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Concept of *Smṛti* (Memory) in Indic Tradition

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Abstract:

This paper explores the concept of Memory or remembrance (*Smṛti*) as documented from the Vedas to modern times. It brings out the definition and purpose of *Smṛti* in the Vedas, the Upaniṣads, the Bhagavadgītā, six systems of Indian Philosophy, Advaita, Āyurveda and practical aspects of Yoga. It also highlights about modern brain researches done on memory by Neuroscientists in India, Europe, UK and the USA and how it can be enhanced. Thus, it is hoped that a comprehensive view about memory and its all dimensions helps in leading a pro-active life and development of one's five-fold personality. This paper tries to relate the statements made in "*Medhā Sūkta*" with the biomedical facet of a typical "Human personality" and brain neuron structure & intellectual activity. In this paper, the author discusses the above dimensions (in the Vedic *Sūkta*) and also make a comparison of the structure and development of memory, intelligence and creativity in typical human brain (from modern angles) and thus its possible impact on modern civilization's "Learning- Methodology" if it is fully "deciphered, understood and implemented" appropriately.

Keyword: Brain, Creative intelligence, intellect, hippocampus, *medhā sūkta*, memory/remembrance, *omkāra*.

Introduction

"The intuitive mind is a sacred gift and the rational mind is a faithful servant. We have created a society that honors the servant and has forgotten the gift".
- Albert Einstein

My father late M P Krishnamurthy, a renowned Vedic and Sanskrit scholar, dexterous in making handicraft items, drawing *Rangoli*, painting and soft skills was known for his extraordinary memory and wonderful recitation of Vedic hymns and Sanskrit verses from the childhood. In the last few months of his life, he had a loss of short term and long-term memories although his brain was very active in all other spheres all through. He failed to recall the names of his relatives and friends when they met him and talked to him. However, he would remember their names and all incidents after few hours or next day. He lived for 95 years disease free and had a peaceful end. His memory problem in the last few months prompted me to know more about the concept of memory or remembrance which is called *Smṛti* in Sanskrit and how it is documented in Sanskrit texts, brain and its activities, role of memory in shaping one's life etc. Here an attempt has been made to explore the concept of memory from the Vedic times to the present.

"The Vedic mantra called "*Medhā Sūkta*" is initially taken for analysis "*Medhā Sūkta*" is a part of the "*Taittirīya Upaniṣad*" (*Caturtha Praśna: Taittirīya Mantra Kośa: Prathama Bhāga:*"^[1], and is a fascinating hymn describing the manifold creative aspects of *Sarasvatī*, the goddess of memory, speech, learning and wisdom.

"*Medhā*" is one of the names of Goddess "*Sarasvatī*" which conveys the related facets, characteristics (or activities) of this divine entity ("*Sarasvatī*"). Indians are aware that all Indian saints have constantly preached and emphasized that all the deities praised, revered and referred to in the Vedas, *purāṇas*, *śāstras* etc. are all (qualities, entities manifested and) residing inside the *pinda* or symbolic or logical heart of the human body, as well as, in the Universe (*Brahmānda*). This knowledge was traditionally being "passed on" from one generation to the next generation by the "*Guru-Paramparā*" system which got cut-off. Only some amount of links in "Spiritual context" have survived. All "other contexts" have become almost extinct. This paper is an example of an effort to understand the "*Medhā Sūkta*" in the context of:

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a) Biomedical Identification of this "Goddess of Intelligence" within our brain and nervous systems and b) A Star artist (writer-singer-dancer-stage-artist) as a "typical human personality in this context.

