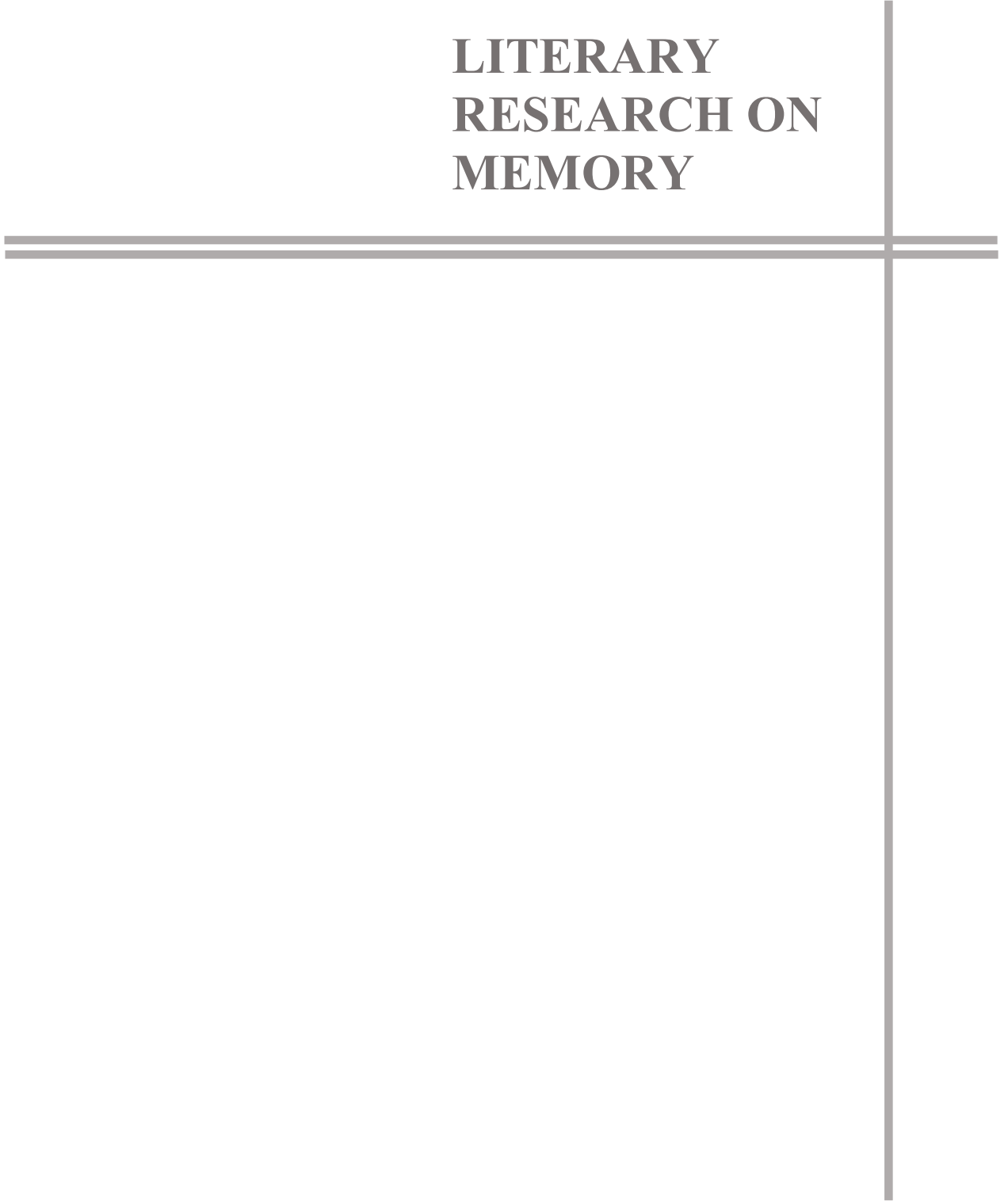


**LITERARY  
RESEARCH ON  
MEMORY**



## **2.0 LITERARY RESEARCH ON MEMORY**

### **2.1 BACKGROUND AND SCOPE**

Cognitive science is the basis of Indian spirituality and philosophy. The Upanishads constituted the origin of all Indian philosophical systems, which combined and complemented one another to create a comprehensive guide to cognition. Consciousness, mind, and their functions are extensively discussed and dealt with in *Vaisheshika*, *Nyaya*, *Yoga*, *Samkhya*, *Purva Mimamsa*, and *Uttara Mimamsa*, as well as in *Sabdabrahma Siddhanta*, which offers many insights into cognitive science and language acquisition. The ancient Indian scriptures contain very rich, empirically derived theories that are, however, entwined with religious and philosophical themes. The ancient Indian theories of cognition have the potential to complement and modify mainstream Western views of cognition. Particularly, these can be applied in a variety of research areas that lack strong theoretical foundations, such as meditation and consciousness. *Smriti* (memory) is an important faculty of the mind that plays an important role in the perception of knowledge. *Smriti* must be understood from both a psychological and physical perspective. Aspects like *Atma* (Self), *mana* (mind), *buddhi* (intellect), and *moksha* (liberation) relate to the psychological realm. *Dosha*, *sara*, *prakriti*, the onset of diseases, and the treatment aspect of it are all physical aspects.

### **2.2 SUMMARY OF EARLIER WORK ON MEMORY**

There have been several works trying to understand the mind, cognition and consciousness from an Indian perspective, through comparisons between Indian and modern concepts. The study by Sedlmeir and Srinivas (2016) attempted to explore the theory of cognition and consciousness from *Sāṃkhya-Yoga*. They attempted to derive broad hypotheses that may complement and extend Western theory. It deals with the ancient theory of personality, normal and extraordinary cognition in *Sāṃkhya-Yoga* and different ways of perceiving reality (Sedlmeier & Srinivas, 2016). In another study, the model of mind and the process of cognition was derived as explained by sage *Patanjali* in the *Yoga Sutras of Patanjali* (Upadhyay-Dhungel & Dahal, 2014). In similar lines, Vinchurkar et al. (2014) summarized the concept of cognition from ancient Indian texts namely, *Sāṃkhya*, *Yoga*, *Purva Mimamsa*, *Nyaya* and *Advaita Vedanta* (Vinchurkar et al., 2014). In another study related to cognitive science, Ramabrahmam (2018) discussed the concept of *guna as* described in various Indian philosophical systems (

*darshanas* ) (Ramabrahmam, 2018).

The concept of *prakriti* (nature) and *smriti* (memory) as explained in Ayurveda, the psychological and physical aspects of *smriti*, the characteristics of *prakriti* and its relation to *smriti* are discussed (Narware & Mehta, 2019). Another study explored the concept of *buddhi* (Intelligent quotient) and *smriti* (memory) through the classical Ayurvedic texts (Japang et al., 2022).

Some studies have attempted to understand the concept of diseases that affect memory. A study discussed diseases that affect *smriti* and the remedies as mentioned in Ayurveda (Narware & Mehta, 2019). Another study mentions *Smritibuddhihrass* (dementia) in Ayurveda texts, possible pathogenesis of Dementia and management in terms of Ayurveda (Tiwari & Tripathi, 2013). Similarly, Shown et al. attempted to understand the topic of mild cognitive impairment and remedies from an Ayurvedic perspective (Shown et al., 2018).

### **2.3 AIM AND OBJECTIVES**

The present literary review was conducted to understand the following topics from ancient Indian texts

- Concept of memory and cognition
- Role of memory in cognition
- Factors affecting the memory
- Achieving better memory and higher cognition

### **2.4 MATERIALS AND METHOD**

The sources for the present literary search included the following ancient Indian texts.

- SĀMĀKHYA AND YOGA
- BHAGAVADGĪTĀ
- AITAREYA UPANISHAD
- AYURVEDA

## 2.5 CONCEPT MEMORY AND COGNITION IN ANCIENT INDIAN TEXTS

### 2.5.1 SĀMKHYA AND YOGA

In ancient Indian scriptures, memory is often referred to as "*smṛiti*" (स्मृति) or "*smṛuti*," which is derived from the Sanskrit root word "Smara" (स्मर) meaning "to remember." The word is mentioned in ancient Vedic literature such as in section 7.13 of the *Chandogya Upanishad*.

