

Soul-Mind-Body Interaction Model of Human Performance: Jain Perspective–II

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Abstract

Basic principle of life in Jainism is that soul and body are different entities. These two are connected through subtle bodies, *karman* body and *taijas* (electric) body. Mind is another important unit that is interfaced between soul and body. This article briefly describes the concepts of soul, karma, *lesya*, and mind, and presents a model showing interconnections and interactions between soul, mind and body. Distinction is made between mind and brain and their role in storage of memory is discussed. Concepts of conscious and unconscious mind are presented in western and Jain perspectives. Human psychology, states of mind and functions of mind are discussed in Jain perspective. The dreaming mechanism is also examined.

Key words: Soul, mind, karma, human psychology, dreams.

Introduction

A living organism is not merely an integration of limbs and flesh, as assumed by science, but it is the abode of the soul. An organism is a living system consisting of four main sub-systems: the soul, the gross body, the subtle body and mind. All of these components have their particular properties, but they are interrelated in their functioning. In isolation, no one component can completely describe the organism. The performance of the living system can be understood only through a holistic approach studying each component in relation to the other components. The reductionist approach of modern science, which studies the gross body alone, cannot provide information about all aspects of this system. Jainism follows an integrated approach and describes the organism as a system that yields complete knowledge of its working and performance. However, modern science has discovered many details of the gross body which are not available in the Jain scriptures; it is therefore desirable to study the information available in the Jain texts and scientific literature and integrate them to enhance our understanding of the behavior of the organism.

In the first article in a series of two articles on human performance we discussed biological aspect of connection between the soul and body and showed that the connection between biological karma and body cells is possibly made through biophotons¹. In this second article we examine the psychical aspect of connection between soul and body. Here mind is interfaced between soul and body and it is an instrument of soul that has dominant role in our

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performance. Jain texts describe the functions of these various units but do not say much on their relationship. There is need to explore this area, particularly in the context of modern science.

Soul and mind have different meaning in Jainism. Soul is a substance having eternal existence, mind is an instrument of mundane soul that along with senses enables the non-corporeal soul to establish contact with the external world. Mind helps the soul in thinking, imagining, planning, analysing, as also in expressing desires, emotions, feelings and experiencing. Mind works with the powers of the soul and has dominant role in our personality. *Lesya* is another component of the system that has profound effect on our performance. In this article we briefly review concepts of soul, *karman* body, *lesya* and mind and construct an interacting model for explaining performance of the human system. It is proposed that mind and brain work as a coupled system in which mind has memories and other psychological traits and brain is the processing centre. We also propose concept of conscious and unconscious mind and compare it with western thought. Human psychology is also studied in Jain perspective.

Soul in Jainism

Soul in Jainism is a substance. In Jain metaphysics the universe is comprised of six kinds of substances. Two of them, *Jiva* (soul) and *padgala* (matter), are active substances. Soul is a sentient and matter is a non-sentient substance, and the two can combine according to defined rules. Soul is non-corporeal, living, eternal and permanent substance of the Cosmic Universe, having the attribute of consciousness (*Chetana*). Consciousness and *upayoga* (manifestation of consciousness) are the identifying characteristics of the soul.ⁱⁱ Consciousness is the generality of the attributes that distinguish the soul from the inanimate. Intelligence, or power of cognition, (*jnana*) and perception (*darshana*) are the two main manifestations of consciousness.ⁱⁱⁱ Consciousness in worldly souls in general manifests itself in several ways: intelligence, awareness, bliss, perception (cognitive elements), emotions, will, attitude and behavior, and the awareness of pleasure and pain. Life and consciousness coexist: wherever there is life there is consciousness and vice versa. There is life in the body so long as soul is associated with it; the body is dead when the soul departs. Soul and consciousness in Jainism refer to the same entity and each is meaningless without the other.

Life-essentials of worldly soul are five senses, mental, vocal and bodily activities, duration of life and respiration. Whatever activity and behavior soul engages in are reflected in it, and also in a fine material body called *karman* body, containing the impression of these activities, and that body exists and accompanies it at the time of taking up another birth. These *karmas* affect soul in a peculiar way. All the souls in this universe undergo effects such as sorrow, happiness, birth, death etc. so long as they are afflicted by *karmas*. Only those souls who get emancipated from the effects of *karmas* are designated as '*Paramatma*' or '*Siddha*'.

Pure or liberated soul has infinite knowledge, infinite perception, perfect bliss and infinite vitality. Manifestation of these properties is obstructed in the worldly states of the soul. More is the karmic load the less powers of the soul are manifested. The soul has innumerable *pradesas* and the *karmas* bond uniformly on each *pradesa*, there is no soul *pradesa* without association of karma. The body is constituted by cells. The soul *pradesa* and karma are associated with each cell. Soul, even being non-corporeal, becomes corporeal by its activity of

collected (formed) corporeal body up to the moment of existence of such body. Soul extends the space of the body.

The interaction of forces, even though within the soul, creates a dissymmetry, as if a distortion, in the homogeneous- yet infinitely flexible- absolute singularity of soul. This leads to formation of structure within the soul. Structure is the result of apparent breaking of infinite symmetry. In the pure soul or the soul of the Omniscient the structure is absent and the subject and the object is the same pure consciousness. In the impure soul the subject is the consciousness and the object is the structure created by the virtual distortion. The structure identifies the perverted state of the soul.

Doctrine of Karma

The doctrine of karma is the law of causality for soul. It says that (1) there is a consequence to each action of the soul (2) the consequences are experienced by the same soul performing the activity, and (3) this processes of cause and effect is beginning less.^{iv} So the soul has ever been bound with karma. There are two types of karma: *bhava* karma and *dravya* karma. *Bhava* karma is the impurity or dissymmetry of the soul or impure consciousness, and is non-physical. *Bhava* karma constitutes ignorance, feelings of attachment and aversion, wrong faith, etc. in the mundane soul.

Bhava karmas have a physical counterpart, *dravya* karma, which is comprised of subtle matter called *karmanvargana*. The *dravya* karmas form the *karman* or karma body. There is a perfect balance and equilibrium between *bhava* and *dravya* karmas. This balance is dynamic in the sense that a change in one automatically makes a corresponding change in the other, satisfying the principle of parallelism between the *bhava* and *dravya* karma.

Jain philosophy describes eight main properties or attributes of the soul. Accordingly, there are eight main types of karma that obscure full manifestation of these natural properties.^v

1. Intelligence (or the power of cognition)-obscuring (*Jnanavaraniya*) karma. A pure soul has infinite intelligence; karma obscures and limits the pure and perfect intelligence of the soul. Intelligence is conceptual consciousness and is determinate.

Intelligence-obscuring karma has five subtypes:

- a. Perceptual knowledge (*Matijnana*)-obscuring
 - b. Articulate knowledge (*Shrutajnana*)-obscuring
 - c. Clairvoyance (*Avadhijnana*)-obscuring
 - d. Mind-reading (Telepathy) (*Manahparyayajnana*)-obscuring
 - e. Omniscience (*Kevalajnana*)-obscuring
2. Perception-obscuring (*Darshanavaraniya*) karma. This karma restricts the soul's abilities of awareness and perception of objects and events. Perception is non-conceptual consciousness and is indeterminate.

