

“IMMEDIATE EFFECT OF GĀYATRĪ MANTRA CHANTING ON ATTENTION IN SCHOOL STUDENTS”

Dissertation Submitted by
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Towards the Partial fulfilment of
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To



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CERTIFICATE

This is to certify that Seema Godse Derle is submitting this Literary research titled “Gayatri Mantra – A study” and Experimental research titled “Immediate Effect Of Gāyatrī Mantra Chanting On Attention In School Students” in partial fulfillment of the requirement for the Master of Science (Yoga and Education) registered with effect from August 1, 2010 by Swami Vivekananda Yoga Anusandhana Samsthana under the division Life sciences and is a record of the work carried out by her in this institute.

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DECLARATION

I, hereby declare that this study was conducted by me at Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA), Bangalore, under the guidance of Dr. Balaram Pradhan, Swami Vivekananda Yoga University, Bangalore. I also declare that the subject matter of my dissertation entitled below has not previously formed the basis of the award of any degree, diploma, associate ship, fellowship or similar titles.

PART – 1

Gayatri Mantra –A study

PART – 2

Immediate Effect Of Gāyatrī Mantra Chanting On Attention In School Students

Place: Bengaluru

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IMMEDIATE EFFECT OF GĀYATRĪ MANTRA CHANTING ON ATTENTION IN SCHOOL STUDENTS

Abstract

Background

Attention one of the component to enhance the academic excellence. The traditional techniques were included in the Indian education system to develop their mental faculty which will be adding value to academic institutions.

Aim

The aim was to evaluate the effects of *Gāyatrī mantra* chanting on attention as measured by Digit Letter Substitution Task (DLST) .

Materials and Methods

Subjects consisted of 60 school students included (boys = 30 and girls = 30) in the age range of 12-14 years, who were trained for chanting *gāyatrī mantra* for 5 days. They were assessed on DLST immediately before and after two sessions (i) *gāyatrī mantra* chanting (10 minutes) (ii) Poem line recitation with an equal time (10 minutes) period. Fifty percent of participants performed *gāyatrī mantra* chanting and remaining on the Poem line recitation on Day-1. The order of the sessions were reversed on Day-2.

Results

Both sessions showed significant improvement in the total and net score of DLST. The magnitude of net score improvement was greater after GM (21.67%) compared to PL (4.85%).

Conclusion

Both GM and PL led to improvement in performance, as assessed by DLST. But the influence of GM had significantly higher than PL.

Key words: gm, mantra, attention

GODESS GAYATRI



Just as honey is the essence of flower, ghee is the essence of milk, in the same way, gāyatrī is the essence of Vedas. Gāyatrī is a Kamadenu to him who has accomplished it in full.

---Maharshi Vedavyasa

ॐभूभु वः वः
त स वतुव रे यम
भग देव यधीम ह
धियो यो नः चोदयात् ॥

*Om bhūrbhuvah svah
tatsaviturvareṇyam
bhargodevasya dhīmahi
dhiyo yo naḥ pracodayāt.*

CHAPTER 1

INTRODUCTION

The *Gāyatrī* mantra has been mentioned in Rig Veda. The *Gāyatrī* mantra revealed to the sage *Vishwamitra* himself , in a new meter called “*Gāyatrī*”.. Hence the mantra came to be known as “*Gāyatrī mantra*”. It is also called Savitra mantra since it concerns the deity Savitra. (Swami Harshananda)

According to Indian tradition *Gāyatrī* mantra initiated to a student before starting his/her formal education. It is said that by chanting *Gāyatrī* mantra will bring the improvement in the *Dhī śakti* (the power of Intellect) (Bhatta, 2004). Other scriptural references are also suggestive of the influence of *Gāyatrī* mantra on the brain function (*Gāyatrī* tantra 1999).

Scientific investigation also found that yoga mantra and religious chanting had positive influence on many physiological and psychological functions of the body. For example, during both prayers and mantras, there was an increase in the synchronicity of cardiovascular rhythms when they were recited six times a minute. There was also an increase in baroflex sensitivity. These findings suggested that the recitation of the rosary and certain yoga mantras, at specific frequencies, induce favorable psychological and physiological effects (Bernardi, et al., 2001). The significance of recitation of Om in twelve 12 experienced meditator found subtle changes in mental state indicated by reduction in the skin resistance (Telles, Nagarathna, & Nagendra, 1998). The different types of meditation in Japanese Buddhism showed different brain regional activation. The recitation of buddha name (Nenbutsu) activated the prefrontal cortex, and the Buddhist Sutra activated the left dorsolateral prefrontal cortex and right parietal cortex (Shimomura, et al., 2008).

In a match paired control study using chanting Vedic hymns showed improvement in sustain attention in teen aged school students of residential setup of similar ambiance (Shripad, Nagendra, & Bhatta, 1998). Hence the present study has designed to evaluate the effect of chanting *Gāyatrī* mantra on attention in school students.

CHAPTER 2

“Gāyatrī Mantra – A study”

2.1.1 INTRODUCTION

Mantras form an integral part of Indian way of life. Mantras are Sanskrit word loaded with power which is considered to-be essential for the internal journey of self Knowledge. This ancient sound creates vibration that can replace the negative energy with positive one. It is a thought idea or technique which removes blindness of mind . With practice of mantra, blind mind is transformed into awakened mind (intuition).

The etymological meaning of mantra is

मननात् त्रयते इति मन्त्र - mananāta trāyate iti mantrah

The meaning is by chanting the mantra we can protect ourselves. In other words we can get rid of all our hindrances either mental or emotional through chanting of mantra.

According to Hatha Yoga Pradipika :

अथ यः सर्वशास्त्राणां शयः सर्वदेहनाम

अत्रात्मयोगी युक्तः समाधिना ॥४॥ ४

Avydyhaḥ sarvaśāstrāṇāmsakyaḥ sarvadehinām /

agrāhyo mantrayatrāṇām yogī yuktaḥ samādhinā / /HYP 4-113 / /

Swami Brahmananda’s commentary: some of the things that attract and destroy a yogi in his course are described: sloth, indifference, loose company, the negative practice of mantras, alchemy and many others. Those who practice yoga have to encounter these dangers. Fixing the mind on Viṣṇu or Śiva, a yogi surmounts all these difficulties. Thus the use of mantra is that which protect us from the constant mental flow of thoughts, fears, apprehensions, & negativities.

The resonance sound of mantra, operates as total energy system that engage with all levels of an individual being. Mantra have the vibration pattern of their own .The same pattern of mantra stimulate a certain effect on the mental psychic nature of an individual. Every letter brings resonance in particular part of body, chanting the whole mantra generates a particular resonance pattern ,the resonant wave moving from part to part in the body. The associated resonance pattern in the physical body produces very special effect on the body. (Dr. H.R. Nagendra M.S,R.T. by S.Vyasa prakashan)

The science of mantra is very ancient & was practiced in all parts of the world . Chanting of mantra is a meditative practice from the rich tradition of Indian spiritual practices. This ritualistic chanting helps to bind the mind to a single thought until it attains the state of Samadhi . Omkar chanting an important yogic practice has revealed that the vibration due to its chanting increases concentration ,memory& ultimately decreases the level of fatigue .(Vishwas.v.mandlik,Ramesh varkhede).

Veda is considered as the single collection of all mantras revealed to various Rsis. When a mantra is chanted in rhythmic tone with up & down, they create a melodious effect in the body. This effect can defined as the Neuro-linguistic effect. This effect is possible even if you don't know the meaning of mantra. At the same time if you know the meaning it has got an additional effect which is known as Neuro-Linguistic(NLE)+ Psycholinguistic effect(PLE). The NLE & PLE Effects are due the production & spreading of curative chemicals in the brain. These curative chemicals gives smoothening & curing effect in the body . The recitation or chanting of mantra has evolved as a simple way to slow down the process of respiration improves concentration & induce calmness (Hewitt,1983). A study reveals that constant repetition of mantra japa decreases excitement & normalize the blood pressure.(Santideva,S. 1999) .Thus ॐ -mantra chanting is no way a superstition. It can also be directly called as music therapy or mantra therapy in modern words.

