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Generation of positive - negative emotional experiences and expressions through cognitive molding of drive

Abstract

Drive may be identified as a psychobiological force generated within a living system, which is utilized as the fuel for driving the system in responses and actions. Cognitive processing functions of the cortical areas of the brain help mold the drive and it is experienced and expressed by the being as emotional experiences and expressions. These experiences and expressions may be molded positively or negatively based on the judgmental values of the cognitive processing. Positively molded drive initiates and executes all responses and actions in socially accepted manner and for executing actions for achieving various goals in life. When drive is utilized with negative cognitive judgments, it may be employed in negative manner and effects, with the actions and responses producing negative harmful and destructive effects to the self and others. The emotional experience itself may be mainly accompanied by similar emotional states viz., anger, fear, pain, anxiety, etc. These states of mind and expressions accompanying the drive are considered emotional experiences or expressions. Positive emotional effects, on the other hand, may be accompanied by love, affection, and respect etc. A third important emotional state is the empathy, when one learns to share the emotions experienced and expressed by others, which may be present in their behaviour and interactions. With people having diverse types of purposes and goals in life, when they may consider facilitating or debilitating the life patterns of other individuals as their noble and cherished aims of living, one may find it difficult to empathize with everyone seen or known.

Keywords: Drive propelling living systems, cognitive processing of inputs and outputs, molding of drive by cognitive judgments, emotional outcome of molded drive, cortical participation in molding the drive, subcortical origin of drive and arousal

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Introduction

We have already initiated the idea that emotion is a cognitively molded state of drive, within the individual. A fundamental drive is the sexual drive, which becomes apparent through adulthood. Drive is also psychobiological arousal state needed for responses and actions, needed for survival and goals-oriented growth and development. Drive serves as the fuel needed for all responses and actions including physiological and psychological needs of an individual or living being. Cognitive processing indeed has attained highest level of complex processing capability in the human brain directing and executing all goal directed activities. The structural and functional developments at the cortical levels attained high levels of capabilities that the brain could create internal encoding capability, which could be expressed as voice and symbolic expressions for self and outside communications. Self-communication resulted in what we call self-awareness, which helped the individual access to own encoded information and ability to monitor physical and psychophysiological and physiological changes to certain extent, that one can not only monitor them, but also practice to induce changes. Increase in drive could be self-induced or subjected to be induced by estimation of external factors. Once the drive builds up with a specific cognitive processing need, one may automatically start responding or acting, once the drive reaches a Critical Level of Potentiality (CLP).[1] During this phase, the sensory-motor systems react to the input signals and motor contacts with the inputs are automatically made.

Two major methods of analyses that developed in the brain are the sequential and simultaneous processing of signals. Through sequential processing the relationship between two time-space adjacent signals could be derived, whereas participation of several signals and their processing methods for forming a unified and total output contributed to simultaneous processing outcome. Several studies have revealed that sequential processing is preferred by the left hemisphere areas, whereas simultaneous processing is carried out by the right hemisphere areas. Individual preferences acquired through practice helps to select the degree, level and domains of sequential and simultaneous processing. Processing would be reflected in the contents, or they would determine the style, flow and contents of the thoughts created and expressed by each individual. Cerebral cortical areas are focused in the functional capabilities, that each area contribute to an understanding of a specific meaning or relevance, and many of these areas may function independently. The prefrontal areas serve the executive functions, and the posterior cortical areas function to provide sensory registration and perception of the sensory-visual inputs, whereas the lateral areas engage in auditory listening, integration, comprehension and thought generation, Frontal cortical areas play important and sensitive roles in determining the predictive values of the effects of the actions executed with specific immediate and distant goals. Several of these valuable knowledges form the neuropsychological or neurocognitive foundations elicited using variety of clinical and neuroimaging studies.[1,2]

