

BRAIN AND MIND: MIND CREATED FROM THE BRAIN – DEPENDENT ON MATERIAL: SCIENTIFIC PRINCIPLES AND RELATIONSHIPS IN THE BRAIN, AND ON THE INDEPENDENTLY CREATED MIND RELATIONSHIPS AND PRINCIPLES.

Prof. C.R. Mukundan, Dr. Priyanka Kacker

Honorary Chairperson,
Axxonet Brain Research Laboratory,
Axxonet System Technologies, Bangalore,
and Former President, Cognitive Neuroscience Society of India, 2014-16

Assistant Professor,
Institute of Behavioural Science,
Gujarat Forensic Sciences University, Gandhinagar

Abstract

Mind has been a creation of the brain, subtle form of matter, with which the brain is composed of, though considered an independent functional entity representing a living being, at spiritual and functional levels, supporting the generation of thoughts and feelings, giving rise to mental and spiritual activities at cognitive and emotional levels. This Brain-Mind relationship has created many Material-Scientific principles and based on which most of our relationships are dependent on. It's this duo that creates an understanding about the relationships and related expectations and tries to fulfill all the expectations personal, social and professional. These expectations when does not get proper attention it leads to agony and the self-blaming or the person starts finding faults in others. This paper discusses the Brain-Mind relationship and its relation with the relationship battles that we face in day to day life is being discussed and focused. This duo leads to extraordinary and positive emotional experience, and associated behaviour, which take human behaviour to glorious and noble levels of existence. On the other hand, negative emotions and their effects on behaviour have opposite values, as they may be alarming, mind blowing, and painful; and human beings often deploy such negative emotions.

Keywords: *Mind, Brain, Material-Scientific principles, Relationships*

Mind has been a creation of the brain, subtle form of matter, with which the brain is composed of, though considered an independent functional entity representing the human being, at spiritual and functional levels, supporting the generation of thoughts and feelings, giving rise to mental and spiritual activities at cognitive and emotional levels. The functional concepts and relationships are created through physical-structural levels, across the material components contributing to the brain and the material universe. Living cells and their structural materials contribute to the development functional capabilities at different levels, which have been identified as the features or components of the mind. The structural and functional combinations of the basic biological and physical materials contributed to functional capabilities, which develops as the mind power. Human beings mentally developed and created mental concepts of multiple relationships, and deployed them and made them functional in the wide structural world around and within. Using mentally developed concepts, multiple relationships and original ideas and mental capabilities could be developed, and all of which served as mental format in each individual. The functional relationships that could be created served as mental concepts and the functional properties associated with the physical or structural properties became independent functional systems. People consider that the different physical structural systems and their functions constitute independent material systems of the world, and believe that independent universal forces were, and have been intentionally created using the structural and functional variations. They were used to considering the functional systems and their applications as evidence of independent presence of the material world, which they believed could spiritually interact with.

The immense capability of the brain is its capacity to convert relationships detected and created into symbolic and verbal formats, which could be symbolically and typographically expressed, both verbally and symbolically. The expressive and experiencing capabilities attained by the brain is largely supported by the symbolic and verbal meanings that could be generated during the corresponding expressions. This capability has been identified as encoding and extensive scientific works have been carried out on this scientific capability

(Babiloni et al. 2006; Cabeza et al. 1997; Casasanto et al. 2002; Fletcher et al. 1995; Fujii, et al. 2002; Kapur et al. 1994; Lepage et al. 2000; Mukundan 2007, 2015, 2017; Nyberg et al. 1996; Roopesh 2000; Tulving et al. 1994a, b, c). Each brain trained by a specific culture and methods of acquiring meanings and interpretive capabilities may develop a specific system of thinking, interpreting, assigning meaning to own expressions and expressions of other individuals. Expressions could be expressive verbally, graphically, or behaviorally. The expressions are assigned specific meaning through emotional effects, assigned in own experiences and various types and modes of expressions. A spiritual vision makes one believe in a spiritual power taking care of everything in the universe, into which one would insert all happiness and opposite effects of behaviour and responses of one own as well as that of all others whose behaviour or responses would directly or indirectly affect ones' own happiness and all other emotional effects.

