarchy of Needs (1943)



How it works . . .

As each need is met & fulfilled; there is a desire for the next highest need;

and

When a lower order need is threatened; the higher need is sacrificed in order to protect the lower need

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27 These two observations of the use of the iceberg model help better appreciate the introduction of both emotions and values into the definition of "interests". They give weight to the often-claimed statement by mediators that "it's not just about the money". Even without reference to brain science, the expansion of what is understood by "interests" leads to a more complex description of the conflict. It does mean that there is often a root cause of the conflict and money is simply the manifestation of the conflict.

28 Disputants often use money as a "weapon" – for payback, redress, punishment, recompense, retribution and even humiliation. Brain science explains why using money as a weapon is a useful strategy on the part of disputants because it activates that part of the brain that responds to fear in their opposing party.⁸

8 This will be dealt with more fully at paras 49–53 below.

(2) *Convictions*

29 Fleerackers⁹ uses the term “convictions” to more strongly combine the effect of emotions, values and ideology in describing the various root causes of conflict. His work highlights that the stronger the conviction, the greater the degree of conflict, and the increased need for assistance (process design, resolution skills, experience, and tools) in order to understand the convictions, and to ultimately resolve the conflict.

30 As an academic interested in legal philosophy and thinking, Fleerackers explains that: “While perceptions may not be the ultimate truth, they are what people use to make decisions.” Brain science again supports and explains this point.

(a) Process choices in conflict resolution

31 The complexity of conflict suggests that mediators will make choices of which resolution process best fits the conflict. Riskin¹⁰ developed his grid¹¹ (“the Riskin Grid”) to provide mediators with a system for better understanding their choice of resolution process and hence improve their effectiveness as conflict resolvers.

32 Lack¹² was the first among practitioners to modify the Riskin Grid and schematically set out ways in which conflict resolvers could make choices about which resolution process would best fit the nature of the conflict. He made the grid more relevant and useful by redefining the *x*-axis in terms of the way in which the conflict resolver would address the “subject matter” of the dispute – from non-evaluative to evaluative.

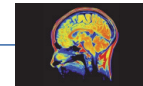
9 Professor Dr Frank Fleerackers, Professor of Law and Conflict Analysis, Leuven University, Belgium, “Conflict Analysis As a Paradigm for Legal Thinking and Practice”, presentation at the European Mediation Training for Practitioners of Justice Program, Brussels (2011).

10 Riskin’s original Grid (1994, 1996) differs in the definition of the “*x*-axis” in that he defined the spectrum of the *x*-axis in terms of “problem definition” from a narrow to a broad definition of the problem.

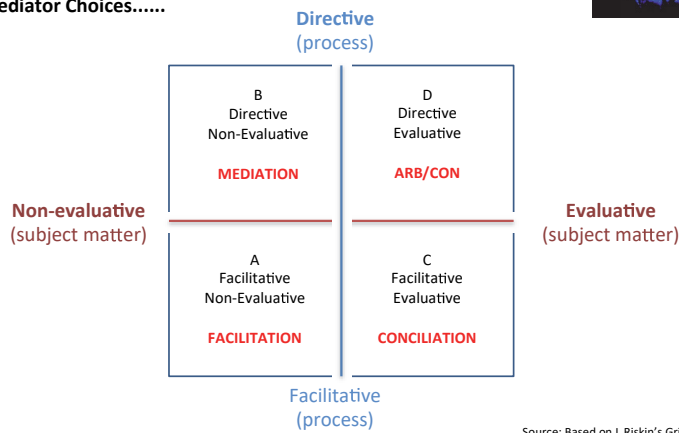
11 Leonard Riskin, “Decisionmaking in Mediation: The New Old Grid and the New New Grid System” (2003) 79 *Notre Dame L Rev* 1.

12 From a presentation by Jeremy Lack (ADR Neutral, and Attorney – Geneva and London) at the European Mediation Training for Practitioners of Justice Program, Brussels (2011).

“Brain Science”



Mediator Choices.....



Source: Based on L Riskin's Grid (2009)
Adapted by: J Lack (Geneva & London)

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33 Brain science describes and informs how different resolution processes activate different neural pathways within the brain.¹³ Suffice to highlight that at the most bottom-left-hand corner, conflict resolvers are neutral (non-advisory) in terms of the subject matter of the dispute and give the disputants their greatest autonomy over process choice.

