CHAPTER FIVE
DISCUSSION AND CRITICAL ANALYSIS
OF THE RESEARCH FINDINGS

5.1. INTRODUCTION

This chapter critically 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 the questionnaire survey in response to the rating scales and the discussion is based on the neuro-psychological findings provided by the 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 show how it will influence the society towards love, tolerance and compassion.

A national Questionnaire survey was conducted to assess mainly the knowledge of Swami Tyagaya’s sangeetham, God, neuropsychology and spirituality. The questionnaire survey findings are based on the Statistical Package for the Social Sciences (SPSS 22) software system for statistical analysis. Multiple composite indexes are created to assess Sangeetham, Swami Tyagaya, neuro-psychology, spiritual faith and meditation across age, race, gender, education, income denomination, family status and spiritual health status. The survey findings show the public perception on devotional sangeetham, meditation, brain, God and spirituality.
The EEG discussion is based on the findings of the experiments conducted on the brain of selected volunteers. The brain activity is associated with the established signals. Eventually, the conclusion is based on the correlation of the survey and the EEG experimentations.

The present discussion aims to establish the potential of Swami Tyagaya’s devotional sangeetham in the society and how it plays a prominent role in the emotional centres of the brain and how it creates a visual imagery of ‘God’. The summary of the findings of the Questionnaire survey from the local society determines their knowledge on Swami Tyagaya’s sangeetham, devotion, meditation, God and spirituality and the EEG findings of volunteers establishes salient Neuro-Psychology answers. The survey outcome and the EEG results are compared with Dr Newberg, Dr Sundrachari and Dr Kasamatsmu research materials.

This introduction recapitulates the rationale and objective of the current study, the research questions, the research design, the methodology, the limitations of the study and the findings. The discussion will dealt in this current chapter. The conclusion and recommendation will be dealt in next chapter. The study attempts to substantiates the rationale by demonstrating that Swami Tyagaya’s spiritual sangeetham plays a prominent role in the brain and creates the visual imagery of God. It also studies how modern Neuro-Psychology approves this “God-Image” in the brain?
5.2 THE SCRUTINIZED RESEARCH QUESTIONS

The research questions of the study is intended to examine a new line of theory and how it relates to existing theories and it examines the evidences. The study demonstrates what that new theory is and why the new theory is needed and the intended scope of its application. Therefore, the study examines relevant questions like how does Tyagaya’s devotional compositions construct in the mind and explains the dynamics of the brain centres? The study justifies how Tyagaya’s devotional *sangeetham* teaches about the realization of Brahmam, (God) and how science reveals about the effects of meditational music in the brain? How and why did Swami Tyagaya have religious experiences? 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? Can these issues 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 *sangeetham*’s spiritual encounters? How does the musical spirit of Tyagopanishad as a spiritual practice create compassion and suppress anger and violence in the modern society? Does practicing devotional *sangeetham* activate faith, compassion, love and tolerance?

The research questions relates to the objective of the study by examining and demonstrating that Swami Tyagaya’s devotional *sangeetham* plays a prominent role in the emotional centres of the brain and create a visual imagery of ‘God’ and establishes through the survey that the present society is sensitivity to Swami Tyagaya’s *sangeetham*, brain, devotional, spirituality and God. The motive of the
EEG is to learn how modern Neuro-Psychology illustrates this “God- Image” in the brain and thus validate the spiritual status of the society.

5.3 RESEARCH DESIGN AND METHODOLOGY EMPLOYED

The present study has relied largely on qualitative and quantitative methodology for data collection. In the qualitative methodology, the current review of literature were designed to test the hypothesis that the meditative Sangeetham of Swami Tyagaya could produce an unique spiritual response in the brain. The Two quantitative methodologies were 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.

This study is researched with three main guidelines.

i. By means of theoretical assimilation of literature

ii. Exploratory social Questionnaire survey method and

iii. Electro-Encephalogram (EEG) procedures conducted in a laboratory.

The first guideline of the study is to use a qualitative analysis of reviews of literatures on sangeetham, Swami Tyagaya’s compositions, neuro-psychology and Vedanta books to get an in-depth understanding of the respective subjects. The study enables better understanding of Saint Tyagaya’s sangeetham, devotional music and neuro-psychology which is dealt in chapter two.

The other guideline is by quantitative analysis. The quantitative methods endorse subjectively by the Questionnaire survey methods and objectively by
laboratory Electro-Encephalogram, (EEG) investigations. The EEG demonstrates the neurological features. 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.(abid). 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 present investigation 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 Seale 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). “Fred Moonga; and Bryman have distinctive characteristics that make the possibility of combining them especially attractive” (Seale, 2004:298).

The main subjects of the 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 guideline methods endorse to understand and discuss the relationship between devotional sangeetham, 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. (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 review of literatures while the quantitative methods of Electro-encephalogram investigation and questionnaire survey method support as a random probes on the responses of the society towards *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 study. The discussion attempts at a detailed explanation of the responses that emerge from the questionnaire survey and the neurological investigations. Therefore, the researcher prefers to combine the two methods (qualitative and quantitative) in order to compensate for the inadequacies and the advantages of both of them. The discussion is based on the 410 survey findings collected from random members of the Indian society across the country. Their answers represent their perceptions regarding the experience on devotional *sangeetham*, brain, neuropsychology, God and spirituality. The discussion of the brain science informs about the EEG experiments were performed on 34 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 *sangeetham* and
spirituality. The concept associated with Swami Tyagaya’s devotional \textit{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 \textit{sangeetham}. The study proves that the emotional processing in the special brain areas focuses the ‘God Realisation’ or the visualization of Lord Rama.

The researcher provides important illustrations throughout the study about \textit{Sangeetham}, Swami Tyagaya, God, Brain and spirituality. The strength of the discussion are essentially in Swami Tyagaya’s devotional \textit{sangeetham}, Neuropsychology and spiritualism. The discussion and inference of the complex study necessitates 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 study. 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). Philip (1998:34) echoes this distinction and notes, ‘recognizing this destabilizes the distinction between the two approaches and therefore their apparent incompatibility’. The discussion and inference of the complex study necessitates the combination of three different methods (qualitative, survey and EEG) to substantiate the rationale and the objective of the thesis. The discussion on the questionnaire survey results is presented in Part A and the discussion about EEG results are presented in Part B.
5.4 THE DISCUSSION ON THE FINDINGS OF THE QUESTIONNAIRE SURVEY

The discussion information comes from the vital statistical findings of the questionnaire survey. The validity of the observed studies has identified significant links between sangeetham, devotion, religion, mental health and spirituality. Typically, religion and spirituality have been measured by global & national indices (e.g., Questionnaire survey- such as; interest in music, God, brain and theology. The frequency of devotional attendance, self-rated religiousness and spirituality). The implication is that the survey specifies the goodness of devotional music, spirituality and its influence towards good mental and physical health. Statistical and demographical data provides the record of the spiritual growth of the local Indian society. The statistical data provides the understanding of the study to satisfy the devotional situation and the mental aspect in the vision of God. The study of the people can make a significant impact on the perception of devotion and God. The demographical information will determine the significance of the scientific rationalization of the discussion on Sangeetham, Swami Tyagaya, brain, meditation, God and spirituality.

The statistical data establishes the inferential analysis of the Six Null Hypothesis statements. Accordingly, the study identifies from the data the 6 major factor areas namely, ‘spiritual factors’, ‘divine reliance’, ‘brain science’, ‘spiritual relevance’, ‘God and man’ and ‘God and brain’. These six factor dimensions explain approximately 60 percent of total variation. The evidences from Swami Tyagaya’s compositions replaces the six null hypothesis with six alternate hypothesis. The statistical Correlation of the major variables factors has produced encouraging
correlation and relevance to the study. The discussion reports about the essential findings to establish the background knowledge of Swami Tyagaya’s *Sangeetham* and its relevance to devotion and the neuro-psychological changes with the guidance of Tables 1 to 34 in Chapter 4.

The implication identifies the validity of the significant links between Swami Tyagaya’s *sangeetham*, society, spirituality and mental health. The *sangeetham*, science, religion and spirituality have been measured by global & national indices (e.g., Questionnaire survey- such as; interest in music, God, brain and theology. It shows the frequency of devotional attendance, self-rated religiousness and spirituality). The inference specifies the goodness of Swami Tyagaya’s devotional music and its influence towards good mental and physical health. The reliability and its validity of the spiritual findings are relevant for the study.

5.4.1 THE DEMOGRAPHICAL FINDINGS (Table 1 - 5)

The demographic analysis indicates the criteria of the local society about the relationship of the biological processes influencing its knowledge about the understanding of the issues of Swami Tyagaya, *sangeetham*, brain, God and spirituality. The values of the demographical statistics are discussed below under the headings, 1. Gender, 2. Age, 3. Education, 4. Occupation and 5. Socio-economic status.

i. The Gender category (Table 1), indicates that the female participants of 64.9% were about two times more than the male participants of 35.1% denoting that the female distribution was more which may imply favourable religious faith. The
keen interest of the women for devotional music and religious growth inspires the survey. The Gallup polling organization findings in 2002, those women hold their beliefs firmly and practice their faith more consistently than men. It was reported that men are less religious than Women (R. R Brit, 2009:4). The devotional and religious growth of the local Indian society lies mainly among the women.

ii. The Age category, (Table 2) indicates that, 43% of participants were less than 30 years old and 58% were more than 30 years old. There were a good mixture of young and old people. The participants of 60 years and above were 14%. The observation is that the process of aging at every stage of life brings about increase faith and spiritual reliance. The finding is that 43% of youngsters were University students and most of them were keen to express their concern on devotion, sangeetham, meditation and faith. The cultures of the young and old participants in the local society has a sound knowledge towards psycho-spiritual needs.

iii. The Education category, (Table 3) signifies of the 76% of participants as college educated which is a high proportion. The secondary school education participants are 20%. The observation is that about 96% of the survey group are educated members of the society. The educated participants command a significant percentage value for the understanding of the philosophic and science subjects of the questionnaire. The educated participants command a significant value for the appreciation of the questionnaire. Their level of
religiosity and the level of scientific education augurs well for the inquiry of sangeetham, Swami Tyagaya, neuropsychology, spirituality and faith.

iv. The Occupation category, (Table 4) denotes that 49.5% are professionals and 29.8% are university students and the rest 5% are retired participants. These values correspond to the significance of mixed group participation. The observation is that professionals and students comprised 80% participation and their opinion are significant for the study. Their views are noteworthy for the correlation of Swami Tyagaya’s sangeetham towards spirituality like tolerance, compassion and love. The viewpoint of the 80% educated participants in the matter of science, sangeetham, God and spirituality are significant.

v. The socio-economic category, (Table 5) implies that 86.8% are from the middle income group and 9% from the upper income participants. The observation is that the middle class understanding on religious and scientific matters are significant in an economically developing country. The values of the middle income group are constantly changing and so are their devotional affiliation. The 86.8% participation can give a better correlation of the socio-economic participation. The big middleclass viewpoint on sangeetham, God, science and spirituality are absolutely significant.

The summary of demographical findings are based on the five important points.

i) female participants are more which is 64.9%.
ii) There are a good mixture of young and old participants which is 43% are young and 58% of participants were older.

iii) The surveillance denoted 96% educated participation which is excellent. The educated participants command a significant value for the understanding of the philosophic subject of the question.

iv) The observation is that professionals and students comprised 80% participation which shows varying opinions of religious and scientific matters.

v). 86.8% of the participants were from the middle income category and their viewpoints were significant on matters concerning Swami Tyagaya’s devotion, carnatic sangeetham, brain, God and spirituality. Therefore, these demographic analysis are significant for the systematic assessment of the wide variety of research outcome concerning Swami Tyagaya, sangeetham, brain, devotion, God and spirituality.

5.4.2 DISCUSSION ON THE DEVOTIONAL SANGEETHAM RELIANCE

(Table 6 - 9)

The statistical data provides the society’s understanding of carnatic Sangeetham inorder to satisfy the devotional relationship and the mental aspect of God. The demographical information will determine the significance of the scientific rationalization of devotional sangeetham with neuro-psychology. The questions makes a significant impact on the perception of sangeetham, devotion and Swami Tyagaya. The implication is that the survey specifies the goodness of devotional sangeetham towards spirituality which is relevant to the study. This section is discussed with selected four questions and with their corresponding tables.
i. Do you enjoy listening to carnatic Shastria Sangeetham? (Table 6). The findings indicate that 75.2% enjoy listening to Carnatic Sangeetham. The total participants were 410. The value indicates keen interest for devotional Carnatic sangeetham. This high percentage inspires the aim of the study. Carnatic Sangeetham (South Indian classical music) has a very special charm on the human mind because of its devotional charisma and the design and function of spiritual implication. The way of life, their God, their mood, their nature and their history are predicted in the quality of their music. Carnatic Shastria Sangeetham is devotional, spiritual, philosophical and meditational (Gopalan, 2003:ii).

2. Do you listen to devotional music or keerthanas? (Table 7). The findings denote that 88.5% like listening to devotional music. The finding percentage indicates keen interest for devotional sangeetham and the findings inspires the study. The sangeetham represents divine feelings, emotions like pleasure, pain, love, hatred, heroism, knowledge, marriage, birth, death and Gods (Prajnananda, 1973:1).

3. Do you consider singing devotional music to be an important part of life? (Table 8). The findings denotes 90.3% consider singing to Carnatic Sangeetham. The percentage indicates that singing devotional sangeetham is important practice in life. During the 17th century the great Bakthi movement in South India promoted the value of singing devotional sangeetham to attain the realisation of God. There were many saintly singers in Tamil nadu like Appar, Sundarar, Manikavasagar and Thirunavukarasar. The greatest composer singer of Carnatic sangeetham was Saint Tyagaya. Saint Tyagaya’s sangeetham functions as a
prayer and meditation. The devotional kritis, compositions are sung in particular raga, tune and particular thala, rhythm which are sustained over a prolonged period to give devotees a mystical experience.

4. “Do you consider singing devotional songs a form of meditational exercise”?

(Table 9). The finding indicates that 86.4% consider singing devotional songs as a meditational exercise to the brain. The finding percentage implies that singing devotional sangeetham is important exercise. Living with God in mind is life and meditation through sangeetham is one way of achieving the goal.

The survey results of this section, “Devotional Sangeetham reliance”, indicates that society persue devotional sangeetham for spiritual life. “Generally, music emerges as an important media for for devotional singing and devotional singing like prayer is incorporated in music and it is a form of meditation” (Newberg, 2010:28). Meditation involves sustained concentration and deliberate regulation of brain action and breathing. Many studies have shown that it enhances relaxation and spiritual well-being (Newberg, 2010:160). Devotional singing in the form of prayer stimulates the spiritual paths in the brain. Devotional music involves emotions and emotions are powerful energy which governs a wide variety of activities involved with consciousness, empathy, and compassion. Sangeetham, bhajans, kirtans, hymns are all devotional songs which accompanies religious rituals and meditation.