In आयुर्वेद (Ayurveda) apart from the herbal remedies for disease, a stress is laid on mantra recitation also to enhance healing. The two basic treatment methods of ayurveda are herbs for the body & mantras for the mind (Frawley, D.2000). We can find numerous references emphasizing mantra recitation in Ayurvedic Text.

- In the treatment of jwara, Charak recommended chanting of Viṣṇu sahasranāma.
- In the treatment of snake bite, antidotes are prepared while chanting specific mantras, to increase the efficacy of medicine.

Mantra is the main practice that links yoga & ayurveda. Ayurveda considers mantra to be the most important healing method after the use of herbs. Apart from the physical nervous system, our rishis classified some 72,000 nadies (bundle of tubular vessels) as part of the psychic nervous system. When a mantra is chanted, sound energy is generated & the vibration of that energy is diffused & distributed into physical nervous system & to Psychic nervous system through six major chakras situated along the length of the spinal column & a seventh at the crown of the head. These chakras can be correlated to the plexuses of the modern physiology.

The constant hammering vibration of mantra makes you feel the stimulation within the chakra. Mantra stimulates the nadis & chakras. For example, the bija mantra Yam, Om & Lam affects the अनाहत – Anāhata, आज्ञा चक्र – ājñā cakra, मूलाधार चक्र – mūlādhāra cakra respectively.

The Yogic tradition states that it is possible to awaken the chakras & kundalini solely through use of mantras. Mantra is a word power which could be used for spiritual realization or material desires, it could be utilized for one's own welfare or destruction. Such a powerful word or mantra can express itself either as written or spoken word. The written word or varnatmak – sabda contains syllables, words or sentences whereas the spoken word or dhyanatmak – sabda is nada or manifestation of thought through certain sound. It could be either mere sound or words spoken, chanted or sung.

Japa Yoga :- (Repetition of mantra)

Japa Yoga is a part of mantra yoga science. Japa which means physical or mental repetition of mantras produce vibration on different planes & these vibrations affect the vehicle (kosas) of the aspirant & the changes produced in the deeper layer of consciousness .

Five different stages of mantra repetition have been classified

1. **वैखर - Vaikhari** : One who want to memorize the mantra should utter the mantra loudly & clearly with the correct intonation ,pronunciation & pause. This is known as Vaikhari Japa or verbal repetition .This is the initial stage of Japa Yoga.
2. **उपांशु - Upānśu**: Upanshu means “Whispered sound” . One should mutter the mantra with a very low voice. Lips & tongue should move while one pays attention to the meaning of mantra .This is known as Upanshu-japa. This is next stage of japa yoga. Whispering also help to keep the awareness on mantra when the mind becomes introvert.
3. **मानसी-Mānāsī**: One should repeat the mantra mentally .Be absorbed in the central meaning of mantra..Try to hear this mantra in your heart’s chakra . This is known as Mānāsī japa.
4. **प य - Pāśyanti** : Pashyanti means seen by mind”s eye. In the Manipur chakra or the naval center ,one may some times see with the inner eye the mystical word of mantra are written on blossomed petals of the carka,one may see the sound vibration manifesting through colours .This vision ,which you get of sound of mantra ,is known as pasyanti or visible sound.
5. **परा - Parā** : Parā or ajapa is effortless or continuous mantra repetition. Mantra become mental obsession. When one enters into perfect silence.In the beginning, mentally meditated on ‘OM’ then merge in transcendental peace or silence of thy atman. This is known as para.

Mantras are generally classified in two group .:

1. Vedic Mantra : The vedic mantras are called shruti because the sages were able to hear these sound, which are inaudible to ordinary people. So these are generally revelations of sages which were utilized in various yajnas .

2. Japa Mantra : Japa is the repetition of choosen mantra or chanting the choosen mantra. The Japa mantras are specific mantra relating to specific deities which are used in meditation. When a choosen mantra is chanted correctly & systematically with proper intonation ,there is immediately set up a vibration in the nervous system in such a manner that a harmony is established in the whole world .Different mantras produce different vibrations & they invoke different devatas .

Mantras like *Gāyatrī* mantra serve both purpose. It is also known as the “Guru mantra” or the savitri mantra . It is declared to be the highest, oldest and powerful mantra in Hindu religious writing. This mantra is therefore reffered to as “The mother of the Vedas”. Chanting of *Gāyatrī* mantra removes all obstacles in our path to increased wisdom, spiritual growth & development. The mantra is simple Prayer to the Lord to remove our ignorance & illuminate our mind with Knowledge & intellect .

Whatever we want to achieve in our life, the first & foremost requirement is that our intellect ,our understanding must be an excellent form .Repetition of *Gāyatrī* mantra with faith & reverence will help not only in cleansing the mind but also in achieving greater concentration. It is believed by chanting *Gāyatrī* mantra & firmly established in our mind if you carry on your life & do the work ordained for you. Your life will be full of happiness.

We all want to increase our intelligence, concentration, memory & capacity for information . This is a key for strength & success in information age.. *Gāyatrī* mantra is a prayer to the god savitr who is core & centre for the whole universe to make our

mind & intellect sharp & creative to live in the world peacefully.& ecofriendly. This chant is as valuable &appreciable in modern world as it was in ancient times. We can use it whenever we wish to gain new insight& inspiration & to increase memory & concentration , even for mundane tasks.

2.1.2 Aim & objective

- To know about the mantra & its importance in our life.
- To study about the Gayatri mantra.
- To focus on increasing the attention through chanting of Gayatri mantra

2.1.3 Gāyatrī MANTRA

ॐभूभु वः वः
त स वतुव रे यम
भग देव यधीम ह
धियो यो नः चोदयात्

History of Gāyatrī mantra:

Gāyatrī mantra is an eternal Vedic mantra; it is form of eternal truth and is gift to the whole world from the great rishi Vishwamitra, the seer of the third book Rg-Veda , which was written in Sanskrit about 2500 to 3500 years ago & the mantra may have been chanted for many centuries before that. In spiritual parlance, he was the first master of *Gāyatrī* sadhana. Sage vishwamitra was received the *Gāyatrī* mantra by the Supreme Being as a reward for his many years of deep penance & meditation.

The mantra first appears in Rig Veda (III.62.10) later in the Yajur veda, sam veda & in the Upanishads & considered to be very essence of the three holy Vedas (Manu smrti11.7). This mantra is based on truth so *Gāyatrī* protects the wealth of those who speaks it with earnestness & devotion (Brhadaranyaka upnisad 5.14.4). In

Bhagvadgita Lord Krishna had Proclaimed to Arjuna-“Among all the mantras, I am the Gayatri” (B.G.10.35).

Gāyatrī is the mother of the Vedas & destroyer of all sins (Taimini I.K.). Even-though the mantra is known *Gāyatrī*, its real name is Savitri mantra of the *Gāyatrī* chandas (Sant Sadguru Keshavdas).

Significance of the mantra:

The Rig Vedic *Gāyatrī* mantra is a prayer for light of illumination. It is the universal mantra as it is a meditation on light through the sun which is the same to whole humanity. The mantra is a cosmic formula of twenty four syllables in Sanskrit & composed in rhythm called *Gāyatrī* chandas. This mantra confers Wisdom, purity, prosperity & liberation.

Meaning of the mantra: Dear Goddess *Gāyatrī* please illuminate our mind with knowledge & intellect & lead us to our true purpose in life.