34 The process that can occur at the bottom-left corner is termed (pure) facilitative mediation, and is the preferred method of conflict resolution taught to mediators throughout the world. It is also sometimes known as transformative mediation¹⁴ but this is a more highly skilled technique and is separate from the usual or conventional mediator training programs.

35 Transformative mediators work with parties to empower them to change the interactions between them and regenerate a more constructive relationship between them.¹⁵

36 Another feature of the bottom-left corner is that it requires the disputant parties to remain engaged throughout the whole resolution

13 This revelation will be followed up at paras 58–60 below.

14 Transformative mediation takes a social view of conflict incorporating issues of both the nature and quality of relationships and communications between the parties.

15 Robert A B Bush & Joseph P Folger, *The Promise of Mediation: The Transformative Approach to Conflict* (San Francisco: Jossey-Bass, Rev Ed, 2004).

process. This means that the (common) use of “caucus” by many mediators is not used in this form of facilitative mediation.

37 Additionally, it requires significantly higher levels of skill and experience to keep the disputant parties constantly engaged through the process: perceptions of danger have to be minimised; empathy has to be demonstrated and shared; emotions have to be appreciated and acknowledged; and comfortable and constructive social relationships rebuilt between the parties.¹⁶

38 On the other hand, at the most upper-right-hand corner, conflict resolvers are highly evaluative of the subject matter of the disputes and highly directive in terms of process – giving the disputant parties little or no choice. This position on the grid is that of conflict resolver acting as an arbitrator, activating very different neurological responses.

39 The spectrum from bottom-left to upper-right also reflects the difference between settlement and resolution.

40 A dispute can be “settled” in a variety of ways: from parties agreeing to disagree; to horse-trading (positional bargaining); having the resolver advise the parties on a seemingly “fair” outcome; through to having an arbitrator make a binding and enforceable award.

41 Conversely, resolution requires the nature of the relationship between disputing parties to be reconstructed into more positive and constructive forms. Resolution processes often require greater time than settlement processes. These processes also assume that there will be an ongoing relationship between the parties, or that there is a strong and shared need to satisfactorily explore and understand the emotions that led to the dispute.

III. The human brain: A primer

42 The common starting point for brain science is that the human brain is an evolutionary device, whose evolutionary purpose remains “to keep us safe”. In the early days of human evolution, the sabre-tooth tiger was a fearsome predator, and our caveman ancestors were fortunately wired to be the hunters and avoid being the hunted.

43 Our most enduring evolutionary experience therefore is to cope with fear, and to ensure survival. Perhaps you have the experience of

16 This requires much greater skill requiring longer periods of training (up to 300h in Austria and Germany) combined with processes of “apprenticeship” usually through co-mediation and tutelage.

walking down dark alleyways and passages in many cities at night and felt anxiety or even dread, and have felt the hairs on the back of your neck starting to stiffen; also becoming aware of your racing pulse, quickening breath, and significantly increased vigilance resulting in a quickened pace to exit the dark and unfamiliar place as quickly as you can.

44 This sensation is no more than part of your own evolutionary journey; it is your brain doing its evolutionary work – to keep you safe, always.

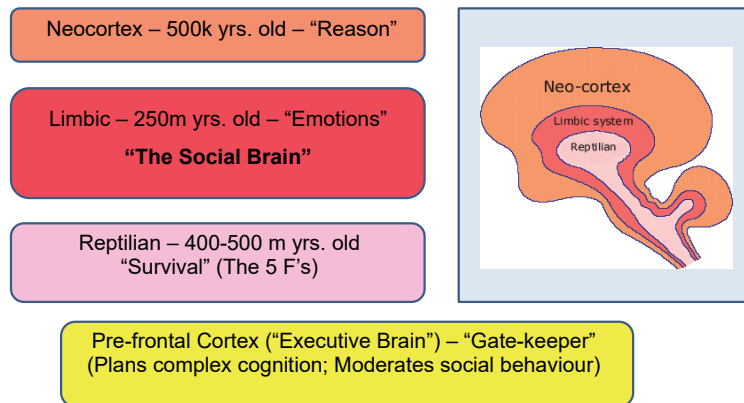
A. *Models, structure and functions*

45 A useful model of the brain is that developed by the American physician and neuroscientist, Paul Maclean (refer to the following diagram).