Each religion has its own traditions and accordingly sing devotional songs for their particular God. These devotional songs are a form of prayer and a sacred exercise. In Hindu tradition these songs are sung in a certain tune, melody and
rhythm. It is commonly called as *sangeetham*. They are sung with devotion as a communion prayer which results in meditation or mental relaxation. This prolonged singing and praying sustained over a prolonged period give rise to a mystical experience. Swami Tyagaya mentions about envisioning Lord Rama. Many Hindu sages like Appar, Sundarar, Manikavasagar, Swami Tyagaya, Annamaya and Purandaradasa have contributed to the South Indian bhakti movement.

The survey findings denote that 88.5% like to listen to devotional music and 90.3% indicates that singing devotional *sangeetham* is important practice in life. Carnatic *sangeetham* singing and meditation has been practiced since antiquity as a branch of many religious traditions. Devotional *sangeetham* brings about the concentration on singing to God which is a deep meditation. The survey indicates that 86.4% consider singing devotional songs as a meditational exercise to the brain. 75.2% enjoy listening to Carnatic Shastria *Sangeetham*.

It is mentioned in the Tamil *Thevaram* that music represents the sounds of nature which is emotional and a tribute to Iswara (God). *Appar*, 700AD, a Tamil poet sings, “*Maasil Veenaiyum Maalai Madhiyamum, Veesu thendralum veengila veynilum Moosu vandarai poygayum ponradhee , Eesan endhai inayadi neezhalee*” which means that the shelter from God is like the chaste melody of the *Veena*, the gentle breeze, the happy spiring season and buzzing bees of the lotus pond. (Kanji kamakodi, 2009:434). A Vedic sage, Yajnavalkya describes about the sacred nature of *sangeetham*, “*veena vadhana tathvanga sruti, jathi, visartha talanjaba prayasena moksha margam niyachathi*”, which signifies that one who is well educated in music of veena, tone and beat attains salvation without doubt (Kanji Kamakodi 2009:435).
Plato, the famous Greek philosopher, 500BC, says, “Music gives, a soul to the universe, wings to the mind, flight to the imagination and life to everything” (Benjamin Jowett, 1970:522).

Brain scientists indicate that the brain of a musician works differently than that of a non-musician. Dr. Andrew Newberg, is a neuroscientist and the Director of Research at the Myrna Brind Center, Thomas Jefferson University, USA says, “There’s some good neuroscience research that involved in music have larger growth of neural activity than people not in music training. When you’re a musician and you’re playing an instrument, you have to be using more of your brain and for people who choose to meditate they create a different neural network based upon the images and thoughts they contemplate and experience (Andrew Newberg, 2010:103).

“Brain scan technology becomes more refined, I suspect we will see that imaging showed changes to the networks in the brain that represents his or her image of God” (Newberg, 2010:102). Research has also found the fundamental link between music and spatial intelligence, which means that understanding music can help children visualize various elements to improve their intelligence and aptitude. In Europe school children are exposed to Mozart’s music. Mozart effect is listening to Mozart’s music which can induce improvement in mental task (Levitin; 2006;194).

Saints promote devotional singing to help build compassion, kindness, tolerance and love. This devotional meditation calms the mind and stimulates specific brain centres. This act may involve generating the emotional feelings. Meditation
often regulates the mind and eases many health concerns. 86.4% of the survey candidates consider singing devotional songs as a meditational exercise to the brain. The finding percentage implies that singing devotional sangeetham is important brain exercise. The statistical data provides the understanding of the Carnatic Sangeetham in the society which is relevant to the theory to satisfy the devotional relationship and the mental aspect in the vision of God. The inferences of the literature evaluation on the devotional sangeetham of Swami Tyagaya and the statistical findings of the survey substantiate the second and fourth objective of the study.

5.4.3 DISCUSSION ABOUT SWAMI TYAGAYA, HIS DEVOTIONAL KEERTHANAS AND SPIRITUAL FACTORS (Table 10 - 14)

Swami Tyagaya is also called as Thyagaraja. He lived in Tiruvaiyaru, Tamil Nadu in the seventeenth century. He was a prominent and a prolific composer of classical sangeetham. He was totally immersed in his devotion to Lord Rama and therefore he experienced the spiritual vision of God. He expounded that nada yoga can guide a devotee towards spiritual realization. The survey findings determines the significance of Swami Tyagaya and his devotional sangeetham with the association towards faith, compassion, righteousness and God. The statistical data provides the society’s understanding of Swami Tyagaya, Sangeetham and God. The results satisfies the devotional relationship and the mental aspect in the vision of God which is relevant to this study. This section is discussed with the selected five questions and with the statistical results.
1. Do you think that it is possible for Swami Tyagaya a great saintly musician of the 17th century to have visualised God Rama? (Table 10). The findings indicate that 49.8% agree in Swami Tyagaya visualising of Lord Rama. The finding percentage indicates that 18.8% disagree. The 49.8% value of the findings inspires the outcome of this study.

2. Do you agree, Swami Tyagaya expounds that devotional Sangeetham is important to understand God? (Table 11). The findings indicate that 53.9% agree in Swami Tyagaya view that his devotional sangeetham is important to understand God. 17.8% of candidates disagreed. The 53.9% value of the findings motivates the idea of the study.

3. Do you agree, Swami Tyagaya’s poetry shows ways to be spiritual and understand God? (Table 12). The findings indicate that 52.5% agree in Swami Tyagaya view that his devotional sangeetham is important to understand God. 21% of candidates disagree. The 52.5% feel that SwamiTyagaya’s Devotional Sangeetham shows the way to understand God. The finding inspires the study.

4. Do you agree, Tyagaya’s compositions direct the right path in life? (Table 13). The findings indicate that 52% agree in Swami Tyagaya view that his devotional sangeetham shows the right path in life. 17.6% of candidates disagree. The 52% value of the findings inspires the spiritual idea of the study.
5. Do you agree, Tyagopanishad infuse faith and compassion? (Table 14). The findings indicate that 49% agree that Swami Tyagaya’s compositions infuse faith and compassion. The 49% value of the findings indicates the message of righteousness.

The statistics of this section, indicates that through Swami Tyagaya’s sangeetham one can attained spiritual realization. Swami Tyagaya composed hundreds of devotional compositions and in praise of Lord Rama and many of them are popular today. His passion for the vision of Lord Rama grew intensely. He saw and felt God in all names and forms. In the theological tradition faith leads to experience and through consciousness God is visualized. It is shown that devotional sangeetham has meditational implication to the brain. Tygaya’s devotional message tells the experienced of the divine reality and the exuberant joy, confidence and a feeling of intimacy to Lord Rama. 53.9% agree in Swami Tyagaya view that his devotional sangeetham is important to understand God, Lord Rama.

His literature is highly developed in devotional narrative and in its intellectual insight, and in its musical attitude. The glory of his literature lies in his religious imagination and in his emotional qualities. His kritis creates a religious sentiment and a divine awareness to Lord Rama. More that 52% agree in Swami Tyagaya’s view that his devotional sangeetham is important to understand God. Inorder to emphasise the significance of devotion to attain salvation, Swami Tyagaya in his kriti “Mooksamu galada” says “Is it possible for one who is devoid of real devotion and knowledge of divine music attain salvation” (Ramanujachari, C., 1958:591).
Vedic literature explains *sangeetham* is an emergence of *Nadabrahmam*. AUM is honoured as the pranava mantra. *Sangeetham* is an interplay of melody, harmony and rhythm. Melody is what results from playing notes of different pitches. Harmony is the relationship between different notes played at the same time. Rhythm is what results of combining notes of different durations (Swami Prajnanda, 1973:15). *Omkara* is the *pranavamantra* which is radiating as the *saptasvara*. The Bhakti tradition of India in the 16th century believes that devotional *sangeetham* can function as a communion prayer and meditation called as *divyamanamasangirtanam* (Sambamurthy, P., 1994:31). The *kritis* are repeatedly sung in particular *sruthi*, rajas, talas and thoni which when sustained over a prolonged period give rise to brain changes to the devotees. The resultant intense emotion gives rise to a spiritual experience. Swami Tyagaya experienced the vision of God through his devotion and righteous living. Tyagaya’s *sangeetham* calms the mind and stimulates specific emotional centres in the brain giving rise to visualising God. This act may involve regulating the mind. Neuroscientists show activated brain areas when in meditation or in mystical union with God. The EEG and the fMRI are able to illustrate this phenomenon.

The survey findings emphasizes that Tyagaya’s devotional message includes educational endeavours and deepens divine faith for the process of spiritual growth. His music gives a special radiance of divine joy. A study of the different world religions will enable one to understand how each religion views spiritual development within its unique belief system. The participants viewpoint of matters concerning devotional *sangeetham*, meditation, God and spirituality are significant and relevant for the first, second and fourth objective of this study.
5.4.4 THE DISCUSSION ABOUT GOD, BRAIN, SPIRITUALITY AND FAITH

(Table 15 - 27)

According to theo-science, the spiritual vision of God, the spiritual realization and spiritual experiences are all mental pictures. This section deals with how devotional music and meditation affect brain activity. Neuro-science observes increased activity in the frontal, parietal, temporal, occipital lobes and the language area of the brain. Dr. Newberg believes that for the brain, praying to God in the meditational tradition where they are visualizing something, we might expect to see a change or increased activity in the visual part of the brain (Newberg, 2010:89). Many saints of different religious faiths have mentioned about their God experiences. Music plays an important role in devotional experience. Various studies have been done to answer how music acts on the brain. It is believed that devotional music has a great influence in an individual’s spiritual development. This may be due to the interaction that occurs in the various parts of the brain network. The statistical data provides the understanding of God, brain, meditation, music and faith in the society. The data is relevant to this study inorder to satisfy the scientific and the spiritual knowledge. This section provides with thirteen selected questions and with their corresponding.

1. Do you believe in God? (Table 15). The findings indicate that 97.3% overwhelmingly believe in God and 2.7% do not believe in God. There is an overwhelming sense of God presence. Many believe in God because they know that God is real and they can feel His presence because He is in their body, mind and soul.
2. Does God exist? (Table 16). The findings indicate that 87.3% strongly agree in the existence of God and only 5.2% strongly disagree. The 87.3% believe in the existence of God has enormous implications on the views of creation, life, destiny and humanity.

3. Is God a mental image? (Table 17). The findings indicate that 46.6% agree that God is a mental image and 34.3% disagree. 87.3% agree in the existence of God. The God experience is thought of as an mental image. Mental image plays an important role in memory and intelligence. Science explains that the brain activates special neural centres. Neuro-psychology is an immerging scientific field and therefore 46.6% acknowledge the mental role.

4. Is God necessary? (Table 18). The findings indicate that 83.9% agree that God is necessary and 5.4% disagree. For thousands of years, man has worshipped God and so God is a part of him. Man understands that there is a big force behind the universe, the sun and the earth. Naturally 83.9% participants feel the necessity of God.

5. Is there a God spot in the brain? (Table 19). The findings indicate that 56.9% agree that there is a God spot in the brain. Many Neuro-Scientists, philosophers and theologians argue about whether religious belief is a genetic or a society phenomenon. Modern scientist prove that the special neural activity in the brain network have religious function. Dr Andrew Newberg and his team at the University of California at San Diego claimed to have identified the “God Spot,” in the frontal cortex that is activated during religious chanting or devotional
meditation. He said God exists in every person's brain (Newberg, 2010:43). The amygdala plays an indirect role in the control of the emotional responses. The 56.9% of response indicates the rationalistic thinking of the candidates. The more one believes in his devotional singing or chanting or meditating the more the response will be in the brain.

6. Does the brain have an attraction towards music? (Table 20). The findings indicate that 83.4% agree that the brain has attraction for music. The brain depends on neurons. The neurons communicate with each other by electrical pulses and neurotransmitters. Scientific study indicates that the musical information through the ears, eyes, skin register in the brain cells. Music has a common denominators which are pitch, timing and timbre or melody and harmony. The brain uses the sound impulses to make sense of them all. The sound impulse of the music activates the emotion centres of the brain which give rise to ecstasy, happiness or sadness. Newberg found an increase of activity in the meditators' frontal lobe. These neural structural changes were greatest in the nerve fibres connecting the anterior cingulate, the part of the brain which helps regulate emotions and behavior (Newberg, 2010:30). Newberg says that there are considerable evidence documenting the effects of pleasant music on the brain (Newberg, 2010:35). He evaluates that what's happening in people's brains when they are in a deep spiritual practice like devotional singing, meditation or prayer (Newberg, 2010:36)

However, it is just as likely that devotional sangeetham can cause a meditational effect in the cortex. Neurotheological studies show a link in theology and
science. Devotional *sangeetham* of the likes of Swami Tyagaya can activate the brain to visualize the “God imagery”. This scientific knowledge has given a remarkable window into what it means for people to be religious or spiritual or to sing devotional songs as a practices. The 83.4% finding does specifically acknowledge the notion that there is a religious or spiritual or divine presence in the brain. Therefore singing and listening to devotional music makes the devotee feel good and emotionally elevated. Dr Levitin, a prominent psychologist of McGill University said. “We're using music to better understand brain function in general” (Levitin, 2006:11). Patel suggests “Evidence says that both language and music represent their sound categories bilaterally in auditory cortex”. (A. Patel, 2008: 63).

7. Can Saints communicate with God? (Table 21). The findings indicate that 68.5% agree that Saints can communicate with God and 19.8% remain neutral. Among the Hindus saints are those who show a great degree of righteousness and sanctity in daily life. These saints often renounce the world and live as mystics or swamis. They are special kind of people who have attain the status of Gods. Saints establish contact with God through spiritual practice. Mostly a vision of God is obtained with the subtle sense organs of vision or hearing. God conveys divine messages to the people through the divine saints. Swami Tyagaya was one of them. A saint is believed as someone through whom one catch a glimpse of what God is like. There are incidents that Tyagaya visualized Lord Rama which are noted in his poems. Swami Tyagaya says in his *kriti*, “Paramaatmmudu”, “Know how God shines in glory in everything, human beings, creatures, nature and in devotees” (Ramanujachari, 1958:281).
8. Is God created in the brain? (Table 22). The findings indicate that 68.5% agree that God thought is a creation of one’s brain and 18% remain neutral and 12.7 disagreed to the statement. Science explains that the number of neuron connections that matters for the brain to receive, analyze, store and react for any information. The brain cells play a unique and dominant role in the dynamics of visualization of God. It may be a pre-determined genetic profile, the way your brain is trained by intrinsic and extrinsic factors. The brain cells stimulates electro-chemical neurotransmitters like endorphin, dopamine, serotonin from the synapses (Newberg, 2010:56). The God behavior system may be through frontal, temporal, limbic system and hippocampus of the brain. Sophisticated neuroimaging has revealed functional and even structural changes in the brain. Dr Newberg says, “God is as a result neuroplasticity of the brain. Contemplating God will change your brain. Religious and spiritual meditation changes the brain by a mechanism called neuroplasticity; the ability of the brain to structurally rearrange itself” (Newberg, 2010:14). Dr Ramachandran spoke of Dr Persinger thus, “there is one man in Canada who stimulated his temporal lobe and experienced God” (Ramachandran, 2012:175). The findings in Table 19 denotes that 56.9% agree that there is a God spot in the brain. Future sophisticated electrophysiology may relate more on the brain activity and God.

