CHAPTER ONE

INTRODUCTION

1.1 Introduction and Background of the study

The function of this chapter is to introduce the overall viewpoint of the research. The research is associated with Indian classical music (*sangeetham*), Swami Tyagaya, brain, “God”, neuro-psychology and spirituality. Each of the perspective has its own underlying literature, philosophy, scientific viewpoints, objectives, limitations, biases, methodology, findings and results.

From the genesis of Human history, ever since mankind started on his long journey along the path of development and civilization, music has had a very special charm on the human mind. It can very well be called the magic of sound and it has always been an important element in the culture of all tribes and all races. The way of life, their God, their mood, their nature and their history are predicted in the quality of their music. Their music represented their emotions like pleasure, pain, love, hatred, heroism, knowledge, marriage, birth, death and God (Prajnananda Swami, 1973:1). Music listening, performance and composition engages nearly every area of the brain and music is used to manipulate our emotions (Levitin, 2006:9). Generally, people lived in diverse situations, yet beneath the diversity there was an under-current of unity and music emerged as an important media for unity, for harmony and for devotional singing. Devotional singing like prayer is incorporated in music is a form

The creation of music is a product of intelligence. Music creates emotion and emotion generates a psychological relationship to the special brain areas. The devotional music like Swami Tyagaya’s Sangeetham produces devotional emotions. The intense devotional sentiments can elevate the mind from the physical level to a metaphysical state. The Godly emotional sentiments dissolve the egocentric reliance and unify the devotional mind to the highest level of Divine contemplation. Sangeetham is one of the most powerful gateways to connect to the human spiritual spirit. It is believed to have divine qualities. The ragas influence the mind beyond the limits of intellectual state and to a higher blissful state. Carnatic sangeetham set alight the path of Swami Tyagaya’s inner spiritual journey. Among the Indians, music is believed to have a divine origin because it has its roots in the supreme sound
which is known as *Sabta-Brahman* (Prajananda 1973:14). “I bow to Nada Brahmam and I bow to the seven swaras, *Sa, Ri, Ga, Ma, Pa, Dha, Ni*, with my mind and body of Tyagaraja” (Ramanujachari, 1958:288). Devotional singing and contemplation of God for long enough can cause different neural circuits in the brain to become activated new neurons and synaptic connections are made in the brain and God becomes neurologically real (Newberg, 2010:1). The devotional experience transforms God into a symbol representing a personal, ethical and social value. This emotional experience encourages a religious and spiritual development (Newberg, 2009:5). This form of spiritual development and contemplative singing exercise could strengthen neurological circuits involved with consciousness, empathy, compassion, love and tolerance (Newberg, 2010:17).

Music is a representation of cosmic harmony and a microcosmic representation of the macrocosm (Cook, N, 2000:75). Many sages have elevated their consciousness beyond all duality to realize the cosmic oneness through the love for devotional music. Faith in God drives the human spirit. Faith is embedded in our neurons and in our genes and it is one of the most important principles to honour our lives (Newberg, 2010:20). Devotional music increases neurologically the divine emotional perception of God. The combinations of meditational devotional singing and leading a righteous life can contribute to an atmosphere of spiritual elevation and celestial tranquillity. Music is an art form consisting of organized tones that produce a coherent sequence of sounds intended to elicit a pleasurable response in a listener. Vocal or instrumental sounds having some degree of rhythm, melody and harmony (Robert Ilson, 1985:1124). In sanscrit music is called as “*sangita*”.
The Indian treatise on music has defined *sangita* as a combination of vocal, instrumental and dance. The Indians are of the view that music has its roots in the ‘Supreme Sound’ known as *Sabda - Brahman* (Swami Prajanananda, 1973:14). Music that evolved in Indian soil and imbied the spirit and atmosphere of spiritual India is known as Indian music or *sangeetham*. It possesses a devotional vision, a special grammar and a melodious character of its own. It differs from music of other countries in its structure, temperament and in its method of improvisation (Prajanananda, 1973:14). Spirituality has always been the prominent content of Indian Carnatic music. The beautiful blending of melody, rhythm, sacred lyrics and symphony has made Carnatic music extraordinary and divine. The basic idea behind Indian music compositions has been to see and seek the ultimate Brahman or God. In fact, it has been told in Hindu scriptures that the easiest and best way to attain salvation is to sing the greatness of their Gods. In Hindu scriptures, music and God have always been depicted together. Many deities have their own musical instruments. Lord Siva is the embodiment of Nada (cosmic music) which is the first form of music. Lord Krishna, the first of flautists, indicates his musical inclinations by the fact that he is the *Sama Veda* among the Vedas. Goddess Saraswati, the source of wisdom is always associated with the *Veena*. All Gods and saints are proficient in music and musical instruments.

*Bhakti* is a dedicated emotional commitment of love. *Bhakti* is intense love to God. *Bhakti*-Yoga is a genuine search of the Lord. It is a search beginning, continuing and ending in Love. Swami Tyagaya’s extreme love to ‘Lord Rama’ brought him his eternal freedom. Swami Vivekananda said, “When a man gets it he loves all, hates none; he becomes satisfied forever and this love cannot be reduced to
any earthly benefit because so long as worldly desires last that kind of love does not come”. (Swami Vivekananda, 1987:34). The Bhakti movement of South Indian was influenced by traditional religious concepts such as: temple rituals, pilgrimage and personal devotion. Bhakti is a devoted love for God. The mystical love for God was manifested in a personal capacity. Music played a significant role in the expression as nada yoga. scholars, poets and saints composed verses extolling God. Their sangeetham as poetic compositions became an integral part of the Bhakti movement. Sangeetham became significant and inspirational to express the love for their Ishta devas. Many conventional poets have contributed to this spiritual movement. The Hindu scriptures mention that Nada (music) is from the primordial sound Omkaram and is believed as the pranava mantram which the first form of devotional sangeetham. The prominent feature of Carnatic sangeetham is the spiritual essence of the srutis, the swaras, the ragas, the thalas, the dhonis, the bhavas, the rasas and the roopas. Many Tamil devotees like the sixty Nayanmaars and the twelve Alvars contributed their devotion and dedication to God and composed outstanding poetic compositions (paasarangal). Towards the end of the 16th century, the three prominent composers from the Tanjore district were Swami Tyagaya, Muthusamy Dikshidar and Syama Sastri.