“Blame the Brain”



(Paul Maclean – The Triune Brain Theory) . . .



46 Maclean’s model of three independent and interconnected layers (the Triune Brain Model)¹⁷ of the brain explains the evolutionary nature of the brain and how its capacity to make decisions has also evolved.

17 Triune meaning “three-in-one” (analogous to Christian understandings and credo).

(1) *The reptilian brain – Survival*

47 This is the earliest and most primitive part of the human brain sitting at its base – reputedly some 400 to 500 million years in evolutionary time. Its structure and functioning resemble that of the brains of reptiles (snakes, lizards, crocodiles *etc*) and contains our most basic and automatic evolutionary instincts – the “five Fs” (fight, flee, freeze, (find) food, and fornicate (to regenerate the species)). Of these, fight, flee and freeze are our basic instinctive survival mechanisms.

48 This part of the brain is in the same region as the brainstem that connects it to the basic bodily functions, of circulation, respiration, digestion, excretion, urination and reproduction. This also explains why sudden fear stimuli cause physiological effects like the quickening of breath and increasing pulse as blood is directed to those parts of the body which may be needed to physically fight or flee in the face of danger.

(2) *The limbic system – Emotions*

49 In evolutionary terms, around 250 million years ago, the next layer of the brain evolved, known as the limbic system. This is often referred to as the mammalian brain or the paleomammalian complex because this part of the brain developed as mammals appeared. Mammals have strong emotional instincts (and were the first creatures to suckle their young) – a characteristic shared with humans.

50 It is this part of the brain through which our senses (of sound, smell, sight, touch and taste) are first processed. Importantly, it is also the area of the brain responsible for emotions; is the seat of value judgements (biases); and has an unconscious influence on behaviour. The limbic system is sometimes referred to as the “emotional brain”, and in this article as the “social brain”.

51 The limbic system comprises three elements – the amygdala, the thalamus and the hippocampus.¹⁸

52 The amygdala is the brain’s “danger detector” – a rapid detection system that is stimulated by fear and responds to danger. It helps animals decide whether something should be feared (and therefore avoided – the “flee” or “flight” response) or approached (as a reward). The amygdala stores autobiographical (and unconscious) memories of life, and the sensations of fear, safety and pleasure are registered together

18 Robert Sapolsky, *Behave: The Biology of Humans at Our Best and Worst* (New York: Penguin Press, 2017).

with our recollections of primary emotions of anger, happiness and disgust.

53 As a danger detector, the amygdala can respond to any stimulus within milliseconds, and certainly before any relevant cognition can take place. Because of this it is regarded as the primary part of the limbic system.¹⁹

54 The thalamus is a vital structure that has several important functions. There are extensive nerve networks that send signals all around the structures of the brain including the cerebral cortex. The thalamus is also involved in sensory and motor signal relay and the regulation of consciousness and sleep.²⁰

55 The hippocampus is associated mainly with memory, in particular long-term memory. It also plays an important role in spatial navigation.

(3) *The neocortex – Reason*

56 This is the top and outer layer of the brain that was most recently formed in evolutionary terms – about 500,000 years old. It is particularly developed in advanced mammals and primates and is the part of the brain that enables higher-order thinking, reasoning, logic and cognitive appreciation.

57 The neocortex also processes the complex co-ordination of motor and sensory functions (enabling speech and conscious memory, for example).

(4) *The prefrontal cortex – Executive or Gatekeeper*

58 This is the outer layer of the neocortex that stretches across the frontal lobe or frontal cortex and accounts for approximately 30% of the mass of the entire human brain.

59 This part of the brain is sometimes referred to as the “Executive Brain” or “Gatekeeper” because it deals with conscious, higher-order brain functions (of conceptualisation, abstract thought and planning), as well as moderates social behaviour (through a conscious appreciation of emotions and their impact on others).