According to Patanjali's Yoga Sutras, *smṛiti* (memory) is one of the five types of *Chitta-Vrittis* (fluctuations) of the mind which are considered to be the root of all mental suffering.

प्रमाणविपर्ययविकल्पनिद्रास्मृतयः ॥ १.६ ॥

*pramāṇaviparyayavikalpanidrāsmṛtayah* || 1.6||

*Patanjali Yoga Sutras (1.6)*

*Correct or right knowledge, incorrect knowledge, imagination, sleep and memory.*

All that we see, hear and experience is classified into five groups as stated above.

These five modifications constitute the consciousness of the mind. Every mental state and activity is included in these five modifications.

अनुभूतविषयासंप्रमोषः स्मृतिः ॥ १.११ ॥

*anubhūtaviṣayāsampraṁoṣaḥ smṛtiḥ* || 1.11||

*Patanjali Yoga Sutras (1.11)*

*Not letting the experienced objects escape from the mind is memory*

Memory is here defined as the retention of past experiences in the mind. Memory is of two types- conscious memory and subconscious memory. The recollection of past experiences is called conscious memory and dream is considered as subconscious memory. When the mind comes in contact with objects through *indriyas*, it stores the experience as *smṛiti*. When the mind comes in contact with the same object next time, the memory of the past experience arises if the experience was not allowed to escape from the mind. If the experience does escape, then memory fails us.

श्रद्धावीर्यस्मृतिसमाधिप्रज्ञापूर्वक इतरेषाम् ॥१.२० ॥

*Śraddhāvīryasmṛtisamādhiprajñāpūrvaka itareṣām* ||1.20||

*Patanjali Yoga Sutras (1.20)*

*"To others [the practice] is preceded by faith, energy, memory, concentration, and wisdom."*

This sutra outlines the prerequisites for the successful practice of yoga. These five qualities - faith (*śraddhā*), energy (*vīrya*), memory (*smṛiti*), concentration (*samādhi*), and wisdom (*prajñā*) - are essential for achieving the desired outcomes of yoga practice. A yogi, on the way to spiritual progress, must acquire the capacity to learn from experience and retain it in his consciousness. Failure to remember makes one go through the same experiences over and over again. Such memory enables progress at an extraordinarily rapid pace and prevents one from sliding back again.

According to Yoga and Samkhya, an individual is made up of two "components," one of which is material and one which is not. A material entity, *prakṛiti*, is composed of three elements: *sattva* (purity), *rajas* (energy), and *tamas* (inertia). Often translated as pure consciousness, *puruṣa* is the nonmaterial component of a person (and of the world). The manifest world and individual are made up of *prakṛiti* and *puruṣa*. As stated in Patanjali's Yoga Sutras, perception, cognition, action, knowledge, and creation are all possible when consciousness (*puruṣa*) and matter (*prakṛiti*) coexist. When they are separated, samadhi (*raja yoga*) occurs. In Figure 1, *puruṣa* and *prakṛiti* are interconnected and represent how a human perceives information as mentioned in *Sāṃkhya-Yoga*.

'*Chitta*' (Mind stuff) as a cognitive apparatus and is an important component of cognition. *Chitta* is a complex identity with internal organs and external organs (components). '*Chitta*' interacts with the externally manifested world 'the *Prakṛiti*'. The internal organ, *Antahkarana*, has 3 components '*Mana*', '*Buddhi*' and '*Ahamkara*'. *Indriyas*, the external organ has two components *Gyanendriyas* and *Karmaindriyas*. There are Five *Gyanendriyas* (viz. eye, ear, nose, tongue (taste), skin) and Five *Karmaindriyas* (Hand, feet, tongue (speech), genitalia,) as external organs. *Indriyas* are the door to *Chitta*. It is necessary for '*Indriyas*' to interact with '*Antahkarana*' for cognition to take place. All the knowledge of the manifested world, the