Drive is a concept and theory initially proposed by Hul.[3] Drive has been often described as an arousal theory. Drive always referred to the presence of energy needed for performance and behavioral outputs. Drive is the energy needed for all living beings to perform and move around. Drive was often compared with arousal, and the discovery of arousal and wakefulness being related with the Ascending Reticular Activating System by Moruzzi and Magoun[4] was a phenomenal

event in neuropsychology and neurophysiology. Actions have been always related to emotional arousal, which is often referred as the central theme of the emotive functions of the hypothalamus,[5–13] and other adjacent areas in conjunction with ARAS and subcortical limbic structures. Emotional arousal was not differentiated from mere arousal, as mere arousal has not been associated with actions or response. Emotional arousal or drive with emotional effects is always needed for the initiation of response and actions. Remaining aroused without engaging in any overt activities happen when one is internally active of thinking and merely recreating experiences associated emotional states. Internal active conditions which are commonly practiced have been that of meditating, preying, being devotional, reading and thinking unless one is unwell needing rest. The best example of the presence of drive is the utilization of fuel in a moving system, without which a vehicle or system cannot make any movement or work. Fuel is accessed as and when one needs and we run the vehicle at speeds of choice or need. The life energy is unique, which cannot be truly compared with any physical energy that is used for enabling movements, though the living systems or physical system cannot make any movement, or execute actions or responses without the application of the respective energy available in the system. Drive is thus life energy, as it is used by a living system, and without using the energy for actions and responses, living has no meaning or purpose. Its absence shows that the system has no more life to move around, respond to input signals or carry out actions. Absence of drive would mean death of the individual, when the body too ceases to function. The level of drive needed for specific applications depends on the complexity of the task to be carried out, which may involve the meaning and significance of the processing of the task, which is cognitively processed by the brain and executed by the brain and body parts. It is now well established that drive could be made use of by a living system, even without cognitive processing. Thus, flight and fight responses may take place even without perception of a threatening stimulus. Such responses take place without perception and awareness of a stimulus. Fight and flight are diverse expressions and experiences and hence considered the beginning of emotional responses, as the drive is molded into states which initiate differing responses which are labelled as preattentive emotional responses,[14–16] which have important outcome effects. The two are extreme responses which initiate opposite type of reactions that the brain has detected as being triggered by opposite effects, which one compares with opposite types of responses, though the brain may not be aware of the diverse nature of the inputs, which initiated the different responses. Presence of such responses or those responses initiated by cognitive judgments constitute the major life pattern of the living system, except in the case of human beings, who have been creating systems with totally new functional capabilities and purposes, which are not present in other living beings. Drive is needed even for minimum activities which help initiate and maintain any level of such activity, whether they are essentially physically and/or mentally controlled. Human beings could create new physical entities, which they could only mentally imagine at an earlier stage. They work on the virtual world, and create the new functional models at the virtual level, before they are physically embodied. The enormous scientific progress made by human beings could easily be verified by comparing their achievements over every a few hundred years or that sort of periods. We cannot currently imagine what the shape of the world that we will build in another few hundred years.

Origin and maintenance of the flow of drive is psychophysiological.. Physical capabilities are indeed needed for the execution of physical actions, whereas a mental – psychological flow of energy is needed for the initiation and maintenance of the complex actions, despite the fact that the outcome effects or results may be accessible to the individual immediately or distantly in life. Maintenance of flow of energy for achieving distant effects is indeed a unique functional or psychological capability, which one may acquire through practice and control. Drive is experienced by each individual as a need to act or work, which may require physical and mental engagements at different levels of difficulty. Hence one may start with simple levels, learn the art of physical and mental performances through practice. Practicing for adequate durations facilitate learning the art of performing and the skills that control the quality of performance.