Analysis of the hymn

Initially the sage offers prayer to *Omkāra* which is the essence of all the four *Vedas* and *Gāyatrī* (*iti yetat Sarva vedaha yat padam āmananti tapāmsi sarvāṇi ca yad vadanti yadiccantah brahmacaryam caranti tattepadam sangraheṇa bravīmi om iti I*). This *Omkāra* is praised as *Viśvarūpa* as it contains all the syllable covering the entire Sanskrit alphabet. It sprang out of the *Vedas* which are capable of bestowing on immortality to the people and the superior knowledge, i.e. the knowledge of the *Brahman*. The sage requests the supreme reality to give him highest knowledge and wisdom that leads one to superior knowledge (*Brahma vidyā*). In order to receive such a knowledge, one should have good physical strength and the sensory organs should be under control and hence the sages prays to *Indra* (who is the presiding deity for physical and mental strengths) for strengthening our limbs and making us happy with knowledge. For e.g. the tongue should speak mellifluously. The words or speech uttered out of mouth should be pleasant to the ears. One should hear more and more about this rhythm or about the knowledge of *Brahman*. This *Brahman* is hidden in the sheath called *Omkāra*. The realization of the soul takes place once the worship of *Omkāra* is completed. One should be free from the transitory state of the mind or other thoughts covering the mind. The mind should reach a state of thoughtlessness which results in understanding and realizing the mystic word *Om*. *Kośa* can also be interpreted as a shell like structure of the brain and the nervous system as the mind, memory, thoughts and intelligence originate from it.

Retentive memory and intelligence

The sage further requests the supreme deity to protect the knowledge he has attained. *Medhā* also means retentive memory (*dhāraṇa*) and hence what ever heard should be retained. The retentive memory about worldly knowledge should be replaced by the knowledge of *Omkā -ra* and *Brahman*. The first *mantra* requests the goddess *Medhā* to bestow goodwill even on those who speak foul and inimical language. Hence the sage is asking the goddess to grant favors to his enemies. If *Medhā* showers grace on an ordinary mortal, then he is transformed into a great sage. Alternatively if a person develops his retentive memory and intelligence (*dhīhi*, *buddhi*) and meditates on *Omkāra*, then the spiritual realization dawns on his mind. Hence the *Upaniṣads* lay emphasis on hearing (*śravaṇa*), retentive memory (*manana*) and deep contemplation (*nidhidhyāsana*) about philosophical thoughts. With this, he is transformed into an extraordinary sage. In the realm of bio - medicine, when the brain cells and nervous system penetrating the entire body are activated, a person realizes his immense potentialities. These powers could be harnessed for physical, mental and spiritual development of one's personality.

The manifestation of intelligence would help the seekers in acquiring prosperity of all kinds in a rightful manner. The sages call upon the people to earn livelihood and money in proper ways and enjoy them. Shankaracharya says in *Bhāgavata stotram* that one can entertain his mind by the money which is earned by one's own hard and rightful efforts [2].

In the second *Sūkta* the sage requests the gods such as *Indra*, the *Aśvins*, *Sarasvatī*, the semi gods like *Gandharvas* and

heavenly nymphs (*Apsarās*) to grant him favors. *Indra* is the presiding deity for physical forces. He is the seat of power who manages all the activities of all the organs and systems inside a living body. *Taittirīya Upaniṣad* elsewhere says that a spiritual seeker should be young, persevere, strong physically and mentally (*Yuvāsyāt yuva adhyāpakah, āśiṣṭo baliṣṭo dradṣṭhah I Yasyevam pṛthivī vittasya purnāsyāt I* [3]).

Aśvin gods, the divine physicians are prayed for a healthy body. They can be called as the divine medicos and represent the centers of the brain which automatically take steps toward healing any disease before a person comes to know about it. In this healing process, the Goddess *Medhā* showers the nourishment for the body system. As the mind is the seat for all the bondages and freedom (*mana eva manuṣyāṇām kāraṇam bandha mokṣayoh I*). This mind should be kept in poise which is termed as *Yoga* in the *Bhagavadgītā* (*samatvam yogamuccyate – Gītā*).