*prakriti* is through the Chitta and if the interaction of all the components is ceased, then the *jivatma* the self will attain the state called '*Chitta -vritti-nirodha*' which means the real yoga between *jivatma*, the self or individual and *Parmaatma*, universal Self or *Brahman*. When the intellect contacts *purusha*, it becomes conscious (and cognition becomes possible), as it is by nature unconscious (part of *prakriti*). It is therefore impossible to cognize without the working of *purusha*. It is only the intellect that reflects pure consciousness without having the ability to see it in its purest form. It is however through this reflection that we acquire self-awareness and our subjective perception of reality. There are other sources of information that the mind may access in addition to what it receives from the senses. It may also be derived from inferences, verbal sources, or memory. Furthermore, it contains instinctual tendencies that have been inherited from past actions and from previous lives that affect the present.

Cognitive characteristics can also be described in terms of *Gunas*. The individuals with *sattva guna* have abstract memories, abstract thinking and realistic perceptions. *Rajas* Guna-dominant people will have a concrete memory, perceptions driven by ego and unfocussed thinking. In contrast, individuals with *Tamsic guna* have distorted perceptions and confusion in their thinking. *Sattva* is perfect knowledge, *Rajas* is clouded intellect, and *Tamas* is ignorance. A *sattvic* individual has a clear perception based on direct knowledge. A *tamasic* person has distorted perception and improper cognitive functions.

According to Samkhya-Yoga theory, the main goal of life is to realize one's true nature through acquiring a higher level of cognition. Patañjali's *ashtanga yoga* helps one to arrest all mental modifications and experience the inner self. The mental modifications or fluctuations are arrested through reducing the five '*kleshas*' (hindrances) (*avidya* - spiritual ignorance, *asmitha* - the feeling of mistaken identity, *raga* - greed, *dvesha* - hatred, and *abhinivesha* - fear of death). *Ashtanga yoga* includes *yama and niyamas* (rules of moral conduct), *asanas* (physical postures), *pranayama* (breathing exercises), *dharana, dhyana and samadhi* (focusing one's attention inward and realizing the self). These practices remove physical, mental and emotional sufferings and help one to achieve the extraordinary cognitive abilities to discover the true nature of oneself.

