The Neuroscience of Change

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The neuroscience which underpins change is referred to as **neuroplasticity**. Neuroplasticity describes the inherent potential of brain cells to remove redundant connections and to establish new connections, reflecting newly acquired information. In this way the brain continues to remold according to new experiences. New connections support learning and ultimately, change. At the neurophysiological level, neuroplasticity is mediated predominantly by the neurotransmitter, dopamine.

The potential for neuroplasticity varies however depending upon the early life narrative. In regard to cognitive interventions designed to manage change, one assumes adequate intrinsic receptivity in the narrative at the outset. In practice however, degrees of receptivity and potential for neuroplasticity become apparent, thus setting the limits for positive change. Positive change may also be impeded by the inertia created from being embedded in a comfort zone. By this I refer to default behaviors which arise out of a deprivation heritage but which in themselves generate levels of gratification, albeit short-lasting. Examples of these would be substance abuse and addiction, eating disorders and even aspects of schadenfreude – deriving gratification from the misfortune of others. To shift such individuals, the intervention-based alternatives would need to offer higher levels of gratification to be effective and sustaining.

Based on our own research and experience we have identified five specific **source elements** which are necessary requirements for neuroplasticity and change. These source elements include:

1. **Self-esteem/self-efficacy**. Self-esteem generally reflects influences which were operative in the formative nurture years. Low levels of self-esteem, impede neuroplasticity and change. Interventions therefore need to identify *limiting beliefs* in the life narrative which compromise self-esteem/self-efficacy and neutralize them to achieve success.

2. **Meaning and purpose**. Purposefulness equates to enhanced motivation, productivity, innovation and loyalty. In our research it also correlates with enhanced wellness. Chemically these individuals have higher levels of dopamine and serotonin. The antithesis of this state is one of purposelessness or as we have defined in our research, hopeless-helplessness. This state is associated with impaired performance, decreased wellness and compromised leadership potential. These individuals have low dopamine and serotonin levels and are prone to states of chronic inflammation (the precursor for many serious illnesses such as heart disease, strokes, neurodegenerative conditions and cancer.)
3. **Gratification** arising out of job engagement, job mastery and reward. These situations are also associated with raised dopamine levels. Recent research has shown that states of curiosity enhance dopamine-mediated learning, neuroplasticity and change.
4. **Achievement**. Anticipated achievement or achievement experienced, which is greater than that which was expected, results in raised levels of dopamine and subsequent neuroplasticity.
5. **Value contribution**. Value contribution can be defined as making something better than it was before you engaged with it. Value contribution occurs in three areas:

    a) Towards self, thereby fulfilling one's full potential
    b) Towards one's personal environment
    c) Towards the extended environment

Finally, excessive anger and/or hostility negatively affect higher reasoning function which impairs neuroplasticity and the potential for change. Chemically, this mind state and its excessively raised adrenaline levels also predispose to states of hopeless-helplessness which further compromises the potential for change.

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