Perception-obscuring karma has 9 subtypes:

- a. Ocular awareness (*Chaksudarshana*)-obscuring
- b. Non-ocular awareness (*Achaksudarshana*)-obscuring
- c. Clairvoyance awareness (*Avadhidarshana*)-obscuring

d. Omniscience(*Kevaladarshana*)-obscuring

(e-i) Five sleep-related awareness-obscuring karma

3. Feeling-producing (*Vedaniya*) karma. A pure soul enjoys infinite bliss. This karma obscures this innate property of soul and produces feelings of pleasure and pain, depending on the situation. Feeling-producing karma is supported in its functioning by deluding karma.
4. Deluding (*Mohaniya*) karma. A pure soul experiences the absolute truth and equanimity of conduct, but deluding karma hinders the perception of truth. This happens in two ways: first, the perception and comprehension are perverted so that the truth is not apparent; and second, one's equanimity of conduct is obstructed. Very often the very existence of the soul is doubted or forgotten and all acts and efforts are directed towards the body.

Deluding karma has two divisions

- (a) Belief-deluding (*Darshanamohaniya*) karma prevents the innate ability of belief and faith (*shraddha*) in truth. Soul identifies himself with body and forgets the real self.
- (b) Conduct-deluding (*Charitramohaniya*) karma destroys one's equanimity of conduct and prevents experiencing the existence of the soul. It has two subtypes:
 - (i) Passion (*Kashaya*) karma: anger (*krodha*), ego (*maana*), deceit (*maya*), and greed (*lobha*) are the main passions; these may be of the following four grades, in decreasing order of their effect on the soul: *Anantanubandhi*, *Apratyakhyanavarana*, *Pratyakhyanavarana*, *Samjvalana*.
 - (ii) Quasi-passions (*Nokashaya*) karma; these are of nine sub types: Laughter (*hasya*), Indulgence (*rati*), Dissatisfaction (*arati*), Sorrow (*shoka*), Fear (*bhaya*), Disgust (*jugupsa*), Male disposition (*purushaveda*), Female disposition (*striveda*), Hermaphrodite disposition (*napunshakveda*).
5. Age-determining (*Ayusya*) karma. A pure soul is ageless: it is never embodied. Age-determining karma determines the soul's embodied lifespan in a particular realm, viz., the animal, human, infernal or heavenly modes.
6. Form-producing or Morphological (*Naama*) karma. A pure soul is non-physical. This karma decides the form of the soul's existence in a particular realm and the relevant structure, outward appearance, etc. of the being. This concept is very general and applies to all kinds of forms, including all animals, plants, humans, infernal beings and heavenly beings.
7. Status (quality)-determining (*Gotra*) karma. A pure soul is free of class distinction. This karma refers to status of the soul at birth and the quality of body structure and body actions in a given mode, including the effects of inheritance from one's parents.
8. Vitality (or Activity)-obstructing (*Antaraya*) karma. A pure soul has infinite vitality. This karma produces an obstruction in the expression of the vitality of the soul and causes hindrances in its activities. The form-producing, status-determining and feeling-producing karmas are the auxiliary causes that support the action of this karma.

Vitality-obstructing karma has 5 subtypes:

- a. Charity-obstructing (*Danaantaraya*)
- b. Gain-obstructing (*Labhaantaraya*)

- c. Enjoyment-obstructing (*Bhogantaraya*)
- d. Re-enjoyment-obstructing (*Upabhogaantaraya*)
- e. Willpower-obstructing (*Viryaantaraya*)

The karmas are divided into two groups, *ghatin* and *aghatin*, depending on the influence they have on the soul. The former destroys the basic nature of the soul; the latter does not. The *aghatin* karmas embody the soul and determine the physical structure of the organism and its operation; the *ghatin* karmas determine its psychological performance. The two groups are:

1. Psychological (*Ghatin*) Karma. These karmas affect the psyche and inhibit or destroy the fundamental nature of the soul. The intelligence-obscuring, awareness-obscuring, deluding and vitality-obstructing karmas belong to this group. These karmas limit the manifestation of the psychological powers of the soul and are the cause of our psychological imperfection.
2. Biological (*Aghatin*) Karma. These karmas concern with the existence of the physical body and do not cause any harm to the fundamental character of the soul. This group includes feeling-producing karma, morphological karma, status-determining karma and age-determining karma. These karmas keep the soul embodied but allow manifestation of the natural psychological powers of the soul when the psychological karmas have been eliminated.

The psychological karmas may obscure the nature of the soul either fully or partially. There are 25 partially obscuring karma: the first four intelligence obscuring karma, the first three perception obscuring karma, the last four passions and nine quasi-passions, and five vitality obscuring karmas. However, it may be mentioned that the fundamental quality of the soul is never fully obscured. If that were the case, the soul would lose its basic character and become as good as an inanimate object. Even the densest and darkest cloud cannot completely obscure the sun; in the same way, no amount of karma can obscure the total abilities and powers of the soul.

Karmas show their effect on soul on expiry of the maturity period fixed at the time of bonding, or earlier in special cases. There is some difference in the way the psychological karma and biological karma exercise their influence. The psychological karmas shield the powers of the soul. The powers of the soul are expressed to the extent the shield is weakened. The shield can be weakened by shedding of karma, *ksaya*, suppression of karma (in case of deluding karma), *upasama*, or by partial shedding and partial suppression of karma, *ksayopasama*.^{vi} The darker the karma shields the less powers of the soul is expressed. In case any karma is on rise expression of that power is suspended for the time being temporarily. Our cognition ability, perception, knowing of truth, conduct, behavior, level of mental, verbal and physical activities, all have the limitations imposed by karma. These activities are perfect only when all the psychological karmas are eliminated.

Taijas (Electric) Body

. *Taijas* body is another subtle body possessed by every organism. This body is the source of *prana* which is essential for life in the gross body. The *taijas* body, comprised of *taijas vargana*, is said to be electric or energy body. The *taijas* body has two important functions: (1) management of the body systems, and (2) support and control of the physical body.^{vii} The karma body and the *taijas* body never depart: both of them are always united with the soul in the mundane state and migrate with the soul from one birth to the next birth. This union is maintained until the soul attains the state of emancipation. The *taijas* body is like a

bank of *prana*, and the life span of this bank is decided by *ayusya* karma. The bank has a continuous input of *taijas vargana* from the cosmos, drawn in by *ayusyaprana*, and supplies *pranas* to the various sense organs and for functioning of the body, mind and speech, and respiration system (these are known as vital powers). The *taijas* body stops supply of *prana* on exhaustion of *ayusya* karma and life ends.

Lesya

Lesya is an important concept in Jainism. *Lesya* defines our inner personality determined by overall effect of *bhava* karma on the soul. *Lesya* consists of our *bhava* and feelings. *Bhava* is disposition of the soul determined by the effect of active psychical karma. *Bhava* represent our inner emotions, passions and desires. The *lesyas* comprising of *bhava* and feelings are expressed without the help of mind i.e. mind has no role in their expression. There are *bhavalesyas* and *dravyalesyas*, a kind of emission. *Dravyalesyas* exhibit colour on interaction with *taijas* body. *Lesyas* have been classified on the basis of colour. There are six main types black, blue, grey, yellow, pink, and white.^{viii} Each of these identifies a particular kind of personality, the first three are malevolent *lesyas* and the last three are benevolent *lesyas*, referring to bad and good personalities respectively. Person with black *lesya* has the worst kind of personality and that with white *lesya* has the best kind of personality.^{ix}

How are *lesyas* produced? *Lesyas* are karma generated and their colour depends on rise of karma. The soul experiences vibrations under the influence of *bhava* karma. These vibrations are known as *adhyvasaya*. *Adhyvasaya* bear the characteristics of the state of the soul influenced by the active karmas. The *adhyvasaya* induce similar vibrations in the *karman* body. It may be noted that there is always some rise of partially obscuring karma, and this happens even in the state of suppression-cum-shedding of karma. For instance in case of knowledge by suppression-cum-shedding of karma (*ksayopashamik jnana*) there is non-rise shedding of wholly obscuring omniscience karma, its suppression without any adversity, and some rise of partially obscuring karma. Rise of partially obscuring karma produces *lesya*, high rise produces malevolent *lesya* and low rise produces benevolent *lesya*. The rise of partially obscuring quasi-passions, viz., laughter (*hasya*), indulgence (*rati*), dissatisfaction (*arati*), sorrow (*shoka*), fear (*bhaya*), disgust (*jugupsa*), male disposition (*prusaveda*), female disposition (*striveda*), and hermaphrodite disposition (*napunshakveda*) karmas are principal cause in deciding the *lesya* type.