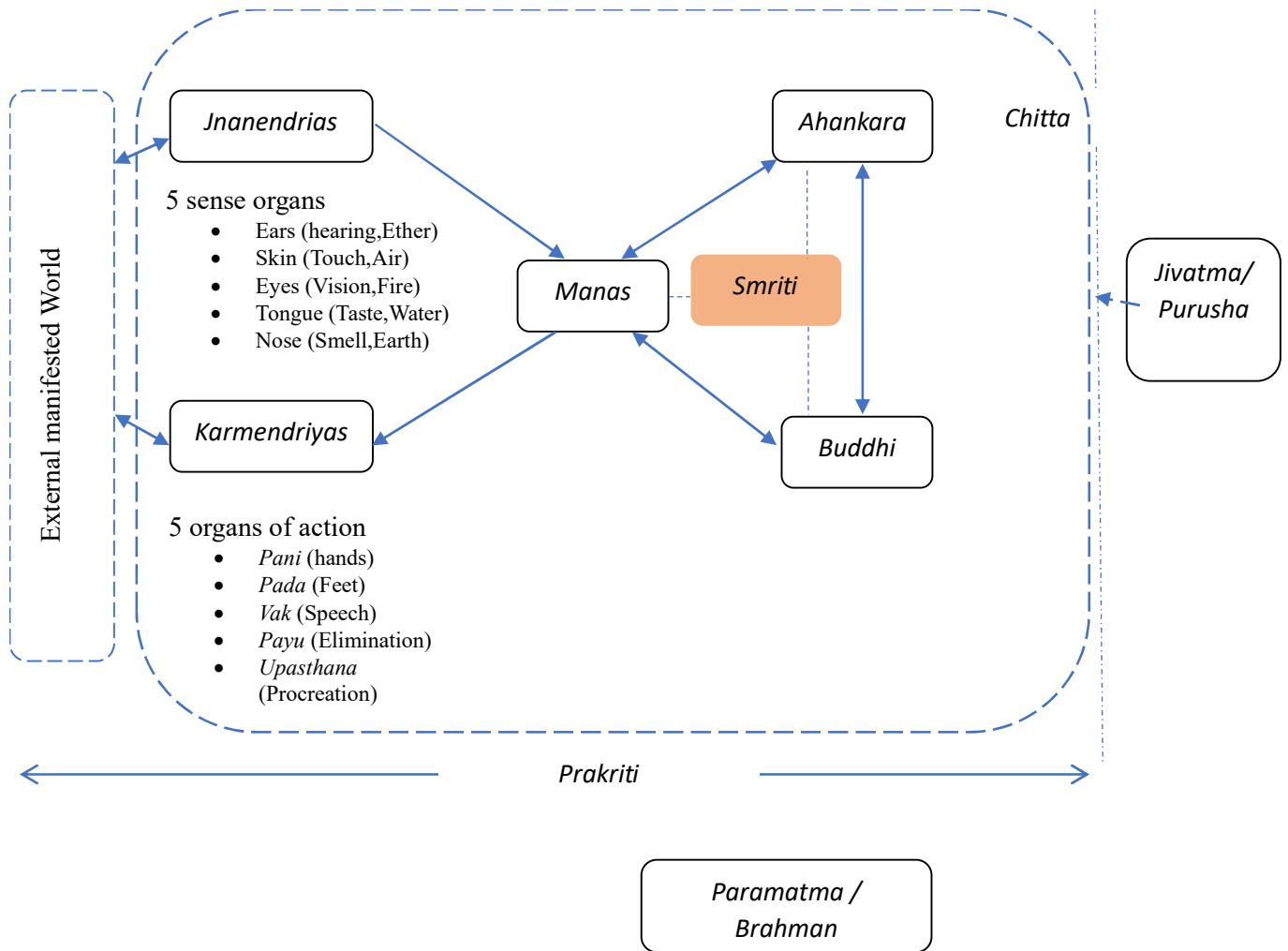


Figure 1. Cognition as described in *Yoga and Sāṃkhya* philosophy

## 2.5.2 BHAGAVADGĪTĀ

The *śrīmadbhagavadgītā*, emphasizes the importance of memory in spiritual practice and self-realization.

सर्वस्य चाहं हृदि सन्निविष्टो  
मत्तः स्मृतिर्ज्ञानमपोहनं च ।  
वेदैश्च सर्वैरहमेव वेद्यो  
वेदान्तकृद्वेदविदेव चाहम् ॥ १५.१५ ॥

*sarvasya chāham hṛidi sanniviṣṭo  
mattaḥ smṛtir jñānam apohanam cha |  
vedaiśh cha sarvair aham eva vedyo  
vedānta-kṛid veda-vid eva chāham || 15.15||*

*śrīmadbhagavadgītā (15.15)*

*BG 15.15: I am seated in the heart of all, and from Me are memory, knowledge, as well as their absence. I am verily that which has to be known by all the Vedas; I am indeed the author of Vedanta, and the “knower of the Vedas” am I.*

In the words of Lord Krishna, memory and forgetfulness are both a part of him, meaning they are a part of universal consciousness. The instruments of knowledge of individuals can only function through universal consciousness. Perception and acquisition of knowledge are impossible without the reflection of universal consciousness on individual consciousness. All the subjective activities, mental and intellectual, arise from and are maintained by the universal consciousness, the Lord-Himself.

क्रोधाद्भवति सम्मोहः सम्मोहात्स्मृतिविभ्रमः ।  
स्मृतिभ्रंशाद् बुद्धिनाशो बुद्धिनाशात्प्रणश्यति ॥ २.६३ ॥

*krodhād bhavati sammohaḥ sammohāt smṛiti-vibhramah |  
smṛiti-bhranśhād buddhi-nāśho buddhi-nāśhāt praṇashyati ||2.63||*

*śrīmadbhagavadgītā (2.63)*

BG 2.63: From anger comes 'delusion'; from delusion 'loss of memory'; from loss of memory the 'destruction of discrimination'; from destruction the discrimination, he perishes.

