

## Neurocognitive Processes of Defining and Deploying Purpose in Life

C R Mukundan\*

*Axxonet Brain Research Laboratory, Axxonet Systems Technology, Bangalore, India*

**\*Corresponding Author:** C R Mukundan, Axxonet Brain Research Laboratory, Axxonet Systems Technology, Bangalore, India.

**Received:** September 04, 2019; **Published:** October 14, 2019

### Abstract

Science deals with the physical and functional changes that occur over the tempero-spatial dimensions, how the physical changes lead to new functional formations. Human mind considers the changes that occur over time and space as a natural need and interprets it as purposeful changes in the world, naturally instituted or by a super power. The human mind learns the methods of presenting or causing those changes and conceptualizes rational thoughts, which they name “purposes” for all those changes that they create, as well as those reasons for which something is present in a specific form and functional property. Mental capabilities create a notion of “purpose” for all those changes and the notions are summarized into a global or universal notion and learn to attribute them to the decisions and creations of a universal power, resembling their own mind. This, came to be labelled in their mind as the supernatural controlling force of the universe. The mind attributed several of the purposes, which designed the actions and progressed in life as the purpose designated by such supreme global power, which each person considered his or her duty to carry out in life. Purpose helped people by defining the goals of actions and responses one could carry out in life. Attributing purpose as the intention of a higher spiritual power gave individuals a great moral strength for execution of the action or response. Brain functional abilities for recognizing sensory and symbolic inputs, encode meanings from these inputs and employ multiple motor out, using verbal capacities, motor performances could be achieved using the brain and the body. Considering the scope of applications of purpose, human beings learnt to find a purpose for life itself and for the creation of multiple functional systems, which could help them progress in different directions in life. The need to live and carry out responses and actions became representative of the presence of drive within. The drive, in different contexts came to be cognitively labelled by different names and processing details. The drive, represented the life force within the individual.

**Keywords:** *Brain; Neurocognitive Processes in the Brain; Creation of Mind using Neurocognitive Processes; Drive and Labelling the Drive using Neurocognitive Processes as Emotions; Neurocognitive Creation of Life Force Within and Outside the Brain*

### Introduction

Life is a force present in all biological system, for some specific periods. This life, provides the biological system with multiple functional capabilities, with which they all grow and develop a capability to respond and take part in actions with specific goals and anticipations. The life methods need to be learnt by each living system. The versatility and the skills that one acquires for applications in various contexts determine the complexity and the goals one has acquired, planned and achieved. The two major functional systems developed in the human brain are one related to arousal or drive, which provides the energy or fuel needed for life and, controls the functioning of various biological systems in the body whilst the other is the neurocognitive processing ability developed in millions of neurons. This learns to control the process of assigning meaning and values to the signal inputs as well as decide the motor responses towards the inputs and

the creation of motor outputs for creation of external functional systems which may work on the plan of actions designed and assigned to the inputs using the meanings and functional significance created by the same neurocognitive system. Signal detection and their interpretations are the two major neurocognitive processes developed in the brain, especially in the cortical areas of the brain. One of the major functional attributes of the brain, especially the frontal cortex with its cortical and subcortical connectivity with various domains in the brain, is to learn to create a meaningful encoding of a purpose and find purposes that could be assigned to various movements, responses and actions that one may learn to make.

Encoding with rational explanations of sensory-motor events may indeed turn out to be a science of understanding and explaining various events that occur in the universe across space and time. These explanations using symbols and language become mental explanations representing the changes that occur in the physical world. The same methods are used to explain the behavior of individuals and living beings, except the emotional effects which may be important components that explain behavior. Base of emotion is indeed the drive or arousal that the system generates. It and is the source and strength of all movements within and with body. It is, the strength of all neurochemical and neurophysiological performances of the body organs and the body itself. Each of these is neurocognitively identified and labelled and the accompanying effects are identified as emotional effects or as components of emotional experiences. Changes which do not support the positive and progressive functioning of the body become pathological and the diseases are biologically treated. Errors in cognitive judgments and their pathological psycho-behavioral effects also require treatments at psychological and behavioral levels, which are experienced as then expressed multiples of emotional and behavioral effects. These aspects have developed over thousands of years in the brain, allowing the growth and development of the brain, especially the neurocognitive as well as emotional aspects. This, has allowed the growth of knowledge base and multiple methods of their controls. The entire sphere of such activities have been identified as mental activity, which came to be identified as an independent domain of activity. The immense mental capabilities sponsored by millions of brain cells helped in the creation of a mental world, which represented the real-world changes partly or fully imaginary. Mental capabilities facilitated creation of extraordinary significance and meaning to the mental products and the biological systems which represent the functional systems. The sensory-motor capabilities offer high degree of precise functioning, which further mold the biological needs and sensory-motor capabilities, as predetermined endowments for survival.