According to Acharya Mahaprajna *lesyas* in human body system interact with the endocrine glands and influence secretion of hormones.^x Hormones are known to relate to our emotions and therefore it is logical to assume a relationship between *lesya* and endocrine glands. Hormones mix with blood and reach the nervous system and brain influencing our emotions, thoughts, attitude, speech, conduct, and behavior. Thus *lesyas* determine our psychical personality and traits. *Lesyas* change with time but only one *lesya* is present at a time. Although *lesyas* act independent of mind, they influence the mind through its interaction with brain.

Mind

Mind in Jainism is not like physical sense organs it is a subtle unit. The consciousness of the soul flows out through mind. Mind exists as long as there is flow of consciousness.^{xi} There are two types of minds *bhava* mind and *dravya* mind. *Bhava* mind, part of the soul, thinks and imagines due to the power of the soul. *Dravya* mind is physical and is made up of subtle

manovargana. *Dravya* mind interacts with senses and the external environment and thereby influences the *bhava* mind and the soul. *Dravya* mind establishes relation between the soul and the body, and also the external environment. This relationship continues as long as *dravya* mind exists, the relationship ends when the mind ceases to exist, on elimination of psychological *bhava* karma.

Mind is instrument of knowing, perceiving and cognizing. In this function mind works with senses. The sensations made by the sense organs are passed on to brain and then to mind, which now responds. This is the way of knowing the external objects. Mind perceives the object, identifies it and stores its memory. The scope of knowledge by senses is limited to direct perception of the material world but mind (*bhava manah*) can perceive and think of both the visible and the invisible objects and substances. Both senses and mind are engaged in the process of perceptual knowledge (*matijnana*) but articulate knowledge (*shrutajnana*) is the subject of mind only. Mind (*Bhava manah*) has memory and operates in three periods of time; remembers the past, thinks of present, and imagines the future.

The activity of mind goes on continuously because of the stored memories and the actions of desires, emotions and passions. Mind is influenced by our *bhava* and remains active as long as *bhava* exist. Mind can be stopped only when these activities are stopped, as happens during deep meditation, or when *bhava* are eliminated. Mind has three aspects (i) cognition aspect (ii) *bhava* aspect (iii) activity aspect, activity of mind, body and speech. Normally the three aspects work jointly.

Distinction is made between mind and intellect (*buddhi*). Mind is assisted by senses in its working and intellect is assisted by mind. Mind is influenced by external conditions but intellect is not influenced. Mind only surveys and analyses the situation; intellect takes decision and is the source of knowledge generation.

It is obvious from above that the four psychological karmas operate through mind. So, mind is a very important unit in understanding the life system.

Constructing Soul-Mind-Body Model

We now construct a soul-mind-body interaction model. The model should explain human performance satisfactorily. The following are the contributing elements of the model.

1. Soul. Soul has *bhava* karma and *bhava manah*, the psychological mind. Both exist as some kind of dissimilarities and distortions in the soul. The psychological mind contains all the information that is cognized by the soul in this life as well as in those past lives that were in *samjni* mode (had mind). This assumption is based on the fact that in case of *jatismaran*, knowledge of past lives, soul remembers only those lives which were endowed with mind. It is to mention that *jatismaran* is regarded as a kind of perceptual cognition. *Bhava* karma contains the records for which the soul binds karma. Soul binds karma in all lives with or without mind. These records are of two type's one as *bhava* psychological karma (BPK) and other as *bhava* biological karma (BBK).
2. Karman body. Karman body has two divisions' psychological karma (PK) and biological karma (BK). The psychological karmas corresponding to PK interact with the gross body through mind and the biological karmas corresponding to BK directly interact with the body cells. It was shown by authors that *karman varganas* released on rise of *naam*

karma are supposed to produce biophotons which are known to regulate biochemical reactions in the cells and thus biology of life.¹

3. Mind. The physical mind M is interface between soul and body. It is influenced by psychical karma. Mind M is supposed to work with brain which is the controlling unit in the body. The brain is the central processing unit of the body and plays a key role in translating the content of the mind into complex patterns of nerve cell firing and chemical release. These complex patterns of nerve cell firing and chemical release are called neuro-signatures, and they intimately affect the physiology and biochemistry of the body. Examined under a microscope, each of the brain's 100 billion cells makes approximately 1000 connections called synapses with other brain cells. These synapses weave an intricate tapestry of living brain cell fibres', creating the rich and complex communications network called the brain.

By knowing the functions of mind in Jainism and the role of brain in biology it is logical to assume that mind and brain are intimately related and work as a coupled system. Some psychologists are of the view that mind is like software and brain is hardware in the brain-mind system. In humans mind contains memories of the soul. The psychical mind is part of the soul and has the psychical karmas expressed in the soul, and contains forces of intelligence, perception, desires, feelings, and vitality, and memories. These attributes are manifested in the body through mind M. Distinction must be made between memories stored in psychical mind and that expressed through the physical mind M. While the psychical mind contains all the memories cognized in this life and the past lives as mentioned above, the physical mind is supposed to contain only those memories which are in current use. The other forces manifested in the soul (psychical mind) are also expressed through the physical mind.

4. *Lesya*. *Bhava lesya* exist as, *adhyavasaya*, vibrations in the soul due to activity of active karma. These vibrations induce vibrations in the *karman* body which emits radiations. These emissions interact with *taijas* body and produce *dravya lesya*. *Dravya lesya* consist of two parts one originating in psychical karma and the other in biological karma. The colour in *lesya* is due to effect of psychical karma, colour is white when psychical karmas are eliminated as happens in the case Arihanta. *Lesya* interact with endocrine glands, presumably with pituitary, pineal glands and hypothalamus, located in the central part of brain. These are master glands which regulate secretions in the other glands of the body. Thus the hormone system in the body is supposed to be controlled by *lesya*. Hormones also affect working of brain, and mind through brain. Thus mind is influenced by soul activity in three ways, through *bhava manah*, psychical karma and *lesya*.

Figure 1 shows the model of interaction between soul, *karman* body, mind and body. Mind M interfaced between soul and body is coupled with brain. There is two way communication between soul and mind, between mind and brain, and between mind and *karman* body. Karma emissions originating in *karman* body interact with *taijas* body and the resulting *lesya* waves interact with endocrine glands in the brain.

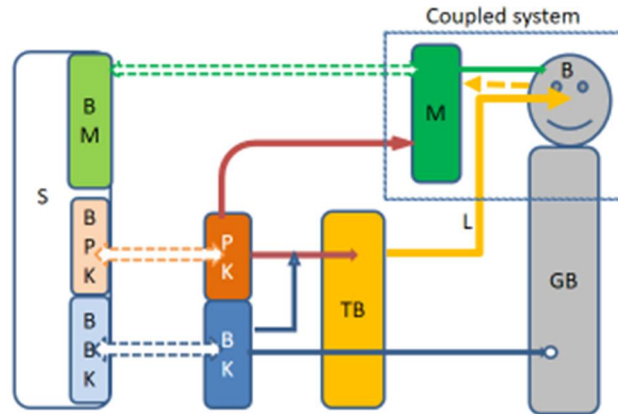


Figure 1. Soul-Mind-Body interaction model. S=soul, BM=*bhava* mind, BPK=*bhava* psychological karma, BBK=*bhava* biological karma, PK = psychical karma (*dravya*), BK = biological karma (*dravya*), TB=*taijas* body, M=mind, L=*lesya*, B=brain, GB=gross body. The units S, BM, BPK, BBK, PK, BK, TB, M, occupy and extend the space of gross body GB, these are shown here separate for explanation. Connections shown by dash lines are not physical, these exist because of information exchange.

