BRAIN SCIENCE: RESONANCE WITH THE PRINCIPLES AND PRACTICE OF NARRATIVE THOUGHT
(presented by Brenda Lasersohn)

Introduction

While it is accepted that 'therapy does work' historically it has been unclear as to 'how and why' it can be beneficial for those who consult therapists.

Research into what 'methods' of therapy may be more effective than others reveals that the ***'therapeutic relationship'*** plays a far greater role in the efficacy of therapeutic intervention than does the 'modality' of therapy practice itself.

Historically we were only able to view *the structure* of the brain, now due to advanced technology in neuroscience (functional M.R.I. – (Magnetic Resonance Imaging) and P.E.T. scans (Photon Emission Tomography) we are able to scrutinize *function.*

We are now able to understand what **stimuli** *alter* and *affect* brain function.

Daniel J Siegel a clinician and interpersonal neurobiologist (The Developing Mind) in his work has created the link between the nuance of relationship with the almost unfathomable complexities of neuroscience.

In so doing we are able to understand how our most important relationships (including psychotherapy) fire into being the neural circuits of the brain that allows us to understand and empathise with others.

Attachment theory research assists in understanding that the brain is exquisitely *social and interpersonal* and that it is NOT the unfolding of a genetic plan that determines the shape of our adult minds but what happens *between* different brains that largely shapes what happens *inside* our individual brains. This has powerful implications for the therapeutic relationship in that we now understand that *relationships and the brain interact to shape who we are.*

It is argued that Narrative Thought and Practice powerfully resonates with these understandings in brain science.

The following endeavours to correlate the fundamental anchors in interpersonal neurobiology with the underpinnings of Narrative Therapy as expounded and elaborated on by *Michael White.*

In so doing the brilliance and wizardry of Michael White's thought and practice becomes evident as *the correlation* between his remarkable work and propositions, and brain science are drawn.

How relationship and the brain interact to shape who we are

From a brain science perspective, the question arises as to how we can think of a therapeutic relationship that can create a set of neural patterns that offer persons the opportunity to change in ways that contribute to their greater sense of well-being?

Daniel Siegel (1999) in his seminal work **The Developing Mind: How the brain and relationships interact to shape who we are.** Introduces the concept of the 'loving gaze' that is so critical to the growth and emotional development and well-being of the baby. This 'loving gaze' is 'that look' that emanates from the primary caregiver (s) directed towards the baby. He explains how these small moments of mutual rapport transmit the best part of our humanity – our capacity to love, from one generation to another.

Interpersonal neurobiology

In expounding on this finding it is useful to draw on Attachment theory which is a rich body of research and is essentially the study of life narratives in terms of attachment relationships, to assist in explaining the above.

Attachment theory postulates that our lives can be summarised in the stories we tell, and that *our identity* is formed by the way we are distinguished by others and ourselves which in turn informs the meaning we make of our experience.

The question then arises as to how this relates to the brain and how relationships shape certain neural firing?

With the aid of P.E.T. scans and Functional M.R.I. one is now able to ascertain what stimuli affect the brains neural firing.

The brain has, amongst many other differentiated neurons, a class of neurons called *'mirror neurons'* which 'pick up' the stimuli in the environment and mediate the experience.

For instance, as the baby at around six weeks begins to smile, this not simply the unfolding of a genetic plan; but rather we are witnessing the baby's responses to the 'stimuli' in the environment (care-giver smiling and being playful) that is monitored and mediated by mirror neurons that results in a reciprocated response.

We thus arrive at the understanding that the brain is social and interpersonal

Attachment relationships

From a therapy point of view, that kind of attachment relationships that we as therapists have had, *and* the client/patient has had in his/her *past*, shape how we experience the therapeutic relationship *in the present*.

This requires that we as therapists need to consider how communication shapes the 'self'.

Communication is not simply a neutral transmission of information and language is not neutral (Maturana and Varela 1988). We powerfully affect persons with the way we 'language' with them, and our words connect powerfully with the brain of the receiver.