Creative intelligence

The sages request *Medhādevī* to give him that *Medhā* which is present in heavenly nymphs and divine musicians. *Apsarās* and *Gandharvas* are divine artists known for excellence in performing arts. According to Indian mythology, *Apsarās* are the most beautiful maidens of the world, specialized in varied forms of dances and gestures where as *Gandharvas* are divine musicians. It is believed that the troupe of *Apsarās* and *Gandharvas* traverse in the triple world entertaining the denizens. If they are worshipped, they would transfer their impeccable aesthetic talents to the people and goddess *Sarasvatī* would augment this process. Hence the performer while reciting the *śatarudrīya mantram* of *Yajurveda* in its *Camaka* hymn requests that he should be bestowed on with goddess *Sarasvatī* and all talents related to *Sarasvatī* (*Sarasvatī ca ma indrascha me I Sārasvatascha me I Veda Kusumāñjali*). Thus a person granted with the divine principles of aesthetics and divine intelligence spreads them like fragrance everywhere just as the profound scholarship of a learned and the marvelous artistic skills of an artist spreads far and wide in a short time. The divine intelligence in its spiritual dimension is the knowledge of ultimate reality or *Brahman* itself. It can enkindle the spiritual zeal of the people and awaken them for a true spiritual life. The intellectual fragrance is called *surabhī Medhā*. It has the tremendous capacity to energize, excite and activate the artists and the audience giving them ecstasy (*ānanda*). Kalidasa the celebrated Sanskrit dramatist says that performing arts have the capacity to entertain people with different tastes simultaneously (*nāṭyam bhinna ruceh janasya bahudhāpyekam samārādhnam I*) [4]. Finally the sage requests the goddess *Sarasvatī* to grant him off springs, all types of energies, virtue and brilliance. The colophon of the *Medhā Sūkta* comes with a powerful spiritual message where in a sage who is desirous of transforming from an individual to a supra-human being (*Hamsa* or *Paramahamsa*) can do so by invoking and concentrating on *Omkāra*, retentive memory (*dhāraṇa*) and divine intelligence (*Medhā*). Thus he become Thou Art That (*Paramahamsa*) by meditating on this mystic and rhythmic hymn.

Inputs from Neurosciences

An attempt is made here to know about the development of the concept of intelligence, intellect and creativity from the western paradigm. Charles Darwin believed that "natural selection could explain our talents for music, art, literature and other human intellectual achievement" [5]. But his

colleague Alfred Russell Wallace disagreed. Wallace said that “Darwin’s principle might explain fingers and toes and maybe even some simple mental traits, but that certain quintessentially human abilities like mathematical and musical talent could not possibly have arisen through the blind workings of chance” [6]. He argued that the potential intelligence present in our ancestors and carried from one generation to another generation might have been responsible for such a talent. This potential intelligence was in contrast to kinetic intelligence which comes through formal education [7]. Wallace attributed the divine intervention for the evolving of the potential intelligence [8]. To quote his own words “Some higher intelligence must have directed the process by which the human nature was developed”. A modern biologist tackles this problem by answering that “esoteric” and “advanced” human traits like musical and mathematical ability are specific manifestations of what is usually called “general intelligence”- itself the culmination of a “runway” brain that exploded in size and complexity within the last three million years” [9]. This general intelligence is responsible for all our physical, mechanical and mental activities. But VS Ramachandran and Sandra Blakeslee argue that with respect to the mind, this concept of general intelligence cannot explain the achievements of savants, geniuses and prodigies. They put forth an argument that the combination of genes and traits may be the cause for such rare phenomenon. They also say that the angular gyrus which is present in the left hemisphere may be the reason for such talents. The experiments (functional MRI) have shown that if the angular gyrus is damaged, a person fails to do even simple mathematical calculations [10]. Angular gyrus may be responsible for the blossoming of creativity too as opined by them.

Memory in the brain

Research in Neurosciences have shown that hippocampus in the brain is responsible for the formation of new memories and that it is a result of protein synthesis (engram). Ramachandran and Sandra Blakeslee say that this hippocampus interacts with other brain structures such as the frontal lobes, the limbic system (concerned with emotions), and the structures in the brain stem (which allow you to attend selectively to specific memories) [11]. It is also believed that specialized circuits and modules such as modules for language, art, and mathematical abilities are present in both the hemisphere of the brain that work holistically [12]. Now it is known by research that the hippocampus is essential for acquiring and consolidating new memories. If there is an injury to hippocampus or if it is removed through surgery, then a patient cannot have memories of the future.

The authors further say that “the ability to reinterpret events in the light of new information may have been refined through the generations to help people playfully juxtapose larger ideas or concepts - that is, to be creative. This capacity for seeing familiar ideas from novel vantage points to an essential element of humor could be an antidote to conservative thinking and a catalyst to creativity. Laughter and humor may be a dress rehearsal for creativity, and if so, perhaps joke, puns, and other forms of humor should be introduced very early into our elementary schools as a part of the formal curriculum” [13]. The important link between humor and creativity has also been emphasized by the English physician, playwright and polymath, Jonathan Miller [14].

