

SOURCE

Bruce Ecker, Robin Ticic and Laurel Hulley “Unlocking the Emotional Brain” 2012

MEMORY RECONSOLIDATION : HOW THE BRAIN UNLEARNES

- Since 2004 Brain Science has opened new possibilities for effectiveness in psychotherapy. The new Brain Science of MEMORY RECONSOLIDATION centres on the surprising discovery of the brain's ability to delete a specific, unwanted emotional learning, including core, non-conscious beliefs and schemas at the level of the physical, neural synapses that encode emotional memory. Deletion of the emotional learning underlying a particular symptom eliminates that symptom at its emotional roots.
- After a century, a breakthrough. Before 2000 neuroscientists believed the brain did not possess the capability of erasing an existing established learning from memory. The detection of memory reconsolidation, a type of neuroplasticity or synaptic change that can erase emotional learning, was thus a breakthrough.
- The value of finding the emotional learning behind so many of the presenting problems in Psychotherapy (attachment problems, self-esteem, co-dependency, perfectionism to name but a few) is immense. Behind these diverse moods, behaviours, emotions, thoughts for which people seek “therapy” are IMPLICIT EMOTIONAL LEARNINGS: learnings out of conscious awareness that entered memory during experiences of intense, strong emotion.
- Implicit knowledge consists of knowing how to perform an action (saying things to please people to stay safe) or knowing how the world functions (such as “knowing” that people become rejecting or aggressive as soon as they are displeased or criticised). Such knowledge consists of schema (patterns, templates or models) that have been extracted from that experience and stored in memory systems other than those used to store explicit, autobiographical, episodic knowledge of past events; knowledge created by implicit learning remains out of awareness even as it generates behaviours, emotions and thoughts in response to current experience.
- The deeply engrained nature of these emotional learnings appear to be the survival-positive result of natural selection. Selection pressures during evolution apparently crafted the brain so that any learning acquired in the presence of intense, strong emotion becomes stored in specialised subcortical implicit memory circuits that are exceptionally durable. In the 20th century neuroscientists researched the neural circuits of emotional learnings and concluded they were “consolidated” in long-term memory and could not be unlocked. “Emotional memories are forever” was the conclusion of extensive research. Techniques were developed to “counteract” the unwanted learnings (panic attacks, anxieties, depression etc) trying to arrange a more desirable resource state to counteract them. The strategy of counteracting predominates in psychotherapy (CBT, solution-focused therapy, positive reinforcement etc).
- From 2000 a new line of research worked to find out if the brain had its own rules for “unlearning” and if this could reach implicit emotional memories. This was first proved with animals Nader 2000 “Even well consolidated memories are labile and subject to disruption when re-activated”
- Further research found that new knowledge that reactivates can de-consolidate a memory into a labile state but that state is temporary and is ended by a natural relocking or reconsolidation that returns the memory to a stable state no longer susceptible to change or disruption until it is destabilised again. The temporary “reconsolidation window” was demonstrated to be a 5 hour window where the unlearning can be replaced by new learning. This is a natural Brain process and can be used instead of the synapse-blocking chemical agents that are nearly all so toxic to humans.
- Requirements for de-consolidation: Reactivation plus mismatch. In 2004, reconsolidation researchers' early inference that memory reactivation alone destabilises a memory's neural circuits was overturned by the demonstration, in an animal study, that in order for de-consolidation to occur, a critical additional experience must take place while the memory is still reactivated. This second experience consists of novel perceptions that mismatch – that deviate from – what the target memory expects and predicts about how the world functions. The mismatch can be either a full contradiction or disconfirmation of the target memory or a novel, salient variation relative to the target memory.
- From the totality of research to date, we see that the natural, behavioural process of transformational change of an existing emotional learning – the brain's rules for unlearning and erasing a target learning – has three steps

1. **REACTIVATE.** Re-trigger the target knowledge / the emotional learning from the past.
2. **MISMATCH/UNLOCK.** Create an experience concurrent with the above that is significantly at variance with the model and expectations of the target learning. This step unlocks synapses and renders memory circuits labile i.e. susceptible to being updated by new learning.
3. **ERASE or REVISE BY NEW LEARNING.** During a window of about 5 hours before synapses have relocked, create a new learning experience that contradicts or supplements the labile target knowledge. This may be the same or different from the mismatch.

PRE- SUPPOSITIONS

- The Brain has rules for dealing with intense emotional experiences, which create what we will be calling “Emotional learnings”. We can unlearn an EL from intense or traumatic experiences and update to a new learning; the brain is truly plastic but there are conditions for this unlearning. First we need to know that these ELs register danger and they pass straight to the Amygdala without going through the Neo-Cortex. Any subsequent situation, which registers as similar, triggers off the danger signal. The danger signal is stored in IMPLICIT MEMORY but the reason for the Danger is not registered. This is a survival strategy producing instant reaction to perceived Danger.
- The problem is that later these ELs work unconsciously. We react to a situation with fear and repulsion but we don’t know why. To change one of these ELs we have to get the following information to surface so it is put in EXPLICIT MEMORY. There is a window of 5 hours after the brain has seen the mechanism for it to unlearn and re-learn.

INFORMATION

1. **SYMPTOM.** Get a description of the unwanted behaviour, belief, thought or action that the Client is aware of wanting to change in their lives. As facilitator take up an attitude of befriending the symptom: A PRO-SYMPTOM POSITION in contrast to the Client’s desire to get rid of the symptom.

Questions

What Kind of Symptom is that symptom? And is there anything else about X? Attributes

And what could that Symptom’s intention be for you? What does that symptom want to have happen? Intention

What is that part trying to do for you? Function of the Symptom and what did you learn about yourself, others or the world?

2. **EMOTIONAL LEARNING.** Get a clear statement of what they have learnt: **the Emotional Learning** and write it on a card eg “So you learnt that you mustn’t speak up when there is a problem at work because if you did it might become your fault!”

3. PULL BACK

- And where could that belief come from? And how old is that belief?

- And can you see what that little girl/boy who believes that is wearing?

- And is there anything else that younger you learnt about yourself, others or the world?

4. **KEEP TRACKING** and frame information as **Emotional Learning**. Then update the card.

Honour the past by seeing how this part that created the symptom did protect you from strong feelings registered as dangerous.

Then look at “ Is it true now that the belief “speaking up is dangerous” is really protecting you?

What will be the **CONSEQUENCES** of continuing to believe that?

5. Now go for **CONTRADICTORY EVIDENCE.** Get them to mismatch.

Questions

And have you ever spoken up somewhere and it wasn’t your fault?

And has this always been true? Are there any exceptions where it didn’t happen?

And when has it not been true?

Get at least 3-5 examples where this EL was not true and the feared strong feelings didn’t happen.

Write the Examples on a card.

6. JUXTAPOSITION

Now present the two pieces of information to the person SIMULTANEOUSLY in order to shift from unlearning the EL to new learning that is more functional for their present life situations. Maturing the Changes

Questions

And as you see/feel on the one hand this EL from the past and you also see the Contradictory evidence from these 3/5 events, what happens next?

And when you see these Contradictory Examples, what happens to your old belief?