This suggests then, that the way we *make sense* of communication is always *in terms* of a relationship. This 'flow' of communication between persons triggers neural stimulation both on a verbal as well as a non-verbal level.

This finding then determines that the three anchor points of Interpersonal Neurobiology which are essentially three aspects of the same thing are:

The Brain – The Mind - Relationship

The Mind and Attachment

The Mind through an attachment lens regulates the flow of energy and information in the brain. Thus 'the mind' has an emergent quality to it. There is 'no' mind' located in the body as such; it is the '*experience'* that results from the regulation of energy and information in the brain that constitutes 'the mind'..

When we consider the crucial time of birth , we see that humans are one of the most dependant of any species. Because of such immaturity that baby needs a relationship to literally survive. This is what is termed an 'attachment relationship' and is found in almost all mammals.

As we develop and mature, due to the fact that we engage in social interaction we form many different attachment relationships over time. Thus we have different layers of attachment models in our mind.

If we have had an experience of *contingent* responses and mutuality at some point in our development, this would encourage a 'coherent mind' so creating resilience over time.

This suggests that even though a person may have experienced a difficult relationship history, if there was even one encounter with another that constituted a mutual and compassionate response in that moment this is recalled in the memory networks of the brain and is available for recall. "A diamond in the rough'. (Siegel (1999) From a narrative perspective this refers to the 'implicit invisible' that the therapist's enquiry is endeavouring to uncover (double- listening) (White 2007)

Mutuality

If one were to use just one word to describe humanity it would, from a brain science perspective be *mutuality.*

Mutuality is the essence of what it means to be human.

If the newly born baby can attach to 'the mind' of an attachment figure, the survival of that child is enhanced significantly. This mutuality is essential and interwoven throughout life and existence.

In psychotherapy we use this most fundamental part of what it means to be human when we connect and join with another.

When a child is born it is no longer a passively receptive entity as it was in the womb, but is now in active interaction/engagement with the environment and its caregiver to create mutuality.

When one observes this mutuality in action we are able to see that the baby seeks out connection with the care-giver and care-giver with the baby. This process is mediated by mirror neurons previously referred to.

This connectivity is 'hard-wired' in our brain and can be seen as interwoven throughout existence in every culture. So even as we speak different languages, come from different traditions and cultures, the one thing we all share as human beings is the need for this connectivity to survive and perpetuate our culture.

Although mutuality is genetically determined and hard-wired, brain science reveals that the types of experience we have, will shape the way the attachment system grows and creates itself.

This address to some degree the perennial argument of *nature vs nurture:* From a Brain science perspective it emerges that nature expresses itself *through* nuture and is a concept being taken up strongly in popular philosophical thought.. (see Malcolm Gladwell 2008).

As one adapts to one's environment neural networks/maps are set up in the brain which are *sets of connections* amongst neurons related to the attachment system, These produce not only internal experience (I can rely on my needs to be met) but also neural maps related to how we experience others. A 'groove' is created in the brain which is moulded by experience and is termed *Neural Plasticity.*

Attachment research lays out a map of how these experiences with care-givers *in the past* shapes the mind.

From an *interpersonal neurobiological* point of view this is seen as neural networks or maps set up in the brain.

From a *therapy* perspective then, if the therapeutic relationship in the present is respectful, contingent and mutual, it resonates and connects with contingent, mutual relationship from the past.

Secure Attachment

This is essentially contingent communication where three components are present.

'I see you, I make sense of you, I respond to you in a timely and effective manner'.

When a child feels responded to in this way she feels comforted - she ' feels felt'! This essentially is mutuality in the relationship and is a fundamental necessity in therapeutic conversations. This perspective privilege persons above theory..

From a brain science perspective, this results in a mutual relationship, wherein the baby experiences a coherent and harmonious mind and an integrated brain *in the present.*

In sum, integration in the brain, leads to coherence in the mind, that allows the child to engage in a reciprocal, empathic and mutual relationship.