9. Is spiritual feeling related to God feeling? (Table 23). Spiritual emotion is a state of communion with God. It is related to the subconscious mind. Spiritual emotion transcends from the physical level to a metaphysical level and experience a spiritual experience. Spiritual experience gives rise to a divine bliss or a superlative happiness. It is a subtle extra-sensory perception. It is an ability
to perceive the subtle dimension of the spiritual world of Gods, angels, saints and heaven. Spiritual experience is the subtle God experience. Dr Ramachandran says about God thus, “It seems that humans can ponder the infinite or wonder the meaning of it all” (Ramachandran, 2012:176).

The findings indicate that 75.9% agree that spiritual feeling related to God feeling. It is documented in the kriti “giripai nelakonna” that Swami Tyagaya in last days had a spiritual vision of Lord Rama on a hill with holy people worshipping him. Lord Rama promised to take him to heaven in 5 days (Sambamurthy, 2001:110).

10. Do you meditate? (Table 24). The findings denote that 55.4% meditate and the rest of 44.6% do not. Meditation means differently in different context. Meditation as a form of contemplation has been practiced since ancient times as a component of numerous religious traditions and faiths. Meditation is predominantly practised for spiritual purpose but of late it plays an important role for health concerns. It may be involved in creating an emotional state of contemplating on God (Yatiswarananda, 1998:232). Swami Tyagaya’s sangeetham is a form of meditation. It creates a calming effect on the individual.

In Hinduism, meditation is called as yoga. Meditation is practised to realise union of the athman with the Brahman. This experience is referred as moksha. Dr Newberg states, “Meditation is certainly one of the best ways to enhance the neural functioning of your brain (Newberg, 2010:150). Activities involving intense sangeetham or meditation or prayer strengthens specific brain areas
causing emotional elevation towards compassion, love and tolerance. The image scanning methods have scientifically proved positive evidences. Swami Tyagaya’s observation of devotional meditation in the form of sangeetham is the best approach for God relalisation. Swami Tyagaya was instrumental for the propagation of the bhakthi tradition in the sixteenth century in South India (Sambamurthy, 2001:87).

11. Does Meditation improve spirituality? (Table 25). The findings denote that 90% agree that meditation improve spiritual feelings. Meditation is predominantly practised for spiritual purpose. It may be involved in creating an emotional state which is a state of communion with God (Yatiswarananda, 1998:318). God emotion transcends from the physical level to a metaphysical level and experience a spiritual experience. Spiritual experience gives rise to a Godly bliss or a superlative happiness. The findings denote that 90% agree that meditation improve spiritual feelings. Dr Andrew Newberg discusses in his book “How God Changes Your Brain”, matters concerning meditation and spirituality. His research correlates distinct connection between devotional songs, meditation and neuro-psychology of the brain.

Searching God is spiritual action and it related to individual practice. It may be in the form of singing devotional songs or chanting prayers which all amount to meditation. It is aimed to develop a sense of oneness with God. William Atkinson in 1901 said; I believe that the mind of man contains the greatest manifestations of energy that the body controls the mind. I believe that man is rapidly growing into a new plane of consciousness and something within there is
an Infinite Power and we have a momentary glimpse of its existence—a momentary consciousness of Oneness with the Absolute (Newberg, 2010:119). Meditation is a skill that can be trained systematically. Rishis, monks and nuns practise to realise the union of the self with God. This experience is believed to improve spiritual experience.

12. Does repeated meditation singing or chanting activate the brain? (Table 26). The findings denote that 79.3% agree that repeated meditation singing or chanting activate the brain. Dr Newberg reports that he has conducted Kirtan Kriya meditation for 8 weeks, and have found very promising preliminary outcomes in terms of the impact on brain function (Newberg, 2010:24). Kirtan Kriya is like chanting of mantras in a meditative form. The overall evidence clearly demonstrates that most form of devotional singing or chanting will exercise the brain and promote cognitive health. Brain science explains that such meditative sangeetham strengthens specific areas in the brain such as prefrontal, frontal, orbital, anterior cingulate, basal ganglia and other regions. The brain cells activates consciousness, clarity of mind, reality, empathy, compassion, emotional balance (Newberg, 2010:28).

The brain cells play a unique and dominant role in the dynamics of visualization of God. Newberg says, “we can keep the brain circuits healthy and improve it by incorporating meditation into our daily activities, regardless of our beliefs” (Newberg, 2010:29). In the same way, Swami Tyagaya’s Spiritual experience gave rise to Divine bliss through his daily practice of devotional sangeetham. Swami Tyagaya’s observation of devotional meditation in the form of
sangeetham is the best approach for God realisation. Many of his kritis like “Yella ne daya rathu”, “Nanu palimpa”, “Kannu kontini”, speak of God realisation.

13. Do you require faith to love God? (Table 27). The findings indicates that 69.5% agree that faith is required to love God. Man is a social and a spiritual being. He would benefit through spiritual practices love, compassion, tolerance, selflessness and health. Having hope and faith are essential, but something more is needed: the skill and discipline to organize the brain in ways that will successfully motivate life (Newberg, 2010:21). The activities involving intense sangeetham or meditation or prayer strengthens faith and therefore specific brain areas activates divine emotions. Swami Tyagaya practiced sangeetham with great faith and love (Sambamurthy, 2001:42).

The discussion successfully validates that the essential ingredients for Divine realization is righteous life style, persistent devotion to God, regular sangeetham recital and deep spiritual contemplation. The realisation is a creative desire, a holy inspiration and a communication with the supernatural entity called God. God is attained through devotion, meditation and faith.

All the findings overwhelmingly substantiates that Swami Tyagaya’s sangeetham can attained spiritual realization. The main findings of the survey infer that 97.3% overwhelmingly believe in God and 83.9% agree that God is necessary. 56.9% agree that there is a God spot in the brain and 68.5% agree that God thought is a creation of one’s brain and 68.5% agree that Saints can communicate with God. The
findings indicate that 75.9% agree that spiritual feeling is related to God feeling and 90% agree that meditation improve spiritual feelings. 79.3% agree that repeated meditation singing or chanting activate the brain and 83.4% agree that the brain has attraction for sangeetham. 69.5% agree that faith is required to love God. The high statistical percentage stand as strong evidence to prove the first, second and fourth objectives of this study.

5.4.5 The Statistical Correlation of the Major Variables (Table 28)

The statistical data of the survey on Swami Tyagaya, sangeetham, God, brain and spirituality inspires the association of devotional sangeetham in the realization of God. The public opinion makes sense that God is the part of the brain. The study correlates the brain phenomena with the subjective experience of Swami Tyagaya’s devotional sangeetham. The correlation implies to a broad statistical relationship involving the random variables. The data suggests that it is not normally distributed and therefore a non-parametric test is employed. The findings from the test responds to the research questions and help to solve the objective of the study. The common characteristic is that there are many significant correlation of the major variables of Spiritual experience, Swami Tyagaya, Devotional sangeetam (music), Brain Science, God and Brain, income, Family status, Education, Age which are interpreted through SPSS 22 output. The results in Table 28 reveals the findings.

The observation denotes that the age, education, family status, income corelated significantly with spiritual experience, Swami Tyagaya, sangeetham, brain and God. These eight factor dimensions explain approximately 60 percent of total variation. The observation is that the development is predominantly neuro-psychological and
the orientation is attributed to the foundational ideas that have helped to leverage this positive results. The positive correlation are the significance for the creative power of Swami Tyagaya’s *sangeetham*, for neuro-psychology of spirituality, and experiential relevance of God. The impacts of these factors produces encouraging correlation and relevance to the subject of the study. Tyagaya’s spiritual reliance through *sangeetham* produces significant impact in the brain.

In conclusion, the correlation of spiritual relevance of devotional *sangeetham*, brain science, God, Swami Tyagaya’s Divine reliance, age, education, income and family status have produced significant statistical association to the study. The findings show satisfactory dependence between the variables. The impact of the statistical factors have produced encouraging correlation and relevance. The positive statistical correlation of variables stands as evidence to prove the first, second and fourth objectives of the study.

5.4.6 DISCUSSION OF THE SIX ALTERNATIVE HYPOTHESIS AGAINST THE NULL HYPOTHESIS (Table 29 - 34)

The six null hypothesis are rejected by the six alternate hypothesis which are discussed herewith. The six tables denotes the six null hypothesis. The inferential findings are investigated using Pearson product-moment correlation coefficient on the questionnaire survey. The statistical finding are derived based on the questionnaire survey. Each ‘The Null Hypothesis’ testing engages in the creation of two statements in which one hypothesis is illogical and unacceptable and the other is an alternate statement that is logical and acceptable. The alternate hypothesis will denote an investigational theory which will have an observed alternate effect of
the experiment. The alternate hypothesis will reject the null hypothesis and therefore the alternate hypothesis becomes realistic and suitable. Inferential analysis is conducted on six null hypothesis based on 1. Sangeetham, 2. Swami Tyagaya, 3. Devotion, 4. Brain, 5. God and 6. Spirituality.

5.4.6.1 The relationship between Sangeetham and devotional experience

The alternate argument of the hypothesis is that Swami Tyagaya composed in his kriti, “Nada tanu manism Sankaram” and it says, “I bow to Lord Sankara, the embodiment of music with my mind and body. Music is the essence of Sama veda which is Sa-Ri-Ga-Ma-Pa-Dha-Ni-Sa. I bow to Him who is the protector of Tyagaya” (Ramanujachari, 1958:288). Sangeetham is believed by the Indians as a divine art and is venerated as Nada Brahmam. The Sama veda is thought have laid the foundation for sangeetham and are sung as Vedic hymns in prayers. Sangeetham is based on the concept of swara, raga and tala. The devotional references of sangeetham are made in many ancient literatures like Silappadhikaram, Ramayanam and Mahabharatam. The very famous sangeethakaras are Swami Tyagaraja, Purandara Dasa, Annamacharia, Muthusami Dikshitar, Syama Sastri, Maanikavasagar, Pattinathar and many others.

The null hypothesis states that there is no significant relationship between Sangeetham (Indian Classical music) and devotional experience among Indians. The
alternate hypothesis rejects the statement by the above explanation and the observed effect of the survey. The alternate hypothesis proves logically a close relationship between sangeetham and devotional experience. Therefore with the above rational facts the null hypothesis is rejected by the alternative hypothesis which is the observed effect of the experimental survey. The investigation using Pearson product-moment correlation coefficient showed there was moderate positive correlation between music and devotional experience $r = .476$, $n = 410$, $p = 0.00$ ($p<0.01$). The finding indicate that Sangeetham moderately influences the devotional experience of the Indians. Therefore, the Nul HO$_1$ is rejected by the alternate theory.

5.4.6.2 The relationship between Sangeetham, brain and God and devotional experience.

HO$_2$ : There is no significant relationship between Sangeetham and general perception on God, brain science and devotional experience among Indians. (Table 30)

The alternate argument of the hypothesis is that Swami Tyagaya relates in his kriti “Nanu Palimpa nadasi ochithiva, na prana nayaga” about his devotion to Lord Rama, “Have you come walking all the way to bless me. You are the secret longing of my mind, you are my vision and the purpose of my life. O Rama! You are the Lord of my mind” (Ramanujachari,1958:575). Sangeetham in the Indian devotional tradition is the involvement of singing with meditational devotion. The kriti is believed to reflect the experience of the devotee in scaling the heights of devotion towards his God. It is an invocatory song of bhakthi which is the realization of
union with the essential nature of the “Divine God” contemplated in the brain. Swami Tyagaya conveyed his dedication to Lord Rama through his kritis and his righteous life. Swami Tyagaya had the ability to understand the subtle perception of God, (Lord Rama). The creation of music is a product of intelligence and the devotion elevates the emotional mind from the physical level to a metaphysical state. When such an emotional state happens, the devotional singer’s sense of self begins to dissolve and the singer feel unified with the devoted object of contemplation and that is God. The divine emotion activates the brain cells. The neuro-chemical activities stimulate a creative motor-sensory system to motivate spirituality. The brain cortical centres produce divine emotions, perception, imagination, thought and memory (Roth, 2004:36).

The null hypothesis maintains that there is no significant relationship between Sangeetham and general perception on God, brain science and devotional experience among Indians which is rejected by the observed effect of the survey which is the alternative hypothesis. The alternate hypothesis denotes important relationship between sangeetham, God and devotional experience in the brain. Therefore with the above facts the null hypothesis is rejected by the alternative hypothesis which is the observed effect of the experimental survey. The investigation using Pearson product-moment correlation coefficient showed there was moderate positive correlation between music and general perception on God, brain & devotion r = .483, n = 410, p = 0.00 (p<0.01). The above finding indicates that Sangeetham moderately influences the general perception on God, brain and devotional among Indians. Therefore, the Nul HO₂ is rejected by the alternate theory.
5.4.6.3 The relationship between sangeetham and brain

\[ \text{HO}_3 : \text{There is no significant relationship between Sangeetham and Neuropsychology among Indians. (Table 31)} \]

The alternate argument of the hypothesis is that Swami Tyagaya speaks about his mind in the kriti, “manasuloni marmamu telusuko” thus, “O mind get to know my desire that I need my Lord’s blessing and his compassion” (Ramanujachari, 1958:346). Tyagaya appeals to his brain to understand his divine emotion through the dynamics of devotional music. Sangeetham is a cultural and devotional phenomenon. Sangeetham intensifies emotions. Emotion is a brain entity. The brain generates a mindful spiritual state which conveys psychological interpretation. Musical sounds are processed in the brain in the neocortex which includes a devotional experience.