Two specific features of this model are:

1. *Karman* body and mind M are independent interfaces between soul and body. Though normally most functions of mind are influenced by karma it can independently exchange information with *bhava* mind. This feature enables the mind M to store memories in *bhava* mind when passions are not active, and act as instrument of soul.
2. *Lesyas* emanating from *karman* body interact with the gross body independently. Effects of *lesya* on gross body are independent of mind.

Is memory stored in Brain?

This is an important question that needs clarification. In a series of landmark experiments in the 1920s, brain scientist Karl Lashley found that no matter what portion of a rat's brain he removed he was unable to eradicate its memory of how to perform complex tasks it had learned prior to surgery. He concluded that memories are stored in a distributed manner throughout the brain.^{xii} In the 1960s Pribram encountered the concept of hologram and realized he had found the explanation for this memory puzzle. A hologram produces a three-dimensional image of an object. If a hologram of a rose is cut in half and then illuminated by a laser, each half will still be found to contain the entire image of the rose. Indeed, even if the halves are divided again, each snippet of film will always be found to contain a smaller but intact version of the original image. Unlike normal photographs, every part of a hologram contains all the information possessed by the whole.

Pribram believes memories are encoded not in neurons, or small groupings of neurons, but in patterns of nerve impulses that criss-cross the entire brain in the same way that patterns of laser light interference criss-cross the entire area of a piece of film containing a holographic image. In other words, Pribram believes the brain is itself a hologram.^{xiii}

Pribram's theory also explains how the human brain can store so many memories in so little space. It has been estimated that the human brain has the capacity to memorize something of the order of 10 billion bits of information during the average human lifetime (or roughly the same amount of information contained in five sets of the Encyclopaedia Britannica). Similarly, it has been discovered that in addition to their other capabilities, holograms possess an astounding capacity for information storage. It has been demonstrated that one cubic centimetre of film can hold as many as 10 billion bits of information. Indeed, one of the most amazing things about human thinking process is that every piece of information seems instantly cross-related with every other piece of information - another feature intrinsic to the hologram.

Another aspect is how the brain is able to translate the avalanche of frequencies it receives via the senses (light frequencies, sound frequencies, and so on) into the concrete world of our perceptions. Encoding and decoding frequencies is precisely what a hologram does best. Just as a hologram functions as a sort of lens, a translating device able to convert an apparently meaningless blur of frequencies into coherent image, Pribram believes the brain also comprises a lens and uses holographic principles to mathematically convert the frequencies it receives through the senses into the inner world of our perceptions. This belief has also received a good deal of experimental support. It has been found that each of our senses is sensitive to a much broader range of frequencies than was previously suspected. Researchers have discovered, for instance, that our visual systems are sensitive to sound frequencies, that our sense of smell is in part dependent on what are now called "osmic frequencies," and that even the cells in our bodies are sensitive to a broad range of frequencies.

Rupert Sheldrake is one of the few contemporary scientists who maintain that it is possible for memory to exist without the support of the brain.^{xiv} Sheldrake thinks that if the brain is to serve as a memory store house, then the storage system would have to remain stable: yet it is known that nerve cells are turning over and changing all the time. With a very dynamic brain, it is difficult to see how memories are stored. David Bohm concurs with him on this possibility. Sheldrake argues that just because we do not know of any memory without the brain, it does not follow that there cannot be any memory outside the brain. For all we know, the brain can act as a conduit through which memory manifests itself, much like the antenna and the wiring in a radio act as conduits for the electromagnetic waves to be manifested as sound. Thus, just as the radio signal can exist (in the form of electromagnetic waves) outside the radio with its antennas and wiring, memory can exist outside the brain. Sheldrake suggests that the brain is more like a tuning system than a memory storage device. In his book, *The Mystery of the Mind*, Penfield himself abandoned the idea that the experiments proved that memory lay inside the brain. He came to the conclusion that memory was not stored inside the cortex at all.

All conventional theories assume that memories are somehow coded and located in a memory store in the brain. When they are needed they are recovered by a retrieval system. However, for a retrieval system to retrieve anything it has to know what it wants to retrieve; it thus must be able to recognize the memory that it is trying to retrieve. In order to recognize it, the retrieval system must have some kind of memory. Therefore, the retrieval system must have

a sub-retrieval system to retrieve its memories from its store. This leads to an infinite regress. Sheldrake, therefore, suggested that brain is more like a tuning system.

Memories are stored in Mind

Above findings and arguments support the Jain belief that memories are stored in mind. How are the memories stored? Senses make contact with the object and communicate sense data to brain for processing. Processing involves neuron firing, synapses, making neuron circuits, electrical and chemical transmission and generation of waves. The patterns generated in the brain are supposed to produce an image in the mind that is coupled to brain. How exactly this happens is not known. The image in the physical mind, M, may be in digital form. This image produces a twin and real image of the object in *bhavamanah*, BM. For example when we see a tennis ball the image is digital in physical mind and the image in *bhavamanah* is real as shown in figure 2. *Bhavamanah* not only has the real image it also registers all information of the object that is cognized. This is *matijnana*. *Bhavamanah* now cross relates this information with previous information stored as *shrutajnana* in it about the object cognized and other related items.

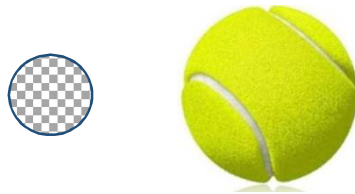


Figure 2, Images of tennis ball in mind M and *bhavamanah* BM.

In the reverse flow of information required for sustaining life processes the information stored in *bhava manah*, BM, is transferred to mind M and then to brain so that we are able to express what we are thinking. Thus the bits of sense data processed in the brain are integrated by the soul and presented back to brain holistically for expression. The mind M is an intermediate link between the brain and soul. It also acts as an instrument of desiring, willing, feeling and other psychic functions as explained below.

The main function of bhava mind is thinking and willing. When these functions are suspended in state of deep meditation this mind loses its existential value. It means that though the structure of mind M continues to exist its function is suspended. The functioning of mind is restored when soul comes out of meditation. In the state of *Kevaljnana* there is no thinking and the mind is non-functional but the structure of mind M continues to exist.

Why soul cannot interact directly with brain?

This is an important question referring to the general query as to why soul cannot directly interact with body. To answer this question we must look into the characteristics of soul and body. Soul is non-corporeal and acts in real time, its changes take place in time scales measured in units of *samaya*, the smallest unit of time in Jainism. One *samaya* is the time of travel of *paramanu* for a distance of one *pradesa* when moving at slow speed, and one *pradesa* is the space occupied by one *paramanu*. This is a very small unit of time and

cannot be measured by any means. The smallest unit of time defined in science is Planck time having a value equal to 5.39×10^{-44} seconds. We do not have much information on time response of human body. Study of biophoton has shown that there are 10^9 reactions per second in a cell and that one biophoton can trigger all the reactions implying reaction time of 10^{-9} seconds. This is assumed to be the smallest response time of the body. If one *samaya* is assumed to be equal to Planck unit of time we can see that there is no comparison between the response time of soul and the response time of body, and therefore the soul and body are not compatible units. Looking to figure 1 we see that subtle bodies like *karman* body, *taijas* body and mind interface between soul and body. These subtle bodies are made up of subtle four-touch matter which is supposed to have response time of a very small fraction of the response time of the gross body made up of eight touch matter. In fact the subtle bodies respond in real time and are compatible with operations of the soul. So the subtle bodies are essential components of the body structure.

