Neuroscience and Attachment – Application in Psychotherapy Practice Across the Lifespan

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Agenda

- 10:00 – 10:05 Introductions – Set Your Intention.
- 10:05 – 10:30 Theory and Application to Clinical Practice
  Early Psychoanalysis and Current Neuroplastic Ideas –
  Transference and Counter-Transference – Therapeutic Alliance
  Attachment Theory
- 10:30 – 11:00 Activity #1-Thinking about Self -Thought experiment
- 11:15 – 11:45 Theory and Application to Clinical Practice
  Right Brain Transmissions
  Primary Intersubjectivity, Implicit Memory and Working with Trauma
  Clinical re-transcription – Entering into "Parasympathetic"
- 11:45 – 12:05 Activity #2 – Thinking about Others
  Working with Trauma/Parents/Children – Case Presentation – AC and LG.
  Defense Mechanisms in Action – Staying focused in session
- 12:05 – 12:15 Q & A and Close.

Adaptation of Chapter 9 from: *The Brain that Changes Itself* by Dr. Norman Doidge, 2007.

- These theories will demonstrate how "talking about thoughts and feelings" can affect the brain, nervous system and alter character.

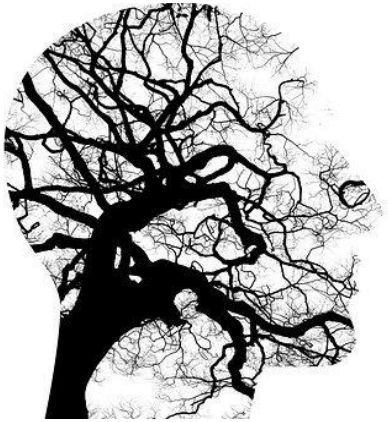
- **Eric Kandel**
  - b.1929
  - Psychiatrist and Neuroscientist.
  - Awarded the Nobel Prize in 2000 for his work on the molecular basis of learning. He was able to demonstrate that, as we learn, our individual neurons alter their structure and strengthen the synaptic connections between them. When we form long term memories, neurons change their anatomical shape and increase the number of synaptic connections they have to other neurons.

How Psychotherapy works

- According to Kandel (2006) Psychotherapy changes people:

"It presumably does so through learning, by producing changes in gene expression (epigenetics) that alter the strength of the synaptic connections, and structural changes that alter the anatomical patterns of interconnections between nerve cells of the brain." Psychotherapy goes deep into the brain and its neurons and changes its structure by turning on the appropriate genes.

- A psychotherapist/analyst is a "microsurgeon" of the mind that helps clients make much needed alterations in neuronal networks by recreating the early (but most often missing) conditions of empathy, care, interaction and attention to **re-set** the conditions for healthy social engagement, relationships and emotional expression.



Neuroplastic Ideas

1. Neurons that fire together wire together (1888, Freud)

- When 2 neurons fire *simultaneously,* this firing facilitates their ongoing *association.* What links neurons together is their firing together *in time.* Freud called this the Law of Association by Simultaneity . This is the foundation for his idea of ***"free association" – aka stream of consciousness.***

- All our mental associations, even seemingly "random" ones that appear to make no sense, are expressions of links formed in our memory networks. This applies also to the unconscious mind and dream states.

- In turn, this helps release repressed and "implicit" memories that have been disassociated from conscious awareness and bring new memories into awareness to be re-wired.

- Clinical Application: "When I cry, something bad happens (implicit or autobiographical) – therefore it is not SAFE to cry/show weakness/vulnerability.

2. **Psychological critical period**

- What happens during these periods has a disproportionately large effect on our ability to love and relate later in life. We now know, beyond Freud's original ideas, that it is in the interpersonal relationship space that the biological and psychological substrates are developed (not just internally).

- This explains why the neurological connections made in the context of early attachment (0-2 years) seemingly cement themselves within the unconscious mind and the brain/nervous system as a template, activating when similar themes are experienced externally (engrams) i.e., you are unconsciously and unknowingly drawn to keep repeating patterns of ***behaviour and thought*** via new people in your external life.