19 Ruby Wax, *Sane New World: Taming the Mind* (London: Hodder & Stoughton, 2013).

20 Robert Sapolsky, *Behave: The Biology of Humans at Our Best and Worst* (New York: Penguin Press, 2017).

(5) *Brain integration*

60 All of the areas of the brain are interconnected, and for the brain to function optimally, it needs to be integrated.²¹ For example, the amygdala identifies potential threats that can be overridden by the prefrontal cortex. When this happens the neocortex can regulate behaviour (as in the case of emotions) leading to emotional control in the face of an aggressive social stimulus.

61 Optimal brain function occurs when all regions of the brain are properly integrated and working harmoniously together (as they would be expected to do).

62 The human brain, properly integrated and functioning well, consumes significant resources.²² The average person's brain:

- (a) is approximately 2% of body weight;
- (b) requires approximately 750 ml of blood per minute to carry oxygen to it;
- (c) uses 20% of the body's oxygen supply;
- (d) consumes about 30% of its glucose supply;
- (e) is 75% water;
- (f) contains approximately 10,000 types of neurons; and
- (g) is "plastic".²³

The optimal performance of the brain is therefore dependent upon its oxygen and glucose supply ("brain food"), in addition to the requirement for sufficient water. Depletion of these food supplies, and/or dehydration, and/or lack of rest (adequate sleep specifically) will result in suboptimal performance of the brain, and dramatically affect its ability to integrate and perform as may be required.

63 The implication of this fact in conflict resolution is that the brain in conflict is likely to be disintegrated, and using more than normal supplies of oxygen and glucose. These basic physiological facts are challenges that dispute resolvers need to be cognisant of and have strategies to overcome.

21 Daniel J Siegel, *Mindsight: Change Your Brain and Change Yourself* (Australia: Scribe Publications, 2009).

22 Dean Burnett, *The Happy Brain: The Science of Where Happiness Comes From, and Why* (London: Guardian Faber, 2018).

23 Norman Doidge, *The Brain That Changes Itself: Stories of Personal Triumph from the Frontiers of Brain Science* (Australia: Scribe Publications, 2009).

64 It means that requiring disputant parties to solve complex problems, make rational choices between options, resolve difficult relationship issues, and to do so at the end of a tiring day is most likely to result in extremely poor, and yet predictable outcomes.

65 Research also shows that the brain is “lazy”.²⁴ Once it has solved a particular problem, it has created a particular neural pathway associated with that problem, and it will use that pathway to solve the same problem again, or even attempt to solve a similar or associated problem. It does this for two reasons; firstly, the existence of a neural pathway on which it will rely because it has worked previously; and secondly, to conserve energy. Creating a new neural pathway requires energy and consumes additional stores of brain food (in terms of oxygen and glucose).

(6) *Effects of uncertainty, anxiety and stress*

66 The brain sees uncertainty as a threat, and produces a stress response (fight, flee or freeze) in response to a sensory input detected by the amygdala. The amygdala shuts down (or severely restricts) blood flow to the prefrontal cortex, thus causing a disintegrated brain.

67 The brain gets the body ready for action – increasing the heart rate (by pumping blood and oxygen), and the liver releases glucose for muscle fuel so that the body is ready to move – to fight, flee or freeze.

68 The end result is that the engagement and operation of the prefrontal cortex is severely diminished and the brain is disintegrated resulting in unexpected consequences (usually seen as fight, flee or freeze), and certainly not desirable nor constructive conflict resolution behaviour.

B. *The social brain*

69 As our society has become more sophisticated, and the threat of the sabre-tooth tiger has disappeared; the physical threats in our environment have diminished significantly, and they have been replaced with “social fears”. This is part of our cultural revolution. It is these social fears that give us substantial insight into the origins of conflict in our society, and the ways in which the conflict can be better managed and resolved.

24 Dean Burnett, *The Idiot Brain* (London: Guardian Books, 2016).

70 Physical pain and social pain activate and share the same neural pathways²⁵ and fMRI studies of the brain confirm this assertion. Physical pain responses may result from actual physical injury, but such responses could similarly be activated by the impending, threatening attack from a vicious dog.

71 Social pain on the other hand can be generated from negative social experiences – including any of betrayal, rejection and social exclusion, humiliation (resulting from blame, shame and embarrassment), discrimination, victimisation, personal insults, disrespect, and nastiness.

