

## Pain of Rejection, Physiology of Ego and What Motivates Us

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Since the time of Aristotle in ancient Greece, scientists and philosophers have loosely hypothesized the existence of two major brain systems that are fundamental to almost all human behavior - the *reward approach* (pleasure-seeking) and the *loss avoidance* (pain-avoidance). Functional imaging techniques have become available to Neuroscientists recently like fMRI (1990) and PET Scan (2000). The fMRI highlights haemodynamic activity related with functioning brain regions and the PET makes it possible to visualize areas that are metabolizing glucose. It is now possible to map the neural tissues that participate in emotion and motivation.

Experiments such as fMRI study of Social Exclusion (Naomi I. Eisenberger, Matthew D. Lieberman, Kipling D. Williams, 2003, Science Vol 302, 290-292) and Social Rejection Shares Somatosensory Representations with Physical Pain (Ethan Kross, Marc G. Berman, Walter Mischel, Edward E. Smith and Tor D. Wager, PNAS March 2011, 10.1073) indicate that social pain such as experienced during rejection, exclusion or loss of a loved one involves the very same neural tissues that process physical pain, the Anterior Cingulate Cortex (ACC). In evolutionary terms, social attachment systems are essential for survival of young mammals. Hence the attachment system may have piggy backed upon existing pain systems to ensure that action is taken to avoid pain, conflict and separation. The Right Ventral Pre Frontal Cortex RVPFC is found to be active during regulation or inhibition of the distress associated with pain.

Pain causes reflex distress; physiology reacts by increasing blood pressure, blood sugar, rerouting blood to the muscles to prepare for fight or flight and redirection of attention to the cause of pain. Since social pain, exclusion and threat causes the same brain areas to light up as physical threat, the physiological reaction is identical. The individual facing social threats suffers its physiological consequences and becomes prone to stress related ailments. Awareness about the causes of such threats and the related physiology can activate the regions capable of rational thought like RVPFC to assuage the distress in time to prevent progression to disease states.

David Rock, an expert in the field of coaching and leadership applies the findings of Neuroscience to the practice of leadership. (Managing with the Brain in Mind 2009 *Strategy +Business*) Rock reports that perception of threat can be related to five basic factors:

Status

Certainty

Autonomy

Relatedness

Fairness

**Status:** Humans are extremely sensitive to threats to status and may feel threatened by seemingly insignificant stimuli. The desire not to be perceived as less than another is a strong underlying trait and leads to arguments and posturing that can be quite meaningless except when we realize that insecurity of the ego drives these behaviors. When under threat the HPA (Hypothalamo-pituitary-adrenal) axis is activated and the thinking brain is left out of the circuit. The easiest way to activate status threat is to criticize or provide feed-back. Very intelligent people find themselves incapable of rational thought or creativity under such conditions because physiologically attention is routed to focus on the cause of distress (hijacked).

**Certainty:** the brain is a pattern recognition machine. It craves certainty because it can then predict with certainty. When faced with the unexpected it needs to recruit far more resources, attention and energy in order to function. Clarity in objectives and expectations help to reduce uncertainty and reduce stress.

**Autonomy:** The perception of control over the environment and a sense of having choices contribute to the state of autonomy. Inescapable or uncontrollable situations cause a great deal of stress whereas the same situation when perceived as escapable becomes less destructive. Increase in autonomy feels rewarding. People choose lower paying positions if they experience more autonomy there. Rodin's (1986) studies showed positive health outcomes with increased sense of control.

**Relatedness:** Sense of belonging to a group and being with people who share a connection is rewarding while encounters with strangers and feeling of exclusion generate stress. Relatedness is closely linked with trust. One approaches the other if there is trust and withdraws if there is incongruous behavior that generates distrust. The affiliative hormone oxytocin contributes to generation of trust and connection. A handshake, exchanging pleasantries and greetings with appropriate body language can trigger a release of oxytocin in the brain. Belonging to a group makes an individual feel bigger than alone and enlarges the ego which feels rewarding.

**Fairness:** Fair exchanges are intrinsically rewarding showing that the brain has a need for fairness. When situations are perceived as unfair people are willing to die to set it right. We feel rewarded when we volunteer to work for the community and decrease the unfairness around us. Sometimes we feel rewarded if perceptibly unfair people are punished. Perceived unfairness can be reduced by introducing transparency and increasing communication.

The factors mentioned above are together known as the SCARF model aimed at minimizing threats and maximizing rewards. Knowing about these factors helps individuals to analyze and reappraise situations so that the physiological damage caused by stress is minimized. It is far more effective than trying to suppress negative emotions. Knowing and accepting that it is not possible to think creatively and

rationality while under the influence of distress, one can learn to postpone important decisions till rampant emotions are regulated. On the positive side we can design ways to motivate ourselves effectively. While interacting with others we can reduce conflict because we learn not to threaten others.

## What Motivates Us

Daniel Pink in his book *Drive : The Surprising Truth About What Motivates Us* outlines three main factors

Autonomy

Mastery

Purpose

**Mastery:** We have already discussed autonomy in this article. The quest for mastery motivates people to jump out of bed and hit the practice track when everyone else is asleep. Musicians practice boring scales till their fingers bleed on string instruments and surgeons practice knots at the dinner table regardless of what others are thinking. Monetary incentives cannot buy dedication; it has to come from within. The reward is also felt within the brain as satisfaction at having reached a standard set by the self, bettering one's own past performance. The feel-good associated with growing ability is pure personal joy unadulterated with competitiveness and its related stress.

**Transcendent Purpose:** Based on the craving to belong is the desire to contribute to society, to science, the arts and to the planet. The significance of a task at hand can motivate us beyond the personal benefit that may accrue from accomplishing the task. The 'why' behind what we do and the gratification behind doing something for that which is greater than self, contributes to making it a transcendent purpose that outstrips the significance of profit. Once we have experienced the expansion of ego so much as to include a larger purpose, we can sense beyond the senses, transcend the feeling of separateness and become spiritual beings. This level of expansion of the ego carries its own euphoric reward so external recognition and rewards pale in comparison.

Real motivation is not related to certificates, trophies and cash prizes. Reward response is based on dopamine neurons in the mid-brain that encode value of stimuli and another group that encodes saliency or the importance of events while slower group informs about risk and prediction errors. The dopamine system is important in the process of learning from environmental changes. The brain likes to predict and when external rewards are predictable they fail to excite the dopamine neuron. However if the reward is better than predicted a dopamine rush ensues.

Knowing the reward system of the brain and the neurology underlying emotional processes helps us to understand our own turmoil and to get along with others as we empathize more effectively. Curriculum in medical college has not kept pace with the findings of neuroscience that deal with Emotional Intelligence, whereas Business Schools are delving deep into the working of the mid brain and applying experimental laboratory results to the workplace and demonstrating profits through enhanced teamwork and productivity, unbridled creativity, inspiring leadership and purpose driven altruism. Read about it at [http://www.eiconsortium.org/reports/business\\_case\\_for\\_ei.html](http://www.eiconsortium.org/reports/business_case_for_ei.html). Should medical schools lag so far behind?

About the Author:

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