The brain creates a personal relationship to the divine God. The mind of Swami Tyagaya was charged with reverence to his Lord Rama. 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. Faith is embedded in our neurons and in our genes and it is one of the most important principles to honour our lives (Newberg, 20010:20). Music occupies more areas of the brain than language does, and that humans are primary musical species. Dr Sacks says, “we humans are a musical species no less than a linguistic one. All of us can perceive music, tone, timbre, pitch, melody, harmony and rhythm. We integrate all of these and construct in our minds using many different parts of the brain’ (Sacks, 2007:1).
The null hypothesis states that there is no significant relationship between *Sangeetham* and Neuropsychology which is rejected by the observed effect of the survey which is the alternative hypothesis. The alternate hypothesis relates a close relationship between *sangeetham* and brain psychology. Therefore with the above facts the null hypothesis is rejected by the alternative hypothesis which is the observed effect of the experimental survey. The investigation using Pearson product-moment correlation coefficient showed there was moderate positive correlation between music and brain $r = .456$, $n = 410$, $p = 0.00$ ($p<0.01$). The Null HO$_3$ rejected. The above finding signifies that *Sangeetham* moderately influences the brain among Indians. Therefore, the Null HO$_3$ is rejected by the alternate theory.

### 5.4.6.4 The relationship between *sangeetham* and holiness

**HO$_4$**: There is no significant relationship between devotional *Sangeetham* and Holiness among Indians. (Table 32)

The alternate argument of the hypothesis is that In praise of spirituality, Swami Tyagaya sings in his song, “chakkani rajamargani”, thus, “Oh mind, when a good and spiritual path is available, why take the wrong paths? When good milk with cream is available, why should one go for poison. The royal road to salvation is devotion to Lord Rama” (Ramanujachari, 1958:118). *Sangeetham* and spirituality are like the obverse and reverse of the same reality. *Sangeetham* in its purest sense is religion and religion in its purest sense is devotional music. Music is the universal language of the athma, soul. Most of the Indian yogis used devotional *sangeetham* for the search of their God. It is both an earthly and a heavenly treasure. *Sangeetham*
imprints itself on the brain deeper than any other human experience. “Music evokes emotion and emotion can bring with it memory.” (Sacks, 2007:66). Music occupies more areas of the brain than language does and that humans are generally musical species (Sacks, 2007:68). Recent developments in cognitive neuroscience have led to a new way of looking at music and emotion, holiness and spiritualism. There are new avenues of research opening up.

The null hypothesis states that there is no significant relationship between devotional Sangeetham and holiness among Indians which is rejected by the observed effect of the survey which is the alternative hypothesis. The alternate hypothesis denotes a close relationship between sangeetham and holiness. Therefore, with the above facts the null hypothesis is rejected by the alternative hypothesis which is the observed effect of the experimental survey. The investigation using Pearson product-moment correlation coefficient showed there was strong positive correlation between music and spiritual holiness \( r = .638, n = 410, p = 0.00 \) (\( p<0.01 \)). The Nul HO\(_4\) is rejected. This finding indicates that devotional Sangeetham strongly influences the spirituality and holiness among Indians. The Nul HO\(_4\) is rejected by this alternate theory.

5.4.6.5 The relationship between Devotional reliance and Spirituality.

HO\(_5\) : There is no significant relationship between devotional reliance and spirituality among Indians. (Table 33)

The alternate argument of the hypothesis is that Swami Tyagaya describes his reliance to God in his kriti, “Terati yaga rada” that the Supreme Being should remove
the screen of pride and envy which are responsible to keep him away from the reach of dharma, moksha and spirituality. Swami adores for devotional reliance to achieve spirituality. Devotion and spirituality are the two defining factors in determining the higher values of life. The relation between devotion and God is also the relationship between religion and spirituality. In India, there is a discipline prescribed for a devotee who wishes to be sanyaasi which is a austere detachment from the usual entanglements of material life. Devotion depends on austerity for spirituality. 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, 2010:5).

The null hypothesis states that there is no significant relationship between devotional reliance and spirituality which is rejected by the observed effect of the survey which is the alternative hypothesis. The alternate hypothesis denotes a close reliance between devotion, spirituality and God. Therefore with the above facts the null hypothesis is rejected by the alternative hypothesis which is the observed effect of the experimental survey. The investigation using Pearson product-moment correlation coefficient showed there was strong positive correlation between devotional reliance and spiritual r = .921, n = 410, p = 0.00 (p<0.01). This finding indicates that devotional experience strongly influences the spiritual among Indians. The Nul HO5 is rejected by the alternate theory.
5.4.6.6 The relationship between God, brain, Tyagaya, Sangeetham and spirituality

HO₆: There is no significant relationship connecting God, brain, devotional music of Swami Tyagaya and spirituality among Indians. (Table 34)

The alternate argument of the hypothesis is that Swami Tyagaya describes his general viewpoint of God, spirituality and devotional sangeetham in his kriti, Kalaharana Melararahare”. He asks, “O Lord Rama! Why is the delay to give me salvation? You are my saviour and i am like a bird flying around you. You are the only one to save me. I thinking of you and singing of you day in and day out. My mind is always of You. I have sought your feet and surrendered to you. You are my spiritual goal” (Ramanujachari, 1958:369). Brain-Mind Dynamics revolves around the science and psychology of the brain. During the twentieth first century the relationship between science and spirituality has been influenced by neuro-psychology. The debate about the ‘God spot’ in the brain or the Spiritual area in the brain is actively pursued. The modern Neuro-scientists are trying to learn more about how the brain functions during reported spiritual experiences. Dr Newberg, a famous neuro-psychologist says,” If you contemplate God long enough, something surprising happens in the brain. “Devotional singing like meditation 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). 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 listening, performance
and composition engages nearly every area of the brain and music is used to manipulate our emotions (Levitin, 2006:9).

The null hypothesis states is that there is no significant relationship connecting God, brain, devotional music of Swami Tyagaya and spirituality among Indians which is rejected by the observed effect of the survey which is the alternative hypothesis. The alternate hypothesis denotes a close relationship and dependence between God, devotion, brain and spirituality. Therefore with the above facts the null hypothesis is rejected by the alternative hypothesis which is the observed effect of the experimental survey. The investigation using Pearson product-moment correlation coefficient showed there was strong positive correlation between general perspective on God, brain, devotion and spiritual emotion \( r = .839, \ n = 410, \ p = 0.00; p<0.01 \).

The above finding indicates that general perspective on God, brain and devotional sangeetham of Swami Tyagaya strongly influences the spirituality among Indians. Therefore, the Nul HO6 rejected by the alternate theory.

**Conclusion**

The statistical findings which is based on the questionnaire survey shows the inferential derivation of neuropsychology, God and Spirituality which provides subjective and objective evidences on the values of Tyagaya’s devotional sangeetham. The questionnaire survey findings are investigated against the six alternate theories which show that there are strong to moderate positive correlation between sangeetham, devotional reliance, God, brain and spiritualism. The six alternate hypothesis proves its rationality and acceptability and therefore, they reject the null hypothesis. This results conclusively indicates that devotional sangeetham
strongly influences the spiritual experience of the Indians. It shows from the findings that good data amplifies the voice of the hundreds of volunteers who have come forward to tell their experiential views of Sangeetham, Swami Tyagaya, brain, devotion, God and spirituality.

Therefore, the demographic, the theoretical and the statistical findings prove and clarify the social, scientific and philosophical knowledge of Swami Tyagaya, Sangeetham, brain, devotion, spirituality and God. The results elucidate the pattern and nature of devotion and identified the long environmental influence that perhaps creates the state of relaxation of the brain to visualize “God”. The subjective survey findings are statistically significant to arrive at a favourable conclusion and the alternate hypothesis inferences proves that the study is properly corroborated.

5.4.7 THE DISCUSSION OF THE OVERALL PERCEPTION OF SWAMI TYAGAYA, DEVOTIONAL SANGEETHAM, GOD, BRAIN AND SPIRITUALITY (Table 35 - 39)

This section discusses about the overall perception of Sangeetham, Swami Tyagaya, God, Brain, Spirituality. The discussion outlines the spiritual knowledge of the society and the philosophy of the research in association to the many theoretical assessments, such as Indian classical music (sangeetham), Swami Tyagaya, God, neuro-psychology and spirituality. This conclusive section indicates the viewpoint according to age, education, social status, belief, literature knowledge, philosophy, scientific opinion and audience. There are tend to be uncertainty in the expressions of the philosophy of God, spiritualism, religion and science but the best effort is
maintained to bring forth the realism. The discussion is based on the selected five findings of the survey.

5.4.7.1 Swami Tyagaya and sangeetham (Table 35)

The purpose of this discussion is to examine and demonstrate that Swami Tyagaya’s devotional sangeetham plays a prominent role in the emotional centres of the brain and create a visual imagery of ‘God’. In view of this fact, to the first statement, “I think that these questions may stimulate your interest in Tyagopanishad and sangeetham”. The findings denote that 70.2% of the respondents agree that their involvement in sangeetham and that Swami Tyagaya’s composition will increase their interest. The finding indicate that 288 respondents approve that Tyagaya’s sangeetham is devotional and beneficial to the society.

From the analysis of Swami Tyagaya’s sangeetham comes a strong message that God sense and spirituality is drawn from within oneself and also being directed from outside. The contemplative practice of singing devotional sangeetham is a form of meditation where the brain cells are activated. The intense devotion of Tyagya’s sangeetham stimulates special brain areas which activates a spiritual dimension to visualize ‘God’. The brain dynamics is influenced by intrinsic and extrinsic factors.

Newberg says, “Meditating on God’s love appears to strengthen the neurological circuit that allows to feel compassion” (Newberg, 2010:53). Many respondent felt that musical ecstasy could provide the answers to religiosity and God power of love and compassion. Some respondents mean that spirituality is a result of being raised in a religious background or conservative home. 78.8% of the respondents are inspired to devotional sangeetham. Many people feel that devotional sangeetham and
meditation is orthodoxy. 90% agree that meditation improve spiritual feelings and 79.3% agree that repeated meditation singing or chanting activate the brain. 75.9% agree that spiritual feeling is related to God feeling. 70.2% of the respondents agree that their involvemnt in *sangeetham* and Swami Tyagaya’s composition will increase their interest. The devotional aspect of *sangeetham* and the meditational experience need a spiritual practice in the form of devotion, knowledge and belief. 79.3% agree that repeated meditation or singing or chanting activate the brain centers. 90% agree that meditation improve spiritual feelings. The findings indicates that 55.4% meditate and the rest of 44.6% do not. Newberg, “Meditation stimulates an important brain part, the anterior cingulate cortex which acts as mediator between emotional feelings and thought command” (Newberg, 2010:52). Swami Tyagaya’s thought was filled with Lord Rama through his involvement of persistent singing devotional *sangeetham*. This was how the intrinsic and extrinsic factors influenced his brain and he envisioned Lord Rama.

The survey expresses high degree of acceptance of devotion to Tyagya’s *sangeetham*. The findings denote that 70.2% of the respondents agree that their involvemnt in *sangeetham* and Swami Tyagaya’s composition will increase their interest. The statastic validated the relationship of Tyagaya with his Ishta Deva. Swami Tyagaya addresses Lord Rama as the one God and his *Ishta-Deva*. He says that Lord Rama is the source of everything, immanent in everything and the essence of everything. He magnifies Lord Rama as the Supreme Brahman, devoid of beginning, middle and end (Ramanuchachari, 1958:582). *Sangeetham* is believed to be a divine art among the Indians. It originates from the Sama veda. The *sruthis*, *swaras* and *ragas* are like mantras and originates from the saptasura. They are set
from the sacred syllables *AUM*, the Pranavamantra and the resonance of the sruthi and swaras attracts the mind and leads the devotee to a inner divine experience (Ramanuchachari, 1958:591). There are several health studies showing that *sangeetham* and meditation improve abnormal movements like Parkinsons disease and deteriorating memory like Alzheimer (Newberg, 2010:30). Many researchs show that children receiving classical musical training are in advantage for verbal working memory, inteligence and cognative skills (Newberg, 2010:31). Carnatic *sangeetham* eases pain and reduces mental worries. *Sangeetham* is used for health therapy, for example, emotional, behavioral or mental health problems, learning or physical disabilities, life-limiting conditions, brain-injury or neurological conditions and physical illness. Research on devotional *sangeetham* is conducted in many cities throughout the world.

The 70.2% and 90% agreement indicates that Tyagaya’s *sangeetham* is devotional and plays a role in envisioning ‘God’. The statastic validates the relationship of Saint Tyagaya with his Ishta Deva, Lord Rama with the message of devotion and spirituality. The verdict is relevant to the first objective of the thesis in the characteristics of Swami Tyagaya devotional *sangeetham* plays a prominent role in the emotional centres of the brain.

5.4.7.2 **God experience** (Table 36)

The purpose of the discussion is to explain that Swami Tyagaya’s *kritis* are devotional in character. His compositions are devotional because he experienced God. Swami was a great devotee of Lord Rama and his kritis exhibited holiness and nobleness. *Sangeetham* is the rendition of kriti which is based on a particular raga and
thala which represents melody and harmony. The *kriti* is structurally *pallavi*, *anupallavi*, *charanam* and carries the spiritual message. To the second statement “I believe that these questions may inspire your awareness in Devotional music”. The findings in Table 36 denote that 78.8% of the respondents are inspired towards devotional music. *Sangeetham* is believed to be a divine art form which is venerated as *Nada Brahman* (God).

God (*Brahmam*) can denote in a diversity of ways according to the Hindu religion. To the different kinds of the societies, ‘God’ can mean a variety of things. Most of the descriptions of “God” focuses on the senses and that spiritual experiences are necessities of everyday life. Many respondents mean that God experience is simply an experience that is out of the ordinary while some mean it as a deep, moving, mind altering experience. 97.3% of the candidates overwhelmingly indicate their believe in God and 83.9% agree that God is necessary. To the question, Who was God? Many feel that God is love and Love is spirituality and spirituality is compassion. Many respondents value love as predominant and they wish to live in a world of love. Many candidates want spirituality to be universal and they value the devotional aspect of *sangeetham*. Newberg says, “It is easy to embrace the notion of God but far more difficult to experience the qualities associated to it. The unitary experience transforms God into a virtually indescribable sensation. This is true for advance meditators who feel peaceful and relaxed as they experience deeper levels of awareness and the time and length of practice clearely influence one’s ability to experience the mystical God (Newberg, 2010:127).
Swami Tyagaya was an extraordinary composer and composed hundreds of devotional compositions in praise of Lord Rama. He was highly influential in the development of Carnatic *sangeetham*. He was totally immersed in the devotion of Lord Rama. Tyagaya conveyed his spirit of devotion through engaging in righteous living and praying by singing his composition. His spirit of *sangeetham* puts Lord Rama in all things. The findings denote that 88.5% like listening to devotional music. 86.4% consider singing devotional songs as a meditational exercise to the brain. 52% agree in Swami Tyagaya view that his devotional *sangeetham* is important to understand God. The survey findings indicate that 49.8% agree in Swami Tyagaya visualising Lord Rama. Many participants feel that the Swami Tyagaya’s *sangeetham* is a spiritual experience and the *sangeetham* knowledge produces emotional joy which shows the divine path. The devotional ecstasy to Lord Rama showed Swami Tyagaya the spiritual enlightenment of communicating with God and therefore he was called a saint. 68.5% of the respondents agree that Saints can communicate with God. Swami Tyagaya communed with God through music and had contributed a great deal for the propagation of devotional music in South India (Sambamoorthy, 2001:11). Tyagaya comprehended the cosmic laws of divine music and through his compositions he enlightened the society with compassion. He advocated that the sacredness of music is beyond logical analysis but often comprehensible through personal intuition (Sambamoorthy, 2001:85). According to Swami Tyagaya’s spiritual philosophy, the mission of human life is to comprehend the *Athman* (soul), and work towards attaining "*Moksha*" (Salvation) (Sambamoorthy, 2001:47). *Brahmam*, (God), has the qualities of *Sat, Chit and Ananda* meaning Truth, Intelligence and Happiness respectively and *Brahmam* is in the nature of omnipotence, omnipresence and omniscience (Swami Yatiswarananda, 1998:302).
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). It is believed that “God” is comprehensible through personal intuition and meditation. Civilizations whether religious or non-religious understand the concept of devotion and God. The meaning of devotion differs from one individual to the other. The devotee’s faith strengthens his devotion.