Drive develops from childhood, and the need to perform, explore and experiment help develop the drive and strengthen it over such practices. Helping a child learn to perform and explore new ways of performing are therefore important necessities during the developmental period, which further strengthen adventurous efforts from the child, whether a girl or a boy. The unique relationship between the intensity of drive and optimum performance of tasks with varying complexities has been proposed in "inverted U relationship" between drive and complexity of performance by Hull[3] in his early (1943) theoretical model of drive and levels of performance. Drive gets initiated automatically when there is physical and psychological need. However, the drive may have to be lit up and drawn when the outcome effects are distant, for which one may have to work hard for long durations in life. The executive controls exercised from the frontal cortex control the initiation, execution with optimum performance and results, provided the drive is present and it initiates and maintains the related responses and actions. The level of drive one may maintain is the outcome of the early training, training during childhood and growing stages. The intensity of the drive and the capability developed for utilizing the drive are not generally related to cognitive potentials or intellectual capabilities of the individual. An average intelligence person may develop high drive, and utilize the drive and work hard and achieve his ambitions. On the other hand, a person with low drive may achieve poorly despite high level of intellectual capabilities, as the person's work is of low quality because of the presence of poor drive and work efforts. This is a commonly seen social profile.

Drive is experienced by one as a wanting or need to act or perform. However, the drive could easily be molded by the cognitive judgments one may make, when the drive may mold in positive or negative manner. Fear, flight, aggression, anger, depression, love are the molded effects of intense cognitive judgments, which could mold drive. The individual experiences the molded drive as emotion, which one experiences as well as expresses in one's actions and responses, which is expressed as emotional effects. Empathy is indeed the most common molded emotional effect in a person when one's own drive shapes in the same emotional expressions detected in another person. Once the drive is emotionally molded, the actions and responses initiated by the drive also receive the same format. Emotional experiences and expressions are shaped during the early cognitive developmental state, and may takes unique features as the individual grows with greater intensity of drive and cognitive abilities. Cognitive processing is the unique creative method engaged by the various areas of the cerebral cortex. A cognitively molded drive may become either immensely enriched positive or negative experience, which also molds the actions and responses into positive or negatively directed ones. The molded drive contributes to positive or negative

emotions as per the cognitive appraisals and justifications which the individual experiences as well as expresses as behavior. The emotions determine planning of actions, as well as their executions, so that the desired positive or negative effects will be realized by those. Positive emotions are experienced as dear to one and one may often experience it as love or its equivalents. Positive and negative emotional forces have always been conceptualized through experience and expressions, at all levels of strength, from the time one has been aware of the presence of emotion. Man thought of such positive and negative forces at all levels, including the divine and spiritual levels, which they believed to be the supreme force of life. One may experience and express the same at different levels of the responses carried out, and the actions initiated and executed. Cognitive strategies evolved and cognitive effects achieved determine or support the positive or negative values of the decisions, responses, and actions, which may affect the emotional arousal or drive positively or negatively, though individuals may accept them as absolute, based on the individual interests and effects.