Saint Tyagaya (1767 - 1847 AD) was the most celebrated Carnatic Music saint and was a great devotee of Lord Sri Rama. Tyagaya believed that God realization is best achieved through Nadopasana (music with devotion). His songs are filled with an intimate devotion to Lord Rama. He was a great teacher of mankind. He communed with God through music (Sambamoorthy, 2001:11). He comprehended the cosmic laws of divine music and through his compositions he enlightened the
compassionate nature of music. He advocated that the sacredness of *sangeetham* is beyond logical analysis but often comprehensible through personal intuition. (Sambamoorthy, 2001:85). All his compositions revealed his deep understanding of the doctrine of the Vedas, *Upanishads, Puranas* especially the Ramayana. As a great devotee of Lord Rama, he insisted that Music and *Bhakti*, should be synonymous to realize God (Sambamurthy, 2001:11). Sri Tyagaya's life is an illustration to the saying that music and devotion combined make the best path to the understanding of the Supreme Brahman and attaining spirituality. He has composed several *Kritis* in various raghas and his contributions to Carnatic *sangeetham* is immense. He has made unique contributions to the cultural growth of South India and even today his compositions (*kritis*) are very popular among the students and lovers of South Indian classical music (Sambamurthy, 2001: 16). Swami Tyagaya is an example for the propagation of devotional *sangeetham*.

Devotional *sangeetham* activates a spiritual union with *Ishta Devata* (God). *Sangeetham* in general is love and harmony. Human beings are the successful species the world has ever known and hence there is definite likelihood that they will accept devotional *sangeetham* in their lives and promote love, compassion and tolerance. Mankind need to enjoy the melody, harmony, rhythm and the devotional language and employ it as a loving vehicle to worship God and propagate love, tolerance and peace. Society must take a quantum leap forward and associate to Swami Tyagaya’s *sangeetham*, and spirituality. The devotional music is a form of meditation of a higher principle and it disciplines the mind against base emotions like felony, hatred, crime and sin. The consistent practice of devotional music causes neuroplasticity in the brain. The brain cortical centres produce divine emotions, perception, imagination,
thought and memory (Roth, 2004:36). Some societies like the Japanese Zen mediators, traditional South American people venerate music as a representation of Consciousness. Devotion to Consciousness is devotion to God. Divine emotions stimulate a creative motor-sensory system to motivate spirituality. Devotional music can transcend the limits of time and space and bring forth transcendental harmony and peace and comprehend the metaphysical aspect of God. The practice of devotional music can help the human society to be loving, tolerant, righteous and compassionate. Aristotle and Mozart were among those who did consider the songs of bird to be as musical as the compositions of humans (Levitin, 2006:258).

Spirituality is a process of personal transformation, either in accordance with traditional religious ideals, or oriented on subjective experience and psychological growth independently of any specific religious context. In a more general sense, it may refer to almost any kind of meaningful activity or blissful experience (Swami Vivekananda, 1987: 24, 65). In the Western civilization, spirituality and religion have become disconnected and spirituality has become more oriented on subjective experience (https://en.wikipedia.org/wiki/Spirituality). The new development is that psychology, mystical and esoteric traditions and eastern religions are being blended, to reach the true self by free expression and meditation. The present development shows declining membership of organized religion and the growth of secularism has increased. These factors have given rise to a broader view of spirituality. Most of today’s problems are from personal worries to social, economic and environmental issues which stem from human actions and decisions (Russell, 2003:119). Spirituality in Hindu philosophy is an individual experience, It is practiced as a spiritual journey towards moksha which is the awareness of the soul or the discovery of superior
cosmic truths or the true realization of consciousness. Hinduism identifies four ways of spiritual practice to realize the *moksha*. The first way is *Jnana yoga*, the way of knowledge. The second way is *Bhakti yoga*, the way of devotion. The third way is *Karma yoga*, the way of works. The fourth way is *Raja yoga*, the way of contemplation and meditation.

*Sangeetham* is the most admirable theosophical art. Composers, performers and society often promote them, and listeners experience the devotional effects. The beautiful interweaving of the devotional element and aesthetics have made it ethereal and eternal. The saints, seers and composers of classical *sangeetham* have basically composed *kritis* as a means of expressing their devout feelings and also to communicate with the "*Athman*" (soul). Swami Tyagaya said that the easiest way to attain salvation is to sing the greatness of the Almighty, Sri Rama (Sambamurthy, 2001:228). Music and singing are the most spontaneous form of human expression. The words of a song represent its rational basis, while the melody brings forth the sentiments concealed in the poetry. The poet-saint Swami Tyagaya composed his *Bhakti* verses in melody and sang them before the altar of Lord Rama every day.

The effectiveness of his spiritual exercise and the sure attainment of the goal rested on his visualization of Lord Rama. This fundamental quality advanced his spiritual urge. Therefore, Tyagaya’s *sangeetham* has been tested and found the most satisfactory tool as it attracts, enchants, enthralls and easily appeals to all segments of the society. Swami Tyagaya’s *sangeetham* when presented to God as an offering, inspires the person and the devotional excitement therein. It gives rise to a torrent of tuneful outpourings. It awakens the consciousness for the divine energy and sensitizes
to the holy message. *Sangeetham* has historically given unity to Indian civilization. The religious and philosophical unity has initiates compassion and love to all mankind.

Many neuropsychologists, (Dr A. Newberg 2010, Dr O.Sach2007, Dr D Livitin 2006, Dr A Patel 2008 ) and other neurologists A. J, Zatorre, Dr Yuan Pin Lin, Shapiro, BR Cahn and others) have examined the spiritual experiences of the brain functions during singing devotional songs, chanting mantras and meditation. Some positive finding proves that certain neurotransmitters and specific areas of the brain are involved in the spiritual experience. Moreover, experiments have also successfully induced brain changes in individuals by meditation, chanting, devotional singing, prayer and yoga. These results have led to some neuropsychologist (Dr Newberg and Dr Ramachandran 2012) to speculate that spirituality may be induced artificially in the brain centres. In keeping with the growing scientific interest in spirituality and devotional songs particular results have been detected on the behavioral patterns of human beings. Their (Newberg, 2010, Livitin, 2006) research findings have led to suggest that spirituality might protect the devotee’s' mental health and manifest love, compassion, righteousness and tolerance. Human anterior and frontal midline theta and lower alpha activity reflect emotional positive state and internalized attention: High-resolution EEG investigation of meditation. (Aftanas, L. I, and Golocheikine, S.A. (2001). This implies that spirituality may result from positive emotionality, higher well-being and a sociable disposition.

Neuro-psychologists (Newberg, 2010, Livitin, 2006, Davidson Richard 1988) believe that they have discovered a "God module" in the brain which could be
responsible for man's evolutionary instinct to believe in God and religion. Proponents of neurotheology say that there is a neurological and evolutionary basis for subjective experiences traditionally categorized as spiritual or religious experience. Neurotheology attempts to explain the neurological basis for religious experiences, such as Spiritual awe, Oneness with the universe, euphoric trance and sudden enlightenment. The Brain scans fMRI and PET or EEG shows more activity in the right ventro-lateral prefrontal cortex region and temporal cortex denoting spiritual emotional experiences, whereas less activity in the amygdala, a brain region involved in emotional processing of anger and fear was calmed (Dr. Simon Moss, 2016; Cahn, J. Polich 2006, Andrew Newberg, 2010:2). Additionally, some studies have reported beneficial effects from spirituality in the lives of patients with schizophrenia, depression, and other psychological disorders. Some studies also reported the sangeetham may be used as a health therapy. (Andrew Newberg, 2010, Ramachandran 2012). Emotional responses to pleasant and unpleasant music correlate with activity in paralimbic brain regions (A. J, Zatorre,1999).