Encoding capabilities developed by the human brain allow humans to create linguistic and symbolic meaning of various space-time relationships in the universe, appearing as responses and actions. The human mind has learnt to detect changes in the sensory-motor signals, and assign specific meaning to each of those signals. It also assigns meaning on the relationships assigned across the signals through the use of words and symbols. Man has developed equally powerful adjacent listening and talking brain centers, which monitors all the encoding processes that take place within, gives rise to verbal awareness [1-3] of the encoding being carried out, which reflect as self-awareness, as the listening - monitoring centers in the brain recognize the encoded information made by the talking brain within. The talking brain, is experienced as self-awareness, as they have self-created meanings, using known or learnt symbols, words, and thoughts. Even symbolic articulations help one in communication, which can self-monitor within the brain providing meaning to the individual. The input may be auditorily or visually presented or presented through the somatosensory system. The relationships present spatially and temporally are encoded and made into a meaningful idea. The ideas may be scientifically meaningful as the same relationships evolve every time when two or more basic components merge or interact. The recurrence of these relationships take place and could be ascertained with repeated efforts, even when they are carried out without the presence of any experience. On the other hand, sensory - motor effects along with emotional effects may be merely mentally interpreted or experienced.

Attributing meaning to person-environment interaction takes place as one may consider a purpose for the occurrence of the spatial-temporal relationships. One of the factors which may induce the need for such relationships and this is causative for conducting the encoding attempts, and help with explanations of own experiences, is the conviction of a purpose or cause for all the efforts, and the results one may achieve by the response-actions steps taken, as well as used in explanations, may indicate the purposes that is considered. The

purpose is defined as the reason or cause for contributing to the presence of a natural or system generated specific response pattern. The intended or desired effects of the actions or responses that may be accomplished would serve the planned purpose. A purpose has to be considered by a living being or proposed by a human being. An animal may carry out an action for an immediate biological need, whereas human beings carry out actions for accomplishing several immediate as well as distant biological as well as psychological needs. The outcomes of these actions and associated experiences may cause states of joy, accomplishment, satisfaction and thrill when one may finally experience success in the actions carried out, or while destroying another individual, or systems developed by inimical individuals, or living beings.

Learning to define purpose has helped human beings develop a new domain of activities in life or in the universe. This included creation of spiritual dimension, which are beyond physical and hence scientific presence and all their creations, whether scientific, artistic and spiritual became controlling forces of the stream of their life. Human endeavors have historically been present showing efforts for the creation and acceptance of purposes in life at physical and spiritual levels. Faith and belief in their purposes and what they may achieve helped them create and maintain multiple thoughts and emotional effects. Those who thought of life force beyond its present form in the have always conceptualized and believed that a spiritual presence of the force does not need the physical presence of a body. The nature of emotional effects or experiences associated with a mental state or neurocognitive state make the total experience enjoyable or painful by the neurocognitive interpretations used for their expressions and experiences. An extreme and extended method of interpretation is achieved through musical expressions, which takes the emotional experiences to unbelievable and unexplainable levels. The intense experiences could never be verbally explained in a logical or scientific manner by anyone, though attempts have always been made to explain it using words as well as musical expressions, when it could take people to heights of emotional experiences. Attempts at verbal expressions of the presence of related experiences often took one beyond levels, what scientific or logical relationships could explain, which could only be expressed at supernatural levels. Nevertheless, human mind could rise to heights of love, honesty, compassion and personal sacrifices for the benefit and happiness of others, especially those who need support, love and physical and mental helps. Shockingly, man could also use his brain to think and emote in opposite directions too, when they could express themselves as evil forces, demolishing the opposite, which may be good, noble and innocent. Employing both the processing types and working accordingly at different levels, appear to be a common human method seen in many.