72 The loss, or perceived loss, of reputation, status, rank or position also creates social pain. Hence, the phrase “Blame, Shame and Fame” becomes useful shorthand for describing the breadth of social pain. Blame, shame and (the loss or diminution of) fame all create a threat response, and this response is created in the social brain. I discovered that this is also true in the ancient Australian Aboriginal culture when I attended a lecture by an Aboriginal elder in 2016.²⁶

73 The human brain is a social organ.²⁷ Its neurological responses are profoundly influenced by social interaction with others. Other surprising findings from Gerald Hüther’s²⁸ studies into the social brain are:

- (a) “we are social beings, and we spend most of our time (90–95%) in our social brain”;
- (b) “belonging is very important to us” (and humans prefer to associate with people like them (their “tribe”));
- (c) “we prefer respectful trusting relationships” (and therefore rely on our tribe (our group) to protect us); we do not intentionally hurt one another in our tribe;

25 Matthew Lieberman & Naomi Eisenberger, “Pains and Pleasures of Social Life” (2009) *SCIENCE* 329:890–891.

26 A quote from Uncle Ossie Cruse (an Aboriginal elder from Eden, NSW, 2016), in which he said: “In relationships only two things matter – Honour and Shame.” The similarity of ancient cultural understanding of relationships and that explained by modern-day neuroscience are extraordinarily similar. I often wonder how much more we could learn from our ancient cultures?

27 From a workshop with Gerald Hüther (German brain scientist) as part of the International Summer School on Business Mediation (ISBM), Admont, Austria (2014).

28 Gerald Hüther, *The Compassionate Brain: How Empathy Creates Intelligence* (Boston & London: Trumpeter, 2006).

(d) “mostly our responses (our behaviours) are unconscious” (because we use ingrained neural pathways that are easy and comfortable); and

(e) “once a brain has an idea, it is difficult to change (or lose) that idea”.

74 Randolph²⁹ has a particular view about the way we regard our own human values:

It is the protection of our values, particularly those that impact our own and others perception of our values that is the most powerfully motivating factor in all conflict in human existence.

This view connects with others³⁰ in that values such as truth, honesty, loyalty, love and peace precipitate and strengthen emotions displayed in social relationships. For example, betrayal is seen as a breach of trust, which explains why trust is such an important element in human interaction (because trust creates a sense of social safety). So any breach of trust is immediately detected by the amygdala and the fight or flee response is instantaneously activated with often damaging and far-reaching results.

75 Although it was researched and developed in a different context (that of leadership and management), the SCARF³¹ model developed by Rock³² provides relevant and additional ideas and information for negotiators and mediators.

76 The context of the SCARF model is entirely social – that being the relationships between leaders and managers, and their staff. The model predicts social threats (pushing people apart) and social attractions (bringing people together). In the context of dispute resolution, the SCARF model helpfully identifies some dos and don'ts in terms of the construction of the dispute resolution process (building on the Riskin Grid), and the strategies applied by the dispute resolver.

(1) *Bias*

77 “Bias is an assortment of stereotypical beliefs and attitudes about social groups. We all have ingrained tribal instincts and

29 Paul Randolph, *The Psychology of Conflict: Mediating in a Diverse World* (London: Bloomsbury, 2016).

30 Richard Nisbett, *MINDWARE: Tools for Smart Thinking* (UK: Penguin Random House, 2016).

31 SCARF factors – Status, Certainty, Autonomy, Relatedness and Fairness.

32 David Rock, *Your Brain at Work* (New York: HarperCollins, 2009).

unconscious allegiances.”³³ There are two types of bias: conscious bias (of which we are aware and can use with intent); and unconscious bias (which is implicit and/or hidden and can have unintended consequences in social interactions). With unconscious bias, we have no awareness that the bias exists or how our behaviour is influenced by it.

78 It is the unconscious bias that really matters, and substantial evidence has accumulated for the influences of implicit stereotypes on people’s judgment and behaviour.³⁴ Unconscious (or hidden biases) reveal themselves in action – particularly under stress, distraction, relaxation or competition.³⁵

79 Biases are part of the “ancient” brain and form part of our protective system, warning us of impending danger that might arise – and particularly so in a social interaction in more modern times. As such, they are a “default behaviour” and represent the “baggage of our mind” because they are hardwired into us.