In summary, science seems to indicate to the society that meditation through sangeetham or chanting creates some form of spirituality which is beneficial for physical, mental and social health.
1.2 The Hypothesis and Statement of Problem

The hypothesis is that the meditative Sangeetham of Tyagopanishad can produce an unique spiritual response in the brain and the imagery of Lord Rama is experienced (Sambamoorthy, 2001). The statement of problem describes the topic and the different issues and the methods to solve the predicaments by answering who, what, how, where, when and why. The clarity of the issues help to solve the problem for the study.

The literature search denotes that no study has been attempted on Tyagaya’s musical compositions and the direction of Bakthi, (devotion) in the fulfillment of the realization of Brahman, the Absolute Consciousness or God. The comprehension of Brahman or God is an unsolved mystery of life. Indian devotional musicological treatises incorporate the theory of sacred sound as Nada-Brahman. Sangeetham is derived from Brahma-nadam and it has a profound impact in the brain. Thus,
interpreting that meditational music as a spiritual practice directly manifests a ‘God Form’ experience and therefore provides an access to the highest spiritual reality.

This study will demonstrate through an EEG research on devotional sangeetham and the brain. The study will prove the relaxed brain electrical activity under the influence of Swami Tyagaya’s sangeetham. The results will presume which brain cortex can contribute to divine activity “God” as an emotional expression. The study also shows through a questionnaire survey how the society judges about Sangeetham, Swami Tyagaya, neuro-psychology, God and spirituality. These vital findings will show the positive elements of Swami Tyagaya’s sangeetham in realizing God. The study will explain that intense devotion is the key substance for the meditational consequence of Carnatic sangeetham. The consistent interweaving of the devotional element and experiential knowledge makes sangeetham delicate and perpetual.

The basic idea behind compositions has been to see and seek God. In fact, it has been said that the easiest way to attain salvation is to sing the greatness of the Almighty. This spiritual musical practice (sadhana) culminates in inner peace, righteousness, compassion, forgiveness, love, patience, humility, tolerance and happiness. Spirituality is centered on personal well-being, psychological advancement and moral personality. Swami Tyagaya’s devotional musical compositions have a meditational consequence in the realization of God, Lord Rama. The devotional music of Tygopanishad tends to reinforce serenity and spirituality in the brain. The philosophy of Swami Tyagaya is to infuse positive religious ideas to the brain centres and insures the brain to recognise a “Divine Power”. It is a spiritual
emotion exhibited in the mind as “God Rama”. The brain has the profound capacity to respond to the meditational value of devotional *sangeetham*.

1.3. **The Objective of the Study**

i. To examine and demonstrate that Swami Tyagaya’s devotional *sangeetham* plays a prominent role in the emotional centres (Limbic cortex- amygdala, hypocampus, procuneus) of the brain and creates a visual imagery of ‘God’.

ii. To establish that the present society is sensitively favorable to devotional music, spirituality and God. This exercise is carried out through a questionnaire survey and to demonstrate how to attain this spiritual status and what is the benefit of spirituality to the society.

iii. To analyse the way the modern Neuro-Psychology illustrates “God-Image” in the brain and to study through the EEG, the dynamics of the brain.

iv. To examine what devotional *sangeetham* can teach us about the brain and what the brain can teach us of spirituality?

1.4 **Rationale and Justification**

The main rationale is find information that can give some relevant ideas of how to prove that devotional *sangeetham* can contribute the feeling of God in the brain. The study mainly enlightens the general perception of devotional *sangeetham*, the brain and Spiritual experiences. The study shows a method towards an empirical
research on devotional *sangeetham* and its reflection in the brain. The research conveys that the brain physiological factor can contribute to divine emotional expression of “God”. The study conducts a questionnaire survey to know how the present society value *Sangeetham*, Neoro-psychology, God and spirituality and conducts the EEG experiment to learn about the brain electrophysiology when under the influence of Swami Tyagaya’s *sangeetham*.

i. The study justifies how Tyagaya’s devotional musical compositions have a meditational consequence in the realization of God, Lord Rama and justifies Swami Tyagaya’s vision of God and substantiates his devotion through music.

ii. To justify the scientific believe that Neurologists have discovered a "God module" in the brain which could be responsible for man's evolutionary instinct to believe in religion and spirituality. Neuro-science reveals about the effects of meditational music in the brain and how the neuro-transmitters (serotonin, endorphin, dopamine) and electro-chemical charge (Sodium+ charge) stimulate the brain. The transformation of the brain neocortex is responsible for man's evolutionary instinct to manifest the "God module" through the mechanism of neuro-splasticity.

iii. The study justifies Tyagaya’s devotional music brings about the realization of God, through years of devotional practice which enhances personal moral values.

iv. The study rationalizes through the Electoencephalography & the Questionnaire survey how Devotional emotions are mediated to manifest spiritual pleasure that *Swami Tyagaya* experienced which can elevate the spiritual status in the society.
v. To justify that spiritual practice (sadhana) culminates in inner peace and happiness. This spirituality is centered on personal well-being, psychological advancement and moral personality such as righteousness, compassion, forgiveness, love, patience, tolerance and altruistic values.

vi. The comprehension of Brahman or God is an unsolved mystery of life. No study has been attempted on devotional music and the direction of meditational importance in the brain regarding the perception of God and spirituality.

The theoretical association of Swami Tyagaya’s sangeetham to spirituality and the God spot in the brain

1.5 Primary Research Questions

The research questions of the study is intended to establish a new line of theory, it should make clear what that new theory is, how it relates to existing theories and evidence, why the new theory is needed, and the intended scope of its application. The study questions how Tyagaya’s devotional music teaches about the realization of Brahman and how science reveals about the effects of meditational music in
the brain? Therefore, the study answers some basic research questions. How and why did Swami Tyagaya have religious experiences? How does Tyagaya’s devotional sangeetham construct in the brain centres? What are the dynamics of the brain? Is it purely inexplicable emotional outburst or neurological or psychological disorders? Is there truly sensory centres specialized in recognizing emotional or Spiritual (Godly) subjects in the brain cortex? Can this issue be proved on empirical grounds? What is the status of modern Neuro-Psychology here? What are the salient neurological pathways and what are the scientific experiments to corroborate music’s spiritual encounters? What does the society feel about Swami Tyagaya’s sangeetham, meditation, brain and spirituality? How does the musical spirit of Tyagopanishad as a spiritual practice create compassion and suppress anger and violence in the modern society?

