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Neurocognitive Perspectives on Emotional Maturity

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I. INTRODUCTION

Emotional Maturity is the process of impulse control through the agency of self. Emotional Maturity means to balance the emotions produced in person's mind at a particular time. To face any problem of happiness or unhappiness with patience are the symptoms of emotional maturity. Neurocognitive process includes a number of human functions through neural network. Neurobiologists distinguish emotions as a subjective sentiments - the emotions that one feel of physiological arousal that it provokes with its procession of somatic reaction and associated action (e.g defence or attack when faced with danger). Neurocognitive strategies will be helpful to bring out the secrets of neural network involving in emotional maturity.

II. EMOTIONAL MATURITY AND NEUROCOGNITION

Morgan (1924) stated the view that an adequate theory of Emotional Maturity must take an account of the full scope of the individual powers and his ability to enjoy the use of his powers. Emotional Maturity actually is a process of readjustment, the infant learning under parental supervision what situations after permissible opportunities for emotional reactions and to what extent so the primitive elemental psychological response that we call emotions becomes patterned in accordance with approved from the expression and repression favoured by culture- Frank (1963). Neuro cognitive functions are cognitive functions closely linked to the function of particular areas, neural pathways, or cortical network in the brain substrate layers of neurological matrix at the cellular molecular level. Therefore their understanding is closely related to the pratice of neuropsychology and cognitive neuroscience. Two disciplines that broadly seek to understand how the structure and functions of the brain relate to perception ,defragmentation of concepts, memory embedded ,association and recall both in thought process and behavior.

There is a possible link between emotions and neuroconition. Although the theoretical trend integrating emotions with cognitive activity dates only from the hypothesis of Mandler (1984), it is strongly influenced by the studies of Damasio (1994).

III. CONCEPTUAL UNDERSTANDING

Emotional Maturity is said to be the foundation for leading happy and contented life. If anyone lacks Emotional Maturity the life of the individual will be a sorrowful affair. Kaplan and Baron (1986) elaborated the characteristics of an emotionally mature person say that he has the capacity to withstand delay in satisfaction of needs, he has belief in long term planning and is capable of delaying or reversing his expectations in terms of demands of situation.

The emotionally mature child is not one who necessarily has resolved all conditions that aroused anxiety and hostility but it is continuously in process of seeing himself in clear perspective, continual involved in a struggle to gain healthy integration of feeling, thinking and action.

The main process of neurocognition is brain plasticity, neural firing , neural pathway and neural wiring. It is now unchallengeable that the brains capable of changing its structure and functioning in response to the environment in which it finds itself (Nicole Fiori 2010).

It is known today that the effects of stress, the emotional reactions with which it is associated are more complex because notably they depend on the interpretation of the situation by the individual who lives through it of exogenous factors as well as endogenous factors (Mandler 1984).

IV. NEUROCOGNITIVE FACTORS RESPONSIBLE FOR EMOTIONAL MATURITY

Papez circuit:

The papez circuit (or medial limbic circuit) is a neural circuit for the control of emotional expression. In 1937, James Papez proposed that the circuit connecting the hypothalamus to the limbic lobe was the basis for emotional experiences. Paul D.MacLean reconceptualized Papez's proposal and coined the term limbic system. MacLean consisted of the limbic lobe and its major connections in the forebrain –hypothalamus, amygdala and septum. Over time, the concept of a forebrain circuit for the control of emotional expression has been modulated to include the pre frontal cortex.

Recent studies show that it has been a more significant role in memory functions than in emotions. Some of the structures that Papez originally described such as the hippocampus now appear to have little to do with emotional behavior structure. The Papez circuit involves various structures of the brain. It begins and ends the hippocampus.

Based on Papez's experiment with aggression in rats and other studies, it was initially believed the circuit was involved with emotion. The Papez circuit connects the hypothalamus and the cortex and act as the emotional system of the brain. The cingulated cortex projects to the hippocampus and the hippocampus projects the hypothalamus by the way of the bundle of axons called the fornix. Hypothalamus effects reach the cortex via a relay in the anterior thalamic nuclei.

However there has not been additional proof of the circuits role in the emotion over the years. Now, the amygdale is thought to play a key role in emotions a structure that was not a part of the Papez circuit until 1952 when MacLean included it in the modified version of the circuit the limbic system.

V. AMYGDALA

The amygdala is a small, almound shaped mass of neulei located in the temporal lobes of the brain near the hippocampus. It is in fact a set of small nuclei: the basolateral nuclei , the cortico medial nuclei , the central nucleus. These nuclei are themselves so closely interconnected that the information that reaches one is transmitted to the others.

The amygdala is a structure in the limbic system that is linked to emotions and aggression. The amygdala functions to control over responses, the secretion of hormones ,arousal and the formation of emotional memories. There are many more connections from the small emotional centers than the reverse, which may be the reason for the emotions are molre dominant in determining behaviour and why we sometimes react or speak before we think. (John. J. Ratey 2008).

The amygdala receives information from the hippocampus. One sees often that the latter is implicated in the formation of explicit memory. This pathway could thus be the source of the triggering of an emotion from a memory and from a stimulus evoking a memory that is emotionally charged.

VI. THE ROLE OF THE PREFRONTAL CORTEX

The frontal lobe extends from the Rolando fissure to the Sylvian fissure and comprises the following regions: the posterior part is devoted to the motor areas(located just before the Rolando fissure or the central fissure) and the premotor areas (comprising notably Broca's area); the prefrontal region, before the proceeding, which comprises the dorsa-lateral cortex , the medial cortex and the orbital part, and finally the paralimbic cortex comprising the posterior orbito-frontal cortex and the cingular gyrus located on the inner surface of the hemispheres.

Relying on case studies of his patients, Damasio (1994) showed that cerebral circuits of emotions are not limited to the limbic system and extend to the prefrontal cortex. For Damasio , the weakening of the capacity to react emotionally could be the source of irrational behavior. Our acts are thus dictated as much by their objective finality as by their possible personal and social consequences.

VII. THE MESO –CORTICO-LIMBIC NETWORK

The meso-limbic pathway that starts from the mesoncephalus and projects to the nucleus accumbens (or ventral striatum, located in the septal region) and the meso-cortical pathway that projects to the frontal cortex. All these structures are interconnected with the lateral nucleus and or the ventromedial nucleus of the hypothalamus which retroacts on the ventral tegmental area and on the vegetative functions as well as on the endocrine function by the intermediary of the hypophysis.

It is interesting to note that the functioning of the meso-cortico-limbic network relies on the intervention of specific neurotransmitters, the primary one being dopamine : this network is called dopaminergic pathway. Thus , the role of dopamine in the compensation-pleasure system is established, even the mechanism and its intervention is not yet clearly known.

VIII. CONCLUSION

Emotional Maturity is very intimately related to individuals health, adjustment and behavior. So it becomes necessary that a child should have a healthy emotional development. It means that one's pleasant and unpleasant emotions should develop in such a ratio so that unpleasant emotions could not influence his mental health. There should be proper development of the ability of emotional catharais through which he could minimize the intensity of his mental tensions and imbalances which arise due to unpleasant emotions. We may follow some of the neurocognitive practices such as neural modeling, neural plasticity, neural rewiring, neural firing and emotional integration to overcome emotional problems. Hence there is a urgent need to steer our effort towards implementation of certain neurocognitive practices to enhance emotional maturity.

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