### Creation of purposes in life

Purposes in life is not a natural and automatically generated idea with accompanying sensory-motor processes. Purpose needs a definition or account of what one wants to achieve in life by executing certain tasks through a system or independently, in life. The intellectual and experiential satisfactions of what one has been attempting and achieving in life render what causes people want to work for, and this work related to such achievements get considered as purpose of life. There is indeed no other absolute purpose in life naturally designed for acceptance in that capacity in life. Man learns to conceptualize such needs as purposes in life, for which a meaning explaining the purpose could be defined with physical and mental states of involvements, which may initiate action patterns for fulfilling the purpose. This may gradually become physical and mental needs, which may be essential or merely supportive to an ongoing process with physical or mental activities of either an individual or any biological life form, including animals and plants. Man may find the need of structuring physical entities, which will take care of their life on the earth or elsewhere in the space. Human beings in their early years, were trained in learning to develop the personal abilities to think, plan and create new working models and work on the mental and physical capabilities for achieving the objects, functional proposals that have been developed. They learn to plan the actions or make responses, which train their brain to develop various functional abilities.

The different areas of the brain, extensively interconnected help each area and the interconnected system could make use of the various functional capabilities of the brain. Most extensive interconnections are between frontal lobes and remaining cortical and sub-cortical areas, which help frontal control of emotions, initiation as well as cognitive processing and initiation of respective reactions with the ex-

ternal world [2,3,4-14]. The three major subdivisions of the frontal cortex, on its left and right sides, are identified as parts of the limbic, precentral and prefrontal cortices, which control all emotional and cognitive processing of behavior. Of these the prefrontal cortex is further subdivided into Orbitolateral prefrontal cortex, Dorsolateral Prefrontal Cortex and Anterior Cingulate Prefrontal Cortex, of which the prefrontal cortex connects extensively with other areas of the cerebrum and subcortical areas of basal ganglia, thalamus and cerebellum, which are engaged in extensive emotional engagements as per the neurocognitive controls applied from cortical areas.

### Drive-the life force needed for movements, responses and actions

Brain makes sensory and motor contacts with the external world as well as with its own body parts helping receive its own sensory-motor information. The two motor systems available are the systems devoted for direct motor controls and another for the oculomotor controls originating from the frontal eye fields. The interconnection between the two hemispheres is another important path for signal transfers, which are controlled by the Anterior Cingulate Cortex (ACC) formed by the medial aspects of the brain, which lies above the corpus callosum in the medial part of the cerebral cortex and which interconnects the two brain hemispheres. The direct connectivity of the cingulate cortex with the thalamus, the neocortex and the entorhinal cortex in the medial temporal lobes, help engage the control of all remembrances of autobiographic episodes originating from emotional and cognitive information of the system [15]. The Anterior Cingulate Cortex and the Orbitofrontal Cortex are known to play central role in addictive habits, including drug abuse [16-19]. Emotional arousal functions as the drive needed for initiation and maintenance of various actions and responses, which may also be cognitively processed and controlled (control of sensory-motor contacts with physical realities). Drive initiates actions and responses within the frontal-limbic system, when it reaches a Critical Activation Potential (CAP) [20], it initiates the motor potentials required for the generation of actions and responses. The origin of the activity is in the anterior Cingulate Cortex (Brodmann's area 24), which projects into the ventral striatum connecting the Nucleus Accumbens and the Ventromedial aspects of the Caudate and Putamen [11,15,21-29]. Responses of flight and fight therefore, occur even automatically, without their sensory perception of the source, as explained in pre-attentive emotions [30-32]. The ventral parts receive inputs from the Hippocampus, Amygdala and Entorhinal Cortex. The complex circuit is an integral part of the limbic system which initiates and controls the drive, without which no response or action would be initiated. The direct link between the Thalamus and the Anterior Cingulate and form a major part of the limbic system [11]. The drive provided by this system is the life force, which is essential for initiation and execution of actions and responses [20,33-43]. The accompanying cognitive processing, related to anticipated and the established sensory-motor contacts, would decide the nature of the emotional effects and experiences in the individual.