Studying the complex and characteristic response to music and the dynamism of the mind is challenging because it involves the mystifying and dynamic regions of the Brain-Mind-Brahman complex.

1.6. Statements on Swami Tyagaya, music, brain & spirituality

1.6.1 Swami Tyagaya

Swami Tyagaya has quoted in many of his poems about his divine experience. The poems are 1. Ella ni daya rathu, 2. Kannukontini, Giripai, 3. Inthakannu, and 4. Nannu palimpa (A. K. Gopalan, 2003; 13). Swami Tyagaya defines in the kriti “Sogusuka mridanga taalamu” that the kriti in the nadam expound the exalted words of the Upanishads which are marked by correct placements of sruti, swara, raga and tala for melody and harmony. It reflects true
devotion, divinity and *vairagya* and dripping with the juice like grapes rich in nine *rasas* (Ragavan, V., 1958:36).

### 1.6.2 Brain and Music

Music has a neurophysiology perspective which affects our brain, our thoughts and our spirit. The fundamental building blocks of music are pitch, contour, tempo, timbre, loudness, spatial location and reverberation. Our brain organize these fundamental perceptual attributes into higher level concepts (Daniel Levitin, 2006:4).

Neurophysiological meditative state and trait effects are variable. Psychological and clinical effects of meditation are real (BR Cahn, J Polich - 2006).

“Musical sound waves impinge on the ear drum, setting off a chain of mechanical and neuro-chemical events, the end product of which is an internal mental image (Daniel Livitin, 2006:22).

“Every human, from early childhood on contemplates the possibility that spiritual realm exists in the brain” (Andrew Newberg, 2010:8).

“The longer and more intensely and frequently you practice the more changes are noticed in the brain and have meaningful experience of God” (Andrew Newberg, 2010:119).
Eric Kandel, the Nobel price, German neuropsychiatrist says “Neurons never stop learning—Neuroplasticity”. Kandel showed that when any alteration in the environment occurs, the nerve cells will change in a matter of time. When the stimulus around is altered, the internal function of the nerve cells change and is capable of communicating with others parts of the brain cells. (Andrew Newberg, 2010:15).

During the baseline condition with closed eyes she showed substantially more Alpha activity in the prefrontal area than most persons, and the Alpha activity was more evenly distributed over the whole brain (Erik Hoffmann, 2001).

The voluntary descent into the unconscious was reflected by strongly increased Alpha and Theta activity widespread in the brain. During the arousal of Kundalini energy on command, our subject’s two frontal lobes were activated and their Gamma brain waves were hyper-synchronized (Erik Hoffmann, 2001).

The analysis of the data was performed in both alpha and theta bands. Consistent with existing findings, the results in alpha band confirm the hemispheric specialization hypothesis for emotional valence (Konstantinos Trochidis 2012).

Moreover, theta asymmetries observed between pleasant and unpleasant musical excerpts support the hypothesis that theta power may have a more
important role in emotion processing than previously believed (Konstantinos Trochidis 2012).

According to Newberg, "If you contemplate something as complex and mysterious as God, you are going to have a burst of neural activity (Andrew Newberg, 2010:14).

1.6.3 Spirituality

“Spirituality strives for transformation of character which results in moral purity and strive to transmute the tamas (animal) and the rajas (man) into the sattva (God) to lead us to the realization of the Supreme Spirit” (Swami Yatiswarananda, 1998:485). Intensely pleasurable responses to music correlate with activity in brain regions implicated in reward, emotion and spirituality (Blood, A. J. & Zatorre, R.J., 2001).

“Spiritual practices bestow a sense of peace, happiness and security while decrease symptoms of anger, anxiety, depression and stress.” (Newberg, 2010:34).

1.7 Theoretical Framework & Theoretical Evidences

The theoretical framework explains the main components of the study and the presumed relationship between them so that the components are consistent (Miles, 1994:18). It identifies the main subjects and their associations. The statement of problem, the research questions, the research design and the research purpose which are beneficial to the theoretical framework.
1.7.1 Theoretical Evidences on Swami Tyagaya and sangeetham

Swami Tyagaya took great delight to sing the Pancharetna kritis during the unchavriti bhajans. The composition “Endaro mahannughaavulu” is noted for fine poetic imagery and philosophic message. Swami Tyagaya applied Sangeetham as an excellent tool to propagate Sri Rama Bhakti, (devotion to Lord Rama-God). He personified Sangeetham to Nada-Swarubam and Nadam to Brahma-Swarubam.

In the kriti, “Jagadanatha karaka”, Swami Tyagaya eulogises Lord Rama as the cause of all creation. He envisioned Lord Rama which is mentioned in his poetry. Tyagaya was determined that through devotional, Bhakti Yoga Nada yoga and Nishkamia Karma, (attributeless action), the Brahman can be realized, (moksha). Tyagaya believed in the service of fellow men through love and compassion it is a spiritual service to Ramabakti (P. Sambamurthy, 2001:40).
1.7.2 Brain-Mind Dynamics on God and Neuropsychology


i. If the mind is set on reaching a spiritual goal, the neurons will enhance the sense that a spiritual reality can be experienced. Abraham, Moses, Jesus, Mohammed and Buddha all reached spiritual enlightenment because they devoted years to intense meditation and prayer (Newberg, 2010:95).

ii. For example, the occipital lobe helps to envision ‘God’, the temporal lobe aids to hear the ‘Lord’, the frontal lobe and parietal lobe helps to imagine the ‘Ishwara’ and the amygdale is involved in the emotion and the hippocampus in storage of the memory of ‘God experience’ (Newberg, 2010, p.43) The pineal gland produces melatonin, a serotonin derived hormone and the cerebellum are involved with the emotional relationship of the spirituality (www.crystalinks.com, Levitin, 2006:163).

iv. Neuro psychology experimentation (Blood, A. J. and Zatorre, R.J. (2001). proves that music (Sangeetham) sensibility sends neurological potentials through the neural circuits which activate new dendrites and synaptic connections causing spiritual emotion. This subtle neural stimulation of the brain activates the perception of the experience and the mind exhibits the neurological phenomenon of the God (Brahmam). Thus, the spiritual sensation of ‘God’ becomes neurologically real. The meditational sound vibration throws light on the complex formula of cognitive-perception-realization system in the brain (Stiles. J., Andrew Newberg, 2010:31).

v. The brain has the profound capacity to respond to the meditational value of devotional music. It is a spiritual emotion exhibited in the mind as “God”. Scientific studies show this transformation in a number of brain imaging investigations and in on line survey of spiritual experiences (Konstantinos Trochidis, 2012, Daneil Levitin, 2006:163).