- Time does not change the internal firing patterns, the connections and somatic memories. **Therefore, growing old is mandatory but growing up (and change) is optional.**

3. Plastic view of memory

- Freud argued that memories are not written down once and engraved but can be altered by subsequent events and then "re-transcribed".
- Retrospective awareness can change how you experience a memory. E.g., childhood abuse.
- He wrote in 1896 that sometimes memory traces are subjected to a rearrangement in accordance with fresh circumstances – to a *re-transcription.* Currently, we have data from 2000 that has tracked and understood the process of memory formation, integration and retrieval. Even more recently, we are now incorporating epigenetics and in utero studies to understand the linking of the mother's and infant's nervous systems.
- To be changed, memories must become conscious, felt in the body, or processed emotionally. Then they become the focus of our attention, by clarifying our intentions (Seigel). This is the process by which memories are constantly re-modelled, re-shaped and altered. Once new data (a new experience) is 'integrated" into the brain, we then say healing and change has occurred.

Psychodynamic Relationship Principles in Therapy

4. Transference

- The unconscious redirection of feelings, qualities and/or thoughts from client to the therapist, as a result of **both** the characteristics of the therapist in combination with aspects of figures from the clients' past
  - the transference can be thought of as the "distortion of interpersonal reality, in response to interpersonal needs" which can be applied to "all other interpersonal relationships" (Yalom, 2020).

- Case Example – 50 yr. old female, heightened anxiety and paranoia. Constantly apologizing for herself and justifying her actions. Needs "permission" to use objects in the room/office. E.g., tissues, using the bathroom. Extreme insecurity about being liked. Assumes I don't like her, even though I have directly spoken about her projections onto me and interprets all feedback I give her as criticism, and she is constantly "doing something wrong". Who is she projecting onto me? **What would you assume her early attachment relationships were like?**

- **Countertransference** – The **total** emotional response in the therapist in response to the client's conscious or unconscious projected thoughts and feelings onto them. It is now used as a "major therapeutic and diagnostic tool". (**Gabbard, G.O 2017).**

- My response to her: warmth, care, mild irritation (why do you keep saying "sorry")

4. The Transference

- The process of making unconscious traumatic memories conscious and re-transcribe them.
- Through the process of developing a **relationship** with the therapist (very different from original analytic thought), the clients begin to regard the therapist as a person of significance, corresponding to a significant attachment figure from the past, usually a parent, especially in their *"critical psychological periods" .*
- The unconscious transference was not just memories, but ways of perceiving, sensing and feeling.
- Current studies on interpersonal neurobiology (Porges, Jaak Panksepp – "affective neuroscience") clients are "reliving" their memories instead of "remembering" them. The transferences of early traumatic memories can often be altered if it is pointed out to the clients what was happening ***when the transference was activated, and the client was paying close attention.*** Schore has called this a ***"corrective emotional experience".*** This is aided by the client not having to see or respond in any way to the therapist through the work done in previous sessions. Thus, the underlying neuronal networks and the associated memories could be re-transcribed and changed. TIMING IN THE SESSIONS IS CRITICAL!!

Attachment Theory – John Bowlby & Mary Ainsworth (1969)

Bowlby's 4 stages of parent-infant attachment

1. Undiscriminating Social Responsiveness:
   - Birth until 2 or 3 months – early wiring of the right brain, micro attunement.
2. Discriminating Social Responsiveness:
   - 2-3 months until 6 or 7 months – critical phase
3. Active Proximity Seeking Behavior:
   - 6-7 months until 3 years.
4. Goal-Corrected Partnership:
   - 3 years until adulthood.