It is a prayer to the supreme infinite for the enlightenment of the intelligence (Dhi) of all human being to enable them to realize the supreme truth .Since it is addressed to the Divine person in the sun (Savita), who is considered as the visible symbolic representation of the Supreme Divinity. It is also known as Savitra mantra (S. Mukhyananda).

The word by word meaning of *Gāyatrī* Mantra:

Dear Goddess *Gāyatrī*, Please illuminate our path towards our higher consciousness & lead us to our true purpose in life.

Om	:	The primeval sound,
Bhuh	:	God who is eternal
Bhvah	:	God who is the creator
svah	:	God who is the independent
Tat	:	That eternal God

Savitur	:	Divine Sun, the ultimate light of wisdom
vareṇyam	:	Most adorable, most desirable
bhargo	:	Illumination, luster, splendor
devasya	:	Divine Grace
dhīmah	:	We meditate upon
dhīyo	:	Intellect, our understanding of divinity
yo	:	He, who
naḥ	:	Ours
pracodayāt	:	May He inspire, may He lead towards illumination

Aum: represents Brahma Swaroopam, Om is considered the primeval sound from which all sounds emerge.

Om bhūrbhuvah svaḥ: is actually a preamble to the main mantra means we invoke in our prayer & meditation the one who is our inspirer, our creator & who is the abode of supreme joy. It is also means; we invoke the earthly physical world, the world of our mind & world of our soul.

tatsaviturvareṇyam: Tat meaning That Supreme being. Savitur meaning Lord Surya who is the creator also called Savita is to be prayed as the best representation of Atman.

bhargodevasya dhīmahī : means we meditate on the wonderful brilliance of Lord Surya.

dhiyo yo naḥ pracodayāt : In this dhiyo & naha meaning our buddhis & shaktis, our intellect, our intention. Finally prachodayaat meaning we pray to that paramatma who residing in Lord Surya may he inspire, may he guide our buddhis & Shaktis.

Put together, we could say: We meditate on that desirable enchanting luster & brilliance of our supreme being, our source energy who is our creator, inspirer & source of eternal joy, may the ultimate light of wisdom guide our mind towards illumination.

2.1.4 Effect of *Gāyatrī* Mantra on Human Body

The *Gāyatrī* Mantra possess both the power of mantra & the power of Parthana, thus has both an intrinsic power (i.e., mantra Shakti) through its mere utterance alone & also an instrumental power (i.e. *Parthana* Shakti), which is derived from the understanding of its meaning & philosophical significance. Hence the repeated & correct chanting of *Gāyatrī* mantra, with proper understanding of its meaning, is believed to be of the greatest good to the individual. The sages of ancient times selected the words of *Gāyatrī* carefully & arranged them so that they not only convey the meaning but also create very specific vibration & power to righteous wisdom through their utterance.

The super natural impact of *Gāyatrī* mantra in the physical domains of life lies in the unique configuration of the specific syllables of the mantra. The cyclic enunciation of this mantra stimulates the subliminal power centers in the subtle body. The pressure on tongue, lips, vocal cords, palate & the connecting region in the brain generated by continuous enunciation of the 24 special syllables of the *Gāyatrī* mantra creates a resonance in the nerve & the threads of the subtle body. The musical flow thus induced the extrasensory energy centers. The latter begin to stimulate & sublime magnetic force arouses in the *Sadhaka* that attracts the vital current of *Gāyatrī* Shakti immanent in the infinite domains. This magnetic charge induced by the continuous repetition of the *Gāyatrī* mantra 'attunes' the seeker's mind to link with these supernatural power –current (Pandit Ram Sharma Acharya).

It is significant that the prolonged repetition of the *Gāyatrī* has cumulative effect on our bodies .Our minds are sharper, our immunity system is stronger & our hearts are open.

This 24 syllable-generally arranged in a triplet of eight syllables each. Therefore this particular *Gāyatrī* meter is known as 'Tripadhi'. This *Gāyatrī* meter contains the Following three lines Hence called as 'Tripada *Gāyatrī*'

tatsaviturvareṇyam
bhargodevasya dhīmahi
dhiyo yo naḥ pracodayāt

Each of this line is derived from the Rig, Yajur & Sam veda respectively. Each line has 8 letters or matras, put together these have 24 letters representing the 24 nodal Points in the human body. When uttered properly each of these words makes specific sound .Sound has tremendous impact on our response that governs its movements, reflexes & behavior. Each of letters in *Gāyatrī* mantra is specifically chosen & have a correct influence on body & its behavior.For each of these nodes twenty four mudras (Postures) have also been described. Therefore, the mantra clearly state “Chaturvimshathi mudravi gayatryah suprashtital iti mudra” means *Gāyatrī* should be invoked into the body by using these postures. These postures will be taught by the “Guru” at the time of Upanayan Sanskra. These 24 nodes in the human body are stimulated by the frequent utterance of *Gāyatrī* mantra, under the condition of regulated breathing cycles.

The list of nodes is as follows

- Tat : Toes
- Sa : Feet
- Vi : Calf
- Tu : Knee
- Va : Heart
- Re : Rectum & gluteum
- Ni : Testes
- Yam : Waist
- Bha : Naval
- Rgo : Stomach
- De : Breast areas
- Va : Chest

- Sya : Throat
- Dhi : Facial muscles
- Ma : Jaws
- Hi : Nasal Tip
- Dhi : Eyes
- Yo : Eyebrows & temple
- Yo : Head
- Naha : Fore head
- Pra : Back side
- Cho : Left side of the head
- Da : Right side of the head
- Yat : Top center

2.1.5 *Gāyatrī* – The mother

It is known as '*Gāyatrī*' since it protects (trayate) one who chants it (gayantam) correctly as per the rule of Vedic intonation. This is the etymological definition of the word. *Gāyatrī* is *Sarvadevata Swarupini* and *Sarvamantra Swarupini* (embodiment of all Gods and goddesses and all *Mantras*). It is said, *Gāyatrī Chaandasaam Matha*, meaning *Gāyatrī* is the mother of the *Vedas*. There is no need to chant any other *Mantra* if you chant the *Gāyatrī Mantra*.

Gāyatrī has three names: *Gāyatrī*, *Savitri* and *Saraswathi*. *Gāyatrī* is the master of the senses. *Savitri* is the master of the life principle. When *Gāyatrī* acts as the protector of life forces, she is known as *Savitri*. *Saraswati* is the presiding deity of speech.(vaak).The three represent purity in thought word & deed. Man has to earn the grace of *Gāyatrī*, *Savitri* and *Saraswathi* to sanctify his life. *Gāyatrī* is known as *Panchamukhi*, meaning she has five faces. "Aum" is the first face; "Bhur Bhuvah Suvaha" is the second; "Tat Savitur Varenyam" is the third; "Bhargo Devasya Dheemahi" is the fourth; "Dhiyo Yo Nah Prachodayat" is the fifth. *Gāyatrī* the five

faces Goddess, is said to have domain over the five senses or prana, & protect these five life forces of those who chant the *Gāyatrī* mantra.

Gāyatrī has three parts: 1.Praise, 2.Meditation, and 3.Prayer. First, the Divine is praised, then it is meditated upon in reverence and lastly, an appeal is made to the Divine to dispel the darkness of ignorance and to awaken and strengthen the intellect. "*Dheemahi*" is related to the meditative aspect. "*Dhiyo Yo Nah Prachodayat*" relates to the aspect of prayer.

Goddess *Gāyatrī* typically portrayed as seated on a red lotus, signifying wealth. She appears either in these forms.

Having five heads with 10 eyes & 10 arms holding all the weapons of Vishnu, symbolizing all her reincarnation.

Accompanied by white swan holding a book to portray knowledge in one hand & a cure in the other as the Goddess of education.