Generation of drive takes place from birth. It gets strengthened by the habits a child learns and is supported by the parents and others in the family. The activities take place as per the cognitive judgments made, so that they support those specific activities which may have creative and intellectual values to the growing child. Human drive may not be different from animal drive, except the cognitive regulations are of much higher grade and complexity in human beings. Basal ganglia, amygdala, hippocampus, basal ganglia, thalamus, hypothalamus, amygdala, and hippocampus[14–18] are the organs in the brain directly working on the genesis of the drive. These subcortical areas serving the drive are the ones that enjoy its presence, as they are cognitively supported and molded to generate emotional effects by the judgments in the cortical areas. Neurobiological findings have shown that there are two subsystems originating in the ascending reticular activating system, and that each system is populated by discrete cells and neurotransmitters[19] engaged in diverse functional roles. Current findings show that these are the two subsystems originating in the ascending reticular activating system and each subsystem is populated by discrete cells and neurotransmitters with different functional capabilities. The first system functions as the relay system providing the thalamocortical connections of sensory information.[20] The second system projects into lateral hypothalamus, basal forebrain, and the cerebral cortex,[21,22] and the pathways representing cholinergic, noradrenergic, dopaminergic, and histaminergic neurons engage in facilitating cortical arousal.[19–27] Sleep-wakefulness states are controlled by the activity in the ascending reticular pathways centered in the hypothalamus, which interacts with the ventrolateral preoptic (VLPO) nucleus. The 5 major neurotransmitter pathways present in the brainstem-cortical circuit control sleep-wakefulness states and play crucial roles in the maintenance and intake of sensory signals and their further processing in the brain. They form the acetylcholine, dopamine, norepinephrine, serotonin, glutamate and endorphins, hypothalamus histamine projection systems, which are directly and indirectly involved in the sleep-wakefulness states of the brain.[28-30] The basal forebrain anterior to the hypothalamus plays important role in arousing the cortex and the maintenance of wakefulness.[31–34] Wakefulness described in this context is not a uniform state of arousal. There are multiple states of being quite aroused, being prepared, and then finally releasing itself (oneself) into activity. In this context, even states of meditation and hypnotic trance are considered as altered states of wakefulness. Being aroused and being released into action are considered different functional roles. Norepinephrine and serotonin activations are considered associated with the "go" state of arousal[35,36] required for the initiation of actions in the wakeful states. Wakefulness indicates a state of being able to monitor and control own functional processes along with the detection or recognition of the physical realities coming across. What one may acquire utilizing own drive and making efforts at processing would be to learn skills to create new concepts and designs as personal efforts, rather than mere knowledge, which could have been already acquired by someone else. The drive - arousal system is therefore a complex biological machinery dealing with neuropsychological functions by interacting with the physical and virtual realities,[37–43] through neurocognitive processing and the drive, which serves the life force of the system.

The unique effects of the interaction of drive and cognitive processing are the source of generation of the emotional effects, which the system could experience, as well as express. Experiencing is the process of self-monitoring the changes generated by the sensory-motor effects or responses. The values that get assigned to the experience, become unique personal emotional experience, that one may exclusively cherish possessing it as one's own personal experience, which one does not have to share with anyone else. The emotional relationship one succeeds in establishing with another through sensory-motor contacts becomes unique and most valuable personal possession. The drive that one may acquire from such possession may become more valuable than own life. One may sacrifice any valuable possession including own life for the sake of the happiness and security of another person or system one has created. A human being may consider possession of such emotional relationship more precious than any other possession in life. Creation of precious emotional effects within is the most valuable achievement of life. This would indeed require molding own drive with cognitive processing and judgments, which may also initiate series of actions for achieving precious goals in life. Creating valuable emotional effects in life is always the outcome of very precious efforts in life. Pursuits of emotion may also take wrong directions, when one may suffer and become a loser. Cognitive challenges and needs to find practical solutions may elicit and induce high drive, which could make one work hard with the result of making high levels of achievements.

Maintaining the drive with positive emotional molding may be achieved through highly controlled mental efforts like meditation, praying, etc. Meditational or devotional efforts aspiring on higher divine force may help one achieve and maintain blissful type of emotional effects. Units of work carried out by an individual may depend on the cognitive challenges faced by the person, and the emotional needs of achieving specific results. One would accept the cognitive challenges and the processing needs to find solutions and release the drive needed for achieving the combined results. However, if the individual does not accept any cognitive solutions, as he believes all answers are known to him, he would not consider any need to act out or discover anything new, reducing or nullifying looking for solutions for any challenging tasks. It is true that meditation and praying etc., may be immensely useful to a person who is on heavy crusade with challenges, which one wants to successfully master and achieve goals for new paradigms in life. Meditation and praying could maintain low levels of cognitively challenging moments, when drive could remain at very peaceful and comfortable state. The opposite effects occur when one feels pre-attentively or cognitively threatened or suppressed by forces outside or within, when the drive may become intense and threatening. One may want to respond to remove

the causes for tension, which may also induce emotional effects of aggression, fear, pain, or withdrawal, depression and other associated emotional experiences and expressions.