A continuous recitation of the *Medhā Sūkta* with sincerity and dedication, would enhance the power of memory, creativity,

intelligence and intuition as they are mysterious words capable of creating the strange vibrations or rhythms in our body. These positive vibrations or the rhythms appear to have an unknown connections with the rhythms in the cosmos. As MP Pandit remarked “these Vedic hymns carry their special patterns corresponding to certain cosmic rhythms with which they seek to link themselves with”. This tradition of individual sound rhythms having kinship with the cosmic rhythms in Nature is recognized and inbuilt in the science of Indian music”. One among them is the *Medhā Sūkta* where special prayers are offered to *Sarasvatī* who is visualized as a *Sakti* in the feminine form. She manifests before all the rhythms emerge into existence [15]. The gods praised in those hymns of peace are directly related to the micro and macrocosms and the physical, mental and spiritual dimensions of our body and thus the recitation proves highly beneficial* . In *Lalitāsahasranāma stotram* (a thousand praises of goddess Lalita) is praised as the very embodiment of Intelligence (*Medhāyai namah -538*) and memory (*Smṛtyai namah -540*).

Smṛti in Upaniṣads

The *Īśāvāsyaopaniṣad* directs the mind of seeker to remember *Omkāra* which is the symbol for *Brahman*, is also called Fire and is Truth by nature and identical with *Om*. The seeker should remember all that has been taught from childhood and all that has been taught by his (preceptor) all along in all earnestness [16]. The *Kaṭha Upaniṣad* mentions about retentive memory or steadiness (*dhāraṇa*) while defining Yoga thus: "They consider that keeping of the senses steady as Yoga. One becomes vigilant at that time for Yoga is subject to growth and decay" [17]. So here retentive memory becomes a means for attaining Yoga. *Aitareya Upaniṣad* considers memory as one of the names of profound consciousness (*prajñānam*) or supreme consciousness. The other names of consciousness are sentience, rulership, secular knowledge, profound knowledge, retentiveness, sense perception, steadfastness, thinking, genius, mental suffering, memory (*Smṛti*), conviction, resolution, intense desire etc., [18]. They become the functions of inner organ of an individual and also limiting adjuncts of *Brahman* which is pure consciousness and hence these become the indirect names of *Brahman* [19]. *Chandogya Upaniṣad* declares that, when one attains memory, he will be released from all knots and problems (*Smṛtirlambe sarva granthīnām vipramokṣaha I*)

Smṛti in the Bhagavadgītā

The *Bhagavadgītā* (BG) which is a part of *Bhīṣma Parva* of the *Mahābhārata* discusses about the ensuing war in Kurukshetra between Kauravas and Pandavas, its effects through the dialogue between charioteer lord Krishna and his ardent disciple Arjuna. Arjuna the ace archer having seen his close relatives, teacher, friends, well wishers in the Kaurava army was overcome by deep compassion (*kṛpayā*) and sorrowful (*viśīdan*), spoke to Krishna regarding his physical, mental and emotional states and expressed his inability to fight against the enemies. He raised many pertinent questions for which Krishna replied: “you’re deeply attached to the sense objects, and from this develops lust, from lust arises anger, from anger complete delusion and from delusion bewilderment (*Smṛti vibhramah*), resulting in loss of intelligence (*Smṛti bhramśa*), and downfall of a person” [20]. S Radhakrishnan says, that when the soul is overcome by passion (*kāma*) its memory (*Smṛti*) is lost, its intelligence (*buddhi*) is obscured and the man is ruined [21], hence sense