There is continuous exchange of information between *bhava* mind BM and mind M. Mind M temporarily stores the memories which are processed in the brain at relatively very slow speed. Mind M acts as a buffer storage that receives all necessary memories from *bhava* mind BM needed for functioning of the life system and these memories are being processed in the brain at a pace compatible to its structure.

Instincts

As mentioned above *lesyas* are supposed to regulate hormone secretions through interaction with endocrine glands. Hormones have profound effect on performance of body and on our psychology. Hormones also affect brain activity and thereby affect the mind. The psychological effects are seen as drives, urges, and instincts.

Instinct is irrational knowledge that occurs without the assistance of the sense organs or the mind; it constitutes activity resulting from unlearned habits. This knowledge is gained by *ksayopashama* of karma. Instincts exist in all kinds of beings, from one-sense organisms to human beings. Organisms without mind, irrational, experience pain and pleasure through the physical body. Organisms with mind, rational, have experiences through both body and mind. Some instincts may have a small knowledge component, but they are primarily habit-oriented. Instincts become less effective in the life of a rational being with the development of knowledge. With spiritual advancement and eradication of karma, activities become more and more knowledge-centred; in the *kevali* state, when all psychical karmas are eliminated, instincts cease to exist.

There are ten main instincts:^{xv}

1. Food instinct (*Ahara samjna*). This is produced by the rise of feeling-producing and deluding karma. By this instinct, the organism searches for food. Food instinct is aroused by (a) hunger, (b) sight of food, or (c) thought of food.
2. Fear/Defence instinct (*Bhaya samjna*). This is produced by the rise of quasi-passion deluding karma. By this instinct, the organism undertakes defensive or offensive actions. Fear instinct is aroused by (a) the feeling of insecurity, (b) the sight of enemy or predator, or (c) the thought of fear.

3. Sex instinct (*Maithuna samjna*). This is produced by the rise of quasi-passion deluding karma. By this instinct, an organism engages in sexual activities. Sex instinct is aroused by (a) metabolic and chemical activity in body; (b) reading, viewing or listening to sex-related material; or (c) the thought of sex.
4. Possession instinct (*Parigraha samjna*). This is produced by the rise of quasi-passion deluding karma. By this instinct, the organism is encouraged to store items of need or imaginary need. Possession instinct is aroused by (a) scarcity, (b) knowledge of availability and unavailability of goods, or (c) the thought of possession.
- 5-8. Instincts of Anger (*Krodha*), Ego (*Maana*), Deceit (*Maya*), and Greed (*Lobha*). These instincts are also produced by the rise of passion deluding karma.
9. Sensation instinct (*Ogha samjna*). This is instinctive knowledge attained at the level of special sensation, without involvement of senses or mind; it is the knowledge that occurs through subtle vibrations. By this instinct some organisms can pre-sense events, such as earthquakes.
10. Instinct of popular belief (*Loka samjna*). This is a kind of instinct through which a specific sensation occurs on the perception of the object by sense organs. By this instinct, a person follows the popular beliefs prevalent in the community without questioning.

Conscious, Subconscious and Unconscious Mind

Sigmund Freud believed that the psyche (mind) was divided into three parts, Id, Ego, and Super Ego.^{xvi} The id comprises the unorganized part of the personality structure that contains the basic drives. The id is unconscious by definition; it is the storehouse of instinctual desires, needs and psychic actions. While past thoughts and memories may be deleted from immediate consciousness, they direct the thoughts and feelings of the individual from the realm of the unconscious.

The ego comprises the organized part of the personality structure, which includes defensive, perceptual, intellectual-cognitive, and executive functions. Conscious awareness resides in the ego, although not all the operations of the ego are conscious. In Freud's theory, the ego mediates among the id, the super-ego and the external world. Its task is to find a balance between primitive drives and reality while satisfying the id and super-ego.

The super-ego comprises the organized part of the personality structure, mainly but not entirely unconscious, that includes the individual's ego ideals, spiritual goals, and psychic agency (commonly called 'conscience'), that criticizes and prohibits his or her drives, fantasies, feelings and actions. The super-ego tends to stand in opposition to the desires of id because of their conflicting objectives, and its aggressiveness towards the ego. The super-ego acts as conscience, maintaining our sense of morality and prescription from taboos. The super-ego is partly conscious and partly unconscious. Unconscious thoughts are not directly accessible to ordinary introspection, but are supposed to be capable of being "tapped" and "interpreted" by special methods and techniques such as random association, dream analysis, and verbal slips examined and conducted during psychoanalysis.

Freud apparently divided the human mind into three sectors: conscious, preconscious, and unconscious. The conscious sector would be about everything that we are aware of. The preconscious sector would be about our ordinary memory: We are not aware of it at all times,

but we can make some effort and get the token we need as we need. We then pass this token to our consciousness. The unconscious sector would be “a reservoir of feelings, thoughts, urges, and memories that is outside of our conscious awareness.

Carl Jung believed that the human psyche was composed of three components: 1) the ego 2) the personal unconscious, and 3) the collective unconscious.^{xvii} According to Jung, the ego represents the conscious mind while the personal unconscious contains memories including those that have been suppressed. The collective unconscious is a unique component in that Jung believed that this part of the psyche served as a form of psychological inheritance. It contained all of the knowledge and experiences that humans share as a species.

Today, there are still fundamental disagreements within psychology about the nature of the unconscious mind. There is a great controversy over the concept of an unconscious in regard to its scientific or rational validity and whether the unconscious mind exists at all. Given the lack of evidence of many Freudian hypotheses, some scientific researchers proposed the existence of unconscious mechanisms that are very different from Freudian ones. In modern cognitive psychology, which is more materialistic, many researchers have sought to strip the notion of the unconscious from its Freudian heritage, and alternative terms such as ‘implicit’ or ‘automatic’ have come into currency. Cognitive research has revealed that automatically, and clearly outside of conscious awareness, individuals register and acquire more information than what they can experience through their conscious thoughts

In our model memories are stored in *bhava* mind. These memories can be divided in two parts (a) memories of this life and (b) memories of past lives. The memories of this life are such that we remember some of them and have forgotten the others. Some of the forgotten memories can be recollected by special efforts but still there are some which we do not remember. The memories of this life have images stored in mind M which become auxiliary cause for soul to revive them but the memories of past lives do not have such images and the soul does not recollect them in normal way. In case of *Jatismaran* soul remembers the past lives directly without involvement of mind M.

We can classify the mind in three divisions.

1. Conscious mind (*Chetan manah*). This is mind M. It contains (i) those memories of *bhava* mind we are conscious of or become conscious of on special efforts, (ii) powers of the soul that are being manifested on suppression-cum-shedding of psychical karma. These consist of three aspects of mind cognition, *bhava*, and activity as described above. These aspects are inclusive and comprise of our present knowledge and perception, desires, emotions, thinking, feelings, etc., and activities of mind body and speech. It also includes the consequences of karma that we are experiencing. Thus conscious mind is a broad term referring to our active memories, psychical aspects of our existence and experiences.
2. Sub-conscious or Pre-conscious mind (*Avachetan manah*). This part of mind is comprised of memories of this life of which we are not conscious of. These memories are inactive and have no influence on our psychical performance.