Ability to experience and express emotions is a unique asset of life for man. Once this ability is lost, man and his brain are not different from an automated machine, like a computer. Every moment of life is worth living for the emotional experiences one could have, though they may become too intense and damaging to the self, if one cannot control the genesis of intense and wrong emotions. Ability to become emotional in the right perspective is the strength of life, which makes life worth living. There could be cognitive decline in some during late years of life, but one could remain emotionally active till the end of life. However, this may require well maintained emotions, as only emotions of love and affection are positive experiences and expressions. However, this may be difficult when one starts reacting to some of the unpleasant emotional expressions and behavior of others. As human beings have frequently fought one another, inflicting pain and causing destruction to others and their possessions, and as many of them believe in their rights to fight with others, aggressive and painful emotional experiences and expressions are always seen among many individuals. There may be only limited number of people who follow the "love" of Jesus Christ, love as described in Islam and those who follow the practice of "Sthita Prajna", while interacting with others.[37–43] A growing child learns the art of cognitive molding of drive into acceptable and pleasant emotional experiences and expressions through adequate social conditioning. Such practice will also help the child learn to derive acceptable cognitive judgments for the control of behavioral expressions of self and that of others. Absence of adequate social conditioning and controls on cognitive judgments may give liberal opportunities to a child to make convenient cognitive interpretations to the happenings around and the behaviour of other individuals, which facilitate emotional molding of one's own drive.[41,42] Love is an emotional molding of the drive that occurs in a natural way in human beings from infancy. Drive with emotional effects of love controls one's behavior and provides with experiences, enabling one feel only the state of happiness. This may initiate actions and responses enabling one share own emotional, cognitive and material strengths with others to help and induce happiness in self and other persons. The strength of being human being is in learning to cognitively process all input and output signals, to assemble new physical realities by creating new inventions and facilities, and to experience and express immense love for others, which could help overcome limitations and difficulties in the style of living. Using cognitive processing capabilities, the drive and the emotional molding skills with which human beings have created multiple systems like family, community, religion, systems of people for creation of new facilities, organizations and utilities for working and living. Additionally, they have created and developed disciplines of sciences and artistic capabilities, which have helped them to change the comforts of life, and to enhance the conveniences and beauty of life.

Experiencing emotions, especially that of love, affection and those emerging from them, may be considered an immense strength of an individual. Continuous presence of this ability may be a strong indication of the strength of the drive, as well as ability to utilize the strength, even when a person is aged. Losing the ability to become emotional in this sense may be considered a sign of decline of psychobiological properties within. Emotional strength may remain intact even if a person has physical disabilities, indicating the presence of the drive within. Presence of emotional Intensity may therefore be considered the strength of inner drive. Cognitive judgments which bring in emotional experiences of happiness and love always strengthen the drive, and it enables one to work harder for achieving higher goals in life, with greater emotional reinforcements. On the other hand, cognitive judgments causing disappointments and distress, with aggressive or withdrawal behavior, would emerge as the outcome, precipitated by the negative effects on the drive, and it could cause negative experiences, debilitating life. Despite the normal occurrence of debilitating behavioral effects in life, some may still learn to maintain the emotional effects in a positive manner so that the drive would induce only positive effects or actions. This is an immensely enriching and noble living pattern, which may occur only if one could make use of such noble emotional values of life that may still occur during negative cognitive judgments, in people who could have such esteemed controls on their own drive and cognitive judgments, which we consider spiritually sublime. One could attain such self-controls only through intense self-training of the cognitive processes within, and their effects on drive generation. This is indeed an extraordinary personal capability, and there may be very few individuals who may be able to practice or lead their life in such manner, as very rarely individuals successfully practice and acquire such self-controls on modulation of drive. Cognitive processing methods have been always used for detection and creation of signal relationships explaining functional systems that exist, as well as for the creation of new technologies. Human beings have also misused such knowledge base and technologies for personal and group benefits by harming or destroying other individuals and their possession, which they dislike or consider as enemies. Hence, strict monitoring of technology based human contacts for security controls have become a basic requirement for the safety and protection of mankind.

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Conflicts of interest

Authors declare that there is no conflict of interest.

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