organs should be controlled by the mind. When memory and intelligence are lost, moral death of a person occurs. Krishna while showing his Universal cosmic form declares that he is the very embodiment of prosperity, memory, intelligence, firmness and patience (*Kīrtih śrīvāk ca nārīṇām Smṛtirmedhā dhṛtih kśamā I*)^[22]. Also, He is stationed in the hearts of all and memory. Perception (*jñānam*) come from Him only. According to Anandagiri, the commentator, memory is what is experienced in past births^[23]. Arjuna being convinced by the arguments and suggestions of Krishna, finally accepts that he was under delusion (*moha*), and now by His grace has regained his memory (*Smṛtirlabdhvā*) and his form in his mind, doubts are cleared and resolved to act as per His word^[24]. As Shankaracharya comments on this verse, Arjuna gained Self-knowledge as his delusion and ignorance were dispelled (*Ajñāna sammohamsa ātmā Smṛtihi labhah I*)^[25]. He tells to Krishna that he recalled that wondrous dialogue (*Samvādam idam adbhutam I*), is most wonderful cosmic form (*Rūpam atyadbhutam I*) again and again and was in great astonishment^[26]. These experiences rejoiced him leading to regaining memory and self-awareness. Paramahansa Yogananda has interpreted the epic characters appearing in the Mahabharata, with indicated, yogic and philosophical meanings. For instance, Chekitana who is in the army of Pandavas indicates intelligent. From the Sanskrit verb root *cit* comes the derivative meanings “to appear, to shine, to remember.” Sanskrit etymology of the word is: *Ciketi jānāti iti* - “He remembers, realizes, true knowledge whose perception is clear and concentrated. Patanjali’s *Smṛti* means memory, divine and human. Accordingly, Paramahansa Yogananda informs: “That faculty by which the Yogi recalls his true nature as made in the image of God. As this memory appears/shines on his consciousness, it gives him that intelligence or clear perception which helps to light his path. Chekitana or Spiritual Memory stands in readiness to oppose the material delusion that makes man forget God and consider himself a body-bound mortal being”^[26a].

Smṛti in Nyāya-Vaiśeṣika Philosophy (NV)

The *Nyāya-Vaiśeṣika* philosophy explains *Smṛti* under cognition. Cognition is a quality which is the cause of all kinds of business or communication. This cognition is of two types namely, remembrance and apprehension. The immediate cognition, that becomes the subject (*gamya*) of consciousness (*anuvyavasāya*) having the forms. For e.g. I know him / her etc. *anuvyavasāya jñāna* means that cognition which we get as ‘this is a jar’ which becomes the subject of consciousness i.e. I know^[27]. This remembrance i.e. *Smṛti* (is the knowledge generated out of mental impression alone). Remembrance originates from identifying the cognition of a person, place or thing with their recollection of past mental impressions (*samskāra*). The sense organs contact the object of perception and get that cognition. This is a result of past impressions relating to the same person or place or thing. These mental impressions are results of experiences of past or present life^[28]. This remembrance is of two types, true and false or erroneous. The remembrance arising from valid or right cognition is true (*yathārtha*). That which arises from false cognition is erroneous one (*ayathārtha*). Right cognition is knowing rope (*rajju*) as rope, while false cognition is knowing or understanding rope as snake (*sarpa*)^[28a].

Smṛti in yoga philosophy

Sage Patanjali author of Yoga aphorism (*Yogasūtra*) classify *Smṛti* under class of modification (*vṛtti*). The modification

happen in mind-stuff or mind apparatus (*citta*) owing to the influence of impact of external world, its sentient and non-sentient objects of even people, places or things. These modifications pertain to the *citta* resulting in different behavior of a person under different context and situation. Patanjali defines memory or remembrance thus: ‘Memory is when, the (*vṛttis*) perceived subjects do not slip away and through impressions comes back to consciousness’^[29]. This memory can be a result of direct perception (*pratyakṣa*), false knowledge (*viparyaya*), verbal delusion (*vikalpa*) and sleep (*nidrā*). For example, you hear a music: the rhythm of that music is thrown into the lake of mind-stuff. It causes ripples, that ripple further creates series of ripples which get registered in the subconscious mind. That registered ripple is memory. When this memory is aroused during sleep, it causes another ripple called dream (*svapnam*). The same in the waking state is called *Smṛti*^[30].