The secrete lore of Upanishad –is the essence of four Vedas, while the *Gāyatrī* with three vyahirities, is the essence of Upanishad. A person totally devoted to *Gāyatrī* recitation can achieve great success in the path of self-advancement.

The Veda say: To chant the *Gāyatrī* mantra, purifies the chanter

To listen the *Gāyatrī* mantra, purifies the listener.

2.1.6 Vyaharities of *Gāyatrī*

Vyaharities is that which give the Knowledge of entire cosmos or “Ahriti”. Bhur, Bhuvah, Svah .These three words collectively known as “Mahavyahariti” They express the nature of God & demonstrate its inherent qualities.

Literally ‘Vyahrti’ means uttering, Brahma the creator, is said to have uttered these at the beginning of creation. Hence the appellation ‘Vyahariti’ when the *Gāyatrī* is used for Pranayama the number of vyarti is increased from 3 to 7 (S.harshananda).

Om was prefixed to *Gāyatrī* mantra along with the three Vyahritis. The Bhuh, Bhuvah & Swaha are the three among the five elemental streams of primordial energy emanating from 'Om'. Spiritual sciences referred to this as brahma (the creator), Vishnu (The sustainer), Maheshwara (the destroyer). Bhuh, Bhuvah, swah in *Gāyatrī* mantra refer to body (materialization), life force (Vibration) & soul (radiation) (S. Mukhyananda).

Bhuh: The word Bhuh implies existence and also means Bhuloka which is nothing but the combination of material.

Bhuvah: Bhuvah refers to life force, which makes the body move. It is described as the absolute consciousness of God and also relates to god's relationship with the celestial world. Finally it is also indicative of God's role as remover of all pains & suffering.

Svah: Svah refers to Prajnashakti which sustains the life force .The prajnanashakti known as constant integrated awareness. This is also termed as radiation .It indicates the all-pervading nature of God. He is omnipresent & pervades the entire universe. Also Svah symbolizes God's bliss. Finally it needs to be mentioned that there are number of meanings of these three main words of *Gāyatrī* mantra, which are as follows.

BHUV	BHUVAH	SVAH
Earth	Atmosphere	Beyond Akash
Physical	Astral	Celestial
Past	Present	Future
Tamas	Rajas	Sattva
Gross	Subtle	Deep Subtle

2.1.7. OM & GĀYATRĪ

Gāyatrī is also associated with Om, Which is considered as the source of the Vedas (Swami Śivānanda). The supreme deity invoked by mantra is the light symbolized by the physical luminary, the sun.

Om & the *Gāyatrī* –mantra have acquired such a great importance that they are often referred to as the Pranava & the *Gāyatrī*. In Vedas, Upanishad & Gita, there are numerous references to the holiness, importance & significance of the Pranav & *Gāyatrī*. The first word Om (Aum) is called Pranav because its sound emanates from prana (Vital Vibration), which feels the universe. The scripture says

ॐ इति एकाक्षरम् ब्रह्म

Aum that one syllable is Brahma. The one- syllabled Om is Brahman. For this mantra, agni is its Deity. Its Rsi is also Brahman. Its meter is also *Gāyatrī*. Its application is for the union with Paramatma (S.Mukhyananda).

When we pronounce Aum:

A - Emerges from throat, Originating in the region of naval

U - Rolls over the tongue

M- Ends on the lips

A-Waking, U –dreaming, M-Sleeping

It is the Primordial fundamental sound symbolic of the universal Absolute. The Lord says –

प्रणव सर्व वेदेषु - I am the om in all the Vedas (B.G. 7.8) पवित्रम् ओम् करःह - I am the holy word Om (B.G.9.17). Of samans also I am the Brihat-Saman of meters *Gāyatrī* am I (BG 10.35)

Om being the sound symbol of Brahman, it is consider being the first vibration as sound emanating at the beginning of creation. From the three matras of Om came out the three feet of *Gāyatrī* . And from this three 'feet' came out the three Vedas & the three vyahrtis Bhur-Bhuvah-Svah, representing the three cosmic world plane.(ChandogyaUpnishad).

From A- came out 'tat saviturvarenyam', which expanded it-self into the Rg-veda & the cosmic plane Bhuh

From U- 'BhargoDevaysyaDhimahi' which expanded itself into Yajur Veda & the plane bhuvah

From M- 'Dhiyo yon aha Prachodayat', which expanded itself into Sam-Veda, & the plane of svah. Om was prefixed to *Gāyatrī* mantra along with three Vyahrti, Bhur, Bhuvah, Svah.

Later on these three vyahrtis were raised to seven, by subdividing Suvah into suvah. Mahah, Janah, Tapah & satyam, Corresponding to the seven higher worlds. These are used in the mantras of the Sandhyavandan & other rituals (MahanaryanaUpnishad).

Om mahah (The region of spiritual light)

Om janah (The place of origin of universe)

Om Tapah (The region of higher Knowledge& meditation)

Om Satyam (The abode of truth)

2.1.8 *Upāsana*

Method of self-integration is called *Upāsana*. '*Upāsana*' in Sanskrit literally means 'Seating near' (the Lord). So, this word is used for worshipping, meditating, serving the God. *Upāsana* is a combination of inward meditation & outward rituals.It acts as bridge between the karma kanda & jnana kanda of vedic literature.It helps

the devotee to sit near the Lord or to commune with him. It purifies the heart & steadies the mind. It fills the mind with suddha bhava & prema.

Sandya Upāsana / Sandya vandana

The junction between night & day (i.e. dawn) & that between day & night (i.e. dusk) are called '*sandya*'. The former is known as '*Prātas -sandya*' & the latter as '*Sāyam sandya*'. *Upāsana* means meditation & *sandya* means meeting period of day & night i.e. dawn & dusk. The worship of Surya (the Sun) to be performed during these two periods is called '*sandyoupāsana*' and '*sandyavandhana*' & often merely *sandya*. In addition one more is added the '*madhyahnika*' a rite that is to be performed during noon when the sun is right above our head.

Preparation for the performance of Sandya

Before performing *Sandya*, one should be physically clean, mentally calm & restrained & have a playful attitude.

- To practice the meditation, the place should be clean, calm, simple & secluded. In a simple & secluded place the mind becomes humble & remains undisturbed therefore concentration becomes easy & spontaneous.
- Wash the limbs or have a bath before you meditate.
- One should sit on a grassmat (*kusasana*) or suitable cotton carpet piece one may sit either in the lotus posture (*padmasana*) or one may sit in a comfortable posture preferably with cross folded legs or (*sukhasana*).
- One should sit firmly with erect spinal cord keeping trunk, head & neck erect.
- There should be rosary of Tulasi, Rudraksa or sandalwood beads.
- One is free to choose the sakara or nirakara mode of *Upāsana* as per his mental makeup.
- In sakara *Upāsana* one may keep a picture of Divine mother & worship the mother before & after the meditation by flowers.

- Nirakar *Upāsana* does not require any photo or idol as here one may meditate on flame of light in the brow centre.
- One should sit for meditation facing the east in the morning, north in the noon & west in the evening. Brahm muhoort i.e. an hour before sunrise in the morning & just before sunset in the evening to an hour thereafter bring forth maximum result. The inhalation & exhalation is balanced during early morning & early evening so during that hour's meditation becomes profound & peaceful.
- While chanting the mantra if one knows the meaning of what he chant, then such meditation becomes more peaceful. of course, when one chant with faith, the healing vibration of mantra bring him blessing of peace, where he knows its meaning or not.
- At the commencement of *Upāsana* & at the end one must pray for the peace, happiness & wellbeing of all creatures, human & non-human.
- The mantras of sandhya have to be learnt from a competent person with correct & clear pronunciation along with their meaning, to be mystically effective.
- The maximum benefit of chanting the mantras is said to be obtained by chanting it 108 times.
- The Rg Vedic *Gāyatrī* Mantra is prayer for light for illumination.
- The *Gāyatrī* is a cosmic rhythm consistint of twenty four syllable arranged as triplets of eight syllables each.
- The syllables of mantras are said to positively affect all the chakras or energy centers in the human body .Hence proper pronunciation & enunciation is very important.
- *Gāyatrī Upāsana* is done for attaing Universal conciousness & awakening the intuitive power.
- The rituals, external & internal must be performed punctiliously & artistically without clumsiness in the proper prescribed manner, understanding their

significance, uttering the mantras clearly with earnestness (Nistha), faith (sraddha) & conviction (Visvasa), to yield great results.