vii. The mind is to be developed. The will is to be developed. Thoughts and feelings are to be developed. Only then comes the question of transcending the mind to spiritual level (Swami Yatishwaranada, 1998:314).
1.8 The Purpose of the study

The study reasons recent advances in neuroscience towards devotional music, religion and spirituality. It explains the holistic nature of religion and science. It recommends that through devotional sangeetham, substantial physical and mental health benefits are derived. (e.g. closeness to God feeling, religious orientation and motivation, religious support, compassion, tolerance and righteousness). The study points out areas for growth in science, religion and spirituality and that the Neuro-Psychologists are discovering distinctive brain areas to understand God. It recommends Swami Tyagaya’s sangeetham to create a healthy society and world peace.
1.9 The Significance of the study

i. Devotional *sangeetham* can enhance specific neural activity for God sensation. There are spiritual perception centres in the neocortex of the brain where the neurons comprehend God.

ii. Swami Tyagaya’s visualization of God Rama can be real because the brain can create a visual imagery of God. Modern neuroscience explains through brain imaging methods and EEG techniques the brain dynamics.

iii. The EEG investigation helps to understand the brain better. The data predicts the relaxed brain activity in the emotional centres thus producing a divine awareness.

iv. The general survey data assists to realize the society’s spiritual dimension and knowledge. It points out that Spiritual life and God realization signifies tolerance righteousness, compassion, humility, and love.

v. Swami Tyagaya’s devotion and his message denotes that spirituality is one’s journey towards moksha which is the awareness of self, and the true nature of reality.
1.10 Research design & the line of investigation

The study begins with an explanatory design which is important to be clear about the role, purpose and the line of investigation of the research. The study understands the hypothesis, the theoretical framework and the research process. The line of investigation is by qualitative analysis of the literature and quantitative analysis of laboratory and survey research. The current study relies largely on qualitative and quantitative methodology for data collection. In the qualitative methodology, the current literature reviews are designed to test the hypothesis that the meditative Sangeetham of Tyagopanishad could produce an unique spiritual response in the brain. The Two quantitative methodologies are used to a wider extent. The first in the form of subjective Questionnaire survey and the second in the form of an empirical EEG experiments were conducted.

The main design of the thesis is to use a qualitative analysis of vast literature reviews on sangeetham, Swami Tyagaya’s compositions, neuro-psychology books and books on Vedanta. The reason for doing so is to get in-depth understanding of the responses from the qualitative subject of sangeetham and the brain. The qualitative subject is endorsed through literature evaluations of famous scientists and the personal experience of the researcher as a doctor and musician. The study enables better understanding of Saint Tyagaya’s sangeetham, devotional music and neuro-psychological subjects.

The quantitative methods endorse subjectively by the Questionnaire survey methods and electrophysiologically by laboratory Electro-Encephalogram
investigations as a neurological investigation. The survey investigates a random probe as well as triangulation of responses of the background of devotional sangeetham, Saint Tyagaya, brain, spirituality and neuroscience. ‘Random probes provide a check on the validity of questions and yield a representative sample of verbatim comments which can be used as illustrative quotations when writing-up the research’ (Gilbert, 1993:42). “They are useful and they provide illustrative material about what underlies in the justification of the thesis (Gilbert, 1993:42). However, the qualitative literature analysis followed by quantitative survey and EEG investigations would endorse stronger evidences and propose new recommendations. These evidences will be useful for the study and for future researches.

Therefore the researcher prefers to discuss the combination of both qualitative and quantitative findings in order to benefit from the advantages of both the investigations. As Philip (1998) argues, ‘employing a range of methodological strategies means that the researcher does not necessarily privilege a particular way of looking at the social world. I would suggest that such diversity encompasses methodological plurality as well as postmodernism encouraging different voices to be heard and facilitating the exploration of different truths’ (Seale, 2004:296) and according to Bryman, they each have distinctive characteristics that make the possibility of combining them especially attractive’ (Seale, 2004:296).

The subjects of the current study are essentially, sangeetham, Swami Tyagaya’s devotional compositions, Neuropsychology and spiritualism which are the combination of Theo-philosophy and science. The complexity of the study necessitates the combination of different methods to avoid possible misinterpretation
of responses and barriers which may be considered as the limitation. However, the methodology adopted in this study is both conceptual and empirical. These guide line methods endorse to understand and discuss the relationship between devotional *sangeetham*, Swami Tyagaya, spiritual experiences and the associated dynamics in the brain. An important contribution that exploratory research can make to our understanding is helping us to identify patterns and enabling us to give names to social phenomena (Thomas, 2000:170).

The discussion is benefitted by the application of Interpretative Phenomenological Analysis (IPA) for the Qualitative methodology. IPA has its theoretical origins in phenomenology and hermeneutics. Phenomenological methods are particularly successful at bringing to the fore the experiences and perceptions of individuals from their own perspectives. The interpretive dimension enables it to be used as the basis for practical assessment. The hermeneutic research emphasizes on the metaphysical stance, methodological grounds, quality concerns and ethical issues that contribute to its paradigmatic assumptions. Finlay (2009) further states that applied to research, phenomenology is the study of phenomena: their nature and meanings. The focus is on the way things appear to us through experience or in our consciousness where the phenomenological researcher aims to provide a rich textured description of lived experience. (Hermeneutic phenomenological research method simplified (Narayan Prasad Kafle, 2011:181). This phenomenon has made the study feasible in relationship to the enigmatic brain and the complex metaphysical interpretation.
Therefore, the analysis and discussion of the literature review, the survey and the EEG offers the development that will enable better understanding of Swami Tyagaya’s devotional *sangeetham* and neuropsychological implication. It provides an in-depth understanding of the responses from the quantitative method about the qualitative subject. The qualitative subject is endorsed through literature reviews while the quantitative methods of Encephalogram investigation and questionnaire survey method support as a random probe the responses of the society on *sangeetham*, Swami Tyagaya, brain and spirituality. Random probes provide a check on the validity of questions and yield a representative sample of verbatim comments which can be used as illustrative quotations when writing-up the research (Gilbert, 1993:42).

However, qualitative analysis of literature review and the quantitative analysis support the objective and the rationale of the thesis. The discussion attempts at a detailed explanations of responses that emerge from the questionnaire survey and the neurological investigations. Therefore, the researcher opted to combine methods (qualitative and quantitative) in order to compensate for the inadequacies and benefit from the advantages of both of them. The discussion is based on the survey findings collected from random members of the Indian society across the country. The survey data explains devotional *sangeetham*, brain, neuropsychology, God and spirituality. The EEG experiments explains the brain wave patterns of the three groups of volunteers.