According to Vyasa, the commentator of Patanjali Yoga Sūtras, memory is a result of comprehending the object and knowledge of that object. The habit manifests its own cause and this generates a memory of both object and its knowledge. “This memory is of two types: when the phenomenon to be remembered has become the very nature of the mind and when it has not so become.” In dream it is the former; at the time of waking, the latter^[31]. Memory is a modification and is in the nature of pleasure (*sukha*), pain (*dukha*) and illusion (*moha*), which are afflictions (*kleṣa*) according to Vyasa^[32]. All these modifications are to be checked leading to right cognition. It is a secondary thought wave which is a result of direct perception^[33]. This *Smṛti* is hundred percent inside and has nothing to do with the outside world. One who lives only in *Smṛti*, alone has lost touch with reality, or with the world outside^[34].

According to *Sāṃkhya* philosophy of Sage Kapila (600BCE), memory or *Smṛti* is possible only because all our experiences leave impressions in the mind-stuff. Hence, no thought or action is lost. This memory is a result of perception coming through the various activities of mind (*manas*), egoism (*ahamkāra*) and determinative faculty of mind (*buddhi*) and there will not be any activity of sense organs^[35].

Mīmāṃsakas consider memory as an impression of prior cognition and it cannot be treated as valid means of knowledge (*pramāṇa*). According to Prabhakara and Kumarila, novelty is an essential feature of knowledge (*agr̥hīta gr̥hī*). Hence, it is excluded from valid means of knowledge^[36].

According to Shankara, every object of knowledge whether external or internal is subjected to modification (*vṛtti*), and hence, it is unreal (*asat*). So, memory is also not real^[37]. Memory apparently presents people, places or things to consciousness, something previously observed elsewhere (*atasmin tad buddhih, paratrapūrvadṛṣṭāvabhāṣah I*)^[38]. Shankara explains it with the help of rope and snake. We see a snake and remember it. Next day we see a rope. We remember the snake seen earlier and superimpose (*adhyāsa*) the snake on the rope and misunderstand the rope as snake. When the light of knowledge (*jñāna prakāśa*) ushers in, the superimposition vanishes for that particular person but remains for rest of the people of the world. Hence, Shankara postulates a Universal snake memory which is common to all, which has existed from time immemorial^[39]. Ramanuja says that, the memory which has attained the level of direct perception is spoken of in the Vedas as a means of liberation. Such devotees are dear to the Lord^[40].

Smṛti in the domain of Neurosciences

As per the researches done by Neuroscientists in the East, West and Oriental in the last few decades, it is found that memories, thoughts, dreams and experiences play a crucial role in the life of an individual from birth till the end as a result of neural networks. Human genes give directions for the evolution and development of neural networks and shaping of the brain. The brain is also highly receptive to upbringing of children by parents, education, environment, emotional care and support in which they grow, nutritious food they take, good or bad habits, which they acquire for its shaping from childhood to adult age. This process of brain development takes 25 years^[41]. Hippocampus, a small area of the brain is responsible for short term memory, long term memory and spatial memory. This hippocampus is responsible for connecting past, present, future and imagined life by recombining information from our past^[42], but Epilepsy, Alzheimer's disease, paralytic strokes and Parkinson's disease affect the cognitive abilities of a person leading to Dementia and loss of memory^[43]. When Amygdala, another part of the brain is fully active, it commands the resources of other parts of brain resulting in detailed and rich memory which is eventually stored in the brain^[44].