Various steps during Gāyatrī Upāsana

Though there are difference in the procedure & the various steps to be followed, as per differing tradition, the eight steps common to all will be delineated here. The detailed procedure has to be learnt from the family priest or the elders in the family.

These eight steps are: *Ācamana Āpomarjanam Prāṇāyāma Punarācamanam Punarmarjana Arghapradana Gāyatrijapa Suryopasthana*

1. *Ācamana* : is the ceremonial sipping of water in the prescribed manner, for self-purification, remembering the supreme All-pervading Reality.
2. *Āpomarjanam* : Literally 'marjana' means cleansing or purifying. It consists of sprinkling of water on specified parts of the body with the mantra. This process will make the body ceremonially pure & fit for the ritualistic act
3. *Prāṇāyāma* : Regulated breathing as per prescription, for establishing psychosomatic harmony, using the *Gāyatrī* mantra.
4. *Punarācamanam* : Again sipping of water with appropriate mantra for the removal of all sins & obstacles.
5. *Punarmarjana*: Again sprinkling water over one self with the *Gāyatrī* & other mantras praying for welfare here in the world & highest spiritual attainment hereafter.
6. *Arghapradana*: Any object fit for being offered in ritualistic worship is 'arghya'. It is the offering of water taken in the two hand cupped together by repeating the *Gāyatrī* mantra & addressing the Sun-God (Savita), This is to show our gratitude to sun-god who is our primary life support.

7. *Gāyatrijapa* : This is the most important part of the sandhya ritual. Its primary steps are Karanyasa, anganyasa, dhyna & Japa. 'Nyasa' means 'to keep or to place' It is aimed at filling the fingers of the hand & other limb like the head & heart with divine power of the deities. This is followed by japa & meditation.
- i. **Japa:** means rhythmic enunciation of mantra at a consistent amplitude & frequency. Techniques of japa are described in ancient science of mantras. The Upanshu japa is most suitable for daily upasana. Japa is a kind of cleansing & sharpening process. The cyclic pressure & attribution induced by the mantra – japa also serve the purpose for cleansing of mind & inner sentimental core. It is better to repeat the mantra 1008 times or at least 108 times per sitting.
 - ii. **Dhyana:** is a meditation on deity as per the detailed description given in the hymn while repeating it. The Goddess *Gāyatrī* within the orbit of sun is the deity here.
8. *Suryopasthana:* Repeating the prayer addressed to the deity *Gāyatrī* (in the orbit of sun) in the standing posture, facing the Sun is 'Suryopastana' (upasthana- Standing). This is last rite of bidding fare will to the goddess after having invoked her & Satiated her through japa.

Result of Upāsana

The single *Gāyatrī* mantra is so powerful it brings the same award as reading of four Vedas . The mantra was to be repeated thrice a day & in turn it will confer all the blessing on you in form of good health, wealth, Vitality & beauty.

Gāyatrī worship results in extraordinary benefits to its devotee. The reason is that they get righteous wisdom & true knowledge as a divine boon. One should not expect material benefits from the mantra. Peace of mind & sense of acceptance itself is the greatest reward.

- **Righteous wisdom:** *Gāyatrī* inspires man towards righteous wisdom. A person totally devoted to *Gāyatrī* recitation can achieve great success in the path of self-advancement. *Gāyatrī* undoubtedly & miraculously transform the mental framework of a person to a systematic healthy righteous & balanced personality.
- **Peace & contentment:** The upasana of *Gāyatrī* calms down all passions & endless thirst of worldly attraction. Waning of all unwanted, unnecessary craving of mind. We also learn to accept ourselves with all our good & bad aspect transcending the pair of opposites. Devotion to *Gāyatrī* naturally educes a state of ultimate fulfillment, beatified content & peace.
- **Purification of Mind:** *Gāyatrī* mantra recitation purifies our feelings. Darkness of evil thoughts, false convictions start dispelling. The well-developed mind produces thoughts resulting in happiness. All negative emotions sublimate into refined feeling & one become less sensitive to ourselves & the surrounding world & more sensitive to divine.
- **Memory and Intelligence:** *Gāyatrī* mantra is a prayer to make our mind and intellect sharp and creative to live in this world peacefully and ecofriendly. A person who does *Gāyatrī* japa regularly is able to realize the benefit of any studies. *Gāyatrī* mantra is the first mantra to be taught in the schools in olden days as it enables students to invoke the effulgence of sun to stimulate their intelligence. The Hrim, Srim and Klim powers of kamadenu *Gāyatrī* are the eternal sources of righteous, wisdom, intellect and prosperity.

2.1.9 Exaltation of *Gāyatrī* Mantra by dignified personalities

- ❖ **Sri Ramkrishna Paramhansa:** Great siddhis are attained by *Gāyatrī* sadhana. This mantra is extremely powerful. Sandhya merges in *Gāyatrī* and *Gāyatrī* merges in Om.
- ❖ **Swami Shivananda :** of all the mantras ,the supreme & most potent power is the great, glorious *Gāyatrī* mantra.

- ❖ **Swami Vivekananda:** He declared that the Vedas & *Gāyatrī* mantra must be propagated among all as before, irrespective of caste, creed, sex or religion. *Gāyatrī* is mantra of righteous wisdom & therefore, it has been called a bejeweled crown of all the mantras.
- ❖ **Swami Dayananda Saraswati** The founder of Arya Samaj, was a staunch worshiper of *Gāyatrī*. He preached *Gāyatrī* as the paramount Guru mantra of all the Vedas.
- ❖ **Swami Ramteerth** : The purpose of *Gāyatrī* Mantra is to remove intellect's craving for sensuous pleasures & inculcate in it deep interest for God. He alone can Realize thee whose intellect is so pure & stable.
- ❖ **Rabindranath Tagore:** It is the *Gāyatrī* Mantra which can be awakened India & which is as simple as can be chanted in one breath. There can be no scope for any logical discussion, different opinion or any dispute in the study of this mantra.
- ❖ **Mahatma Gandhi:** Constant chanting of *Gāyatrī* mantra is very useful in healing the disease & elevating soul. *Gāyatrī* japa practiced with steady mind & pure heart is capable of removing obstacles & calamities during bad time.
- ❖ **Madan mohan malviya:** *Gāyatrī* is the most precious gem which has been given to us by rsis it purifies the intellect & soul is enlightened with the light of God. *Gāyatrī* sadhna is extremely necessary for Brahmins. A person who does not perform *Gāyatrī* japa is guilty of neglecting his duties.
- ❖ **Lokmanya Tilak** believed that "Political freedom alone will not liberate Indian people from the bonds of Slavery. For this the inner soul should be enlightened. The grace of *Gāyatrī* mantra is endowed with this supreme power.

2.1.10 CONCLUSION: Mantra chanting especially *Gāyatrī* mantra purifies the mind and is essential for the internal journey of self Knowledge. This can replace the negative energy with positive one.