80 Biases do, however, help us filter information, the default being “it is better to be safe than sorry”. This default, while it is efficient, can often lead to unintended behaviours, and in social situations may even create illogical responses and embarrassment. The advantages of the default behaviour are, however, its efficiency in terms of long behaviour (because the subject matter or issue has been thought of before) and saving on additional energy (in terms of oxygen and glucose supply).

81 The most common bias, and most important amongst humans, is affinity bias (from “homophily” – love of the same). It also known as tribal bias, or in-group bias – meaning “you’re one of us”. This bias is based on both status and values; it creates homogeneous networks; but it limits diversity and creates implicit prejudice.

C. Brain management

82 The following diagram illustrates the complexity of the brain science at work during a resolution. It provokes the question: “Whose brain are we talking about?”

83 The obvious answer to a two-party conflict resolution process is three brains. And as the process expands to more than two parties, so

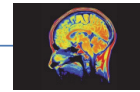
33 Siri Carpenter, *Buried Prejudice* (Scientific American, 2008).

34 Paul Gibson, “Mediator Bias” in David Richbell *et al*, *How to Master Commercial Mediation* (London: Bloomsbury Professional, 2015).

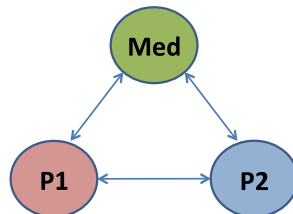
35 Paul Randolph, *The Psychology of Conflict: Mediating in a Diverse World* (London: Bloomsbury, 2016).

does the number of brains involved. The more complex issue is, however, the potential brain interactions that are taking place in a dynamic sense (and illustrated below).

“Brain Science”



Whose Brain are we talking about?



- Potential Interactions**
1. Within P1
 2. Within P2
 3. Within Med
 4. Between P1 & P2
 5. Between P1 & Med
 6. Between P2 & Med
 7. Among P1, P2 & Med

The Mediator is Managing 3 Brains

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84 The great benefit of applying brain science and the processes and tools developed as a result of this science (for example, mediative competencies)³⁶ is that the interactions that are occurring “within the individual’s brain” can be elicited. In so doing, both the mediator and the other party gain valuable insight and perspective as to the state of mind of the individual concerned, and can fashion appropriate responses.

85 In mediation processes in which there is no use of caucus (a symmetric process), the mediator has to manage not only his or her own brain function but also the other brains involved simultaneously – a complex and difficult task!

86 Conversely, where caucus is used, or indeed where the parties never meet³⁷ (an asymmetric process sometimes referred to as shuttle mediation), management of brain functions is much more straightforward. In this case the management of emotions is simple –

36 The work of Prof Dr Mario Patera, Konfliktkultur, Austria.

37 It often happens in Australia: Much commercial mediation is conducted where the parties are never together in the course of the mediation. Even if they do meet, it is usually only for procedural matters or instructions.

there is no need for it; parties can “let off steam” without having any deleterious effect on the other party or parties.

87 There are many techniques for “managing the brain” – some of which are relatively simple and straightforward measures which mediators take; while others are more sophisticated and rely on training and experience to be effective.

88 Some of these techniques are listed below:³⁸

- (a) process management:
 - (i) creating certainty (helping reduce stress and anxiety as anxiety narrows blood and information flow to the frontal lobe of the brain);
 - (ii) gaining the trust of the parties by strict attention to neutrality;
 - (iii) demanding mutual respect (avoiding insults, threats and sarcasm – “social hurts”); and
 - (iv) encouraging autonomy (helping reduce fear and anxiety);
- (b) encouraging and managing “brain health”:³⁹
 - (i) staying regulated (unstressed and calm) so that the parties can be assisted with their own brain regulation;
 - (ii) remembering that the brain needs food (glucose, oxygen and water);
 - (iii) managing rest breaks and avoiding long days (and resisting lawyer pressure “to stay until finished”);
 - (iv) encouraging movement during breaks (for increased blood movement and oxygen supply);
- (c) being aware of their own impact (as mediators):

38 The work of Paul Gibson, from “Blame the Brain”, a recent presentation at the International Mediation and Arbitration Conference, Pt Moresby, Papua New Guinea (March 2019).