Leading Neuro physicians such as Dr. Vinod Deshmukh, USA, Dr. Kaja Nordengen, Norway, late Dr. T Desiraju, Dr. Gowri Devi, Dr. BN Gangadhar and their teams from NIMHANS, Bangalore through their researches have found that Pre-frontal cortex of the brain, act as controller and director. It receives nerve signals from various parts of the brain and link complex functions like emotions, intellect and memory. Insula, another part of brain helps in appreciating memories as one's own and allows one to recognize oneself in photographs^[45]. Researchers now have revealed that memory is located in frontal lobe of the brain. Short term memory is also called working memory and long-term memory is divided into data memory and motor memory. Example for long term memory is remembering longer list of words. Words just practiced recently comes under short term memory. All that we read, discuss, remember are encoded by hippocampus and thus, a new memory is formed^[46]. It takes around from 40 minutes to 2 hours for consolidation of new memory. In the process, if a person watches a horror film or sees or observe a ghastly incident or accident outside or engage in verbal duel, then those new memories which were being formed will be erased and such scenes will have a terrific impact on the brain of that onlooker. This is called Retroactive interference. Hence, researchers have suggested that when you are learning a new concept or engaged in serious studies, you should be relaxed for few minutes or even take a short nap for consolidation of new memory^[47]. According to Dr. Kaja Nordengen, 'our memory is not meant to recreate the past but to help us make the right choices in the future'. Whatever we see, hear, touch, remember is encoded in the various areas of cerebral cortex. Then hippocampus combines all these information into single experience and finally, stored as long-term memory^[48]. The Neuroscientists have found that, long-term memory can be increased through constant practice, training and education. Another way is to revive old skills, make corrections by ourselves to wrong memories or false memories. Kalidasa in his Magum Opus Sanskrit drama, the *Abhijñāna śākuntalam* depicts that Dushyanta, King of Hastinapura and the hero owing to the curse of sage Durvasa pronounced on his beloved wife Shakuntala, forgot his wife completely, who approached him and tried to prove that he was the lawful husband married in

gāndharva style. Later when he got the token of recognition i.e. the signet ring (*abhijñāna*) from a fisherman, became pensive, penitent and started remembering every minute incident he experienced with her a few years ago. He started repenting for repudiating his beloved wife who was then in an advanced state of pregnancy. When he meets her accidentally in the hermitage of sage Maricha on Hemakuta mountain six years later, he begs her pardon, prostrates at her feet and narrates that it was the result of curse of Durvasa, which harshly obstructed his memory (*Śāpādasi pratihatā Smṛtirodharūkṣe I*) and now his own delusion is dispelled by the revival of memory (*Smṛtibhinna mohatamaso diṣṭyā pramukhe sthitāsi me sumukhi I*). Thus forgetfulness or loss of memory and revival of memory became the plot of separation and reunion of hero and heroine in that classic drama^[49].

Smṛti in Ayurveda

The concept of *Smṛti* has been discussed by Acharya Charaka, Sushruta and Vagbhata in many aspects. *Smṛti* is defined as the capacity of remembering the objective experiential knowledge^[50]. It is the real knowledge of subjects/experiences that happened in the past^[51] and Acharya Charaka says that remembrance of objects through hearing, direct perception or earlier experience with concentrated mind is called *Smṛti*.

There are two factors responsible for the functioning of Smṛti

1. Internal cause (*ābhyantara karaṇa*): Close contact of (*sannikarṣa*) *ātmā*, *manas*, *indriya* and *indriyārtha* are responsible for *Smṛti*.
2. External cause (*bāhya karaṇa*): Acharya Charaka has mentioned eight factors whose repeated practice will improve *Smṛti*. They are as follows:
 - *Nimitta Grahaṇa* (Reaction to Caused effects).
 - *Rūpagrahaṇa* (Perception of Similar shape and objects).
 - *Sādṛṣya* (Similarity).
 - *Saviparyayata* (Contract).
 - *Satwānubandha* (Attention).
 - *Abhyāsa* (Repetition).
 - *Jñānayoga* (divine knowledge).
 - *Punah śruta* (Repeated hearing).

Origin of *Smṛti* as stated by Acharya Charaka is by *ātmaja bhāva* (factor related with one's soul). Acharya Sushruta mentions *Smṛti* is one of the sixteen *guṇas* of *ātmā* or *karma puruṣa*. During the process of embryogenesis, *Smṛti* is categorized under the factors having originated from the soul. It shows that memory is unique in every individual and can differ from person to person^[52]. *Smṛti* is related to *ātmā* (soul) and *manas* (mind), *Medhā* and *buddhi*. It is explained by Chakrapani, the commentator of Charaka Samhita that it is one of the functional components of *buddhi*. It directs oneself by recollecting the past experiences and the ability to recognize the basic nature of all masters in *Smṛti*. *Smṛti* is discussed as one of the *aṣṭa aiśwaryas*, one of the eight superpowers of knowledge that are required for learning Ayurveda^[53]. According to Chakrapani, *prajñā* is the knowledge, which is having three faculties as *dhīhi*, *dhṛti* and *Smṛti*. Psychological disorders are directly connected to *dhīhi* (intellect), *dhṛti* (processing information) and *Smṛti* (memory). *Smṛti* is the super sensorial capacity to remember the truth or essence of everything in the Universe^[54]. Acharya Charaka states that remembering of *tatvajñāna* is called as *Smṛti* and a person having *Smṛti* will not only be free from

rogāvasthā but will also attain mokṣa (i.e. person do not come back to worldly traps). Smṛti is one of the causes of both pravṛtti (indulgence) and nivṛtti (renunciation) which is nothing but dukha and sukha respectively.