Insecure Attachment

On the other hand if the care-giver does NOT see the signals on a consistent basis, that is: *'I don't see you, I don't perceive you, therefore I may ignore you' or 'respond in an non-contingent or distorted way'. .*

If the care-giver is not engaging on the perceiving level, he/she may likely not respond in a contingent way. Or if the care-giver does pick up on the signal, but is unable to make sense of it, or interpret it accurately, she may then make a distorted sense of the signal on a consistent basis, and is then likely to respond inappropriately.

All of these unhelpful responses may lead to various types of insecure attachment.

Implications

It has been noted that there are infinite combinations of attachment experiences that create neural networks in the brain. It is clear then that these *past* experiences have a profound effect on how these connections will be remembered and how they manifest in the therapeutic relationship in the *present.*

The relationship with the therapist in the present evokes the same needs for mutuality and thus presents the opportunity to develop a more coherent self and an integrated brain.

Emotion

From a brain science perspective, emotion as described by Siegel (1999) as the '*music of the mind'*.

While the emotional brain (the limbic system, amygdala) responds to an event in milli-seconds, these is no real emotion in the brain

Emotion from a neuroscientific point of view is seen rather as the 'experience' of the way the brain is either integrating or not integrating itself on various dimensions.

Neuroscience thus transposes emotion with integration and arrives at the notion that *emotion is the experience of integration in the brain.*

Integration

An emotion of a positive experience then, would be various levels of integration in the brain

Uncomfortable or negative experience can then be seen as different forms of *disintegration.* The person may report negative emotional experience perhaps of depression and despair. The neural correlate of an experience of trauma for instance, results in integrative fibres of the brain being damaged. The individuals *experience* of this disintegration would be of anguish and distress .

Integration is thus a form of harmony or balance, suggesting that different parts of the brain are functioning together as a whole; this is referred to as balance between differentiation and connection in the brain.

When the brain is in an integrated state, the 'the state of mind' emanating therefrom, could be described as :

Flexible
Adaptive
Coherent
Energised and
Stable

(F.A.C.E.S)

This forms a working definition of well-being or mental health and would feasibly be one of the main achievements of therapeutic intervention. .

Implications for therapy

It has been established that the frame work exists in the brain for neural connections to be activated.

As therapists we gain access to these neural nets in order to intervene. Narrative discourse intervenes primarily through questioning and reflection of meaning rather than through interpretation, diagnosis and assessment made by the therapist.

Meaning is derived from the meaning the client makes to the questions proposed by the therapist. Meaning is therefore not derived from theoretical interpretation. .

When first consulting with a patient/ client, in that moment, a number of neural nets are triggered.

In narrative therapy *externalising conversations* which separate persons from problems, invites the individual to consider their 'relationship' to the problem and its real effects on their lives and relationships over time.

During this process two experiences are triggered

Firstly in the present moment in interaction with the person, we are creating new neural activation patterns based on the contingent responses from the therapist.

This allows the client to 'in the moment' experience an 'integrated brain'.

It is argued then that 'the therapeutic relationship' itself then, is a form of intervention.

Secondly: as the 'here and now' relationship is created, over time a 'we' is established in the brains of BOTH the client and the therapist. This collaborative therapeutic 'we' allows the client's brain to change such that the clients past experiences of his/her attachment relationships and the therapeutic relationship become interwoven to connect the past with the present and then over time to shape a new future, different to the 'here and now' self.

This is termed the **"autobiographical self'.**

NOTO

The creation of 'the narrative of the other' is forming in the therapist's mind; just as the client is creating a NOTO of the therapist.

ISO

In the 'here and now' relationship the therapist experiences the ISO 'internal state of the other' which is mediated by mirror neurons previously described**.**

In the moment, through the senses, the therapist is taking in an 'internal state of the other' which reflects the client's state of mind.

The client at the same time is experiencing an ISO of the therapist and thus 'she can see that she is in me'.

This is a most profound state of attachment. When we see that we are in the mind of another – *we feel felt*. This constitutes a most important subjective experience of secure attachment.