The results of the discussion denotes that the data collected from the survey and the EEG signals show positive public perception on devotional *sangeetham*,
Swami Tyagaya, mediation, brain science and spirituality. The discussion of the EEG infers that in this modern era, science can be used as a valuable tool to explore the dynamics of the brain towards spirituality. The concept associated with Swami Tyagaya’s devotional *sangeetham* and spiritual dimension in association with the brain indicates inspiring knowledge about the architecture and physiology of the brain. The EEGs certainly indicates classified electrical signals in relationship to the input of devotional *sangeetham*. It proves that the emotional processing in the special brain centre (amygdale) focuses ‘God Realisation’. Intensely pleasurable responses to music correlate with activity in brain regions implicated in reward and emotion (Blood, A. J. and Zatorre, R.J. 2001).

The researcher provides important illustrations throughout the study about *Sangeetham*, Swami Tyagaya, God, Brain and spirituality. The main subjects of the discussion are essentially in Swami Tyagaya’s devotional *sangeetham*, Neuropsychology and spiritualism. The discussion and inference of the complex study necessitated the combination of three different methods (qualitative, survey and EEG) to substantiate the rationale and the objective of the thesis. The overall discussion proves the four objectives of the thesis. Bryman (2001) has argued that research methods are rooted in epistemological and ontological commitments. The epistemological positions in which the two methods [quantitative and qualitative] are grounded constitute irreconcilable views about how social reality should be studied (Seale, 2004:294).
The first guideline of literature review fulfills the first and fourth objective of the study and the second guideline of survey fulfills the second objective and the third guideline of EEG fulfills the third objective of the study.

1.11 The Elaborate Plan of study

i. Development of the foundation of Sangeetham and its sacred connection to the Vedas.

ii. Explanation of the saintly life of Swami Tyagaya, the divine message of devotional Sangeetham, Bhakti Yoga, Tyagopanishad, Saadana and the vision of Lord Rama.

iii. The Dimension of sound vibration in the Brain auditory cortex, the properties of Neuroscience and spiritual science, Tyagopanishad and its emotional impact and the transformation of the consciousness level.

iv. Tyagopanishad’s Spiritual effects, Scientific Researches on the brain and Neuro-Psychology.

v. The Demographic, qualitative and quantitative analysis of the perception of Swamy Tyagaya’s devotional sangeetham, brain, God and Spirituality by means of the Questionnaire. An Electroencephalography (EEG) experimentation to estimate the spiritual transformation.

vi. Discussion and Conclusive related to Swami Tyagaya, Tyagopanishad, Bhakthi, Sangeetham, Dyaana, Yoga, Neurotheology, Neuropsychology, God Factor and Spiritual transformation.
1.12 **Review of Literature on Sangeetham, Swami Tyagaya, Neuropsychology and Electroencephalography EEG.**

The purpose of the review of literatures is for theoretical and methodological contribution of the knowledge to the current study. The literatures are classified, analyzed and summarized for evaluation to provide insight for the present study. The inconsistencies are taken note. The reviewed literatures include books on *Sangeetham, Vedanta, Swami Tyagaya spirituality and Neuropsychology.*

**Literature on Vedanta & Sangeetham**

Swami Prajnanananda, explains the systematic study of Indian music. The two important books referred are ‘History of Indian Music Book 1 & 2’ (1998) and ‘Historical Development of Indian Music’ (1973). P. Sambamurthy, explains the philosophy of Shastria *sangeetham* and writes the Life and compositions of Swami Tyagaya. The books referred are ‘History of Indian Music’ (1994), P. Sambamurthy extensively researched in the work of great poets of South India “Great Composers” Book One & Two (2001).


**Neurology & Neuropsychology:**


Oliver Sacks explains about the effect of music on emotions and cognition in his book “Musicophilia” (2007). He explores the links between the brain and human experience.


Vilayanur Subramanian Ramachandran talks in the fields of behavioural neurology and visual psychophysics. His books are “Phantoms In the Brain” (2012) The Tell-Tale Brain (2010).

Electroencephalogram (EEG)

Analysis of evoked EEG synchronization and desynchronization in conditions of emotional activation in humans: Temporal and topographic characteristics (Alfanas, L.I., Reva, 2004).

Hits to the left, flops to the right: different emotion during music listening reflected in cortical lateralization patterns. (Altenmueller, E., Schuermann, 2002).

From emotion perception to emotion experience: Emotions evoked by pictures and classical music (Baumgartner, T., Esslen, M. and Jaencke, L., 2006).

EEG dynamics according to subject self-reported emotional states during music listening. The identified features were primarily derived from electrodes placed near the frontal and the parietal lobes, consistent with many of the findings in the literature. This study might lead to a practical system for noninvasive assessment of the emotional states in practical or clinical applications (Yuan-Pin Lin, Chi-Hong Wang, Vol. 57, No 7, July 2010).

Electroencephalographic measures indicate an overall slowing subsequent to meditation, with theta and alpha activation related to proficiency of practice. Sensory evoked potential assessment of concentrative meditation yields amplitude and latency changes for some components and practices (BR Cahn 2006).
Neurophysiological meditative state and trait effects are variable. Psychological and clinical effects of meditation are summarized, integrated, and discussed mediation, EEG, ERP, fMRI Index Terms Evoked Potentials, Meditation, Neuroimaging, Cerebral BR Cahn, J. Polich (Psychological bulletin, 2006, psycnet.apa.org).

One study that examined a variety of meditation techniques tried to show that alpha blocking was affected by the long term practice of meditation by testing response to auditory stimuli. Becker DE, Shapiro D (1981). "Physiological responses to clicks during Zen, yoga, and TM meditation". Psychophysiology.

The spectral power and coherence of EEG define delta, theta, and alpha frequency bands to characterize different meditation states. (Brain activity and meditation, Cahn 2006).

Many studies on mindfulness meditation, assessed in a review by Cahn and Polich in 2006, have linked lower frequency alpha waves, as well as theta waves, to meditation. Brain activity and meditation (Cahn, 2006).

It was observed that those who had well marked Alpha activity in meditation confirmed type results of study by Kasamatsu A and Anand BK et al who observed a
proponderance of Alpha waves of Yogic indicating a more relaxed state of mind (Sundarachari R., et. al, 2013).

Individuals with number of years of more experience in meditation have shown more Alpha activity than those with no experience in meditation (Sundarachari R et. al, 2013).

The EEG changes of lowered consciousness states that the persistent appearance of alpha waves indicates the brain function at the time of lowered vigilance. (An Electroencephalographic Study on the Zen Meditation (Zazen) (Akira Kasamatsu and Tomio Hiram, D. 1966: 33).


1.13 Methodology

The objective of the methodology is to understand the foundation of this study by demonstrating through qualitative and quantitative methods that Swami Tyagaya’s sangeetham plays a prominent role in the emotional centres of the brain by manifesting a visual imagery of God and also assesses how devotional sangeetham
can create spiritual society. The methodology proves how modern Neuropsychological experiment approves this “God-Image "in the brain?