### Defining purpose

Purpose is a concept or idea requiring set of carefully encoded words, which could point out and explain a carefully planned outcome of a set of intended action and their benefits for the one who is engaged in its planning and execution. One may acquire skills and knowledge for defining a purpose, by a set of actions. The outcome defined in a purpose may be almost immediate or distant. The most unique, exciting and unparalleled conceptualization is that of a spiritual world and the presence of spiritual force, where the life force of a dead person is proposed to reach, depending on the noble and rightful behavior with love and affection to others was employed during life time. On the other hand, outside the spiritual considerations, when purpose is used for explaining and justifying the actions with their immediate or distant effects, which one may consider an important need for a progressive and successful event of life. Working on purposes in life become extremely important contributions, which may change the scope, living patterns and comforts of life of individuals. Conceptualization of a supreme spiritual power as responsible for the utilization of personal powers and capabilities are the strong reasons serving the purposes of the life style developed and practiced by many individuals. In the most strong and mighty manner. The interaction between the talking brain and the listening centers within each brain, contribute to self-awareness, and it has always been a unique source for the encoding of experiences, and related emotions and make use of them further verifications.

A practical use of devising a purpose for the creation of a functional system and for monitoring its performance is a necessity for personal and social achievements by individuals and their social organizations. Purpose remains a frontal lobe strategy with executive

plans and the applications of the methods used and their obtained results could be monitored and evaluated. Individuals learn to accept purposes, especially related to the domain of own life and life after death, with diverse seriousness, though obviously without any physical contacts or online knowledge of such contacts. They accept considering such purposes and employ them as their spiritual responsibility, as decided by their spiritual force. Many tend to believe in such possibilities of a continuous life even after death. The belief and the faith developed by one make him or her carry out actions and responses while the person is alive, with specific aims and objectives of achievement after death. People relate their distresses and failures either as the effects of inadequate attempts made by one, or possible punishments assigned or received because of the failure in the attempts made by them when alive. Many anticipate these effects may occur after their death, as the reward or punishment for what they committed during their living state in the current life. The most striking example of such happenings is the precautions taken in life style, as well as spiritual efforts made, all of which could shape their life style. A purpose could mean to project a specific meaning, expectation, or activation, which may be part of the neurocognitive processes and the emotional effects-experiences in the brain. All these practices are carried out in the human mind using its neurocognitive processing abilities and the belief systems, though there is no evidence of any physical reality contributing to their presence. There are millions of people who believe in these self-generated purpose systems, which shape their life styles and habits they practice.

### Conclusion

No physically or biologically relevant purpose could be determined for the presence of this universe by man. The physical and biological relationships do not support or follow the presence of any specific purpose in the world. The only purpose that the human mind could create on its own, has always been by its own conceptualizations of a spiritual presence in the world. All human relationships depend on cognitive processes contributing to the presence and shaping of own emotions using love, affection and devotion and their opposite effects. Ability to anticipate may be the base capability to propose a purpose for carrying out an action or response. However, a purpose could become a well-defined action plan for execution. One could plan for a future, when he may never be alive and the purpose for which a system was created may survive the lives of many and the Man has no scope or justification to think and search for answers to questions regarding purpose of the world and his own life, which he could build for attaining the goals of choice, except just to live with the capabilities that he has developed. Human beings have thought and considered two domains of purposes, one which needs to be achieved by their own directed goal and intentional actions, whereas many believe there is another purpose for their existence, decided by an independent spiritual force. However, purpose is a powerful neurocognitive processing effect, which could control and shape all the goal directed actions with specific outcome effects. On another level, it is expected to give man an opportunity to create a knowledge base of his own existence and for the purpose of his or her own creations, useful for the self and for the whole humanity and even for other life forms. Consideration of creation, development and maintenance of a system for the purpose of achieving specific goals is the outcome of the neurocognitive processes within the brain. On the other hand, a spiritual purpose is beyond such levels of neurocognitive understanding, as it needs to be planned and sustained with the help of another force, which some human beings only may believe in and consider a higher spiritual power. The self-suggested mental effects work wonders in many, who could mentally accept those effects and make themselves believe in the presence of the immense mental or spiritual powers as real strength. Several millions of human beings were born in turn, always with genetically inherited biological and psychological characteristics. They all lived for a destined period and then each died after a specific period, and the same cycle keeps continuing. During this period each creates a mental world from the physical environment, with each having a personal meaning and significance, as per the learning, imaginative and creative capabilities one would have acquired since birth. Each mental world becomes like the creations on a Rorschach test. Each individual could create as well as recreate the mental world and change the significance of the worldly components and the lifestyles that may accompany, as per their own needs and successful decisions. All these help in the formation or changes in the configuration of the physical world as well as the lasting effect on lifeform, which is most precious outcome of the effects and changes created in the world. Once the driving force of life comes to an end, which is named death of the individual, the miracle of living and creating are over. Faith in the spiritual world and acceptance of its continuance may help the living person believe that he or she may continue with his or her life, in the spiritual world, or with other living beings, even after death, with belief that one will have chance to continue living with the purposeful activities one has already started. However, scientific evidences do indeed show that life may continue across newborn infants, and they will be endowed with genetically transmitted qualities from previous spans of birth.