39 Remembering that the brain picks up very small social signals and sorts threats very quickly. Therefore, micro-aggressions and micro-affirmations matter and require rigorous mediator attention and concentration (which in turn leads to tiredness on the part of the mediator, and is a good argument for co-mediation in mediations with high emotion so that the workload can be shared for optimum results).

- (i) appreciation of the words and language used (avoiding “trigger” words that may activate or unsettle the amygdala);
 - (ii) positive awareness and impact of their own biases (conscious and unconscious), and the triggers that activate these biases;
 - (iii) appreciation of the impact of their own tribe (particularly the differential status and values associated with the role of the mediator (perceived or real)); and
- (d) creating a different mindset:
- (i) staying “future-focused” (spending less time in the past with stories and hurts that contain triggers for the amygdala);
 - (ii) reframing (and setting a different focus);
 - (iii) the use of proposals (with the consent of the parties, to direct energy and solutions to potential resolution);
 - (iv) understanding and appreciating the difference between acknowledging the impact of action and apology for the action.

IV. Implications for negotiation and mediation

89 Returning to the question posed by the article: Why will brain science change the way we mediate and negotiate?

90 Brain science has helped create new understandings of human behaviour.⁴⁰ It has also provided insights into the nature of conflict,⁴¹ ways in which conflict can be better managed and even avoided, and having its impact on behaviour minimised.⁴²

91 New methodologies, techniques and tools are evolving for negotiators and mediators from these new understandings and insights; the competence of negotiators and mediators is consequently being tested, and the sufficiency and standards of their training questioned.

40 Robert Sapolsky, *Behave: The Biology of Humans at Our Best and Worst* (New York: Penguin Press, 2017).

41 Paul Randolph, *The Psychology of Conflict: Mediating in a Diverse World* (London: Bloomsbury, 2016).

42 Richard Nisbett, *MINDWARE: Tools for Smart Thinking* (UK: Penguin Random House, 2016).

92 The new understandings and insights lead us to the critical role that the human brain has in engaging in conflict and resolving it successfully. These understandings and insights include:

(a) The design of the dispute resolution process and its likely or potential impact on the brains of the parties; ways in which hybrid processes could be designed, or co-designed with the parties, to ensure that brain functioning is maximised; and understanding that giving control and autonomy to parties in designing the resolution process itself creates safety (psychological and social) for them even before any conversation about the substantive matter of the dispute occurs.

The choice and design of the dispute resolution process is therefore critical in avoiding these triggers.

(b) The changing nature of conflict, and that conflict usually results from disappointment, loss, grief, betrayal and/or perceived injustices. We can reasonably expect that the conflict also has a rational element (associated usually with economic loss) as well as an emotional element.

(c) Emotions have a profound effect on negotiation and mediation. Emotions are connected to our values, beliefs, ideologies and self-concepts (hopes, dreams and aspirations). The higher the stakes, the greater the emotions, and the greater the conflict. Conflict is almost always a battle between reason and emotion.

(d) The fact that the brain responds negatively to:

- (i) uncertainty;
- (ii) loss of autonomy;
- (iii) social threats and hurts – blame, shame, insults, *etc*; and
- (iv) perceptions of unfair or unwarranted use of status or power,

and the important role of the amygdala in triggering the fight, flee and freeze response.

(e) Most (90–95%) of human behaviour is unconscious and neural pathways are developed at a very early age, and are reinforced and strengthened with time and use. The implication is that changing behaviour is difficult because once the brain has an idea it is very difficult to change (or lose) the idea as a result of the ingrained neural pathways.

(f) The importance of the social brain (and its effect on behaviour), and that humans are social animals. The brain's

neurological and physiological responses are directly and profoundly influenced by a person's social interaction with others. Belonging is important to human beings, and humans mostly identify with and associate in tribes (that is, others who are most like them; who see the world in the same way; have the same values; and rely on one another for safety and protection).

(g) The effects of bias – both conscious and unconscious bias – and that the strongest unconscious bias of humans is tribal bias: We unconsciously protect and defend our tribe and the values they believe in; and when our tribal values are challenged we will usually fight (not flee). Threats of rejection by, or isolation from our tribe create extremely strong emotions and provoke the “fight” response.