It emphasizes the connection between memory, intelligence and success of an individual. Our thoughts and behaviours destroy our mental faculties leading to one's destruction.

ज्ञानं ज्ञेयं परिज्ञाता त्रिविधा कर्मचोदना ।

करणं कर्म कर्तेति त्रिविधः कर्मसङ्ग्रहः ॥ १८.१८॥

*jñānam jñeyam pariñātā trividhā karmacodanā |*

*karaṇam karteti trividhaḥ karmasaṅgrahaḥ ||18.18||*

*śrīmadbhagavadgītā (18.18)*

Knowledge, the known and knower form the three-fold impulse to action; the organs, the action, and the agent form the three-fold basis of action.

All impulses to act arise out of a play of three – experiencer (knower), experienced (known) and experiences (knowledge). It is called 'triputi' in *Vedānta*. The whole process of acquiring knowledge is through cognition. The impulse to action can arise either from the knower in the form of 'desire', or, from the known in the form of 'temptation', or from the knowledge in the form of 'memory'. The *karta* (agent), *karanam* (instruments of action) and *karma* (action) are together designated as the parts of the 'basis of action'. The instruments include not only the organs of perception and action but also the inner equipment of the mind and the intellect.

### 2.5.3 AITAREYA UPANISHAD

यदेतद्धृदयं मनश्चैतत् । सञ्ज्ञानमाज्ञानं विज्ञानं प्रज्ञानं मेधा  
दृष्टिर्धृतिमतिर्मनीषा जूतिः स्मृतिः सङ्कल्पः क्रतुरसुः कामो वश इति ।

सर्वाण्येवैतानि प्रज्ञानस्य नामधेयानि भवन्ति ॥ ३.२ ॥

*yadetaddhṛdayaṃ manaśchaitat / sañjñānamājñānaṃ vijñānaṃ prajñānaṃ medhā*

*drṣṭirdhṛtimatirmanīṣā jūtiḥ smṛtiḥ saṅkalpaḥ kraturasuḥ kāmo vaśa iti /*

*sarvāṅgyevaitāni prajñānasya nāmadheyāni bhavanti || 3.2 ||*

*Aitareyopaniṣad (3.2)*

It is this intellect and this mind. It is sentience, rulership, secular knowledge, presence of mind, retentiveness, sense-perception, fortitude, thinking, genius, mental suffering, memory, ascertainment, resolution, life activities, passion and such others, all there verily are the names of consciousness.

The functions of that inner organ – concerning internal or external objects- take place for bearing witness to the witnessing Brahman that is consciousness by nature and that exists in the midst of Its limiting adjuncts stated above. It is the ‘self’ which perceives through various instruments of perception.

#### **2.5.4 AYURVEDA**

The *smriti* (memory) is a record of things directly observed, heard or experienced in the past. The storage, retrieval, and encoding of all information constitute *Smriti* (memory). The process of acquiring *Gynana* (knowledge) involves the coherent interaction of *Indriya* (sense organ), *Indriyartha* (subject of sense organ), *Mana* (mind) and *Atma* (soul). *Mana* (mind) conjoins with *Atma* (soul) to accumulate knowledge. Sense organs perceive information that is *Indriyasapekshya* (perceptible to senses) through specific *Indriya* (sense organs), which in turn perceive their respective *Indriyartha* (subject). To understand *Indriyanirapekshya* (non-perceptible to the senses), the mind must utilize the faculties of *Chintya* (thinking), *Vicharya* (thought), *Uhya* (logic), and *Dheya* (meditation). The information is categorized into *Gunayukta* (with quality), and *Doshayukta* (with dosha) by *Sankalpa* (determination). In this way, *Buddhi* (intellect) is developed (Japang et al., 2022).

Charaka defines *Prajnya* (*Buddhi*) as “*Nischyatmakamjnanam*”. *Prajnya* can also be defined in three forms, namely *Dhi*, *Dhriti*, and *Smriti*. Proper cognition requires the association of *Mana* with *Atma*. *Dhi* differentiates between *Hita* (wholesome) and *Ahita* (unwholesome) factors (*Bhavas*) that influence *Mana* and *Sharira*. It is *Dhriti* that regulates the function of manas by controlling orientation and attitude. If any of these is hampered, the ultimate goal of *jnanaprapiti* (attainment of knowledge) cannot be attained.