2.2 LITERATURE REVIEWS

The acute effects of the ritual of reciting the Rosary, which contains relatively little specific religious content compared to receiving specific teaching of religious concepts, on the level of anxiety. Thirty students in a Catholic college divided into two intervention groups. Twelve (12) students participated in recitation of the Rosary, whereas 18 students viewed a religiously oriented video. Both groups were measured for anxiety pre- and post intervention through the use of the State-Trait Anxiety Inventory. A significant reduction in anxiety was observed in subjects reciting the Rosary compared to the group of subjects watching the video. These preliminary results suggest that ritual itself may be a significant contributor to the effects of religious practices on psychologic well-being (Anastasi & Newberg, 2008).

To identify the regions activated during praying of the Namo Amida Butsu (Nembutsu), and the reciting of Buddhist scriptures (Sutra). Functional MRI (fMRI) was used to identify the regions activated by the Nembutsu, the Sutra and the Shiritori in eight highlytrained Japanese monks. The task of repeating the Nembutsu activates the medial frontal gyrus, which is mainly related to mental concentration and visuospatial attention, similar to the areas activated by meditation. The task of reciting the Sutra activates the left lateral middle frontal gyrus, the right angular gyrus, and the right supramarginal gyrus, which are related to visuospatial attention also involved in the area activated by meditation. Results suggest that different types of meditation in Japanese Buddhism showed different brain regional activation. The Nembutsu activated the prefrontal cortex, and the Sutra activated the left dorsolateral prefrontal cortex and right parietal cortex (Shimomura, et al., 2008).

Autonomic and respiratory variables were recorded in 12 volunteers in three types of sessions (1). Before, during and after a test period of mentally repeating a meaningful syllable 'OM' (MOM session) (2). A similar session except that the test period was spent mentally repeating a neutral word, 'one' (COM session) (3). A session with non-targeted thinking (NT session). The subjects were familiar with both syllables, and had been meditating on 'OM' for 20 days. During the test periods of both MOM and COM sessions the rate of respiration (RR) and heart rate (HR) decreased significantly [(two factor ANOVA (RR), paired t test (RR. HR)]. Compared to the pre period. Mental repetition of 'OM' (but not 'one') caused a significant decrease in skin resistance level (SRL) (paired t test). This was taken to mean that the subject recognized the significance of the syllable. No significant change occurred during NT sessions (Telles, et al., 1998).

The neurohemodynamic correlates of 'OM' chanting investigated using functional Magnetic Resonance Imaging (fMRI), the neurohemodynamic correlates of audible 'OM' chanting were examined in right-handed healthy volunteers (n=12; nine men). The 'OM' chanting condition was compared with pronunciation of "ssss" as well as a rest state. fMRI analysis was done using Statistical Parametric Mapping 5 (SPM5). Significant deactivation was observed bilaterally during 'OM' chanting in comparison to the resting brain state in bilateral orbitofrontal, anterior cingulate, parahippocampal gyri, thalami and hippocampi. The right amygdala too demonstrated significant deactivation. No significant activation was observed during 'OM' chanting. In contrast, neither activation nor deactivation occurred in these brain regions during the comparative task - namely the 'ssss' pronunciation condition. The neurohemodynamic correlates of 'OM' chanting indicate limbic deactivation. As similar observations have been recorded with vagus nerve stimulation treatment used in depression and epilepsy, the study findings argue for a potential role of this 'OM' chanting in clinical practice (Kalyani, et al., 2011).

CHAPTER 3

AIM AND OBJECTIVE

3.1 AIM

Present study was to compare the attention task performance between Poem line chanting and Gāyatrī mantra chanting in school students.

3.2 OBJECTIVE

To study the immediate effect of Gāyatrī mantra

3.3 RESEARCH QUESTION

1. Does Gāyatrī mantra chanting influences on attention?

3.4 HYPOTHESIS

The Gāyatrī mantra chanting will enhance the attention.

3.4.1 Null Hypothesis

Gāyatrī mantra chanting would not influence attention on school students.

3.4.2 Alternative Hypothesis:

Gayatri mantra chanting would influence attention on school students.

CHAPTER 4

4.1 PARTICIPANTS

4.1.1 SUBJECTS

The study was performed on 60 school children (both male and female) in the age group of 12-14 years (6th, 7th & 8th Standard).

4.1.2 SOURCE

Niphad English School& Jr.college Niphad, a well known Government Educational Institute of the New education Society ,Nasik..

4.1.3 INCLUSION CRITERIA

Age range between 12 to 14 years

Healthy subjects who were motivated to chant.

Willing to participate in the research.

4.1.4 EXCLUSION CRITERIA

The subjects were excluded from the study who were having some disabilities related to vocal chords in order to recite Gayatri mantra with all its attributes.

4.1.5 INSTITUTIONAL ETHICAL COMMITTEE

Approval of the school Principal was taken before conducting the study. The parents of the students have given their consent for the study.

4.2 DESIGN OF THE STUDY

Out of the 60 students each and every student was assessed in two sessions: 1. Gāyatrī mantra chanting session and 2. Poem line chanting session. The four recordings for each subject were made on two days sequentially. Each group took both Gāyatrī mantra and Poem line sessions in a two consecutive days.

Before (DLST)	Poem line chanting -10 minutes	After (DLST)
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Before (DLST)	Gāyatrī mantra chanting-10 minutes	After (DLST)
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4.2.1 STRUCTURE OF SESSIONS

All the participants were trained in Gāyatrī mantra chanting and Poem line chanting over a period of 5 days before the starting of the study. This was a self as control study protocol. All participants were assessed on Digit Letter Substitution test before and after a period of Gāyatrī mantra chanting and Poem line chanting. The two sets of measurements took place on successive days. In order to avoid any possible learning effect the participants were divided into two sessions randomly. They were asked to sit comfortably on the floor in cross leg with eyes closed. Fifty percents of participants were asked to chant Gāyatrī mantra loudly for 10 minutes and remaining participants did Poem linechanting.

4.3 ASSESSMENT

4.3.1 DIGIT LETTER SUBSTITUTION TEST (DLST)

The DLST consisted of a worksheet, which has 8 rows and 12 columns and randomly arranged digits in rows and columns. The students are asked to substitute as many target digits as possible in the specified time of 90 seconds. The letter substitution may be undertaken in a horizontal, vertical, or randomized manner by selecting a particular digit. The total number of substitutions and wrong substitutions are scored. The net score was obtained by deducting wrong substitutions from the total substitutions attempted (Natu & Agarwal, 1997).

4.4 INTERVENTION

4.4.1. EXPERIMENTAL SESSION (Gāyatrī mantra)

The students were asked to chant Gāyatrī mantra about 10 minutes .During Gāyatrī mantra the eyes were closed & subjects followed the traditional procedure of chanting it loudly for its best effect to invoke the innate power of effulgence and Intellect.

*Om bhūrbhuvāḥ svaḥ tatsaviturvareṇyam bhargodevasya dhīmahi
dhīyoḥ yo naḥ pracodayāt / /*

4.4.2. CONTROL SESSION (Poem line chanting)

In control session the same subjects were seating in a relaxed posture with open eyes. The duration of both the session was same .Student asked to seat relaxed and poem line chant.

ikkḍe tikkḍe cohī kaḍe āṇandi āṇanda gaḍe

CHAPTER 5

5.1 DATA EXTRACTION

DLST: The total number of substitutions attempted, and the number of wrong substitutions were counted. Then net score was obtained by deducting the latter from the former (Natu & Agarwal, 1997).

The answer sheets were coded and scoring was done by the researcher who was not involved in the study. It was cross checked by another researcher. Then entry was done in computer checking was done.

5.2 DATA ANALYSIS

The raw data obtained for each subject in each recording session were tabulated separately. Statistical analysis was done using SPSS.