Bryman (2001) has argued that research methods are rooted in epistemological and ontological commitments. The epistemological positions in which the qualitative and the quantitative are grounded constitute irreconcilable views about how social reality should be studied (Seale, 2004:294). The distinction of methodology is to recognize and destabilize the conflicting views. (Seale, 2004:295). The researcher has reconciled by conforming to the institutional setting of the qualitative and quantitative method of research. The study adopts an Interpretative Phenomenological approach for qualitative investigation and the study implements for quantitative investigation, a questionnaire survey and the Electroencephalogram (EEG) in order to prove that the devotional sangeetham can manifest characteristic brain changes. The research embraces both the subjective and the objective methodologies.
1.13.1 The Qualitative Methodology

The Qualitative Methodology is basically an assimilation review of theoretical literatures based on Swami Tyagaya’s devotional compositions, Research books on neuropsychology, Vedic and Sangeetham literatures, Indian philosophy and Psychology. The specific qualitative methodology applied for the analysis, comprehension and conclusion is Interpretative Phenomenological Analysis (IPA). It has its theoretical origins in phenomenology and hermeneutics. Phenomenology is concerned with the study of experience from the perspective of the individual and it emphasizes the importance of personal perspective and interpretation. It is an approach to psychological qualitative research with an ideographic focus, which means that it aims to offer insights into how a given person, in a given context, makes sense of a given phenomenon. Usually these phenomena relate to experiences of some personal implication such as a major life event or the development of an important relationship. Hermeneutics deals with the interpretation of wisdom literature, philosophical or religious texts. Swami Tyagaya’s vision of lord is a personal experience.

The researcher aims to gather through this qualitative methodology, an in-depth understanding of devotional music of Swami Tyagaya, the human behavior towards God, Brain science, Spirituality and the reasons that govern such behavior. This IPA approach emphasizes four main levels which are as follows. (i) Identification and documentation (ii) Investigation and compartmentalization (iii) Interpretation and analysis (iv) Integration and conclusion.
1.13.2 The Quantitative Methodology

The Quantitative Methodology deals with two components of investigations which is a questionnaire survey and an EEG experiment. The Questionnaire Survey is a subjective assessment of the participant’s knowledge on sangeetham, Swami Tyagaya, brain, God and spirituality. It includes a validated tool and the survey was published by Genia, V. (1991). (The spiritual experience index: A measure of spiritual maturity. Journal of Religion and Health, v.30, 337-347.) It also includes the 5-point Likert-type scale. All the data collected are entered into SPSS 22 for statistical analysis and interpretation and conclusion. The Multiple composite indexes are created to assess consciousness, spiritual faith and meditation across age, race, gender, education, income denomination, family status and spiritual health status.

The Questionnaires are design and developed to estimate the psychometric values of the psychological measurements. The Inferential analysis and the Reporting Resulted with the Six Null Hypothesis statements. The Inferential analysis was conducted with the methodology of Cohen, J. (1988). The Inference hypothesis & Hypothesis testing is relatively straightforward. Certain events are pronounced in a study and the events may be due to a chance or due to some causes. Hypothesis testing explains reductionist analysis. Reductionist analysis is prevalent in all the sciences, including Inferential Statistics. It explains the difference between the Null and Alternative Hypotheses. The six statements tested are;

i. Nul HO₁ : There is no significant relationship between music and devotional experience among Indians.
ii. Nul HO₂ : There is no significant relationship between music and general perception on god, brain & devotional among Indians.

iii. Nul HO₃ : There is no significant relationship between traditional music and brain among Indians.

iv. Nul HO₄ : There is no significant relationship between devotional music and spirituality among Indians.

v. Nul HO₅ : There is no significant relationship between devotional experience and spiritual among Indians.

vi. Nul HO₆ : There is no significant relationship between general perspective on God, brain, devotional music of Swami Tyagaya and spirituality among Indians.

The alternative or experimental hypothesis reflects on the observed effect for the hypothesis. In the test, if the null hypothesis is rejected, then the alternative hypothesis is accepted. If the null hypothesis is not rejected, then the alternative hypothesis is not accepted. The survey identifies significant alternate links between sangeetham, Swami Tyagaya, religion, spirituality and mental health.

1.13.3 Electro Encephalogram (EEG)

Electro Encephalogram (EEG) is an Objective assessment in Quantitative Methodology. This study explores the electroencephalographic (EEG) correlates of Divine emotions during Swami Tyagaya’s sangeetham and devotional music listening sessions on three groups of volunteers. Principal component analysis (PCA) is used to correlate EEG features with complex music appreciation. This study applies EEG
algorithms on three groups of volunteers and each to demonstrate the feasibility of brain changes during the meditational influence of *sangeetham*. The brain electrical activity are reported as signals during the attainment of emotional changes and God realization in the brain.

This study is based on the validated work done by Sundarachari R, Dhanasree Naidu, Kokiwar PR, Surendra BV. The study is called “Effect of Meditation on Electro Encephalographic graph (EEG), Blood Pressure, Heart Rate and Respiratory rate” published MRIMS Journal of Health Sciences, Volule 1, Issue 2, July-December 2013. The EEG procedure is also based on Dr Andrew B. Newberg “Cerebral blood flow differences between long-term meditators and non-meditators”. Center for Spirituality and the Mind, University of Pennsylvania.


**EEG.** The brain is an electrochemical organ using electromagnetic energy to function. Electrical activity emanating from the brain is displayed in the form of brainwaves. They range from the high amplitude, low frequency delta to the low amplitude, high frequency beta. During Keerthana meditation brain waves alter.

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The four categories of these brainwaves: Beta Waves or beta rhythm, is the term used to designate the frequency range of human brain activity between 12 and 30 Hz (12 to 30 transitions or cycles per second). They awaking awareness, extroversion, concentration, logical thinking, active conversation. Alpha Waves are electromagnetic oscillations in the frequency range of 8-12 Hz. They are also called Berger’s wave in memory of the founder of EEG. They place the brain in states of relaxation times, non-arousal, meditation, hypnosis. Theta Waves is an oscillatory pattern in EEG signals recorded either from inside the brain or from electrodes glued to the scalp. They are found in day dreaming, dreaming, creativity, meditation, paranormal phenomena, out of body experiences, ESP, shamanic journeys. Delta Waves are high amplitude brain waves with a frequency of oscillation between 0-4 hertz. Delta waves, like other brain waves, are recorded with an electroencephalogram (EEG) and are usually associated with the deepest stages of sleep and aid in characterizing the depth of sleep.