(h) The importance of an integrated brain⁴³ to perform higher-order cognitive work like problem-solving and decision-making (both of which are critical processes in dispute resolution). Integral to this is the functioning of the prefrontal cortex as the executive brain, and the deleterious effect that uncertainty has on brain functioning because it narrows (at best) and blocks (at worst) blood flow to the prefrontal cortex, thereby limiting the supply of food (oxygen and glucose) to the brain.

(i) The vital importance of brain health to satisfactory conflict resolution, and the need of the conflict resolver to manage both his or her own brain and those of the disputant parties. Related to this is the complexity of managing brain health given the number of parties involved in the conflict resolution process – the greater the number, the greater the complexity. The science indicates the importance of rest to higher-order cognitive brain functioning; tired people make erratic decisions and have suboptimal problem-solving abilities.

Additionally, one party may take advantage of the other party's tiredness and deliberately activate an amygdala response in them to unsettle proceedings – the result of which may be for the over-tired and unsettled party to settle “just to end the matter”.

(j) The need to educate parties about their brains, and the impact of brain science, during the introduction to the mediation, using the language of brain science consistently and as relevant during the resolution process.

43 Daniel J Siegel, *Mindsight: Change Your Brain and Change Yourself* (Australia: Scribe Publications, 2009).

(k) The importance of language (both verbal and non-verbal) to brain functioning, understanding the impact of micro-aggressions and micro-affirmations throughout the process so that unintentional triggering of the brain does not occur, with resulting unintended consequences.

(l) Of similar importance is the “stance”⁴⁴ of the dispute resolver. It is Patera’s view that the ability to perceive and articulate emotions is an indispensable prerequisite for superior conflict resolution competence. His view from his therapy practice is that human beings have an overriding need to be “perceived”. By this Patera means that their needs⁴⁵ have to be recognised, acknowledged and accepted (but not necessarily agreed with).

V. Conclusion

93 The world’s social environment is changing rapidly. A recent book by social researcher Mackay⁴⁶ highlights this. His central thesis is that Australian society has become less harmonious and more socially fragmented. He claims that individualism is rampant; the gender revolution is stalling; anxiety and depression is increasing; and trust in public institutions and political leadership has significantly diminished.

94 This effect of a less harmonious and more fragmented society is probably also true in many other parts of the world, and these observations are more widespread than just being confined to Australia. The current debates around Brexit in the UK, divisions in US politics, strained relationships within international trading blocs, the Arab Spring, and reactions to mass migration as a result of famine and war (as examples) will presumably evidence a focus on greater “tribal” behaviour and increased resistance to accept the prevailing societal wisdom and social order.

95 While conflict between individuals and tribes has always been part of human evolution, it is increasing both in scale and complexity. Brain science would predict that fear and uncertainty are driving people

44 “Stance” is an expression coined by Prof Dr Mario Patera in his work on mediative competencies, and in workshops conducted at Tiburon, California, US (2013/2014), and International Summerschool on Business Mediation, Admont, Austria (2013/2014). “Stance” incorporates the attitudes (bias), skills, knowledge, experience and approach taken by a mediator.

45 See Maslow’s hierarchy of needs at paras 23–26 above.

46 Hugh Mackay, *Australia Reimagined: Towards a More Compassionate, Less Anxious Society* (Macmillan Australia, 2018).

back to their safest tribal roots, and turning their focus to relationships with those whom they trust most.

96 However this phenomenon of increasing division and conflict is observed or argued, it will challenge the competence of dispute resolvers, irrespective of which conflict resolution process is used. What is clear is that people resist having decisions made for them, and/or forced upon them (and brain science adequately explains why this is so). The challenge therefore is to enable greater autonomy and control in processes and decisions that affect them and their “tribe”.

97 An understanding and application of brain science can go a long way in meeting these challenges. However, this is easier said than done. Current mediator training is woefully inadequate for mediators to achieve any level of workable competence in integrating brain science into their professional practice. One- or two-hour professional development sessions cannot hope to adequately bridge the competency gap.

98 My own experience and knowledge of advanced mediator training in Australia, UK, US and Europe is that it is not reaching the level of detail and sophistication required, and this remains a significant challenge for negotiators and mediators who wish to integrate useful techniques and tools from brain science into their own professional practice.