### Bibliography

1. Mukundan CR. "Power of Words: Neuro-cognitive Approach for Understanding Brain Mechanisms of Awareness". In: Sangeetha Menon, M.G. Narasimhan, A. Sinha and B.V. Sreekantan (Edition), Scientific and Philosophical Studies on Consciousness. National Institute of Advanced Studies, Bangalore, India (1999): 127-136.
2. Mukundan CR. "Brain Experience: Neuroexperiential Perspectives of Brain-Mind". Atlantic Publishers, New Delhi (2007).

3. Mukundan CR. "Brain at Work: Neuroexperiential Perspectives, Atlantic Publishers, New Delhi (2007).
4. Luria AR. *The Working Brain*. Basic Books (1973).
5. Luria AR. "The functional organization of the brain". *Scientific American* 222.3 (1970): 66-78.
6. Luria AR. "Frontal lobe syndromes". In P.J. Vinken and G.W. Bruyn (Edition), *Handbook of Clinical Neurology*, II. New York: Elsevier (1969).
7. Alexander MP and Schmitt MA. "The aphasia syndrome of stroke in the left anterior cerebral artery territory". *Archives of Neurology* 37.2 (1980): 97-100.
8. Alexander GE., *et al.* "Parallel organization of functionally segregated circuits linking basal ganglia and cortex". *Annual Review of Neurosciences* 9 (1986): 351-382.
9. Alexander GE., *et al.* "Basal ganglia-thalamocortical circuits: parallel substrates for motor, oculomotor, 'prefrontal' and 'limbic' functions". *Progress in Brain Research* 85 (1990): 119-146.
10. Cummings JL. "Frontal-Subcortical circuits and human behavior". *Archives of Neurology* 50.8 (1993): 873-880.
11. Cummings JL. "Anatomic and behavioral aspects of frontal-subcortical circuits". *Annals of New York Academy of Sciences* 769 (1995): 1-13.
12. Groenewegen HI., *et al.* "The anatomical relationship of the prefrontal cortex with the striatopallidal system, the thalamus, and the amygdala: evidence of a parallel organization". *Progress in Brain Research* 85 (1990): 95-116.
13. Nolte John. "The Human Brain: An Introduction to Its Functional Anatomy". 5<sup>th</sup> Edition St. Louis: Mosby (2002): 410-447.
14. Mukundan CR. *Emotion-The Driving Force*, Red Shine Publication, Ahmedabad (2017)
15. Hayden BY and Platt ML. "Neurons in Anterior Cingulate Cortex Multiplex Information about Reward and Action". *Journal of Neuroscience* 30.9 (2010): 3339-3346.
16. Kalivas PW and Volkow ND. "The neural basis of addiction: a pathology of motivation and choice". *American Journal of Psychiatry* 162.8 (2005): 1403-1413.
17. Goldstein RZ., *et al.* "Role of the anterior cingulate and medial orbitofrontal cortex in processing drug cues in cocaine addiction". *Neuroscience* 144.4 (2007): 1153-1159.
18. Garavan H and Hester R. "The role of cognitive control in cocaine dependence". *Neuropsychology Review* 17.3 (2007): 337-345.
19. Schoenbaum G and Shaham Y. "The role of orbitofrontal cortex in drug addiction: a review of preclinical studies". *Biological Psychiatry* 63.3 (2008): 256-262.
20. Mukundan CR., *et al.* "Violent Behavior: Absence of Social Conditioning of Drives during Neurodevelopmental Stages". *International Journal of Indian Psychology* 2.1 (2014): 1-33.
21. Morris JS., *et al.* "Conscious and unconscious emotional learning in the human amygdala". *Nature* 393.6684 (1998): 467-470.
22. Whalen PJ., *et al.* "Masked presentations of emotional facial expressions modulate amygdala activity without explicit knowledge". *Journal of Neuroscience* 18.1 (1998): 411-418.