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1.14 Out Line of Chapters

The following chapters will elaborate on the theoretical framework of the thesis. The first chapter will illustrate the scheme of the presentation of the thesis. The second chapter will describe the background of Swami Tyagaya, his devotional life and his connection to sangeetham. The chapter will discuss the Theo-neuro-psychology. The third chapter will explain the methods used for the research such as the questionnaire survey and the Electroencephalogram. The fourth chapter will point out the findings. The fifth chapter will analysis the findings and discuss the inferences. Chapter six will be the conclusion that will summarize the conceptual and the empirical findings.
The Chapter One points out the proposal and plan of the study; It deals with the protocol, the objective, the methodology, and the design of the study. It introduces and background of Swami Tyagaya, *sangeetham*, neuropsychology.

The Chapter Two deals with the background theoretical framework of the study. The analytical review of the Literatures on *Sangeetham* & Tyagaya’s life, brain, neuropsychology and spirituality. The knowledge on *Tyagopanishad* will set the mind to reach a spiritual goal which will enhance a neurological cascade of events and a spiritual reality about God. *Sangeetham* training and experience influences neuro-plasticity in the brain. The neurons and the electrochemistry activates spiritual sentiments. Intense prayer and meditation permanently change numerous structures and functions in the brain, altering one’s values and the way one perceives reality.

The Chapter Three talks about the methodology of questionnaire survey and Electro-encephalography (EEG) experiment. The methodology offers a procedure to rationalize the subjective quantitative Questionnaire Survey and scientifically rationalizes the objective quantitative Electro-encephalography (EEG) with the spiritual characteristics of Swami Tyagaya’s devotional *sangeetham* in association with neuro-psychology. The Questionnaire Survey method will investigate on *Sangeetham*, Swami Tyagaya, brain, God and Spirituality. The quantitative method will assess the participant’s spiritual experiences.

The EEG experimentation methodology explores the electroencephalographic (EEG) correlates of Divine emotions during devotional music listening or singing
of Swami Tyagaya’s Carnatic sangeetham. The experiment will investigate on Group A, B and C about the brain activity in emotional relaxation and God realization by measuring the Alpha, Beta, Delta and Theta brain activities.

The Chapter Four deals with the findings of the survey and the results of the EEG. The findings provided by questionnaire survey are in response to the rating scales. It can be seen that the findings on the Questionnaire survey data are based on the participant’s spiritual practices and beliefs related to Sangeetham, Swami Tyagaya, Consciousness, Brain, spirituality, devotion and meditation. The findings on the EEG experiments are based on the volunteer’s brain electrical activity while listening to sangeetham and devotional music.

The Chapter Five discusses the findings, generates conclusion and creates recommendation based on the findings of the literature evaluation, questionnaire survey and the outcome of the EEG experiments. The analyses is based on the specific statistical findings provided by questionnaire survey in response to the rating scales and the discussion is based on the neuro-physiological findings provided by EEG signals. The discussion implicates the validity of the empirical study and identifies significant links between Carnatic sangeetham, Swami Tyagaya, brain, God, spirituality and the welfare of the society. The inference of the discussion is based on the survey and the EEG results which will specify the goodness of devotional sangeetham towards mental and physical health and will how it will influence the society towards love, tolerance and compassion.
The Chapter Six recapitulates the previous chapters so that the conclusion of the study is made. The areas which are included in the recapitulation are objective, the design and the background of problem, the theoretical framework, the rationale and objective of the study, the primary research questions, the review of the survey and the EEG and the evaluation of the discussion.

1.15 The Scope and Limitation of the study

The scope of the current study is to demonstrate how Swami Tyagaya’s spiritual sangeetham plays a prominent role in the emotional centers of the brain and proves that his devotional compositions can create a visual imagery of God. The study examines how sangeetham can teach us about the brain and what the brain can teach us of compassion, love, God and Spirituality. The study illustrates the benefit of spirituality to the society and how sangeetham activates faith, compassion, love and tolerance. The scope refers to the two main parameters in which the current study is operating which is the devotional power of Swami Tyagaya’s sangeetham and the association of neuropsychological research.

The study relies on the Questionnaire survey and the Electroencephalogram. The survey’s demographic and statistical findings help to uncover and clarify the scientific and philosophical dimension of Swami Tyagaya sangeetham, brain and spirituality. However, the results of the statistical findings integrates with the outcome of the EEG results which clarifies the pattern and nature of devotion and identifies the long environmental influence that perhaps creates the state of relaxation of the brain to visualize “God”. The analytical scientific discussion incorporates the connection of long term practicing of Swami Tyagaya’s devotional
sangeetham and neuroplasticity. The study is trying to solve the divine association of sangeetham with spirituality. The predicament is a scientific rationalization of the spiritual characteristic of Swami Tyagaya’s sangeetham and Neuropsychology.

No study has been attempted on Tyagaya’s sangeetham and the brain. The neurophysiologic association of devotional sangeetham provides the valuable knowledge about visualizing God. The research with Electroencephalography (EEG) demonstrates the consistent outcome of the physiological and scientific properties of sangeetham and meditation which is discussed with the association of questionnaire survey results. The advanced statistical analysis and the EEG result provide subjective and objective evidences on the values of Tyagaya’s devotional sangeetham. The subjective Survey findings and the objective EEG signals are significant to arrive at a favorable conclusion and prove that the study is properly substantiated.

There are a few limitations in this study but the key ones are the broadness of the problem involving devotional sangeetham, brain, psychology and spirituality. The limitation is that the theme of the study is personal and it has no specificity to conclude for a unanimous decision but perhaps it creates a motivation for further studies in this area. The Questionnaire survey data collection is laborious and time consuming. The structured survey makes opinions limited and hard to perceive because of the subjective nature of the opinion. The volunteers for EEG were apprehensive of the experiment at the beginning. The main restriction is in transporting candidates to the laboratory. The EEG has its limitations in the investigation process but fMRI could be ideal.
The advantage of the questionnaire survey is that it is inexpensive. The study can ask many questions over a given topic and it is an effective way to get opinions of a large number of people. The questionnaires can be completed easily and quickly. The advantages of the EEG are that it is a relatively cheap, fast and safe way to check functioning of different areas of the brain. It is a non invasive procedure that does not cause pain and it is effective in displaying the active state of the brain structures. The study is trying to reconcile this dichotomy by conforming to the institutional setting. The scope and limitation of the study encourages more work for future researches.

In conclusion the study will successfully prove that the contemplative nature of Swami Tyagaya’s devotional *sangeetham* develops the experience of God in the human brain. The spiritual association can engage the society to activate compassion, love and tolerance.

### 1.16. Conclusion

This study formulates the procedure to unify and conduct the study on the neuropsychological association of Tyagaya’s *sangeetham*. The conceptual experience of Swami Tyagaya’s devotional *sangeetham* is transformed through the scientific method and the evidences are analyzed and concluded. The study attempts to understand the rationale by demonstrating that Swami Tyagaya’s spiritual *sangeetham* plays a prominent role in the brain and creates the imagery of God. It also studies how modern Neuro-Physiology approves this “God-Image” in the brain?