Our ancient Acharyas mention that Smṛti vibhramśa is one of the causes of all miseries [55]. The Smṛti is impaired due to covering of rajas and tamas over ātmā, leading to impairment of knowledge of truth. This leads to misdeeds [56]. The impairment of memory leads to various intellectual errors called prajñāparādha resulting in vitiation of all doṣa and finally formation of psychological disorders [57].

Dr. HR Nagendra and Dr. Shirley Telles through their researches on training children for ten days in Yoga have found that right nostril breathing, rhythmic exercise of breath (Prāṇāyāma) helps in strengthening the memory of practitioners. Various yogic activities and yogic games help children at physical level (Annāmaya kośa), flow of psychic energy and removal of blocks and imbalances at prāṇic level (Prāṇāmaya kośa), one pointed concentration and soft emotions at mental level (Manomaya kośa), intellectual comprehension, reasoning and enhancement of intellect at intellectual level (Vijñānamaya kośa), silence and blissful awareness at the blissful level (Ānandamaya kośa). Yoga practices facilitate the functioning of right brain [58].

Conclusion

Smṛti called memory or remembrance has played a great role of an Indian from the Vedic times to the present day. This Smṛti and its presiding deity Sarasvatī have bestowed on intelligence, creativity, retentive memory, wisdom on worshippers, artists and thinkers as recorded in the Medhāsūkta of Yajurveda. One of the traditional way to enhance memory is through the continuous recitation of Omkāra according to Upaniṣads. The Bhagavadgītā emphasizes that loss of Smṛti leads one to downfall and failure of one's action whereas revival of Smṛti leads to performance of one's own duty and self-awareness (ātmajñāna). Smṛti helps in knowing right knowledge (yathārtha jñāna) as per six systems of Indian philosophy. All of them declare that Smṛti is a result of past, present experiences and modifications of mind-stuff (citta). Shankaracharya calls these modifications as unreal (asat). Smṛti helps in family reunion, in a classical Sanskrit drama as documented by Kalidasa. From the modern neuroscience perspective and researches undertaken all over the world, it is revealed that Pre-frontal cortex and hippocampus of the brain are responsible for recording and storing all sorts of memory, it's loss and revival of memory of the past and present. 'It helps in right choices in the future' according to Dr. Kaja Nordengen, an internationally renowned brain researcher and neurophysician. Dr. H R Nagendra's experiments on children shows that a studied practice of Yoga, Prāṇāyāma helps in enhancement of memory. Smṛti is the super sensorial capacity to remember the truth or essence of everything in the Universe according to Āyurveda. So, this memory becomes the essence of one's fruitful and purposeful life all through.

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27. Grāhyoparaktaha pratyayo grāhyagraheṇo bhayakār anirbhāsaḥstatjātīyakam saṁskāramārabhate I Sa saṁskāraha svayañjakāñjanastadākārameva grāhyagraheṇābhayātmikām Smṛtim janayati I Tatra grahaṇākārapūrvā buddhihi I Grāhyākārapūrvā Smṛtihi I Sa ca dvayī I Bhāvitasmartavyā ca abhāvitasmartavyā ca I Swapne bhāvitasmartavyā I Jāgratsamaye tu abhāvitasmartavyā I Ramaprasada, Patanjali's Yoga

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28. *Sarvāscāitaha smṛtayaha Pramānaviparyayavikalpanidrā Smṛtīnāmanubhāvāt prabhavanti I Sarvāscāitāh vṛttayaha sukhadukha mohātmikāha I Sukhadukhamohāscā kleśeṣu vyākhyeyāha I Ramaprasada*, p.24.
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