3. Unconscious mind (*Achetan manah*). This part of mind consists of (i) memories of past lives, (ii) instincts, drives and urges generated by *lesya*. We are not conscious of these yet they have significant effect on our psychical performance. Freud is referring to these traits in his theory of psychoanalysis. Unconscious mind is determinant of our irrational behaviour. As opposed to this conscious mind is the force behind our rational behaviour, but all activities of conscious mind are not rational. The irrational behaviour in fact might have the role of both the conscious mind and the unconscious mind, primarily the later.

Effects of Meditation

During the past three decades human physiologists and neuroscientists have been able to confirm the various types of changes that occur in body functions during yogic and meditative practices. This has been observed in EEG pattern of yogis; one can see the greater correlation and synchronization of electrical activity of the brain. Studies have shown that the biogenic amines and the neuro-transmitters in the nervous system get altered during deep meditation. During yogic practices, the functional hierarchy of the nervous system gets reoriented and functions hitherto known as autonomic come under the control of cortex (will / volition). Depending on the place of psychic centres the meditative technique in quality and quantity of time to fit in the materialist – spiritual spectrum, there may also be an underlying motivation towards spiritual growth and transcendence.

When we experience the inner self, the sense of 'being' or 'me' alone remains in the initial stages, and that also gets sublimated in the advanced stages of the experience. In this state the connection between bhava mind and mind M is snapped and soul now perceives the external world directly.

Human Psychology

Human Psychology is influenced by both the conscious mind and the unconscious mind. There are three determinants of our psychology.

1. *Lesya*. Our psychology depends to a great extent on *lesya*. As mentioned above *lesyas* are determined by rise of partially obscuring karmas. *Lesyas* influence the conscious mind M. The following are the *lesya* induced effects on mind.
 - a) Obstruction in knowing and perception ability due to rise of intelligence obscuring karma and perception obscuring karma.
 - b) Generation of desires and attachment due to rise in *rati nokashaya*.
 - c) Dissatisfaction and aversion due to rise in *arati nokashaya*.
 - d) Laughter, joking, sarcasm, ridicule, criticism, backbiting, satire, irony, humour and wit due to rise of *hasya nokashaya*.
 - e) Sorrow, grief, sadness, misery due to rise of *shoka nokashaya*.
 - f) Fear due to rise of *bhaya nokashaya*.
 - g) Disgust and annoyance due to rise of *jugupsa nokashaya*.
 - h) Sexual desire due to rise of *veda nokashaya*.

- i) Obstruction in benevolent activities like charity due to rise of *daanantaaraya* karma.
 - j) Obstruction in gain activities due to rise of *labhaantaraya* karma.
 - k) Obstruction in enjoyment activities due to rise of *bhogantaraya* karma.
 - l) Obstruction in consumption of varieties of items like food, drinks, garments, medicines and other items of repeated use due to *upabhogantaraya* karma.
 - m) Obstruction in exercising will power due to rise of *viryantaraya* karma.
2. Instincts. There are ten kinds of instincts as mentioned before. These are innate to mundane souls. Conscious mind is conditioned with *lesya* and instincts and this has profound effect on our behaviour.
 3. Wisdom. It should not be assumed that soul is helpless and cannot overcome the innate forces of *lesya* and instincts. On manifestation of wisdom due to suppression, shedding or suppression-cum-shedding of intelligence obscuring karma mind becomes powerful enough to resist and override the malevolent forces and tendencies and engage in benevolent acts and thoughts. Wise persons control their instincts and negative tendencies and do not allow them to come in way of positive thoughts and acts and thereby are able to follow the path of ethical and moral living and take right decisions.

There are six kinds of *lesyas* meaning that there are six kinds of personalities. *Lesya* in the life of an individual can change depending on the state of karma. The six kinds of personalities are defined by colour of *lesya* as follows.^{Viii}

1. Black *lesya*. He is wrathful, always hostile, wicked, violent, unmindful of the consequences of injuring all kinds of living beings, devoid of piety and compassion, uncontrollable, unprincipled, lacking in common - sense, unskilful, given to sensual pleasures, proud, deceitful, mischievous, lazy and mysterious.
 2. Blue *lesya*. The person with the blue *lesya* is extremely mysterious. He is extremely sleepy and deceitful, ignorant, rude, wicked, careless, intensely greedy towards worldly possessions and riches, engaged in sinful undertakings and easily irritable.
 3. Grey *lesya*. The person with the grey *lesya* is irritable by temperament, talks ill of others, boastful, troublesome, morose, frightful by nature, envious, insults others, crooked, vile, heretical, jealous, dishonest, distrustful, indifferent, vainglorious, unmindful of loss to others, desires to die on the battle-field, generous to flattery and indiscreet in his actions.
 4. Yellow *lesya*. The person with the yellow *lesya* knows what to do or not to do, dutiful, steady, knows what is fit or unfit for enjoyment, is free from anger, pride, deceit and greed. Self-controlled, impartial, compassionate, charitable, calm and gentle.
 5. Pink *lesya*. Gentler qualities characterize the person with pink *lesya*: charitable, kind, benevolent, ever ready to do well to others, humble, steadfast, well disciplined, restrained, forbearing, devoted to saints and teachers and strives after the highest good.
 6. White *lesya*. The person with white *lesya* is impartial, engages in meditation to the Law (*dharma*) and Truth, not desirous of enjoyment of any kind, practices *samitis* and *guptis*, subdues his senses, calm, free from passions and detached from worldly affairs.
- These *lesyas* change according to the degree of change in the purity of mind and thought.

States of Mind

State of mind is the current state of mind that participates in activities. This state is dynamic and keeps on changing with time. The state is jointly determined by memories, karma and *lesya*. *Lesya* decides our *bhava* or emotions. It is the *bhava* karma that is working in the soul. As the state of mind M is the same as that of the *bhava* mind we explain the state with the help of mind M.

Figure 3 shows the inputs to mind M. Inputs from different psychological karmas are shown separately. Karmas influence the soul in two ways.

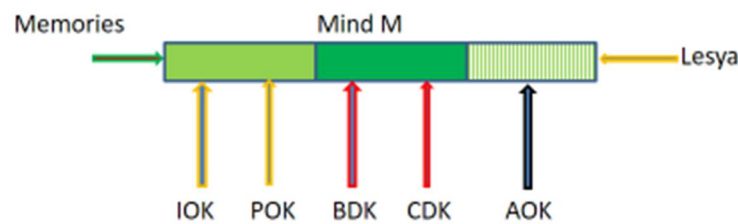


Figure 3. States of mind. IOK = Intelligence obscuring karma, POK = Perception obscuring karma, BDK = Belief deluding karma, CDK = Conduct deluding karma, AOK = Activity obstructing karma

1. They only allow a part of the soul power to manifest in mind on *ksayopasama* of karma, the more the *ksayopasama* the more power of soul is manifested.
2. The rising karma obstructs the manifested soul power and adversely affects the mind.

The psychological karmas are divided in three groups (i) intelligence obscuring karma and perception obscuring karma, (ii) deluding karma consisting of two parts belief deluding and conduct deluding karma, and (iii) activity obstructing karma.

The activity obstructing karma acts in open-close gate manner i.e. either the activities of mind are allowed to take place in a desired way or are not allowed to take place. So essentially the first two groups of karma determine the state of mind, the third just acts as a gatekeeper.

We consider here some cases of operation of karma on mind for illustration. In the first case there is *ksayopasama* of the first two groups of karma. In this case soul exercises cognition power without involvement of passions. Mind is in state of cognition and perceives the reality in unbiased form. However, the level of understanding depends on the level of *ksayopashama* of the first group of karma. The other functions of mind such as desiring, feeling, etc., are influenced by quasi-passions and *lesya*. Soul stores the memories of cognition process but does not bind karma.