The survey denotes that 78.8% of the respondents are inspired towards devotional music. The survey indicates high degree of recognition for devotional sangeetham. The evaluation appropriately fulfills the first and fourth objective of the thesis that Swami Tyagaya devotional sangeetham plays a prominent role in the in the perception of God and devotional spirituality is the need for the society.

5.4.7.3 Brain and Science (Table 37)

The discussion in this section explains the role of neuro-science in the recognition of God as a brain creation. To the third statement, “I trust that these questions may arouse your attention about the God centre in the brain”. In Table 37 the findings denote that 78.8% of the respondents interest in the God centre in the brain is elevated. Generally, society thinks that neuro-science is the knowledge of the brain and that there is no possibility of God vision there. The findings of the survey on Swami Tyagaya, sangeetham and spiritual factor and God, brain, spirituality and faith indicates 75.9% respondents felt quite the reverse. They felt that neuro-psychology is getting in touch with God or a supreme emotion from the brain and some felt that neuro-psychological experience is getting to know with a power that lies inside oneself. Many believed that God is a contemplation on a
potential energy and the contemplation is turned spiritual. Dr Joan Stiles, a noted neuro-scientist explains, “The brain is an intrinsic biologic factor which is controlled by the genes while the vision of God is an extrinsic functional factor which is controlled by experience” (J. Stiles, Youtube). The intrinsic and extrinsic factors complement one another in the development of brain and its function (abid). This information directs the researcher to illustrate that the brain gets conditioned by the input of God information through Swami Tyagaya’s sangeetham or other devotional stimuli. Brain is a information processing network associated with the function of vision, hearing, intelligence, memory, coordination and communication etc. The brain network activity can be recorded by the EEG and scanning methods. The brain contains a ‘map’ of different musical pitches and different areas of the brain respond to different pitches and we could place electrodes in the brain and be able to determine the activity of the brain (Levitin, 2006:27). The finding of the survey (Table 17) points out that, 46.6% agree that God is a mental image and 87.3% agree in the existence of God (Table 16). 83.4% agree that the brain has attraction for devotional music (Table 20). 75.9% of the participants agree that spiritual feeling is related to God feeling (Table 23) and 69.5 % agree that faith is required to love God (Table 27). 80% of the participants accept the transcendent nature of God and God awareness is a spiritual experience (table 26). Spiritual experiences are those experiences of sacredness which teachs the fundamental things about life and universe. (Yatiswarananda, 1998:526).

The objective of this research study is designed to test the hypothesis that the meditative Sangeetham of Tyagaya can produce an unique emotional response in the brain and thus connect to a higher “God Consciousness” or Brahmam Consciousness.
The survey findings (Table 37) denoted a good scientific recognition of God as a brain product and 78.8% of the respondents agreed that their interest in the God centre in the brain will accelerate. The Indian society believes on the divine nature of sangeetham. The Indian devotional musicological (sangeetham) treatises incorporate the theory of sacred sound as Nada-Brahman (holy). Thus, interpreting that devotional sangeetham (music) as a spiritual practice manifests a ‘God Form’ experience. This study explores what Saint Tyagaya sangeetham can teach about the brain and spirituality. The overall survey findings indicate positive relevance to Swami Tyagaya’s musical compositions and its association to the brain mechanism. and therefore provides an access to the highest spiritual reality. God and spirituality are the most fascinating human experience to explore. Prominent scientists and researchers in U.S., Canada, Europe and India are endeavouring to understand the spiritual experience and its dynamics in the brain of those who connect with the divine spirit. They have made extensive researches with EEGs, fMRI, PET and other important investigatory tools. Dr Newberg, a famous neuro-psychologist says,” If you contemplate God long enough, something surprising happens in the brain (Newberg, 2010:1). “Devotional singing like meditation and contemplation of God for long enough can cause different neural circuits in the brain to become activated and new neurons and synaptic connections are activated in the brain and God becomes neurologically real” (Newberg, 2010:1).

The statistic validates the relationship of Tyagaya with his Ishta Deva to the statement with 78.8% of the respondents felt interest in the God centre in the brain. The EEG unfolds the dynamics of the brain in association with devotional sangeetham. The evaluation of the findings denote that the decision is appropriate.
to the third objective of the study that modern Neuro-Psychology illustrates this “God-Image” in the brain which can be studied through the EEG experimentation.

5.4.7.4 Spirituality (Table 38)

The discussion about spirituality explains the fourth statement, “I trust that these questions may motivate you towards Spirituality”. In Table 38, the findings denote that 81% of the respondents are motivated towards spirituality and 18.5% felt otherwise. Spirituality is a great feeling in the body, mind and soul. It works to be gentle, kind, loving and good. There is a general feeling of compassion, righteousness tolerance, decent morality and altruism about spirituality. Spirituality has different meaning to different societies. Spirituality in Hindu philosophy is an individual experience of higher reality and is one’s journey towards salvation, moksha and confluence of karma, bhakti and jnana (Swami Yatiswarananda, 1998:607).

Many respondents of the survey feel that spirituality simply means an experience of some goodness that is connected to God. Many feel that spirituality and love of God is natural and cannot be denied. Swami Tyagaya’s spirituality advocates a overwhelming feeling of compassion for the fellow human being. His method of transformation is through singing constantly devotional compositions of love and admiration as the defining element in his spirituality. He says that spirituality is a mental and emotional quality and it is a single most important factor for mankind. The findings indicate that 49% agree that Swami Tyagaya’s compositions infuse, spirituality, faith and compassion. The findings indicate that 46.6% agree that God is a mental image. 83.4% agree that the brain has attraction for music.
75.9% agree that spiritual feeling is related to God feeling. The survey expresses high degree of motivation towards spiritual sentiments as a Godly experience.

Spirituality has different implication in different situation. Modern spirituality is centered on moral personality and personal well-being, such as righteousness, compassion, forgiveness, love, patience, tolerance and altruistic values (Swami Yatiswarananda, 1998:303). Spiritual practices in the Vedantic tradition implicates in purifying the human mind and its action. Salvation is the highest goal for attaining perfection and enlightenment. The spiritual practitioner should perform various personal, religious and ritual disciplines to attain the spiritual goal. To attain a high level of spiritual success, a repeated practice is expected. (Swami Yatiswarananda, 1998:319). Patanjali’s in his Yoga sutra book, recommends meditation in addition to Karma yoga, Bhakti yoga, Jnana yoga and Raja yoga (abid). The spiritual sadhana culminates in inner peace and happiness (Swami Yatiswarananda, 1998:303, 397). The review of the literature Swami Tyagaya by Prof Sambamurthy explains the greatness of Swami Tyagaya’s spirituality, devotional sangeetham and psychology. Science and philosophy have contributed profoundly to human understanding of the concept of God and spirituality. Religion, Science and psychology can lead humanity to the spiritual goal of Swami Tyagaya. Humanity should place much importance towards high moral and spiritual standards in day to day activities. Humanity owes a great deal to saints for their spiritual guidance.

The statistics indicates that 81% of the respondents are motivated towards spirituality. The evaluation appropriately validates the fourth objective of the current
5.4.7.5. Love and Compassion (Table 39)

The discussion of spirituality explains about love, compassion, equality and tolerance. The fifth findings, “I envisage that these questions may encourage you to reflect on compassion and practice tolerance towards all life forms” yielded encouraging results, (Table 32). The findings denote that 83.4% of the respondents felt that they were encouraged to practice compassion and tolerance. The findings indicate the society’s perception on devotional music and its spiritual manifestations in the form of love, compassion and tolerance and how they relate to life. This study rationalizes the spiritual experience through scientific explanations.

Swami Tyagaya portraits Lord Rama as noble, righteous and compassionate in all his kritis. His fascinating narration in poems have delighted and enlightened many generations. Lord Rama’s spiritual insight towards all life forms are relevant in today’s troubled world. Tyagaya says, “Rama is dwelling in my heart. I have seen my Lord. My body is thrilled and tears of joy roll down my cheeks with the expression of love, compassion and spirituality (Ramanujachari, 1958:574). The comprehension of Swami Tayagaya’s devotional sangeetham from the perspective of God, Lord Rama is spirituality. Divine love and compassion suffuse in every aspect of his utterance. His divine compassions celebrates the beauty of righteoussness and devotion.

The energy of love and compassion embraces mankind. The warm spirit of kindness unifies the whole society and the people at large. The great saints of the
world transmit much love and compassion. Like Swami Tyagaya, many saints around the world have mentioned of their vision of God. Neuro-scientist have recorded the God experience in their researches. The God experience is as a result of neuroplasticity in the brain. Dr Newberg says, “Today, our frontal lobes continue to envision spiritual realities, along with new ideas and definition of God and different brains, in different parts of the world, create different religious beliefs” (Newberg, 2010:116).

The practise of devotional music can help the human society to be loving, tolerant, righteous and compassionate. Devotional singing is a meditative yoga which is a contemplation on God. Saint Tyagaya was a Yogi and he led a righteous and pious life. He devoted his life singing on Lord Rama. The brain of devotional singers when focus on the ‘God image’ for a long period of time can bring neuro-plasticity (growth), neocortical development and emotional changes. Society is slowly drifting away from one another as a result of diverse expressions. It is time to ignore the prophets of doom who daily forecast our inevitable demise. Humanity must take a quantum leap forward from this decadent development and change towards spirituality and righteous life. Devotional music activates a spiritual union with consciousness. Devotional *sangeetham* in general is love and harmony. Human beings are the most successful species the world has ever known and hence there is definite likelihood they will accept devotional music in their lives and promote love, compassion and tolerance. Mankind need to enjoy devotional music and employ it as a loving vehicle to propagate love, devotion and peace. Swami Tyagaya says, “God envelopes the whole world with love” (Ramanuchachari, 1958:573).
Devotional music involves emotions and emotions are powerful energy which governs a wide variety of activities involved with consciousness, empathy, compassion, suppression of anger and fear (Newberg, 2009:28). It is clear that devotional *sangeetham* can teach us more about the brain and the Brain can teach us more of spirituality. The literature study on devotional *sangeetham*, Swami Tyagaya, God, spirituality and neuro-psychology will provide new insights into the methods of mental and spiritual training that have potentials to enhance human health and religious tolerance. Equally important is the ability to cultivate compassion and other positive human qualities so that an ethical foundation is laid to benefit all human societies.

The discussion demonstrates how the statastic validates the elevated amount of acceptance towards kindness and love to all life forms. The findings denote that 83.4% of the respondents feel that they are encouraged to practice compassion and tolerance. The decision is appropriate to the fourth objective of the thesis that demonstrates how to attain this spiritual status and what is the benefit of spirituality to the society.

**Conclusion**

The overall conclusion of the perception of Swami Tyagaya, devotional *sangeetham*, God, brain and spirituality denotes that 70.2% of the respondents agree that their involvement in *sangeetham* and Swami Tyagaya’s composition will increase their interest. 78.8% of the respondents are inspired to devotional music. 78.8% of the respondents feel that their interest in the God centre in the brain will accelerate. 81% of the respondents are motivated towards spirituality. 83.4% of the
respondents are encouraged to practice compassion and tolerance. Logistic perception is that the local society believes in God, devotional music, Swami Tyagaya’s spiritual experiences and the brain science. The total evaluation fulfills the first, second and fourth objective of the current study.

5.5 Comparative study of Dr Newberg’s survey with the researcher’s survey

A comparative analogy is made between the researcher’s questionnaire survey to that of Dr Newberg’s survey on spirituality. The goal of this endeavour is to report similarities and dissimilarities of religio-spiritual views. The evaluation is purely theoretical and views are subjected to change. The comparative information presented here may assist to understand devotional music, spirituality, life and God science.

In the year 2005, Newberg conducted a survey on 1000 people through online questionnaire of their spiritual experiences. In 2007 sufficient information were gathered from 300 who described their specific spiritual experiences. The people were from USA, Israel, Pakistan, India, Myanmar, Finland, Canada, the United Kingdom, Spain, Australia, Nigeria, Brazil, Denmark, Qatar and the Congo (Newberg, 2010:70). The researcher conducted a questionnaire survey. There were 410 respondents from the Indian society. The survey was for better comprehension of Swami Tyagaya’s devotional compositions, sangeetham, God, neuro-psychology and spirituality. The experiences were compared for common terminologies like God, spirituality, experience, life and faith so on.

1. Newberg Survey (NS): God was only mentioned 18% of the time. (NS) 89% of the respondents felt a deeper sense of spirituality. 10 percent felt that their
spirituality was unchanged by their experiences. 79% said that they felt more purpose in their lives. 60% of the participants felt that their family relationships improved as a result of their spiritual experiences. 50% felt that their health enhanced due to their spiritual exercises. 76% felt less fear about death as a result of their spiritual experiences. Spiritual experiences may be the key element that lessens a person's fear of death. Love was mentioned 10% of the time. Peace was mentioned 6%. Faith was mentioned 5% of the time (Newberg, 2010:72). Many people felt that their spiritual experiences were not adequately taught by their own religion and therefore they lived individually without faith. Many expressed great interest in Eastern spiritual ideas and took up to meditation.

The Researcher Survey (RS): The main findings of the survey infer that 97.3% overwhelmingly believe in God and 83.9% agree that God is necessary. The findings indicate that 75.9% agree that spiritual feeling is related to God feeling and 90% agree that meditation improve spiritual feelings. 79.3% agree that repeated meditation singing or chanting activate the brain and 83.4% agree that the brain has attraction for sangeetham. 69.5% agree that faith is required to love God.

