**HOW THE BRAIN FEELS**

**Emotion and Cognition in Neuro-Linguistic Psychotherapy**

Part 4 of a 5-part paper by Philip Harland

Part 1 AROUSAL Part 2 SENSATION Part 3 CONSTRUCTION Part 4 APPRAISAL Part 5 VOLITION

Love is ... an emo~cognition.

A woman drops her purse in the High Street, and stoops to pick it up. Following behind her is a young man. He stops. Not to help her, not to steal the purse, but to slap her bottom. It is an impulsive act. He is immediately contrite. For most people the thought of slapping the woman’s bottom, had it occurred at all, would have been a passing fragment of an idea among the hundreds which go through the brain every moment. There would have been little chance of the idea being put into action because the feeling that prompted it would have been appraised, and any desire to act on it suppressed, in a fraction of a second. But a few months ago the young man was the passenger in a car driven by a drunken friend, and there was an impact accident in which the frontal lobes of his brain were damaged.

There have been countless studies of victims of this kind of injury which show it leading to radical personality change: typically from thoughtful and mature to impulsive and erratic. When the frontal lobe networks responsible for judgment and impulse control are disrupted, it is the appraisal stage of emo~cognitive processing that is most affected. This article has three sections:

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- **Feelings Tell Us How We Are Doing.** A note on conscious and unconscious appraisal. The more understanding we have of the unconscious part, the better we’ll be able to manage the conscious part.
- **Reason Is Nowhere Pure.** An analysis of the crucial components of appraisal - the involvement and make-up of memory, and the importance of individual belief systems.
- **Fear Has The Largest Eyes Of All.** How appraisal fits into the brain’s construction of the core emotion in psychopathology, fear.

"Feelings tell us how we are doing." Joseph Schwartz

Give Bandler and Grinder their due. They were thirty years ahead of their time in saying that experience is constructed unconsciously. Science is beginning to prove the point, but we’re still having to remind each other.

Appraisal is the fourth of the five stages in the construction of emo~cognition, and one of the most sophisticated, convoluted and potentially misleading functions of the human brain. Most of us would like to think of appraisal as a rational activity — we experience an emotion one way, and may then look at it objectively in another — but ‘pure intellect’ and ‘pure emotion’ are what Alfred Korzybski called structural fictions; they do not exist. They are inextricably mixed in the crucible of the unconscious. In this article I shall generally refer to the unconscious, or pre-conscious, parts of the process as Appraisal, and to the conscious parts as Re-appraisal. When both are in accord, all is well. When they contradict, as they often do, there is likely to be conflict.

Paul Griffiths describes two ‘levels’ of appraisal:

"low-level evaluation of perceptual inputs driven only by simple features of the situation detected early in perceptual processing and relative to an urgent interpretation of the situation”

This take this to be Damasio’s ‘low road’ of sensory signalling, referred to in Part 3 of this paper as the ‘direct’ amygdala path. And
'Higher level later' evaluation takes place both consciously and pre-consciously -- that is, out of awareness but available to consciousness on reflection. This would give each appraisal event three inter-related phases [Figure 1].

<table>
<thead>
<tr>
<th>Somatosensory Input</th>
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<tbody>
<tr>
<td>1 Unconscious emotional APPRAISAL</td>
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<td>2 Pre-conscious cognitive APPRAISAL</td>
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<tr>
<td>3 Conscious cognitive RE-APPRAISAL</td>
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<td>Behavioural Output</td>
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Figure 1 Phases of Appraisal

Brain systems are anything but linear, of course. The phases do not simply start at the top of the diagram and stop at the bottom. There is direct emotional input into the re-appraisal phase that prevents it going on forever [see the 'To Be or Not To Be' panel below], while some of the results of re-appraisal feed back to influence the earlier phases, and in turn become further input. It is a systemic, recursive loop. The process is always the same, but input and output are always different.

I want to concentrate here on the non-conscious phases of appraisal, as the brain receives the body's proprioceptive (internally produced and received) 'physiological readiness' signals -- the direct path... assesses them in combination with the mind's cerebrally processed 'significance' signals that add idiosyncratic 'meaning' to feeling -- the indirect path ... to produce a mix of 'felt' and 'action' tendencies that make up our sense of volition, the impulse to act.

This is a byzantine journey, as we saw in Part 3. In a split-second the brain may receive billions of these signals and act on millions of neurons generating millions of firing patterns over a huge number of circuits across a variety of brain regions in a multi-associative process predisposed by genes and conditioned by life. No wonder we generalize, delete and distort so much as we process this (and so often get it wrong).

To be or not to be: Hamlet and the Recursivity Syndrome

Re-appraisal is the conscious evaluation of what might be the outcome of acting on our emo-cognitions. The nightmare of the 'rational' mind is attempting to evaluate the outcome of the outcome of the outcome in endless regress. Only an emotion can limit the limitless range of plausible consequences that would otherwise precede any decision to act. Even allowing the throw of a die to decide would depend on the emotion-influenced options we assigned to the numbers and the emotion-inspired will to act on the result. What finally motivated Hamlet out of analysis into action was his desire for revenge (resulting in murder and mayhem, unfortunately). Emotion and motivation have the same Latin root: move, to move. Emotions move us, leading inevitably to the impulse to act, but also to the opportunity for re-appraisal. These final stages in the construction of emo-cognition will be considered in Part 5.