There are four basic characteristics that give us a clear view of what attachment really is. They include **a safe heaven, a secure base, proximity maintenance and separation distress**. These four attributes are very evident in the relationship between a child and their caregiver. We will work towards an understanding of how these characteristics play out in the therapeutic relationship**. The therapy is set up to be reliable, consistent, regular, and emotionally validating. Psychotherapy assumes an understanding of how the early attachment dynamics are being played out in the "here and now", which is called "working in the transference".**

Attachment Theory

"ATTACHEMNT STYLES BECOME A SELF-FULFILLING PROPHESY" – Dr. Dan Seigel

- **Secure** – I'm worthy of being seen, heard, understood. My emotions are worthwhile. I will, most of the time, get what I need.
- **Avoidant** (20%) – I didn't get what I need, so I will survive by not needing anybody for anything. Having needs is "weak" or "bad", so I must manage on my own (trainee CBT Psychologists?)
- **Ambivalent** – Inconsistent parents, sometimes intrusive. "I am not sure if you will be there, so I will become extra enthusiastic and needy (by being too much), and inadvertently push you away and then confirm to myself: 'see, you are not there for me.'"
- **Disorganised** – Different level of difficulty and disturbance. No ability to regulate, fragmented sense of self, under stress go into collapse and inability to think, no capacity for mentalization or mutuality in relationships. All personality disorders and psychotic features and processes.
- Dr. Aimie Apigian – 6 Core Attachment Pains: Hold Me, Hear Me, Support Me, See Me, Understand Me, Love Me.
- Disruption in early secure attachment leads to lifelong patterns of insecurity, difficulty in maintaining healthy relationships and a **programming** that predisposes us to various forms of disease and distress. Attachment pain stems from the disruption of our basic needs for safety, connection and being understood from 0-5, particularly 0-2 (our formative years).

Activity #1 – Thinking about yourself and current connection to your emotions, thoughts, body sensations

Part A: 5-minute relaxation/mindfulness exercise to reduce anxiety. SUDS rating before and after.

Purpose:

- 1. Build emotional awareness of self – notice internal reactions via your thoughts/feelings/ANS responses. E.g., I'm not comfortable identifying how clients make me feel. I don't want anyone to know that I'm struggling. Why am I anxious? I suddenly feel hot/cold, etc.
- 2. Exposure to Parts Therapy and the opportunity to re-transcribe a memory.

Part B: Walk as your adult self into a scene from your childhood (at home/ school/ at play). What would you tell your "inner child" self? Offer her/him some reassurance, kindness and then notice how you feel. Write it down and then reflect (CFT).

Purpose:

- 1. Build emotional tolerance for identifying your emotions from the past/present to create a "novel" corrective emotional experience for your self, and then your clients.

15 MINUTE BREAK

How processing thoughts and emotions works in the brain

- **Right Hemisphere** – processes all non-verbal communication, allows us to recognize faces, read facial expressions, transmit and receive feelings/vibes and connects us to other people. Processes non-verbal visual cues between mother and infant, the musical component of speech & tone; the way we convey emotion. Growth spurt – birth to 2 years (approx.).

- **Left Hemisphere –** processes the verbal/linguistic elements of speech and analyses problems using *conscious* processing.

- **The RH dominates the brain for the first 3 years of life.** Brain scans show that during the first 2 years of life that the mother principally communicates nonverbally with her RH to reach her infant's RH.

- **CRITICAL PERIOD** from approx. 10-12 months to 16-18 months during which a key area of the right frontal lobe is developing and shaping the brain circuits that will allow infants both to maintain human attachments and to regulate their emotions. This maturing area, part of the brain behind the right eye, is called the ***right orbitofrontal system.*** This "system" includes links to the limbic system, which processes emotion, attention, spatial memory, long-term memory and social cognition.

- Clinical significance of Infant Observation in Psychotherapy training.