The statistical percentage stand as evidence to prove that there were similarities in spiritual opinion and disimilarities in the concept of God between Eastern and Western societies.
2. **Newberg Survey (NS):** “Is God primarily a feeling or an idea”. There were 1,000 references made about God; 1% of the respondents felt that they had a direct, personal encounter with God. 42% related to direct personal experiences and 99% expressed their experience as abstract. 40% explained God intellectually. They used words like ecstatic, exciting, great, strong, powerful, exhilarating, and profound. Nearly one-half described their experiences using words that expressed calmness, serenity, and contentment. Some experience God as more of a feeling than an idea (Newberg, 2010:84).

**The Researcher Survey (RS):** 56.9% agree that there is a God spot in the brain and 68.5% agree that God thought is a creation of one’s brain and 68.5% agree that Saints can communicate with God. 68.5% agree that God thought is a creation of one’s brain. 90% agree that meditation improve spiritual feelings and 79.3% agree that repeated meditation singing or chanting activate the brain.

i. 88.2% of the respondents positively agreed in the existence of God.

ii. 82.7% respondents meant that God experience is simply an experience that was out of the ordinary while some meant it as a deep, moving, mind altering experience.

iii. 68.5% respondents had an overwhelming feeling that consciousness was connected to the brain sense.

vi. 80% of the people felt that spirituality was knowledge that there is a true God.
The statistical percentage stand as evidence to prove that there were contrast in spiritual opinion the local society denoted a higher evaluation on God, meditation and saints. The similarities were close in the concept of spirituality between Eastern and Western societies.

3. **Newberg Survey (NS):** “Becoming one with God”. 80% of the respondents felt that the spiritual experience increases their sense of unity to God and changes their sense of reality. It is an experience of self-transcendence and a suspension of personal egotism (Newberg, 2010:90).

**The Researcher Survey (RS):** 75.9% agree that spiritual feeling is related to God feeling. 80% of the participants meant that the transcendent nature of the God experience was “spiritual meditation”. 81% felt that spirituality means that which goes beyond personality and the space and time location where individual consciousness seems to reside. Spirituality concerns the foundations of an interactions between life, matter, nature, reality, time, space, consciousness, divinity and Humanity.

The statistical evidence prove that there are close similarities in the values of both the findings of the Eastern and Western societies.

4. **Newberg Survey (NS):** 80% said that they had some form of sensory, visual, or auditory experience. People described seeing light, colors, or auras; hearing sounds like humming or ringing; or hearing voices. These sensations greatly enhanced the power and meaning of their experience. Some have confessed that
during meditation, they have experienced their consciousness suspended in infinite space. Some have had the experience of unity with all that around. Some have experienced a Divine presence (Newberg, 2010:88).

**The Researcher Survey (RS):** 86.4% consider singing devotional songs as a meditational exercise to the brain. 90.3% would consider singing to devotional music important. 88.5% like listening to devotional music. 75.2% enjoy listening to Carnatic Sangeetham. 75.9% agree that spiritual feeling is related to God feeling.

The statistical percentage of both the surveys identifies similarities on intelectual experience of God. The local society denoted a higher evaluation on devotional sangeetham, God and meditation.

5. **Newberg Survey (NS):** The survey showed that those engaged in Eastern spiritual practices were more accepting of other religious beliefs than those who adhered to Western monotheistic traditions. Women were more comfortable with other belief systems and also more likely to participate in other religious practices. High socioeconomic status shows greater tolerance. Education encouraged people to be more accepting of others and people who had unity experiences were also more accepting of other people's beliefs (Newberg, 2010:82).

**The Researcher Survey (RS):** The female participants were more, 64.9%. There were a good mixture of young and old people. A high proportion of the
participants were college educated, 76%, and they were musicians, religious people, professionals and students. 86.8% of the participants were from the middle income category.

The most participants were Females which was 64.9% and 35.1% were males. The most participants belong to the age of 20-29 years old 38%; the next 30-39 years old 19.8% and 60 years old and above were 13.9%. The most participants were employed as Professional 49.5%; College students 29.8%; Not working 5.4% and retired 4.9%. The most participants had Tertiary Education 76.3% and Secondary Education 19.8%. In the participants Family status Single were 46.3%; Married+Children 31.2% and Married 19.8%. In the socio-economic income 86.8% belong to the middle class and upper class 9%.

6. **Newberg Survey (NS):** 75% of the respondents indicated that they felt a sense of oneness with the universe and a unity with all of life. One survey participants described that every person is a spark of Oneness, doing what he or she is supposed to do. It is due to the subjective spiritual experience that increases the sense of unity to the universe and to creation as such (Newberg, 2010:81).

**The Researcher Survey (RS):** Some people felt that neuro-science is knowledge that there is no God vision but many respondents felt quite the reverse. 75.9% felt that neuro-psychology is getting in touch with God or a supreme emotion from the brain. 60% think that Brain is the most important factor to understand God; 70% judge that meditative thought is beneficial for spiritual study. 75% believe that religion motivates towards spirituality.
The statistical evidence prove that there were close similarities in the scientific rationalisation of in the conceptual dimension of God among the local and Western societies.

7. **Newberg Survey (NS):** explains that most people who have had spiritual experiences will talk about God in the context of love and peace. Most people expressed love as God. Many participants experienced God as a way of connecting to the universe and to nature. Some said that God symbolizes light or truth (Newberg, 2010:76).

**The Researcher Survey (RS):** clarifies that 70.2% of the respondents agree that their involvement in *sangeetham* and Swami Tyagaya’s composition will increase their interest. 78.8% of the respondents were inspired to devotional music. 78.8% of the respondents felt that interest in the God centre in the brain will accelerate. 81% of the respondents felt that they may be motivated towards spirituality. 83.4% of the respondents felt that they were encouraged to practice compassion and tolerance.

The statistical percentages stand as evidence to prove that the local society overwhelmingly support devotional *sangeetham* of Swami Tyagaya having a profound influence in the brain. Newberg says that in the survey, many people reported that their spiritual experiences altered their beliefs, and belief was the sixth most common word used. He also found evidence to support the notion that spiritual experiences alter one's traditional ideas about God (Newberg, 2010:80). Spiritual
experiences can alter the structure of religion. Religious beliefs will change from time to time. Religion and spirituality influence one another but may function in different levels and they will eventually influence each other. Spirituality will advocate tolerance. All of the research allows the prediction about the future of God is that the concept of God is not going to go away but it may not be the God portrayed in the present scriptures. Belief in religion and holiness will change and evolve in relationship to society, environment and education. Therefore, spirituality, personal values and survival would change the concept of God. Personal spiritual philosophy will inspire greater tolerance between society and religions (Newberg, 2010:122).

**Conclusion**

The most important findings are that 80% of respondents believe God can be visualized through the consistent practice of devotional *sangeetham* which paves the way for the spiritual enlightenment. 80% of the respondents believe that devotional music motivate towards spirituality and 50% of them judge that Swami Tyagaya’s *sangeetham* is beneficial for spiritual study. 60% of the respondents think that “God image” can be visualized in the brain. 87% of the respondents believe that the most important factor to understand God is to be righteous. 85% of the respondents feel that compassion and tolerance are important for life and 80% appreciate that faith in God is significant.

The researcher’s obvious conclusion about the comparative findings is that there is not much of a fundamental differences in the application of spirituality in the form of love, tolerance, freedom and compassion but the difference appears in the understanding of God according to the respective beliefs and religion. The local
society overwhelmingly supported devotional *sangeetham* of Swami Tyagaya having a profound influence in the brain. God is a mental picture and is expressed as an experience. Women were more comfortable with *sangeetham* and God. High socioeconomic status shows greater tolerance. Education encouraged people to be more accepting of neuro-psychological thinking. Faith in Swami Tyagaya is stronger among women and *sangeetham* lovers, Those who believe in devotional characteristics of Tyagopanishads are Indians and Carnatic musicians. Religion and spirituality influence one another. Spirituality advocates compassion, love and tolerance.

### 5.6 CONCLUSION OF THE QUESTIONNAIRE SURVEY

The summary of the eight sections of questionnaire survey segment illustrate the statistical relevance of the survey findings to the objective of the study and substantiates the merit of the study. The positive findings demonstrates the value of Swami Tyagaya’s devotional *sangeetham* towards spirituality and God science. The advance statistical analysis sucessfully provides subjective evidences on the values of Tyagaya’s devotion and his vision of God, Lord Rama. The discussion overwhelmingly reports that devotional *sangeetham* has complex association with the brain network in relationship to God. The analysis amplifies positively the voices of the hundreds of volunteers who have come forward to tell their experiential views of *Sangeetham*, Swami Tyagaya, brain, devotion, God and spirituality (Tables 1 to 27). The statistical correlation of the major variables (Table 28) are significance for the creative power of Swami Tyagaya’s *sangeetham*, for neuro-psychology of spirituality and experiential relevance of God.
The impacts of these factors have produced encouraging relevance to the subject of the study. The six Null Hypotheses are contested successfully and rejected by the findings of the six alternative hypotheses (Tables 29 to 34). The alternate findings show valuable affirmative correlation between sangeetham, devotional reliance, God, brain and spiritualism. These findings indicate that devotional sangeetham strongly influence the spiritual experience of the Indians.

It can be seen from the overall inference that the demographic and the statistical findings have helped to uncover and clarify the social, scientific and philosophical knowledge of the society on Swami Tyagaya, sangeetham, brain, devotion, spirituality and God. The findings illustrates 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 overall logistic perception is that the society believes in God, devotional music, Swami Tyagaya’s spiritual experiences and the brain science (Table 35 to 39). The subjective Survey findings contribute significantly to arrive at a favourable conclusion and prove that this study is properly substantiated. The discussion of the findings corroborates the validitiy of all the four objectives of the study.

5.7 DISCUSSION ON THE FINDINGS OF EEG EXPERIMENTS

(Tables 40 - 55)

5.7.1 Introduction of the EEG Test

The introduction, physiology, procedure and the description of the EEG experiment are reported in Chapter Four (Tables 40 to 55). This kind of study on Swami Tyagaya’s sangeetham and the brain has not been systematically explored
through the EEG. It is a noninvasive assessment of the brain activities. The electrical activity characterises the emotional states in devotional singing applications and therefore, observe the different brain changes associated with long-term meditative singing and spiritual perception. The volunteers are represented as Group A, B, and C. The aim is to observe in Group A for changes in neurological parameters while listening to Swami Tyagaya’s devotional sangeetham. These findings are compared with the findings of Groups B and C who are the control group and who are listening to devotional songs (not Swami Tyagaya’s sangeetham). The signals are correlated with the underlying changes associated with the mental response to meditational and Tyagaya’s devotional singing. The EEG experiment investigates the feasibility of devotional Tyagaya’s sangeetham as a self-regulatory approach to emotion management and God realization. The discussion evaluates the EEG changes in 3 groups of recruits.

Group A - Long-term Tyagaya Devotional Singers
Group B - Non Tyagaya Devotional Singers - Students
Group C - Non-Tyagaya Devotional Singers - Senior Citizens

The non-invasive assessment of the emotional states in Devotional sangeetham applications and the brain changes associated with long-term devotional sangeetham, meditative singing and spiritual perception are analysed.

5.7.2 Group A Findings and discussion (Table 42)

The EEG findings and discussion of Group A volunteers are important because they are exposed to the devotional sangeetham of Swami Tyagaya for a long
period of time and therefore certain brain changes are expected as a result of environmental conditioning of the brain. They are all familiar to Swami Tyagaya’s *sangeetham*. They are all musicians, meditators and religious practitioners of more than 40 years experience.

i. The Alpha wave shows promising sign to the study. The inference is that since the Alpha activity is noticed in 100% of the volunteers in Group A in EEG 1, 2, 3 and 4 and also the Alpha activity is noticed in 100% in EEG 2 and 3 together (EEG 2 and 3 is an important stage where the 12 volunteers were already subjected to Swami Tyagaya’s Devotional *sangeetham*). There is increase of alpha amplitude ranging from 50mv to 70mv and the alpha frequency is between 9hz to 11 hz. Therefore, in this group there is a predominance of Alpha activity. Alpha findings denote meditational state and relaxed brainwave activity. The important findings are that the Alpha waves are consistently seen.

The Swami Tyagaya’s devotional *sangeetham* volunteers are above 55 years old, semi-retired, professionals and classical musicians. The many years of behavioral development interacts with the brain development. Therefore, the *sangeetham* background gives a stronger comprehension with Alpha waves dominance which are found when the brain is completely calm and meditating. They are relaxed, creative, and have a clear mind. Alpha is considered the “normal” brainwave pattern and is dominant when people close their eyes and contemplating. Alpha brainwaves are considered the healthiest brainwave range
and 10 cps has widely been accepted as the “safest” brainwave frequency. It is a natural signal especially in devotional *sangeetham* participation.

The Group A Alpha findings denotes meditational state and relaxed brain activity. Therefore, the influence of swami Tyagaya’s *sangeetham* has produced 100% alpha activity in both the stages which denotes meditational brain state. The psychological understanding is that Swami Tyagaya’s *sangeetham* environmental factor engages in the dynamics of brain to produce the relaxed Alpha brain waveform.

ii. The Beta wave often shows anxious thinking and active concentration which is important for the study. The inference is that Beta activity is noticed in 98% of the volunteers in EEG 1, 2, 3 and 4, and 96% in EEG 2 and 3 stages with a frequency of 18 cps and amplitude of 25 uv which is often associated with active thinking and energetic mental activity. Beta waves signals are dominant in logically thinking, feeling stressed, and feeling tense. Beta is generally thought of as a “normal” rhythm and is dominant in people who are alert, anxious, or have their eyes open. Beta brainwaves are considered to be the normal brainwave pattern in healthy adults. The brain naturally produces large amounts of Beta activity when it is active. In Group A, the Beta waves represents normal wave activity which is consistent in all active brains.

iii. The Theta wave indicates specific changes of consciousness. The evidence is that Theta activity is noticed in 68.75% of the volunteers in Group A in EEG1, 2, 3 and 4 and 83% in EEG 2 and 3 (EEG 2 & 3 is an important stage where the 12 volunteers were already subjected to Swami Tyagaya’s Devotional
sangeetham). The Theta wave activity is consistently seen throughout the four stages. The amplitude is 50 mv and the Theta frequency is 7 hz. The important findings is that in EEG 2, 3 and 4, there were 10, 10, 9 volunteers respectively who registered Theta waves after concentrating on Tyagaya’s devotional sangeetham which indicates slowing of brain activity.

The inference is that in this group there is a predominance of Theta activity in 68.75% and 83%. 10 volunteers of EEG 2 and 10 volunteers of EEG 3 produced Theta activity of 7 cps of 50 uv amplitude which is a significant finding denoting change of consciousness. Theta waves tends to appear during meditative, drowsy, or sleeping states. Many volunteers confess that their devotional emotions were heightened and linked with very deep states of both physical and mental relaxation when listening to Swami Tyagaya’s sangeetham. Since most of the volunteers in this group were musicians and religious teachers, they were easily associated to the emotional feelings of deep peace and calm. All the Group A volunteers find that their devotional emotions are heightened and linked with very deep states of both physical and mental relaxation when listening to Swami Tyagaya’s sangeetham. Theta waves are associated to sangeetham lovers who are in meditative states.