Our physiological as well as psychological aspects are affected by *Vata*, *Pitta*, and *Kapha* (bodily doshas, or functional representatives). *Vata dosha* controls the normal functioning of the mind and its activities. The main *dosha* involved in gaining *Smriti* (memory) is *Udana*

*Vayu*. The *Prana Vayu* is also responsible for the processing of memory, and it ensures the proper functioning of *Buddhi* (intellect), *Mana* (mind), and *Indriya* (sense organ). *Sadhaka pitta*, located in *Hridaya* (heart), is responsible for the proper functioning of *Buddhi* (intelligence) and *Mana* (mind). *Tarpaka Kapha*, located in the head, protects and nourishes sense organs. The concept of *Buddhi* (intelligence) is divided into two categories. - *Kshanika buddhi* (short-term memory) - *Nischyatmika buddhi* (long-term). The working memory can be related to the *kshanika buddhi* (short-term).

The three traces that aid memory recall are:

- *Drista* (visual traces)
- *Sruta* (auditory traces)
- *Anubhuta* (experience memory traces)

Factors that contribute to good memory are

- *Nimitta* (Knowledge of cause)
- *Rupa grahana* (Knowledge of form)
- *Sadrusya* (Knowledge of similarity)
- *Saviparyaya* (Knowledge of contrast)
- *Satwanuvandha* (Concentration of mind)
- *Abhyasa* (Practice)
- *Gyanayoga* (Attainment of metaphysical knowledge)
- *Punahsrutat* (Subsequent partial communication of an event)

*Vata* is the main controller of functions of *manas*. Due to old age and *vataparakopa*, impairment of cognitive functions is more common in old age. This type of age associated memory impairment is called *Kalaja* and *Swabhavika SmritiHrasa*, and it is considered *Yapya* (irreversible, but can be maintained) in clinical terms. The other type is *Akalaja* and *Aswabhavika SmritiHrasa* which is curable predominantly with *Rasayana* therapy depending on the stage of the disease.

## **2.6 CONCEPT OF COGNITION IN MODERN SCIENCE**

In modern science, cognitive processes refer to the mental activities and functions that involve the acquisition, processing, storage, and utilization of information and knowledge. These processes are fundamental to human and animal intelligence and involve intricate interactions between various parts of the brain, sensory inputs, memories, and higher-order cognitive functions (Farmer & Matlin, 2019). Cognitive science, a multidisciplinary field, combines insights from psychology, neuroscience, linguistics, philosophy, and computer science to study these processes. Modern science describes the mind as an emergent property of the brain's neural activity and the interactions between neural networks. The mind's role in cognition encompasses a range of processes, from basic sensory perception to complex reasoning, and is intricately connected to the brain's structure, function, and interactions with the external world. It's important to note that the exact nature of the relationship between consciousness and cognition is still a subject of ongoing research and philosophical inquiry. Some theories propose that consciousness is an emergent property of complex cognitive processes, while others suggest that it has a causal influence on cognitive functions (Searle, 2000). Understanding how consciousness arises from neural processes and how it shapes our cognitive experiences remains a challenge in contemporary science and philosophy. Modern science continues to make advancements in unravelling the complexities of cognitive processes through neuroimaging techniques, computational modelling, and empirical research.

## **2.7 SUMMARY**

The ancient Indian texts provide a comprehensive view of memory and its role in cognition. The individual '*self*' and the universal consciousness have an undisputable role in cognition. Without these, the instruments of cognition become mere passive elements, not capable of any function. The texts prescribe the method of achieving extraordinary cognition to achieve one's goal in life and realize the ultimate knowledge of '*self-realization*'. The ancient Indian theories of cognition have the potential to complement and modify mainstream Western views of cognition. Particularly, these can be applied in a variety of research areas that lack strong theoretical foundations, such as meditation and consciousness.