Right Brain Transmissions

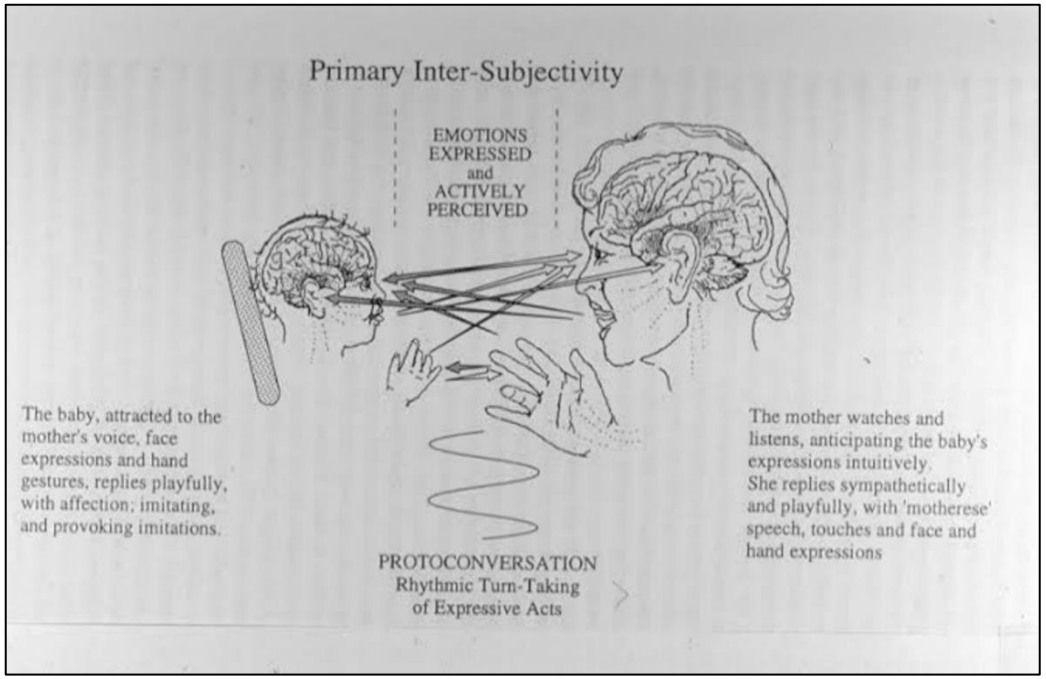
–"Right Brain Psychotherapy" (2019) Dr. Allan Schore

- Early Mother-Infant attachment relies on non-verbal cues to establish connection and synchronous attunement. These processes occur exclusively in the right brain (Right Temporoparietal Junction and Right Orbitofrontal Systems)
- Notice facial expressions, pitch of voice, eye movements, gestures
- For attachment to develop in a secure and healthy way, the mother needs to be comfortable with her own "unconscious" experience of being parented.

  E.g., **to tolerate intense emotions without projecting or blaming, to be comfortable with vulnerability, and to be able to ask for help when required** ***(interestingly these are also the requirements of a "good" therapist)***
- There are direct parallels between the right brain to right brain transmissions that occur between mother-infant/child and between therapist-client (t/c). Notice moment-moment cues. E.g., emotional expression, body posture, body movements, eye movements, etc. The more tightly the t/c brains are coupled, the better the therapeutic alliance (Zoom can lose these body connections).
- According to Schore, dissociation (=disconnection from emotional states – (mild, moderate or severe) occurs because of the disconnect between the CNS and the ANS, which is a dis-integration of the right brain.

Primary Intersubjectivity

the ability of infants to communicate using eye contact, smiling, vocalisations, hand gestures etc., in face-to-face encounters. It involves direct social attention and attunement and is evident from birth (Trevarthan, 1998; Trevarthan & Reddy, 2004; Schore, 2003).



When mothers are overwhelmed with their own unresolved issues in the form of emotional disconnect, neglect, abuse or trauma, they cannot intersubjectively engage with their infant's distress. The infant does not learn how to regulate large amounts of emotion and defenses are developed to reduce the intensity of the distress. These created patterns of emotional disconnect and associated behaviour continue because of the dissociated defenses that surround it. As we get closer to these defenses in the room, we help the clients shift from auto-regulation to interactively regulate. For example, this is seen in dissociated right hemisphere unconscious helplessness and shame beneath left hemisphere conscious aggression. Emotions are deepened in intensity and sustained in time when they are INTERSUBJECTIVELY felt. This occurs in moments of deep contact between therapist and client (Shore, 2021).

Mother-Infant Co-regulation

Event: Mother looks at her child who swallowed some air with her milk and says:

"Oh, sweetie, you look upset, don't be scared, your little tummy hurts because you ate too fast. Come here, Mummy will burp you and give you a hug, and you'll feel better".

1. ***Names the emotion***: – fear
2. ***Identified the trigger*** – she ate too fast
3. ***The emotion is communicated by facial expression***: you look upset.
4. ***It's association to a bodily sensation*** – your tummy hurts
5. ***Comfort and reassurance is available, and it often helps*** – Mummy will burp you and give you a hug.