The Theta wave creation is linked with a number of distinct mental states, such as feelings of deep relaxation, devotional wellbeing and creative insight, as well as the experience of altered states of consciousness. This emotional state probably is the cause for 83% Theta brainwaves of Group A volunteers.
iv. The Delta wave contribute to the slow state of the mind. The evidence is that Delta activity is noticed in 18.75% of the volunteers in Group A in EEG 1, 2, 3 and 4. Delta activity was noticed in 29% in EEG 2 and 3. The Delta waves are inconsistently seen in the recording. The delta frequencies is 4 hz and the amplitude is of 50 mv and. There is less dominance of delta activity and only 9 volunteers showed delta signals which denotes that they were in deep meditative state. The deep meditative state after listening to Swami Tyagaya’s kritis probably was the cause for delta brainwaves. Delta brainwave states can occur in deep sleep and deep relaxation too. The Inference is that in Group A the Delta activity is as a result deep meditative state after listening to Swami Tyagaya’s kritis.

v. The Group A background statistics findings is reported in (Table 43). The findings denote valuable assistance in assessing the long-term Tyagaya’s devotional singing and spiritual perception and its close relationship to the EEG signals. The sangeetham behavioral factor influences the neural system of the brain. The brain activity is influenced by the environmental development.

The evidence is that all the volunteers answered overwhelmingly positive of their perception of God after listening to Saint Tyagaya’s sangeetham which denotes 100%. Their average years they practised Singing Tyagaya’s kritis was 38 years, praying 38 years, reading Hindu scriptures 23, fasting 15 years, social service 22 and religious study 25 years. Their devotional emotions were heightened and linked with very deep states of both physical and mental relaxation. Their occupation of teaching, listening and contemplating on devotional Swami Tyagaya’s composition
made them emotional and their perception were associated with feelings of Holiness and calmness. They describe their experience as sacred.

The inference is that in Group A 100% alpha signals correlates with the behavioral pattern of the volunteers. The EEG signals of alpha and theta waves prove valuable for the meditative nature of this group.

The goal of devotional sangeetham practices is to increase the amount of slower brainwave patterns such as Alpha, Theta and Delta signals. It takes a rigorous amount of meditative and devotional practice to become consciously aware during the Alpha and Theta brainwave state. Experienced devotional singers know how to shift their brainwaves from the Beta range, through the pleasant calmness of Alpha and into the extraordinary Theta activity and eventually into the Delta range where the consciousness is slow. Experienced meditators will be able to recognize and control their state of emotion and the brain activity. Like any practice, the many years of devotional sangeetham will pave the way through the Alpha wave range, into Theta wave range and into the Delta brainwave rhythm which denotes a state of unconscious awareness whereby the brain activity is brought to almost stillness. Delta brainwave states usually occur in deep sleep. Infants and young children tend to have extremely high levels of Theta and Delta brainwaves compared to adults.

As it has been shown that the Group A volunteers are devotional musicians and therefore they are engaged in creative activity and naturally, they have produced more Alpha and Theta waves. Musicians, artists, yogis etc are more creative and are benefitted with Theta brainwave meditation. The subconscious mind is more easily
accessed during Theta meditation. This greater access to the subconscious has numerous benefits, including clearer intuition, getting in touch with the inner wisdom and the ability to program the “God Image” in the mind. Devotional sangeetham techniques can lead the brain to produce theta and alpha brainwaves as a type of yoga practice. Saint Tyagaya’s devotional sangeetham is a form of meditation and yoga which promotes relaxation and wellbeing by shifting the brain activity to the calming patterns of Alpha, Theta, and sometimes Delta. The yogic phenomenon of Saint Tyagaya’s devotional sangeetham when practiced correctly can be utilized to slow the brainwaves and tap the delta awareness. This awareness and insight can influence the “God Image” in the brain as Swami Tyagaya did.

In Conclusion the sangeetham behavioral factor influences the neural system of the brain with the environmental development. The EEG findings points that Group A (Devotional Swami Tyagaya’s Sangeetham) registered dominant Alpha, Theta and Delta activity. The volunteers find that their devotional emotions are heightened and linked with very deep states of both physical and mental relaxation. Since most of the volunteers in this group are musicians and religious teachers, their perception is associated with feelings of Holiness, peace and calmness. The act of listening and contemplating on Swami Tyagaya’s devotional composition has brought emotional changes related to relaxed brain activity.

From the psychophysiological point of view these electroencephalographic findings lead to the conclusion that Swami Tyagaya’s Devotional Sangeetham has a meditative consequence which designs to trigger the brain into producing Alpha, Theta and Delta signals. This values indicate that the devotional emotions of Swami
Tyagaya’s kritis heightens to a deep state of mental relaxation to visualize “God”. Visualization is an incredible tool that Swami Tyagaya experienced.

5.7.3 **Group B Findings and discussion** (Table 44)

The EEG findings and discussion of Group B volunteers are important because they are exposed to the devotional *sangeetham* exposed to the devotional songs of their choice (not Saint Tyagaya’s *sangeetham*). They are all about 20 years of age and they are all University students. They have moderate interest in religion and devotional songs but have no knowledge of saint Tyagaya’s *sangeetham*. The complete EEG findings are in Alpha, Beta Theta and Delta signals respectively.

i. The Alpha waves signifies valuable information for the study. Table 44. The evidence show that there is a predominance of Alpha activity in the full course of the EEG recording. The alpha amplitude ranging from 50mv to 70mv and the Alpha frequency are averaging at 10 hz. All the 12 volunteers are young students. The Alpha brainwaves are considered the healthiest brainwave range and is widely been accepted as the safe brainwave frequency. It is known that students tend to have much higher levels of alpha brainwaves than adults. Alpha waves are found when the mind and body are completely relaxed and free of stress. The devotional songs have caused the relaxed brainwave activity recording of 89% of the volunteers in EEG 1, 2, 3 and 4 and 87% in EEG 2 and 3, which is impressive.
The inference is that Alpha brainwaves are considered common and are normal brainwave pattern in young adults. The contemplation of the religious songs has calmed the brain activity.

ii. The Beta waves are the common waves denoting active concentration. The confirmation is that the Beta activity was noticed in 89.75% of the volunteers in EEG 1, 2, 3 and 4 and Beta activity was noticed in 92% in EEG 2 and 3. The Beta amplitude was of 25 mv and the Beta frequency were between 15 hz to 17 hz. The conclusion is Beta waves are common signals and consistently seen in all active individuals. Beta findings denote alertness, active thinking and energetic mental activity. The students active disposition has made increase brain activity for Beta signals.

iii. The Theta waves are uncommon waves in active individuals. The evidence is that the Theta activity is noticed in 43.5% of the volunteers in Group B in EEG 1, 2, 3 and 4. Stage EEG 2 and 3 recorded 53.5% with theta activity. The Theta frequency is between 6 hz to 7 hz and the amplitude of 50 mv. The conclusion is that Theta findings denote feelings of relaxation, devotional wellbeing and creative insight, as well as meditational experience. Theta waves tends to appear during the devotional state after listening to devotional songs or sleep state. All the volunteers are students and they could have had less interest for the devotional songs or they were not concentrating in the songs. Therefore, in this group there is a smaller amount of Theta activity of 43.55 and 53.5%.
iv. The Delta waves indicate very slow brain activity. The fact is that the Delta activity was noticed in 29% of the volunteers in Group B in EEG 1, 2, 3 and 4. Delta activity was noticed in 33% in EEG 2 and 3. The delta frequencies were between 3 hz to 4 hz and the amplitude of 50 mv. The conclusion is that the devotional state after listening to devotional kritis denotes the Delta brainwaves. Delta brainwave states usually occur in deep sleep and deep relaxation. Usually, young students and young children tend to have high levels of Theta and Delta brainwaves compared to adults. In this group there is less dominance of delta activity which denotes less meditative state of the brain which may mean that the influence of devotional sensation was less.

v. The Group B background statistics findings is reported in (Table 45). The findings denote valuable assistance in assessing the and spiritual perception and its relationship to the EEG signals. Generally, environmental factors influence the brain activity. The evidence is that all the volunteers answered 54% positive of their perception of God after listening to devotional songs. The answers were 26 positive and 22 negative. Their average age was 20 years old. The average years they practiced Singing religious songs was 6 years, reading Hindu scriptures 6 years, praying 14 years, fasting 4 years, social service 4 years and religious study 15 years.

The conclusion is that the students had less knowledge in their religion and therefore were not sure of their devotional emotions. The finding indicated some negative values which correlated to less meditative nature.
The overall discussion of Group B

The goal of the experiment is to show a relaxed brain activity when introduced to devotional songs. There were relatively active brain signals. The EEG signals showed, Theta activity 40%, Alpha activity 80%, Delta activity in 40% and Excessive Beta activity of 90%. The background study of the students volunteers indicated that their devotional emotions were weakly positive with God feeling. The act of listening and contemplating on devotional composition was less. There were some emotional changes but not remarkable.

This conclusion indicates an active brain pattern. The background findings correlated weakly to the EEG findings. Therefore, devotional emotions of Group B volunteers suggested a weak correlation.

From the psychophysiological point of view these electroencephalographic findings lead to the conclusions that the Group B volunteers are students with dominant Beta and Alpha brainwave patterns which means active mental and physical capabilities. Students brain naturally produces large amounts of Beta activity. It could mean that devotional music has probably not relaxed their brain sufficiently. The EEG data shows weak correlation to the objective of the study.

5.7.4 Group C Findings and discussion (Table 46)

The EEG findings and discussion of Group C volunteers are important because they are exposed to the devotional songs of their choice (Not Saint Tyagaya’s sangeetham). The volunteers are all over 50 years of age and they are all officers and teachers. They have good interest in religion and devotional songs but have less
knowledge of saint Tyagaya’s *sangeetham*. The complete EEG findings are in Alpha, Beta Theta and Delta signals respectively. The Four stage EEG and the The EEG 2 &3 findings are discussed.

i. The Alpha waves are essential for this study. The evidence shows that the Alpha activity was noticed in 90% of the volunteers in Group C in EEG 1, 2, 3 and 4. Alpha activity was noticed in 100% in EEG 2 and 3. (EEG 2 and 3 is an important stage where the 10 volunteers were already subjected to Devotional songs of their choice). There is a predominance of Alpha activity. The alpha frequency were averaging at 10 hz. In the full course of the recording there were increase of alpha amplitude ranging from 50 mv to 70 mv. The important findings are that the Alpha waves are consistently recorded in all leads. The alpha activity predominantly originates from the occipital lobe The 10 group C volunteers are adults with religious experience and they contemplated over the devotional songs with purpose. Alpha waves are found when the mind and body are completely relaxed and calm. Alpha findings denote meditational state and relaxed brainwave activity.

The important inference is that The devotional songs meditation have caused the relaxed brainwave activity recording of 90% and 100% Alpha activity which is impressive and is a dominant result. The psychological understanding is that devotional songs and occupational factor influences the brain activity to produce the relaxed Alpha brain waveform.
ii. The Beta waves are the common active waves. The evidence denotes that the Beta activity was noticed in 95\% of the volunteers in Group C in EEG 1, 2, 3 and 4. Beta activity was noticed in 95\% in EEG 2 and 3. Beta amplitude of 25 mv and the frequency were between 18 hz to 17 hz. There is a predominance of Beta activity and the waves are consistently seen in all leads. Beta activity is the most common brain signals.

The conclusion is that there is a dominance of Beta signals which denotes alertness, active thinking and energetic mental activity.

iii. The Theta waves are useful in relation to the consciousness with the underlying neurophysiology. The evidence shows that the Theta activity was noticed in 65\% of the volunteers in Group C in EEG 1, 2, 3 and 4. Theta activity was noticed in 75\% in EEG 2 and 3. (EEG 2 & 3 is an important stage where the 10 volunteers were already subjected to devotional songs). Theta waves are consistently seen in all leads. There were consistent amplitude of 50 mv. The Theta frequency was between 6 hz to 7 hz. The findings are that in EEG 2, 3 & 4, there were 8, 7, 8 volunteers respectively who registered Theta waves after concentrating on devotional music which indicates slowing of brain activity.

The Group C has the second largest finding of theta activity. The meditational state after listening to devotional songs probably is the cause for more Theta brainwaves. Theta findings denote feelings of deep relaxation, devotional wellbeing and creative insight, as well as meditational experience. All the volunteers were teachers and professionals and their motivation was excellent.
and therefore they were in deep state of meditation. The important findings in many volunteers are that their devotional emotions were heightened and linked with deep states of mental relaxation.

The conclusion is that in Group C, the 65% and 75% Theta waves are associated with feelings of deep calmness and discipline. The neurophysiology impact of the devotional songs meditation has caused notable Theta brainwave activity which is an important verdict.

iv. The Delta waves are rarer and slower brain activity. The proof shows that the Delta activity was noticed in 5% of the volunteers in Group C in EEG 1, 2, 3 and 4. Delta activity was noticed in 5% in EEG 2 and 3. The delta amplitude was 50 mv and the frequency was between 3 hz and 1 hz. Therefore, only 2 volunteers showed delta activity. Delta signals signify deep meditative state after listening to devotional kritis and it can occur in deep sleep and deep relaxation. It is commonly found in infants and young children. Delta waves are found in some people who practice deep meditation.

The conclusion is that in Group C there is minimal dominance of delta activity.

v. The Group C background statistics findings is reported in (Table 47). The background findings denote valuable assistance in assessing the influence of devotional perception and its relationship to the EEG signals. The environmental factors influence the frame of the mind. The evidence shows that the volunteers are educated and religious people. They are teachers and
professionals. The average age was 58 years old. The average years they practiced Singing religious songs was 7 years, reading Hindu scriptures 10 years, praying 33 years, fasting 2 years, social service 18 years and religious study for 13 years. All the 10 volunteers answered the four questions of their perception of God after listening to devotional songs, overwhelmingly positive which denoted 100%.

The psychological conclusion is that the finding proved valuable for the meditative nature of this group and for the association of EEG experimentation.

The Overall Discussion of Group C

The goal of the experiment is to show a relaxed brain when introduced to devotional songs so that the EEG signals can show the meditative state of the brain. The literature says that the signals for calm brain are Alpha, Theta or Delta waves. A deep contemplation of devotional songs may shift the brain waves from the Beta range to the slower Alpha range. The signals reflect the tranquil nature of the brain.