Feelings get us into appraisal. We can now see that feelings get us out of appraisal. Indeed, feelings depend on appraisal! [Figure 2]

Figure 2 One System

The interval between actual events and our awareness of them may be as little as one-fifth of a second -- nowhere near long enough for us to separate our awareness of the structural stages (AROUSAL --> SENSATION --> CONSTRUCTION --> APPRAISAL) of a feeling without rigorous training and practice. Whether you experience a roller-coaster ride as joyful or dreadful depends on how you evaluate your expectations of the ride with your feelings about who is accompanying you, your need for control, and your judgment of the serious discrepancies between your experience of balance and bodily support on the ground, and balance and bodily support in the air. Love it or hate it? Only after your feelings have been through five stages of construction, including three phases of appraisal, will you know! 2

"Reason is nowhere pure."

Antonio Damasio

Our brains have evolved to create an endless succession of (re)constructions of past events, pre-existing associations and conditioned responses in combination with present-day ('remembered present') beliefs, values, attitudes, needs and goals. It is this mix, this kettle of fish, this wild inextricable maze we call 'memory'. It is in no one place in the brain, but distributed throughout in what Damasio calls 'dispositional
representations' or 'dormant firing potentialities'.
Memory is not a recording of things that happened, but a live event happening now. We put it to work riding
roller-coasters as much as in taking exams or baking Yorkshire pudding, anything may prompt it, and it is
intrinsic to the appraisal process. Belief and value systems have a pivotal importance in memory, and thus an
incalculable influence on appraisal.

The philosopher A.C. Grayling suggests that almost all our emotions involve beliefs and values, or what some
researchers call 'value structures' -- the memory's cluster of norms, goals, values and preferences. If I feel
shame, says Grayling, it is because I believe I have done something that deserves contempt. If I feel
compassion, it is because I believe that the object of my sympathy is suffering in a way that merits my
concern.

Appraise comes from the Old French priiser: to price.
Evaluate comes from the Old French value: worth.

When we appraise or evaluate the constructs we make of our sensations we are simply pricing their worth to
us. It isn't too difficult appraising the worth of a pleasant feeling. But where is the value in a painful feeling?

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<table>
<thead>
<tr>
<th>Step</th>
<th>Process</th>
<th>Example</th>
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<tr>
<td>1</td>
<td>Input from the event</td>
<td>spike appears</td>
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Figure 3 Appraising Values

A client with a problem around forgiveness, say, may invest the value of compassion in a role model while
denying it in themselves. The value is actually held by the client in the painful feeling that attends its denial.

"Fear has the largest eyes of all." Boris Pasternak
Those who suffer 'high anxiety', 'phobia', 'obsessive-compulsive disorder', 'panic attacks' or 'post-traumatic
stress' -- or any one of a host of other conditions involving the fear response -- are honouring the value of
survival of the organism in the face of perceived threat.

Those single inverted commas mark the neuro-linguistic trap that lies in wait for all facilitators and health
professionals -- that of inadvertently contaminating the client's metaphors (unique description of symptoms)
with our own (second-hand labels).

'Phobia', 'panic attack' etc may be handy containers for sorting the enormous miscellany of subjective
emo-cognitive states that have their common origin in fear, but applying a generic label to an individual client,
even once, may affect the client's beliefs about themselves and their mental state for evermore.

Manifestations of the fear response will usually have a pattern to their context, or their cause, or their
construction, but the particulars of the pattern will be unique to each sufferer. LeDoux suggests a theory of
panic attacks based on internal signals of heightened bodily arousal prompting the memory-inspired belief
that a panic attack is occurring.

This belief is likely to be reinforced by a further belief in 'panic' as an abnormal state beyond one's control,
and a belief in 'attack' as an unwarranted event of external origin. All contributing to an unconscious appraisal
that what is occurring or about to occur is unsolicited, inevitable and unmanageable.

Interestingly, the word panic derives from Pan, the otherwise benign Greek god of the woods, whose sudden
appearances were said to cause irrational fear. The sight of a snake or a spider, the feeling of an enclosed
space with no escape route, a sudden loud noise -- almost anything provided it has been linked to a traumatic
or life-threatening episode in the ancestral or biographical past -- may trigger reactions that overpower
reasoned re-appraisal of the actual threat.

How then is the fear response constructed, and what clues may it contain to help us in assessing places for
intervention, or in facilitating the client to self-model? [Figure 4]
Each stage of this construction (AROUSAL -- SENSATION -- CONSTRUCTION -- APPRAISAL -- VOLITION -- ACTION) is difficult to distinguish from the rest in the normal run of events, but is accessible in therapeutic process. The example that follows is from the Symbolic Modelling of a client using Clean Language. Clare is in her late 20’s and for twelve years has been suffering from what she calls panic attacks. Her general practitioner has prescribed anti-depressants, which lighten her mood but haven’t stalled the ‘attacks’ or improved her self-confidence.