23. Ohman A and Soares JJ. "Emotional conditioning to masked stimuli: expectancies for aversive outcomes following nonrecognized fear-relevant stimuli". *Journal of Experimental Psychology* 127.1 (1998): 69-82.
24. Windmann S and Kruger T. "Subconscious detection of threat as reflected by an enhanced response bias". *Conscious Cognition* 7.4 (1998): 603-633.
25. Gehring WJ and Knight RT. "Prefrontal-cingulate interactions in action monitoring". *Nature Neuroscience* 3.5 (2000): 516-520.
26. Allman JM., et al. "The Anterior Cingulate Cortex. The evolution of an interface between emotion and cognition". *Annals of the New York Academy of Sciences* 935 (2001): 107-117.
27. Decety J and Jackson PL. "The functional architecture of human empathy". *Behavioral Cognitive Neuroscience Reviews* 3.2 (2004): 71-100.
28. Luu P and Pederson SM. "The anterior cingulate cortex: Regulating actions in context". In Posner MI. *Cognitive neuroscience of attention*. New York: Guilford Press. (2004).
29. Jackson PL., et al. "Empathy examined through the neural mechanisms involved in imagining how I feel versus how you feel pain: An event-related fMRI study". *Neuropsychologia* 44.5 (2006): 752-761.
30. LeDoux J. "Emotional networks and motor control: A fearful view". *Progress in Brain Research* 107 (1996): 437-446.
31. LeDoux J. "Fear and the brain: Where have we been, and where are we going?". *Biological Psychiatry* 44.12 (1998): 1229-1238.
32. LeDoux J. "The emotional brain, fear, and the amygdala". *Cellular and Molecular Neurobiology* 23.4-5 (2003): 727-38.
33. Mukundan CR., et al. "Frontal Cortex and Recognition: Neurocognitive Findings of Hypnosis". *Indian Journal of Health and Welfare* 4.4 (2013): 703-710.
34. Mukundan CR., et al. "Mind in the Brain - Creation of the Greatest Virtual World". *Journal of Psychology and Clinical Psychiatry* 10.2 (2019): 83-90.
35. Mukundan CR. "Generation of Positive - Negative Emotional Experiences and Expressions through Cognitive Molding of Drive". *Journal of Psychology and Clinical Psychiatry* 10.1 (2019): 60-64.
36. Mukundan CR. "Social Conditioning of Emotional Arousal for Facilitating Execution of Socially Accepted Responses and Actions". *Journal of Medical Practice and Review* 2.10 (2018a): 284-295.
37. Mukundan CR. "Social Conditioning of Emotional Arousal-Psychosocial Need to Prevent Forensic Behavior". *Journal Forensic and Genetic Sciences* 2.2 (2018b).
38. Mukundan CR. "Assigning Meaning to Emotional Arousal". *International Journal of Indian Psychology* 3.4 (2016a): 11-33.
39. Mukundan CR. "Emotional Experience and Expressions". *International Journal of Indian Psychology* 3.3 (2016b): 1-28.
40. Mukundan CR and Kacker P. "Arousal and Drive: Cognitively Molded Emotional Arousal". *EC Neurology* 11.1 (2018a): 12-20.
41. Mukundan CR and Kacker P. "Molding emotion while cognitively processing physical and virtual realities". *EC Neurology* 10.5 (2018b): 354-366.

42. Mukundan CR and Kacker P. "Emotional Arousal-the Driving Force of Life". *Journal of Psychology and Clinical Psychiatry* 9.1 (2018c): 1 -12.
43. Goldar JC., *et al.* "A neurobiological model of mind". *Acta Psiquiatrica Psicologica Americana Latina* 39.1 (1993): 33-44.

**Volume 8 Issue 11 November 2019**

**©All rights reserved by C R Mukundan.**