5.3 EFFECT OF GĀYATRĪ MANTRA CHANTING ON DIGIT LETTER SUBSTITUTION TASK

The group mean and standard deviation were calculated. Repeated measures analyses of variance (RMANOVA) were performed with two 'Within subjects' factors, i.e., Factor 1: Sessions: Gāyatrī mantra chanting and Poem line chanting and Factor 2: States; 'Pre' and 'Post'. The RMANOVA was carried out for each variable separately.

Subsequently, post-hoc tests with Bonferroni adjustment were performed to compare the data of the 'Post' periods with those of the respective 'Pre' period and also the different states were compared between sessions.

5.3.1 Digit Letter Substitution Test

There were significant differences in between Sessions (GM vs PL) in (i) Total score [$F(1, 59) = 4.697, p = 0.034$] (ii) Wrong score [$F(1, 59) = 0.26, p = 0.873$] (iii) Net score [$F(1, 59) = 7.28, p < 0.001$].

There were significant differences in between states (pre vs post) in (i) Total score [$F(1, 59) = 63.9, p < 0.001$]; (ii) Wrong score [$F(1, 59) = 6.54, p = 0.013$] (iii) Net score [$F(1, 59) = 83.26, p < 0.001$].

There was significant interaction between sessions and states in (i) Total score [$F(1, 59) = 23.51, p < 0.001$]; (ii) Wrong score [$F(1, 59) = 4.47, p = 0.034$] (iii) Net score [$F(1, 59) = 27.85, p < 0.001$].

Post-hoc test with Bonferroni adjustment showed a significantly increase in (i) Total score ($p < 0.001$) and (iii) net score ($p = 0.001$) immediately after both GM and PL compared to their respective pre scores. There was a significant increased in Wrong score ($p = 0.001$) in GM alone. The group average values \pm S.D. are given in **Table 5.3.1.1**

Table 5.3.1.1 Total, wrong and net score for Digit Letter Substitution test pre and post Gāyatrī mantra chanting (GM) and Poem line chanting (PL) sessions; values are group mean \pm SD.

		PRE	POST	% Changes
Total Score	GM	46.67 \pm 13.03	56.25 \pm 12.37***	21.46
	PL	47.62 \pm 12.62	50.88 \pm 12.71***	2.83
Wrong Score	GM	0.80 \pm 0.27	1.77 \pm 0.12***	0.75
	PL	1.20 \pm 0.29	1.43 \pm 0.17	0.50
Net Score	GM	45.70 \pm 12.70	54.83 \pm 12.39***	21.67
	PL	46.07 \pm 13.43	49.43 \pm 12.73**	4.85

Abbreviations: GM = Gāyatrī mantra, PL = Poem Line chanting;
*** $p < 0.001$, Post-hoc tests with Bonferroni adjustment, Post scores compared with respective Pre scores.

CHAPTER 6

6.1 RESULT

Figure-1 Total score of Digit Letter Substitution Test

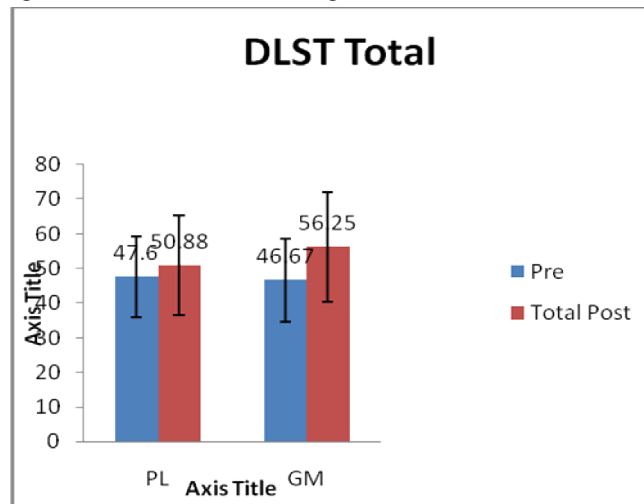


Figure-2 Wrong score of Digit Letter Substitution Test

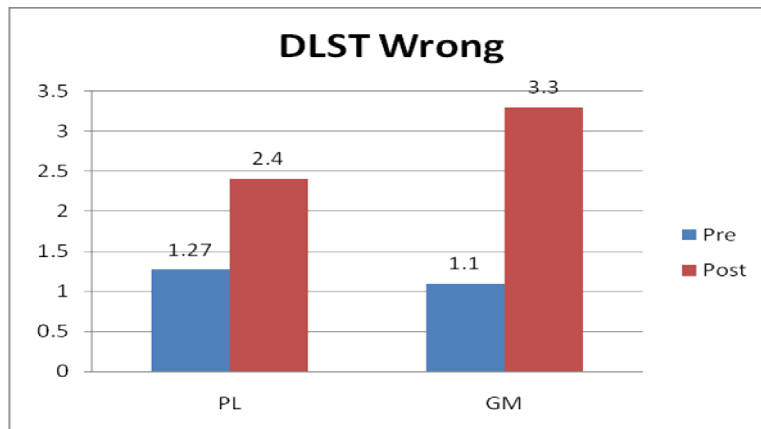
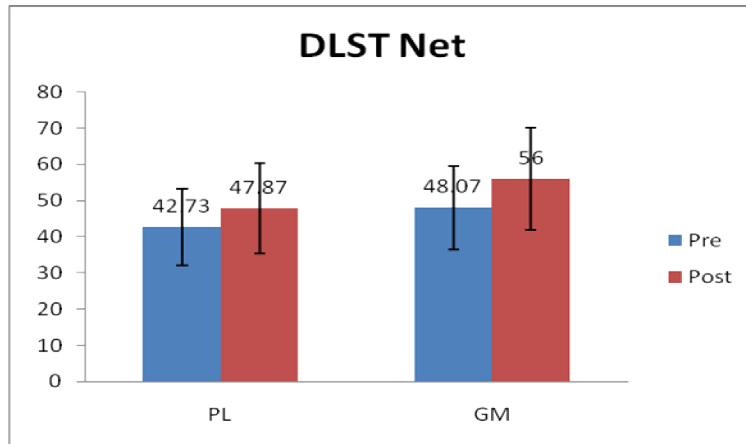


Figure-3 Net score of Digit Letter Substitution Test



CHAPTER 7

7.1 DISCUSSION

There was a significant improvement in Net score in both GM and PL sessions. But further analysis showed that GM significantly performed better than PL sessions.

Previous two groups randomized wait-listed control study showed improvements in DLST when GM recited using two different methods i.e Ekaswar and Dwiswara which was aligned with our present study.

The attention processes involves brain network of brain regions such as the prefrontal and temporal (including the parahippocampal gyrus) cortices, in addition to the anterior cingulate gyrus (Filbey, Russell, Morris, Murray, & McDonald, 2008). During a selective attention task, decreased activation was found in several areas of the dorsolateral prefrontal cortex, anterior cingulate in addition to parietal areas (Weiss, et al., 2007). A feeling of resonating effect during audible 'OM' chanting found significant deactivation was seen bilaterally during 'OM' chanting in comparison to the resting brain state in bilateral orbitofrontal, anterior cingulate, parahippocampal gyri, thalami and hippocampi. The right amygdala too demonstrated significant deactivation. No significant activation was observed during 'OM' chanting. In contrast, neither activation nor deactivation occurred in these brain regions during the comparative task - namely the 'ssss' pronunciation condition (Kalyani, et al., 2011). The Prayer of the Namo Amida Butsu (Nembutsu) activates the medial frontal gyrus, which is mainly related to mental concentration and visuospatial attention, similar to the areas activated by meditation. The task of reciting the Sutra (Buddhist scriptures) activates the left lateral middle frontal gyrus, the right angular gyrus, and the right supramarginal gyrus, which are related to visuospatial attention also involved in the area activated by meditation. (Shimomura, et al., 2008). Hence, the recitation of GM might be contributed for improving the attention task in DLST.