Mother has helped the infant learn about emotion through her words and the loving music of her voice and the reassurance of her gestures and touch. This sequence needs to be experienced many hundreds of times **in the critical period** and then reinforced later in life for the child to ***learn how to recognize and regulate their emotions and to be comfortably socially connected.***

Thought: Connect this idea to the unfolding process in the room and ask your self this question: "how long does it take" to develop a secure trusting relationship with clients?

Sequence of Re-transcribing in Psychotherapy: Clinical markers:

1. **It is ok for me to have needs (all levels)** – therapeutic alliance usually takes 10-20 sessions to **establish**

2. **It is ok for me to be vulnerable**

3. **It is ok for me to ask for help**

4. **Therefore: It is ok for me to make mistakes (because I am human) – direct modelling from the therapist.**

- **Suggestion: Train Psychology students (based on this research) to work through these levels as under graduates so they experience more capacity in the room to tolerate strong emotions and help repair "right brain blockages".**

Retrieval of Memories

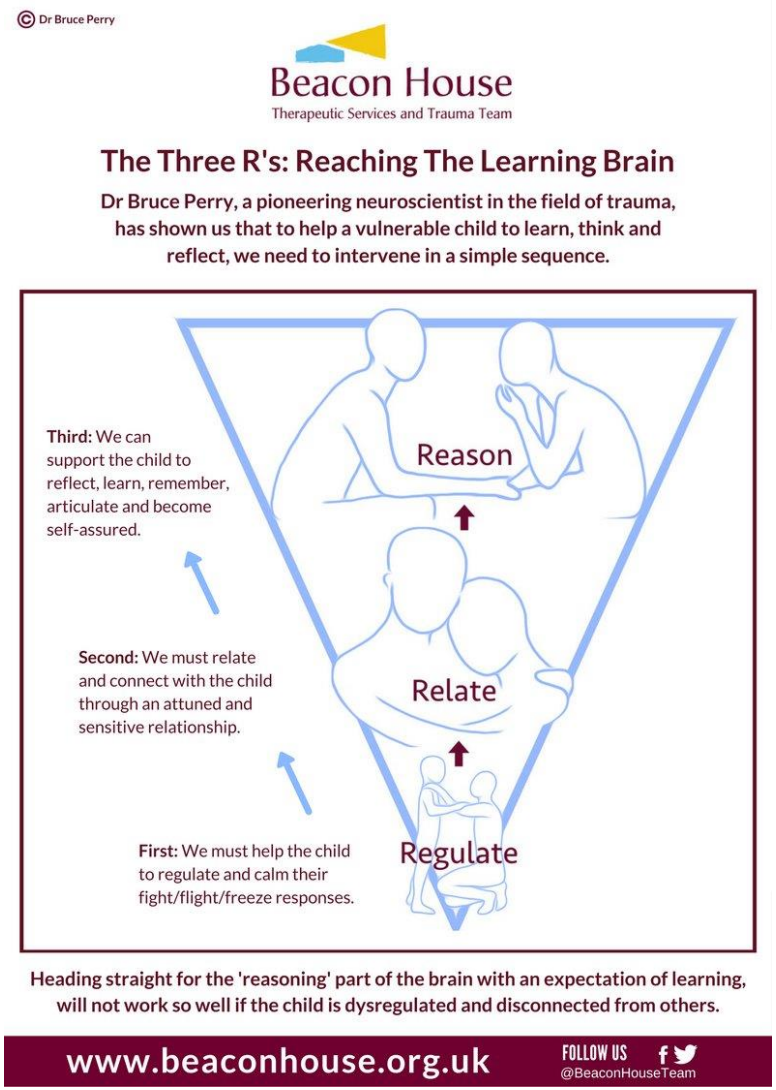
- **Procedural/Implicit memory (Kandel, Seigel):** occurs when we learn a procedure or group of automatic actions, or STATES OF MIND occurring outside our focused attention, words not required. Our nonverbal interactions and most of our emotional memories are part of the procedural memory system. Generally, these memories are unconscious. Field of research and study now called: Interpersonal Neurobiology Jaak Panksepp – "affective neuroscience" = the neural mechanisms of emotion. Implicit Memory = the first layer from sub cortical circuits, this includes bodily sensation, emotion, perception, and body action **The nervous system gets ready for what will happen next BASED on what has happened before. In pure implicit form, the memories are NOT tagged as coming from the past, they are taken from storage (NOT processed by the hippocampus). Meaning, the neural firing patterns are remembered in the nervous system = THE ANTICIPATING BRAIN (Seigel). Implicit memory now known to start in the Womb.**
- **Explicit/declarative memory** – (just beginning to develop in the 3rd year of life) is the conscious recollection of specific facts, events and episodes; Left Side of the Brain – factual memory – helps organize memories by time and place. It is supported by language and becomes more important once children can talk. This forms the basis of 'autobiographical' memory.
- Trauma under the age of 3 is usually stored in procedural memory and these memories get *triggered* when people are in situations that are similar to the trauma. These processes get repeated in the transference relationship (and in life) because of the nature of the interpersonal dynamics in the transference that mimic early attachments.
- Therapy/Analysis helps people put their unconscious procedural memories and actions into words and into context, so they can better understand them. In the process they plastically transcribe these procedural memories, so that they become conscious, explicit ones. When this is done for the first time, past and present mix together in the therapy room, which is an indication that the transference is being activated. The attuned therapist/"mother" then points out emotional "basics" to help track the current experience the client is having which mimics the earlier trauma. In neuroplastic terms, activating and paying close attention to the link between everyday separations and the catastrophic response to it, allows the client to unwire the connection and alter the pattern.