Faith in the spiritual power of a higher power controlling the universe has been a strong belief, which controlled the lives of millions of people from the very early stages of human existence. Such focused belief and faith results in the endowment of the faith, and still keep each mind enriched with strength and power to accept all difficulties of life as spiritual resultant and they learn to live with struggles and hardships in life, and still maintain hope and love and faith in the spiritual life, and the strength of the spiritual force in maintaining positive and happy effects in the limited span of life of each individual, beyond which one cannot carry on with physical existence. Groups of people belonging to different countries, lands with terrestrial areas, preferred creation of their own belief systems, as well as, presence of specific spiritual systems and spiritual power responsible for the genesis and maintenance of physical and biological spectrum of each life. And they continued their belief in the presence of the spiritual force within, as well as vested spiritual power with the nonphysical and nonbiological entity in which they believe as the supreme universal control, the belief which may give immense mental power to each individual, though it would never defy physical, biological principles in the universe. The spiritual belief provides each individual with immense psychological strength and power from the belief systems created within, using which one learns to build the innate strength within. One could practice and learn to make use of the mental strength to create inner images of strength which one could learn to make use of by creating mental imageries of power, which may never get physically or biologically entitled into a physical reality. The hypnotic effects generally work strongly on individuals, who are mentally prepared and willing to accept the creation of the new entities and effects.

A reality, which has been as strong as a scientific fact is that the body could live maximum only for a century, when both the body and the mind perished. There has not been even a single exception to this, though many human beings strongly believed that the 'atma' or spirit continued to survive forever in a different format. There has never been any type of verification of this belief, though the human minds often believed in such possibility and wrote stores of their permanent presence. The devils and evil forces always lived only in the minds of people, who were born on the earth. Nevertheless, we do have people, in hundreds or even more, who believe in such forces and apply them in life. Presence of positive emotions, especially that of love and affection is the basis of most extraordinary positive behaviour and thoughts in man, which allow them to share their own personal benefits with selected other persons, and even suffer their pain and other sufferings for the benefits of the other persons, whom they love. This is indeed extraordinary and positive emotional experience, and associated behaviour, which take human behaviour to glorious and noble levels of existence. On the other hand, negative emotions and their effects on behaviour have opposite values, as they may be alarming, mind blowing, and painful; and human beings often deploy such negative emotions, which may precipitate equally disturbing and painful behaviour in other individuals. Presentation of positive or negative emotional effects in behaviour must therefore be either intentionally self-induced by stimulus inputs and motor responses, which carry the wide range of emotional effects as experiences and/or expressions.

Emotions form the most unique neurobehavioral component of behaviour and experience for human beings. Emotions are experienced as well as they could be expressed. Its internal presence is the unique attribute, which adds to the capability of emotion. Emotion is experienced either positively or negatively, in which positive emotions are always accepted as pleasant, enjoyable and beneficial for the self, and may indicate personal success in efforts related to personal achievements, whereas negative emotions may cause pain, distress, and disappointments as it may indicate personal failures. Emotional effects in expressive and experiential behaviour facilitate the strength of the self-evoked as well as externally induced and controlled responses (Mukundan et al. 2019, a, b, c, 2018a, b, c; 2017, 2016; Mukundan, 2019). Emotional effects may have positive or negative effects on behaviour-responses, based on the personal acceptability of the emotional effects experienced within. The effects of emotional experiences and expressions indeed make behaviour as well as associated self-image immensely precious or noble divine for the individual. Life may become immensely powerful, valuable and exciting with the superimposition of emotional effects, contributing to spiritual and various psychological effects in the individual. The logic of relationships across different temporal and spatial components or factors would require determination and elicitation into logical relationships, which may be the outcome of prevailing strategic relationships that may be drawn for attaining complex and multiple effects in the universe or the material world.