The ISO in the therapist, creates the feeling of being felt in the client; while simultaneously, the NOTO of the client in the therapist's mind, is experienced by the client from reflections made and questions asked by the therapist.

So the tapestry of the past, the present and the future in all its complexity, are meaningfully connected and interwoven .

The client learns that she is not only in the mind of the therapist in the moment but also over time.

Preparation for narrative therapeutic intervention

The client is now able to experience an integrated state in the moment and is then able to examine disintegrated states that historically they could not examine or were to fearful to experience.

In sum one is making the therapeutic space 'safe'. In this safe space, disintegrated parts of the brain's neural network potentials can be placed into conscious awareness which before could not be.

Through questioning '*the implicit invisible'* subordinate story lines of the past, that were rendered invisible by the dominant problem saturated story are brought forth. A new 'identity conclusion' in the present emerges that is different from the negative identity conclusion of the past. This suggest meanings that indicate what the person gives value to; and thus the possibility exists for the client to achieve a new state of well-being in therapy,

Brain science suggests that …*'chance favours the prepared mind'*.

Scaffolding questions that *prepare* the person to make meaningful new connections serve this purpose.

Re-Authoring and re-membering conversations allow for the re-visioning of the person's identity to other 'narratives' and persons that were hitherto rendered invisible by, and subordinate to, the dominant problem saturated story of the person's life and relationships.

When material s introduced into consciousness, the possibility of choice and change (personal agency) is encouraged.

In the brain, consciousness allows one to place the focus of conscious attention on different aspects of 'neural net activation ' because 'where we focus, changes the brain'. (Siegel, (1999)

Attention, form a neuroscientific perspective, is the *scalpel of the neurosurgery* we do in psychotherapy!

When the therapist intervenes with 'activating questions' the likelihood is increased of new and helpful links being made

This concurs with the Hebbian principle that '*neurons that fire together wire together*' (Hebb, 1949)

Questions and S.N.A.G.

The fundamental tool of narrative therapy is essentially questions.

These are formulated so that the therapist can engage in an enquiry and expose` of history.

This has the effect of altering the way persons perceives the 'self' and aids in re-authoring the 'self' with meanings that are more congruent and coherent with the way the person prefers to be.

Questions are a powerful method of 'stimulating neuronal activity and growth' (S.N.A.G.)

Where activation occurs the possibility for new neural connections and /or neural growth is stimulated.

When S.N.A.G. occurs it permanently alters the Brain. (Doidge , 2007)

In the therapy process, 'snagging' is happening in both the brain of the therapist and the client, in the here and now.

The therapist is co- creating a 'multi-storied ' biography of the client's life and has a sense of her client in the present and in her past and in the possible future. (The Autobiographical Self).

From a narrative perspective then, 'snag-ing' allows for the introduction of hitherto un-told narratives, and a different identity is revealed that is now available for consideration and meaning making.

Scaffolding questions that gradually bring forward relevant stories, connections and meanings for the person are triggered and are brought forward form a hitherto undifferentiated background and gives voice to what the person gives value to.

This narrative speaks more to a 'preferred way of being' for the client that they had not previously considered. (Implicit invisible).

Definitional ceremonies that include the re-telling by the outsider witnesses re-affirm and honour this new identity conclusion. From an interpersonal neurobiological point of view, new neural networks are created.

The value of psychotherapy and in particular Narrative conversations.

It would then in conclusion seem that the psychotherapy relationship itself allows for integrative fibres to form and that narrative practices in particular, increase the possibility for improved integrative brain functioning. Patterns that are established are a gateway to new changes as contingent relationship allows for new integrative states to occur.

This then provides hope that similar to the effects of early secure attachment that lead to brain integration; the experience of contingent relationship in adulthood, can have the same effect.

New story development that is the focus of narrative thought and practice as expounded by Michael White (2007) improves the likelihood that the person can achieve new identity conclusions that are coherent with the way the person they 'would prefer to be'.

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