In the second case let there be *ksayopasama* of the first group of karma and rise of the second group of karma. Rise of these karmas affect the mind in two ways. First thinking becomes body-centred due to rise of belief deluding karma, soul identifies himself with the body disregarding its own existence. Second one or more passions are on rise and thinking

becomes self-centred, there is loss of rationality. Cognitions are biased and truth is not apparent. Activities of the soul would bind demerit type of karma.

In the third case let there be rise of both the first and second groups of karma. Rise of intelligence obscuring karma affects working of the senses which experience some kind of obstruction. Perception also becomes biased and cognitions would not be right. Rise of deluding karma has effects similar to that in the second case. Thinking is not only biased but it is likely to give wrong results.

The activity obstructing karma adds more effects on mind. *Ksayopashama* of these karmas allows the mind to act in the way it is thinking. Rise of these karmas obstruct the mind functions. Rise of charity obstructing karma does not allow mind to engage in charity. Gain obstructing karma affects the mind in a way so as not to make any gain. Rise of enjoyment obstructing karma causes obstructions in mind or body so that one is not able to use and enjoy items of liking such as food, garments, entertainment, etc. Rise of re-enjoyment obstructing karma cause obstructions in mind to enjoy things and objects of choice in some way. Rise of will power obstructing karma prevents mind to take up any kind of activity, it introduces lethargy and excuses and time is wasted. It must be noted that these effects to some degree are always present in mind due to interaction with *lesya*. Rise of activity obstructing karma intensifies these effects and functioning of mind is heavily subdued.

It is to mention that we are not consciously aware of the effects of karma and *lesya*. What we know is that mind is thinking and we engage in some kind of activity. Mind analyses the activities, thinks of consequences and plans actions to be taken. But all this thinking and actions are karma and *lesya* dependent as described above. Effects of instincts on mind is not always the same. When mind is not developed, as happens in early stage of life, instincts have profound effect on mind. But on increase in knowledge with age rationality is developed and instincts become less effective. *Lesyas*, however, affect mind and behaviour throughout the life.

Functions of Mind

Cognition is an important function of mind. Mind is the instrument of cognition, it has important role in perceptual cognition and articulate cognition. Perceptual cognition (*Matijnana*) is the knowledge obtained with the help of sense organs and mind. This knowledge is conceptual consciousness and is determinate. Mind establishes contact with the external world through the senses. Sense signals are communicated to the brain, and then contact is made with the mind. If the connection between sense organs and brain is broken, mind cannot know the object. Thinking process starts when the object is perceived by mind.

There are four ways of *matijnana*, perceptual cognition: (i) *jnana* due to sense organs, (ii) *jnana* exclusively due to mind, (iii) *jnana* due to joint activity of the senses and the mind, and (iv) *jnana* independent of both mind and sense organs viz., instinctive intuition. Sensual experience takes place when contact is established with an object with at least one sense. In the case of mental experience, contact with the object is not necessary. In this case transformation of mental states takes place according to the target subject.

There are different elements of perceptual cognition. Perceptual cognition (*mati*) takes stock of a present objective datum; recollection (*smriti*) has reference to a datum perceived in the past; recognition (*samjna*) is cognition of similarity of a past object of perception with another in the present; thought (*chinta*) is cognition of a future event.^{xviii} All these varieties of cognition are considered identical despite the difference of perceptions because the substantive object is the same. *Abhinibodha* is type of cognition that can view an object with all its temporal determinations in past, present and future. *Matijnana* is comprehensive class of cognitions.

In Jain philosophy, an object is supposed to have infinite aspects; to apprehend all aspects at a time would need infinite intelligence. Our normal cognition is limited by the karmic veil, so we perceive and know only some aspects of the object. This makes our knowledge of the object incomplete. Incomplete apprehensions introduce an element of doubt about the object; subsequent cognitions may be different from previous ones.

Cognition that is made by the soul by means of material symbols like words, gestures, etc. is called articulate knowledge, *shrutajnana*. The cause of articulate knowledge is *matijnana*.^{xix} Really, this form of knowledge is *matijnana* with prolonged activity. *Shrutajnana*, like *matijnana*, is also produced by the senses and mind. *Shrutianana* can lead the soul close to the state of omniscience: its importance has been compared to *kevaljnana*. A person with *shrutajnana* can know all objects of the world, present, past or future, and all modes and states. But this cognition is indirect. He knows but cannot directly perceive what is known. In this respect *shruta* is inferior to *kevaljnana*.

Brain is physical structure for activity of mind. Neuron firing and other neuro-physiological activities in the brain are synchronized with mental activity of mind. This is possible only when the brain is properly developed and functioning. In Jain system the soul binds bits of sense-data that are communicated to millions of neurons. The information from the brain is transferred to mind and the soul integrates the information in a perceptual whole. So the soul experiences the event only in a holistic way. Thought, rationality, intelligence and creativity are the characteristics of an embodied soul and these properties are manifested through mind.

Cognition takes place by suppression-cum-shedding of intelligence obscuring karma and perception obscuring karma. What happens to soul in cognition processes? Note that *jnana* is the inherent property of soul and it is not imported from outside. All information collected as *matijnana* and *shrutajnana* is stored in the soul modifying its state. The *jnanavarniya* karma of soul changes from state 1 to state 2 in the processes of cognition as shown in figure 4. That is, knowledge is a matter of emergence and not origination. Increase in *shrutajnana* causes *ksayopasama* of *shrutajnanavarniya* karma.

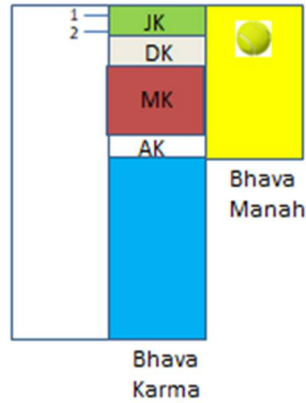


Figure 4. A map of soul showing *bhava* karma and *bhava manah*. JK = *Jnanavarniya* karma, DK = *Darshanavarniya* karma, MK = *Mohniya* karma, AK – *Antaraya* Karma. *Bhava manah* stores memories.

Other functions of mind are *bhava*, feeling, willing and activity. The *bhava*, emotions, in mind are decided by suppression-cum-shedding of conduct deluding karma, namely passions, anger, ego, deceit, and greed, and quasi-passions. *Bhava* are intimately related to *lesya* and hormone secretions. Feelings like pleasure and pain are experienced both by physical sensing and mental thinking. In case of any disorder or injury the signals are communicated through nerves to brain and are sensed by mind which develops the feelings. Generally, experience involves both physical and mental processes. Mental phenomena may or may not involve the operation of senses, but any sensual activity necessarily involves the mind.

Mind controls the activities. Resolve of mind is processed by brain which sends signals to concerning parts for action. The tendency of benevolent activities of mind is present on suppression-cum-shedding of vitality obscuring karma. Rise of this karma causes hindrance in such activities of mind.

Willing is a mental function that takes place on rise or suppression-cum-shedding of conduct deluding karma. Senses are auxiliary cause as the soul desires what is liked by senses. In the case of rise of karma the will is biased by rising karma. In case of suppression-cum-shedding of karma the will is guided by memories of *bhava* mind. But the soul has the power not to act according to any of these forces and decide to act independently or not to act. This is called Free will. Free will does not mean lawlessness or arbitrary actions that invite large volume of karma. Free will means exercising judicious decisions for stopping bondage of new karma. This happens on enlightenment of the soul, a condition known as *samayag darshan*. Before enlightenment soul realises oneness with the body, mind and all its associates and all decisions are made in favour of body and mind. After enlightenment soul sees itself separate from the body and realises that the body is only a vehicle and the real interest is of the soul itself. So all decisions are now made for the wellbeing of the soul.