I can’t understand what’s happening, because my mind is telling me I’m perfectly ok.
And when you can’t understand what’s happening, and your mind is telling you you’re perfectly ok, what would you like to have happen?
I want to sort my head out, I want to feel normal.
[We spend some time developing this outcome:
What kind of ‘sort’?
Is there anything else about ‘normal’?
etc]
And what happens just before you want to sort your head out?
I feel fearful, my heart is pounding, I can’t catch my breath, I want desperately to get away and I can’t move.
And just before you feel fearful[etc] ...?
Everything’s fine, or at least, well no, it’s not.

Clare is accessing the AROUSAL and SENSATION stages of the feeling. As she learns to ‘slow time down’ around the rapid onset of the attacks, she begins to get a sense of sequence and gradually a pattern takes shape: the panic response appears in every situation that she finds herself feeling~thinking:

This is supposed to be ok, but isn’t.
And when this is supposed to be ok, but isn’t, that’s like what?
Like a frantic hamster in a cage who’s trying to escape but can’t.

“The logic of the emotional mind is associative,” says Daniel Goleman. “It takes elements that symbolize a reality, or trigger a memory of it, to be the same as that reality. That is why similes, metaphors and images speak directly to the emotional mind.” The client is modelling her CONSTRUCTION of the feeling (‘frantic hamster in a cage’) through metaphor. She goes on to define the location of the metaphor’s constituent symbols in space, to assign them a coding in time, and to discover their relationship to other symbols and to herself as perceiver:

More about Clean Language, Metaphor and Symbolic Modelling in the References. David Grove’s Clean Language is applicable to any facilitative situation but was specifically developed to support a client’s modelling of self-generated metaphor. The Clean Language questions are in bold. The full syntax of the exchange is condensed here.

And where is frantic hamster in a cage?
Just there [points a metre in front of her].
And is there anything else about just there?
I’m in the kitchen with the hamster and the garden’s just outside.
And how did ‘I’ end up in the kitchen and the garden’s just outside?
And how old could 'I' be in the kitchen and the garden's just outside?

Um, four or five.

And when um four or five in the kitchen what happens next?

[Pauses, then younger voice tone] I want to get away into the garden even though they'll be really angry!

Over the next sessions Clare explores the complete metaphor landscape of her anxiety, then suddenly shifts into cognitive APPRAISAL as she is reminded of an incident in childhood when she had been abused by a carer who was a friend of the family.

I felt helpless. I was trapped. I wanted desperately to escape, but I was supposed to stay.

She relates the child's helplessness to her panic responses as an adult. The feelings are the same: a pattern coded in the bind she has made for herself, that of wanting to escape but unable to.

However Clare now goes on to develop a symbolic resource -- she calls it "gold liquid" -- which she uses to convert the structure of her metaphor from fixed wheel in a cage to a flow-chart involving eddies of water and spirals of light. Not untypical of a self-generated resource -- idiosyncratic, imaginative, and somehow it works, in a way only its owner understands. This resource continues to develop and a few sessions later Clare reports:

"A week ago I had this weird epiphany thing. I could imagine these droplets of gold liquid going through my head. There used to be no movement, now I imagine this cycle thing going [hand makes circular repeating gesture] and I think, Ah, that's it! That's what it's like when my mind's working properly! I wrote and drew in my diary little gold droplets going round it like some sort of chemical. Now if I feel I'm about to panic and nothing's moving, I can think it and make it move."

Transforming a wheel going nowhere into a cycle lubricated by droplets of gold has gone hand in hand with transforming the quality of her experience from helplessness and depression to control and self-assurance. It was no accident that her original outcome, "To sort my head out", found its resolution in the symbolic mapping of events in her own brain. And gold liquid is a resource no therapist could have 'given' her. It was one she had to generate, appraise and evolve for herself.

The systems involved in emotional appraisal are directly involved in the control of emotional responses. In Part 5, the final article in this series, we will look at their part in enhancing emotional intelligence.

"Voici mon secret. Il est très simple. On ne voit bien qu'avec le coeur."

Antoine de Saint-Exupéry

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1 Paul E Griffiths, Basic Emotions, Complex Emotions and Machiavellian Emotions, Conference Paper Kings College London 2002

2 If a client's metaphor for life were "a roller-coaster ride" or "a constant uphill struggle" and their outcome were to transform it into "a level playing field" or "a stroll in the park", the change in their metaphor landscape would be a significant measure of their re-appraisal of themselves. Figure 4 develops The Construction of Emotion diagrams in Part 3. More about client self-modelling, and therapist prototype-modelling of the client's model, in James Lawley and Penny Tompkins, A Model of Musing, Rapport 57 Autumn 2002 and www.cleanlanguage.co.uk.

Acknowledgments: James Lawley

References - see part 5.