It is amazing, as well as alarming to know that there has never been even a single case of failure of death or an equivalent biological state of continuous life without its cessation. Birth and death have always supplemented

one another, without a single case of failure of death. Matter has always continued to be present without passing through, any change unless and until it is affected by external factors or internal changes, when it reacts to the physical conditions and changes. Presence of life, in the most elementary form, is seen in agricultural products, may be in grass or in other several higher forms of growth. Presence of mind in the most elementary form is seen in living beings – creatures, which are considered belonging to the animal world. However, these mental creations are more in the form of recognizing and experiencing, which mark diverse associations through encoding, further providing emotional arousal to those who may be processing them. Encoding is the complex neurocognitive process, using which one creates, as well as interprets, meaning to various associations between words and sentences, or symbols expressed in all modes. Encoding process may turn out to be complex and lengthy or short process, depending on the meanings and interpretations created or assembled from components, which may be words or symbols. Emotion is experienced as the mental state associated with specific sensory-motor experiences evoked through recognition of the personal effects of each word, or entity recognized. That emotions and associated experiences could be verbally and symbolically expressed provide pathways for knowing their experiences, as well as expressions using subtle and vivid emotional effects, expressed as body and psychological responses by the self, and from others. Other than experiential components of emotions, they are expressed Internally, and in behaviour, as well as through verbalization. Both verbal accents and meaning of words and sentences could communicate emotional values, which are to be evaluated by the listener and decode those values. Emotions are verbally expressed and also expressed through musical performances, and in all communications, which may use these as the medium for communications.

REFERENCES

- [1] Babiloni, C., Vecchio, F., Cappa, S., Pasqualetti, P., Rossi, S., Miniussi, C., Rossini, P.M. (2006). Functional frontoparietal connectivity during encoding and retrieval processes follows HERA model. A high-resolution study. *Brain Res Bull*, 68, 203-212.
- [2] Cabeza, R., Grady, C.L., Nyberg, L., McIntosh, A.R., Tulving, E., Kapur, S., Jennings, J.M., Houle, S., Craik, F.I. (1997). Age related differences in neural activity during memory encoding and retrieval: A positron emission tomography study. *The journal of neuroscience*, 17, 391-400.
- [3] Casasanto, D.J., Killgore, W.D., Maldjian, J.A., Glosser, G., Alsop, D.C., Cooke, A.M, Grossman, M., Detre, J.A. (2002). Neural correlates of successful and unsuccessful verbal memory encoding. *Brain Lang*, 80, 287-295.
- [4] Fletcher, P.C., Frith, C.D., Grasby, P.M. (1995). Brain systems for encoding and retrieval of auditory-verbal memory. *Brain*, 118, 401-416.
- [5] Fujii, T., Okuda, J., Tsukiura, T., Ohtake, H., Suzuki, M., Kawashima, R., Itoh, M., Fukuda, H., Yamadori, A. (2002). Encoding-related brain activity during deep processing of verbal materials: a PET study. *Neurosci Res*, 44, 429-438.
- [6] Kapur, S., Craik, F.I., Tulving, E., Wilson, A.A., Houle, S., & Brown G.M. (1994). Neuroanatomical correlates of encoding in episodic memory: levels of processing effect. *Proceedings of the National Academy of Sciences, USA*, 91, 2008-2011.
- [7] Lepage, M., Ghaffar, O., Nyberg, L., Tulving, E. (2000). Prefrontal cortex and episodic memory retrieval mode. *Proc Natl Acad Sci USA*, 97, 506-511.
- [8] Miller, M.B., Kingstone, A., Gazzaniga, M.S. (2002). Hemispheric encoding asymmetry is more apparent than real. *J Cogn Neurosci*, 14, 702-708.
- [9] Mukundan, C.R., Kamarajan, C., & Ajayan P. (2019a). Live and die - develop a mind within, while living, using which one learns to create ideas, functional systems, and knowledge; and die later, when the mind ceases to be present. *J Psychol Clin Psychiatry*;10(6):234-239.
- [10] Mukundan, C.R. (2019). Neurocognitive Process of Defining and Deploying Purpose in Life. *EC Psychology and Psychiatry*, 8-11, 21-28.
- [11] Mukundan, C.R., Kamarajan C., & Ajayan P. (2019b). Mind in the Brain - Creation of the Greatest Virtual World. *Journal of Psychology & Clinical Psychiatry*, V10, 2, 83 - 90, DOI: 10.15406.
- [12] Mukundan, C.R. (2019c). Generation of Positive - Negative Emotional Experiences and Expressions through Cognitive Molding of Drive. *Journal of Psychology & Clinical Psychiatry*, V10, 1: 60 - 64, DOI: 10.15406.
- [13] Mukundan, C.R., Sumit, S, & Chetan, S.M. (2019d). Neurocognitive Processes of Recognition and Remembrance. *Psychology and Behavioral Science -International Journal*. ISSN 2474-7688 10 (3).
- [14] Mukundan C.R., Kacker, P. (2018a) Molding emotion while cognitively processing physical & virtual realities. *EC Neurology*, 10(5): 354-366.
- [15] Mukundan, C.R., Kacker, P. (2018b). Emotional Arousal – the Driving Force of Life. *Journal of Psychology & Clinical Psychiatry*, 9(3): 00505, 1 -12.
- [16] Mukundan, C.R., Arun Sasidharan, & Priyanka Kacker (2017a). Sthita Prajna: A State to Control Cognitive Molding of Emotional Arousal. In (Ed.) Jitendra Mohan, *Emerging Contours of Excellence*, Publication Bureau, Punjab University, Chandigarh, ISBN: 81-85322-64-3, 24-40.