Free will is the real strength of the soul that enables it to act such that bonding of karma is stopped and the stock of existing karma is depleted. Without this power the soul would not attain the state of omniscience and get liberated. On elimination of deluding karma actions of

the soul are free of any force and self-interest. In the state of omniscience there is no will as the mind ceases to function, and the actions are guided by *keval jnana*. In the last stage of omniscience all actions are stopped and the soul gets liberated.

Dreaming

Sleep is due to rise of sleep type of perception obscuring karma. This karma being of fully obscuring kind the perception of the soul is obscured and the cognition activity is suspended, the soul does not acquire any new knowledge. The intelligence of the soul is still working and intellect is functional, soul can make decisions. Past memories are accessed in the dream state and are available to mind. Deluding karma is also in action and the soul experiences the effects of passions and quasi-passions. So, soul can have emotions of anger, ego, deceit, greed, laughter, indulgence, dissatisfaction, sorrow, fear, disgust, and sex. *Lesyas* are working in dream state and produce different kinds of *bhava* and feelings.

Working of senses is suspended in dreams barring body activities, all activities are merely mental. There is no communication of information from senses to mind but reverse can take place i.e. information can flow from mind to senses. In the latter case sense organs can act according to information received from mind, without any cognition taking place. Contact with the external world is lost and activities of the soul are based on internal inputs only. Activities of body, limbs, and speech are suspended. However it is possible for limbs to act unconsciously in some cases on receipt of information from mind.

In the absence of external contacts soul acts in a way as if no one is observing. The actions of the soul now are in contrast with those performed consciously in waking state. Mind can construct a story based on past memories, and this may be meaningful in some way or absurd.

In the dream state intuition power of the soul is functional and it can produce some extra ordinary results. It is possible for the soul to have new insights and vision, sometimes of divine type. For this to happen mind and brain must be in relatively calm state. During the period of early sleep digestion system is generally working at high level and the brain is also engaged with the same level of activity. Mind, brain and body activities are expected to be low during the latter part of sleep. This is the time when intuition power is least obstructed and the soul may have meaningful dreams containing some useful indications of practical significance in life. When this happens the soul may get glimpse of futuristic events. But such indications are not direct, and are in form of some dream images and events. This type of indication has to be interpreted by experts to know its real significance in life. There are many instances of futuristic projections in the life of individuals. Trishla, mother of Mahavira, had fourteen dreams when the soul of Mahavira was conceived by her. These dreams were interpreted by experts predicting birth of a great personality like Tirthankara.

Dreams have been studied by modern psychology and science. A dream is said to be a succession of images, ideas, emotions, and sensations that usually occur involuntarily in the mind during certain stages of sleep. The scientific study of dreams is called oneirology. Most modern dream study focuses on the neurophysiology of dreams and on proposing and

testing hypotheses regarding dream function. It is not known where in the brain dreams originate, is there is a single origin for dreams or is multiple regions of the brain are involved, or what the purpose of dreaming is for the body or mind.

Dreaming and sleep are intertwined. In 1953 Aserinsky and Kleitman published the paper establishing rapid-eye movement (REM) sleep as a distinct phase of sleep and linking dreams to REM sleep.^{xx} Dreams occur mainly in the REM stage of sleep—when brain activity is high and resembles that of being awake. However, humans dream during non-REM sleep also.

Calvin S. Hall, from the 1940s to 1985, collected more than 50,000 dream reports at Western Reserve University. In 1966 Hall and Robert Van de Castle published *The Content Analysis of Dreams*.^{xxi} It was found that participants from varying parts of the world demonstrated similarity in their dream content. In this study, the most common emotion experienced in dreams was anxiety. Other emotions included abandonment, anger, fear, joy, and happiness. Negative emotions were much more common than positive ones.

The visual nature of dreams is generally highly phantasmagoric; that is, different locations and objects continuously blend into each other. The visuals (including locations, people, and objects) are generally reflective of a person's memories and experiences, but conversation can take on highly exaggerated and bizarre forms. Some dreams may even tell elaborate stories wherein the dreamer enters entirely new, complex worlds and awakes with ideas, thoughts and feelings never experienced prior to the dream.

Studies detect an increase of blood flow in a specific brain region and then credit that region with a role in generating dreams. But pooling study results has led to the newer “conclusion that dreaming involves large numbers of regions and pathways, which likely are different for different dream events.

Some theories have been put forward to explain why dreams take place. Robert (1886), a physician from Hamburg, was the first who suggested that dreams are a need and that they have the function to erase (a) sensory impressions that were not fully worked up, and (b) ideas that were not fully developed during the day. In dreams, incomplete material is either removed (suppressed) or deepened and included into memory. Freud, whose dream studies focused on interpreting dreams, not explaining how or why humans dream, disputed Robert's hypothesis and proposed that dreams preserve sleep by representing as fulfilled those wishes that otherwise would awaken the dreamer. Freud wrote that dreams "serve the purpose of prolonging sleep instead of waking up. Dreams are the guardians of sleep and not its disturbers."^{xxii}

One study found that most people believe that "their dreams reveal meaningful hidden truths." The researchers surveyed students in the United States, South Korea, and India, and found that 74% of Indians, 65% of South Koreans and 56% of Americans believed their dream content provided them with meaningful insight into their unconscious beliefs and desires. The study also found that people attribute more importance to dream content than to similar thought content that occurs while they are awake.^{xxiii}

We see that there is wide difference in approach to explain dreams in Jain philosophy and modern psychology and science. The former regards dreams as state of the soul produced by actions of karma and the latter is trying to find its origin in brain. Both approaches admit that emotions are experienced in dreams, Jain philosophy explains it on the basis of karma and *lesya* but modern philosophy and science has no satisfactory explanation.

Conclusions

Life is combination of soul and matter in Jainism. Soul is eternal and non-physical entity, having the properties of consciousness and *upayoga*, manifestation of consciousness that interacts with matter in subtle and gross body form. Subtle karma matter affects the soul in ways enunciated by doctrine of karma. Mind in human beings is interfaced between soul and body and performs the functions of perception, cognition, thinking, feeling, willing, expression of emotions, and control of activities of mind, body and speech. Mind consists of two parts *bhava manah* (mind) that is part of soul and *dravya manah* (mind) that is coupled to brain. *Bhava* mind stores memories produced by cognition process and *dravya* mind carries the memories necessary for functioning of the brain.

A soul-mind-body interaction model is presented. In this model connection between soul and body is independently made through interfaces of *karman* body and physical mind. *Lesya* originating in *karman* body are supposed to interact independent of mind with principal endocrine glands regulating hormone secretions in the body.

It is argued that memories are stored in mind and not brain. Argument is also presented that soul cannot directly interact with the gross body as they are incompatible because of fast response time of the soul and slow response time of the body. Concepts of conscious and unconscious mind are discussed and it is shown that the physical mind is the conscious mind and the *bhava* mind is the unconscious mind that contains memories of past lives, instincts, and *lesya* generated traits.

Human psychology is shown to be determined by *lesya*, instincts and wisdom of the soul. The states of mind and functions of mind as determined by karma and *lesya* are discussed. The state of mind plays important role in its functions. It is shown that mind ceases to function in the omniscient state and the activities of soul are then guided by *jnana*.

Dreams are states of soul in Jain philosophy and experiences in dreams are results of actions of karma and *lesya*. Brain states do not create dreams, as assumed in modern philosophy and science, it is the other way round dreams create the brain states.

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