CHAPTER 8

SUMMARY AND CONCLUSION

8.1 SUMMARY

The present self as control study found recitation of Gāyatrī mantra had shown improvement in the attention task (DLST) in school children in the age group of 12 to 14 years.

8.2 CONCLUSIONS

The recitation Gāyatrī mantra had shown significant improvement compared to Poem line chanting.

8.3 LIMITATIONS

- The study was on immediate effect.
- Religious recitation practice
- No neurophysiologic measurements were used during Gayatri mantra intervention.
- Convenience sampling
- The study did not attempt to assess how long the effect of Gayatri mantra on attention lasted.

8.4 STRENGTHS

So far as our knowledge goes this was the first study on self as control trial on immediate effect of Gāyatrī mantra on task performance among school children using digit letter substitution test. Using simple paper pencil test to evaluate the traditional recitation

8.5 APPLICATIONS

Incorporation of Gāyatrī mantra may be implement within a school setting which can help to raise the academic ability of the students along with their all round development.

8.6 FUTURE STUDIES

Future study may include different age group of students for a longer duration (more than one week), different levels of attention, assessment methods to check physiological changes and much more possible effects. In Future study, designs other than self as control can be used and also longer effect of Gāyatrī mantra (more than 10 minutes) can be assessed.

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APPENDIX

Raw data for GM and PL Sessions

SLNO	CODE	SEX	AGE	Poem Line Chanting						Gayatri Mantra Chanting					
				TS		WS		NS		TS		WS		NS	
				Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	VAIB	M	12	40	28	0	0	40	28	35	35	0	0	35	35
2	SHUB	M	12	32	46	1	0	31	46	59	60	5	5	44	55
3	PRAD	M	12	44	44	0	2	44	42	44	55	0	2	44	53
4	ANKU	M	12	36	36	3	0	33	36	35	43	1	2	34	41
5	HARS	M	12	29	30	1	1	28	29	40	48	0	1	40	47
6	GAJA	M	12	51	48	2	1	49	47	67	60	6	7	61	53
7	RAME	M	12	36	44	2	1	34	43	48	60	0	3	48	57
8	TEJA	M	12	36	48	3	6	33	42	49	56	3	5	46	51
9	TUKA	M	12	39	48	0	2	39	46	54	63	4	5	50	58
10	SHRI	M	12	27	29	1	1	26	28	35	29	0	0	35	29
11	JALI	M	13	42	45	0	4	42	41	36	36	0	0	36	36
12	SAND	M	13	42	48	1	3	41	45	41	51	4	10	37	41
13	DURG	M	13	42	53	3	0	39	53	52	53	0	2	52	51
14	RUSH	M	13	62	90	5	11	57	79	67	96	2	9	65	87
15	AADE	M	13	35	51	3	3	32	48	36	61	1	4	35	57
16	RUTW	M	13	56	83	1	8	55	75	48	57	2	0	46	57
17	RAVI	M	13	36	36	0	2	36	34	37	42	0	1	37	42
18	AAKA	M	13	40	48	0	3	40	45	38	57	0	1	38	56
19	AKSH	M	13	68	73	0	6	68	66	60	87	0	5	60	82
20	SANK	M	13	39	47	2	3	36	44	48	65	1	6	47	59
21	PRAS	M	14	38	38	0	0	38	38	46	58	0	7	46	51
22	RUSH	M	14	42	53	2	2	40	51	51	62	0	0	51	62
23	RUSH	M	14	56	63	0	1	56	62	69	83	0	2	69	81
24	ABHI	M	14	40	48	1	0	39	48	48	58	0	1	48	47
25	HARS	M	14	70	67	1	2	69	65	82	84	1	6	81	78
26	GAUR	M	14	71	56	4	5	47	51	61	75	1	9	60	66
27	AMOL	M	14	41	42	0	0	41	42	38	53	0	0	38	53
28	VIJA	M	14	49	56	0	4	49	52	55	37	2	2	53	65
29	RAJA	M	14	49	50	1	0	48	50	46	60	0	2	46	58
30	ARJU	M	14	53	61	1	1	52	60	60	74	0	2	60	72

SLNO	CODE	SEX	AGE	Poem Line Chanting						Gayatri Mantra Chanting					
				TS		WS		NS		TS		WS		NS	
				Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	NIKI	F	12	37	48	0	1	37	47	17	40	1	0	16	40
2	TANW	F	12	43	42	0	0	43	42	39	51	0	0	39	51
3	SHIT	F	12	42	43	2	1	40	42	31	46	0	0	31	46
4	SAMR	F	12	72	68	4	0	68	68	55	73	0	0	55	73
5	VAIS	F	12	43	42	0	0	43	42	35	48	0	0	35	48
6	ROSH	F	12	38	38	0	0	38	38	39	43	0	0	39	43
7	AART	F	12	45	41	1	1	44	40	38	43	0	0	38	43
8	ASHW	F	12	48	48	0	0	48	48	20	42	0	0	20	42
9	SNEH	F	12	26	45	1	1	25	44	33	44	0	0	33	44
10	SHRA	F	12	63	57	3	0	60	57	48	61	3	2	45	59
11	KOMA	F	13	42	46	0	0	42	46	36	45	0	0	36	45
12	PRAN	F	13	63	54	4	0	59	54	61	63	1	0	60	63
13	GAYA	F	13	58	56	0	0	58	56	41	56	0	0	41	56
14	SARI	F	13	56	57	5	0	51	57	59	60	3	3	56	57
15	PRAJ	F	13	39	41	0	0	39	41	41	47	1	0	40	47
16	VRU	F	13	64	60	3	2	61	58	56	68	1	2	55	66
17	CHAI	F	13	60	61	2	0	58	61	57	70	2	0	55	70
18	SHEW	F	13	46	53	0	3	46	50	45	52	0	0	45	52
19	DHAN	F	13	38	43	0	0	38	43	38	42	0	0	38	42
20	AART	F	13	38	34	1	0	37	34	28	33	1	0	27	33
21	MUKT	F	14	61	57	0	0	61	57	52	60	0	0	52	60
22	POOJ	F	14	63	60	1	2	62	58	55	69	0	0	55	69
23	MRUN	F	14	50	62	0	2	50	60	52	55	0	0	52	55
24	MANI	F	14	48	43	2	0	46	43	43	56	1	0	42	56
25	SEEM	F	14	58	59	0	0	58	59	48	61	0	0	48	61
26	SONA	F	14	60	60	1	0	59	60	58	58	0	0	58	58
27	SNEH	F	14	61	60	4	0	57	60	57	68	0	0	57	68
28	AARC	F	14	39	47	0	0	39	47	36	46	0	0	36	46
29	AART	F	14	48	46	0	1	48	45	39	48	1	0	38	48
30	PRAT	F	14	67	73	0	0	67	73	58	69	0	0	58	69

Appendix-2

INFORMED CONSENT FORM

Title of the project : Immediate effect of gāyatrī mantra chanting on attention in school students

Investigator : SEEMA GODSE DERLE

Name of the guide : Dr BALARAM PRADHAN Ph.D

Name of the Participant : _____

Date and Time : _____ and _____

About the Project : In order to understand the Immediate effect of gāyatrī mantra chanting on attention in school students Using Digit Letter Substitution Test.

All these techniques are noninvasive and commonly used in routine clinical practice.

Please note:

1. All information obtained during the study will be confidential and individual report of the test will be given.
2. You can withdraw from the study at any point of time unconditionally.
3. In case the study does cause any adverse effect, the institution is not liable.

I hereby have understood the above and consent voluntarily to participate in the study.

Place:

Date:

Signature of the Participant

During intervention GM