- [17] Mukundan, C.R. (2017) Emotion – The Driving Force, Red Shine Publication, Ahmedabad
- [18] Mukundan, C.R., Hemalata Mukundan (2017c) Diminishing Memory at Growing Age – Methods to Improve, In A.V. Sangamnerkar (Ed.) Mental Fitness, In Press.
- [19] Mukundan, C.R. (2017b). Emotion –The Driving Force, In Bindu Kutty (Ed), Neurocognition, in Cognitive Neuro Science of India book under publication.
- [20] Mukundan, C.R. (2016). Emotion – Experience and Expressions. In (Eds.) Jitendra Mohan, Meena Sehgal, Ideas of Excellence: Multiple Perspectives, Publication Bureau, Panjab University, Chandigarh, 166-194.
- [21] Mukundan, C.R. (2015). Brain at Work: Neuroexperiential Perspectives, Atlantic Publishers, New Delhi.
- [22] Mukundan, C.R. (2007). Brain Experience: Neuroexperiential Perspectives of Brain-Mind. Atlantic Publishers, New Delhi.
- [23] Nyberg, L., McIntosh, A.R., Cabeza, R., Habib, R., Houle, S., Tulving, E. (1996) General and specific brain regions involved in encoding and retrieval of events: what, where, and when. Proc. Natl Acad Sci USA, 93, 11280-11285.
- [24] Roopesh B.N. (2000). The role of central executive in encoding of organizational strategy and in working memory. Unpublished M.Phil Dissertation. National Institute of Mental Health & Neuro Sciences, Deemed University, Bangalore.
- [25] Tulving, E., Kapur, S., Craik, F.I., Moscovitch, M., Houle, S. (1994a). Hemispheric encoding/retrieval asymmetry in episodic memory: Positron emission tomography findings. Proceedings of the National Academy of Sciences, 91: 2016-2020.
- [26] Tulving, E., Markowitsch, H.J., Kapur, S., Habib, R., Houle, S. (1994b). Novelty encoding networks in the human brain: positron emission tomography data. Neuroreport, 20;5(18): 2525-8.
- [27] Tulving, E., Kapur, S., Markowitsch, H.J., Craik, F.I.M., Habib, R., Houle, S. (1994c). Neuroanatomical correlates of retrieval in episodic memory: auditory sentence recognition. Proceedings of the National Academy of Sciences, U.S.A., 91: 2012-2015.