Defence mechanisms and Clinical Applications

- The neurological significance of defense mechanisms is to think of them as reaction patterns that hide unbearably painful ideas, feelings and memories from conscious awareness (in the implicit memory system deeply embedded in sub cortical brain structures).
- As the clients develop powerful feelings toward the therapist, this helps the unwiring and re-wiring as emotions and the patterns we display in relationship, are part of the implicit memory system.
- Recent studies show that brain scans done before and after Psychotherapy can detect plastic reorganization in the prefrontal and frontal lobes, shown by a reduced flow of blood to these regions indicating more regulation of behaviour, less depression and less reactivity of the limbic system, reducing panic disorder and anxiety.
- **Regression** in therapy is the method by which the brain is assisted to re-organize itself, by not just remembering, but by somatically reliving aspects of the dissociated state. -Somatic Psychotherapy = resetting the Nervous system and the psyche simultaneously. By giving up the defense, the memories of the actual loss/abuse and the emotional pain that the defense has hidden, get exposed. This is called the "unmasking" of older neuronal pathways. So…regression in analysis at a neuronal level is an instance of unmasking which often precedes psychological organization/integration.
- TIMING – is critical. Assessment needs to include: an understanding of how much the client can tolerate POSITIVE and negative emotions and how long the client can tolerate positive emotions for.
- Present a Psychoeducational Roadmap.

Trauma Research – Dr. Bruce Perry

(Application to Adults)



Activity #2 – Thinking about your therapeutic relationships with clients

- **Purpose:**

1. Build emotional awareness of others – micro-observational skills. E.g., changes in body positions, shifts in facial expressions, shifts in eye gaze, shifts in eyebrows, eye closure, swallowing, changes in breathing rate and depth, skin flushing, etc.
2. Build emotional tolerance of client's strong emotions to create a "novel" corrective emotional experience.
3. In all forms of treatment (Psychotherapy, CBT, ACT, EMDR, EFT, Family Therapy etc.) it's the ***relationship*** that impacts the change, more than the treatment itself (Schore, 2021).

Exercise:

- Role Play with Volunteer – Frustration/Disappointment with Therapist
- Role play in Pairs

Final Reflections

1. What are the main learnings (if any) that you have taken from today's workshop? Were your needs met?
2. Are you interested in learning more about how to work therapeutically in the transference?
3. Would you like to participate in a full day workshop in this area?
4. Would you like to provide feedback about what areas of knowledge you want to focus/improve on moving forward?

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