The background findings of the 10 group C volunteers. They were educated and religious people. They were teachers and professionals. The average age was 58 years old. The average years they practiced Singing religious songs was 7 years, reading Hindu scriptures 10 years, praying 33 years, fasting 2 years, social service 18 years and religious study 13 years. All the 10 volunteers answered the four questions overwhelmingly positive which denoted 100%. The finding is that all the 10 volunteers were emotional and described their experience as a divine emotion. These findings suggested a superlative correlation to the devotional emotions of
Group C volunteers which have heightened and linked with deep states of both physical and mental relaxation.

From the psychophysiological point of view these electroencephalographic findings lead to the conclusions that the EEG signals shows, 75% Theta activity, 100% Alpha activity, 5% Delta activity and excessive Beta activity of 95%. This findings indicate an active brain pattern. The background findings correlated strongly to the EEG findings. Therefore, the devotional emotions of Group C volunteers suggested a strong correlation to the Alpha and Theta EEG signals.

5.7.5 Discussion of Background Environmental Assessment of Group A, B and C (Table 48)

The background information evaluates the experience of the volunteer. It contributes significantly to the persons overall mental makeup. It is an environmental conditioning of the mind through varies activities. It is the knowledge acquired through their vocation. The process of singing and understanding the language creates an experience. Experience is a brain condition. The devotional experience of singing Swami Tyagaya’s sangeetham conditions the brain to understand the fundamental nature of reality and its philosophy. The experiential learning is the process of understanding through familiarity of experience based activities. The brain cell network changes as a result of experiential environment. It is a neurobiological explanation which accounts for brain development and its periodic changes. Inherited factors and environmental factors interact constantly in the ever-changing brain cells.
The intrinsic genetic factors and extrinsic psychological dynamics support one another in brain development. The external developmental processes initiates particular structural changes of the brain through neural plasticity. Dr Joan Stiles is clear in her objective to provide an overview of the fundamentals of brain development through behavioural experiences. She associates sciences to understand the biological underpinnings of the complex changes observed in perceptual, cognitive, affective and social development (Joan Stiles, 2008:440). The development of the brain is a life-long process. Indeed, recent research suggests that the brain is capable of changing throughout the lifespan. The constant experience and the familiar knowledge influence the development of specific brain centers such as auditory, visual, language, memory, sensory and motor.

The brain cells are tuned to the sounds of virtually all languages but with experience, their brains become most tuned to language. The plasticity of the brain underlies much of the learning that occurs during this period. The input from the environment modifies the neural networks (Levitin, 2006:196). A good quality experience gives rise to a good quality brain function. Therefore, the environment of devotional sangeetham promotes brain activity. The specific brain arrears gets activated to produce emotions and visions. Swami Tygaya was a religious man life long and he inherited his background as a fundamental reality. The development of the biological and environmental knowledge is the reason for Swami Tygaya to envision Lord Rama.

Neurosciences can shed light to human psychology. Much of brain research is descriptive and simply tells us how the brain contributes to the development of
behavior. This study on devotional sangeetham and music research has implications on the decision of the brain activity. Dr Patel a leading cognitive scientist states, “one well studied case is that of Indian classical music, in which different ragas, characterized by peculiar scales, tonal hierarchy and melodic gestures claim to express different characteristic moods, ‘rasas’ which is a judgment of emotion produced in the brain” (Aniruddh Patel, 2008:313). Swami Tyagaya’s sangeetham and sahityam (language) initiates deep and critical connections to the neural mechanisms in the brain. The external resources organize differently to shape the brain areas. Melody, rhythm, beats and movements play important role in neuroplasticity. Language engages the language centres of the brain and organize the knowledge. Sangeetham experience as an input shapes the basic need of the brain and gives expression to the effort. The environmental experience is flexible and dynamic in shaping the brain to envision the image of God.

A comparative assessment is made to learn about the influence of sangeetham on the volunteers. Group A, B and C background assessment is the process by which the researcher identifies the volunteers sangeetham knowledge, devotion, experience of life pertaining to their mental health and spiritual needs. The determination of spiritual needs and resources helps in assessing the quality of the candidates. The evaluation of the impact over their beliefs help in the assessment of the quality of the EEG electrical signals. Their knowledge and their devotion promotes their spiritual resources. The background finding corroborates to the spiritual outcome. The Group A volunteers have the environmental influence of Sangeetham for many years. Generally devotional sangeetham have meditative implication which designs to trigger the brain into producing Alpha, Theta and Delta state.
The devotional emotions are heightened and linked with very deep states of both physical and mental relaxation. The background knowledge authenticates a superlative correlation to the devotional emotions which have heightened and linked with deep states of both physical and mental relaxation. The strong subjective background correlation can reflect strongly to the objective EEG findings. The Group A volunteers are deeply involved with sangeetham and prayers for a long period of time which creates a positive setting for the brain wave modulation. Their advance age and family status and sangeetham experience is the cause for the high EEG signal valuation. Both the Group A and Group C volunteers had identical answers for the four questions which denotes 100% respectively. The finding is that all the volunteers of Group A and C are emotional and describe their experience as a divine emotion. The issue of belief in God is 100% positive in both the groups.

The finding proved valuable for the meditative nature of Group A & C. Group A’s experience of religious practice is more in comparison to the Group C and Group B. The Group C volunteers experience indicates values for a second place and while Group B student volunteers are a distant third.(Table 48). The results point out that Group A with Tyagaya’s devotional Sangeetham environment has a efficient brain state which designs to trigger the brain into producing more of Alpha, Theta and Delta waveforms. The background findings of Group A suggest a superlative correlation to the devotional emotions which have heightened and linked with deep states of mental relaxation or a meditative state. Their extrinsic environmental knowledge and their intrinsic brain cells promote their spiritual resources.
The conclusion is that Group A volunteers have a higher level of experience with Swami Tyagaya’s *sangeetham* and therefore they have a predominance in all the spiritual departments. Group C has a lesser prevalence than Group A and Group B is a distant third in all spiritual relationships and *sangeetham* experience. *Sangeetham* experience as an input shapes the basic need of the brain and gives better spiritual knowledge and expression.

5.7.6 General Discussion of the Brain signals of Group A, B, and C.

(Table 49 - 54)

The discussion is based on the findings of the EEG investigation which will assist in the correlation of Divine emotions during singing of Swami Tyagaya’s Carnatic *sangeetham* or listening to devotional music. This study applies EEG algorithms on Group A of 12 volunteers to demonstrate the feasibility of Swami Tyagaya’s devotiona *sangeetham* in the attainment of divine emotion as a self-regulatory approach to emotion management and God realization. (Swami Tyagaya attained moksha).

The Group A results are compared against another 2 control groups of Group B of 12 volunteers and Group C of 10 volunteers. The 34 volunteers are recruited as part of an ongoing study of the brain using the International 10 - 20 System, EEG. The researcher evaluates the EEG changes in the 3 groups and the discussion will be based on the results which are represented in the tables with the number of candidates and percentage values. The comparative values indicates the percentage of the signals. The findings are reported in three stage of A, B and C. The overall EEG finding reported under Group A will show the different electrical signal patterns from
the brain as advance objective evidences on the values of Tyagaya’s devotional
_sangeetham_ and the brain. The overall EEG finding reported under Group B and C
will show the different signals from the brain as evidences on the values of devotional
songs and the brain (not Tyagaya’s _sangeetham_). The tests shows the individual
brain electrical activities as Alpha, Beta, Theta and Delta Waves with the percentage,
the frequency and the amplitude. In order to understand the EEG signals, the
discussion is divided in three sections for easy orientation.

i. **Individual Evaluation (Table 49 - 52)**

ii. **EEG 1 2 3 and 4 Evaluation (Table 53)**

ii. **EEG 2 and 3 Evaluation (Table 54)**

i. **The Individual Evaluation**

The EEG signals are displayed in the form of statistical average percentage. The
description shows the relationship and the variance of the EEG waveforms. The
report is based on visual detection of the waveforms on the graph. The findings are
represented in percentage, frequency and amplitude. The tables show the comparative
signals for quick reference.

Table 49: The Alpha signals denotes the overall percentage and the average frequency
and average amplitude of Group A, B and C. The three groups show high percentage
of Alpha activity which relates to thoughtful slow brain activity. The normal Alpha
range is 8 to 12Hz.
Group A : Total EEG 1 to 4 - 100% volunteers with alpha activity with average of 10.25 cps and amplitude of 55 mv

Group B : EEG 1 to 4 - 89.5% volunteers with alpha activity with average of 10 cps and amplitude of 50 mv

Group C : EEG1 to 4 - 90% volunteers with alpha activity with average of 10 cps and amplitude of 55 mv

The Group A volunteers show 100% Alpha activity. Alpha wave activity means that the brain is in a relaxed state and awake. Alpha waves are present when practicing mindfulness or meditation. The amplitude is 55mv. It occurs with an average rhythm of 10.25 cycles per second (Hz). It is best measured in the occipital region of the brain, which is located at the back of the head. The inference is that the Group A seemingly exhibit relaxed or reflective mental action to Swami Tyagaya’s sangeetham. The Alpha signal is associated to the closing the eyes and inhibition brain control.

Table 50: The Beta signals denote the overall percentage and the average frequency and average amplitude of Group A, B and C. All the three groups show high percentage of Beta waves which denotes active brain. The normal Beta range is 13 to 30 Hz.

Group A : Total EEG 1 to 4 - 98% volunteers with beta activity with average of 17.5 cps and amplitude of 25 mv

Group B : EEG 1 to 4 - 89.75% volunteers with beta activity with average of 15.75 cps and amplitude of 25mv;
Group C: Total EEG 1 to 4 - 95% volunteers with beta activity with average of 18.75 cps and amplitude of 25 mv

The Group A shows an average of 98% Beta signals with an amplitude of 25 mv and average of 17.5 cps. The Beta are the most common daytime brain waves. They are dominant during normal wakeful states and when focused on cognitive and other active tasks, such as problem solving or decision making. Inference is that the Group A, B and C volunteers are actively thinking, focused and highly alert with the procedure of listening to the sangeetham and understanding the language.

Table 51: The Theta signals shows the overall percentage and the average frequency and average amplitude. Theta waves signifies meditative brain. The normal range 4 to 8 cps.

Group A: EEG 1 to 4 - 68.75% volunteers with theta activity with average of 6.5 cps and amplitude of 50 mv

Group B: EEG 1 to 4 - 43.5% volunteers with theta activity with average of 6.75 cps and amplitude of 50 mv

Group C: EEG 1 to 4 - 65% volunteers with theta activity with average of 6.5 cps and amplitude of 50 mv;

The Group A shows average of 68.75 Theta Waves with average of 6.5 cps and amplitude 50 mv. The Group A and Group C shows high percentage of Theta waves which signifies meditative relaxed brain. The waves occurs during sleep, and have been observed in very deep states of meditation. The inference is that the Group A
volunteers are in deep contemplation of *sangeetham* associate with inhibition of anxiousness.

Table 52: The Delta signals indicates the overall percentage and the average frequency and average amplitude. The delta waves convey deep meditation or drowsy sleepy state. The normal range is 0 to 4hz.

Group A : EEG1 to 4 - 18.75% volunteers with delta activity with average of 2.75 cps and amplitude of 50 mv

Group B : Total EEG1 to 4 - 29% volunteers with delta activity with average of 3.25 cps and amplitude of 50 mv

Group C : Total EEG 1 to 4 - 5% volunteers with delta activity with average of 1.5 cps and amplitude of 50mv

The Group B volunteers show an average of 29% of Delta waves and average of 3.25 cps frequency and an amplitude of 50 mv. Delta waves are the slowest brain waves and occur during the deepest states of sleep or meditation. The 18.75% registered by Group A could mean a deep state of meditation as a result of listening to Tyagaya’s *sangeetham*. The inference is that Group B volunteers are students with an average age of 20 years. It may be associated with the deep stage sleep as a result of boredom.

The overall conclusion is that the Group A volunteers indicate a higher percentage of Alpha and Theta wave than group B and Group C. The Group C volunteers show a higher level of Theta waves than Group B. The Group A volunteers have higher
levels of Delta waves than Group B and Group C. The background influence of sangeetham and prayers in Group A creates a positive setting for the brain wave modulation. Their advance age and family status and sangeetham experience is probably the cause for the high 100% Alpha waves and 68.75% Theta waves which remains as the proof to indicate the relaxed brain activity due to the stimuli of Swami Tyagaya’s sangeetham.

ii. Discussion of the EEG 1, 2, 3, 4 tests and brain signals (Table 53)

In the present study, the EEG changes accompanied with the 3 groups of total 34 volunteers have been revealed and described in detail for EEG 1, 2, 3 and 4 tests. The comparative EEG signals are discussed in a different cross sectional perspective for a better understanding of the complex nature of the electrographic changes. The argument is based on the different brain waveform in relation to Tyagaya’s sangeetham and the consciousness with its underlying neurophysiological background and comparing with that of the control groups. The brain waveform data mentioned below will illustrate the combined significance of the Alpha, Beta, Theta and the Delta signals. This is a summarized illustration of the comparative EEG 1,2,3&4 test for comparative understanding of the percentage of Alpha, Beta, Theta and Delta signals.

**Alpha waves %**

Alpha activity was noticed in 100% of the volunteers in Group A

Alpha activity was noticed in 89.5% of the volunteers in Group B

Alpha activity was noticed in 90% of the volunteers in Group C
Theta Waves

Theta activity was noticed in 68.75% of the volunteers in Group A
Theta activity was noticed in 43.5% of the volunteers in Group B
Theta activity was noticed in 65% of the volunteers in Group C

Delta waves

Delta activity was noticed in 18.75% of the volunteers in Group A
Delta activity was noticed in 29% of the volunteers in Group B
Delta activity was noticed in 5% of the volunteers in Group C

Beta Waves

Beta activity was noticed in 95.75% of the volunteers in Group A
Beta activity was noticed in 89.75% of the volunteers in Group B
Beta activity was noticed in 95% of the volunteers in Group C

The results of EEG 1, 2, 3 and 4 tests denotes that the Group A signals are 100% Alpha and 68.75% Theta waves which indicates a higher percentage of Alpha and Theta waves than group B and Group C. It proves that Group A who are deeply involved with sangeetham creates a relaxed brain activity. The Group C signals show a high level of 90% Alpha and 65% Theta waves. It proves that even the devotional song experience can cause the relaxed brain signals. Group B shows a relatively poor brain signals than Group A. The long-term sangeetham practice of Group A facilitates a relaxed effect in the brain which creates alterations in the brain activities during the act of meditational sangeetham singing. The EEG has played a useful role in this study as a primary method for evaluating the meditating brain. In these three
groups the appearance of Theta and Alpha waves play a leading role for the inference of the changes in the brain during and after listening to sangeetham and devotional music. These Theta, Beta, Delta and Alpha waves continues to appear, and their amplitudes increases as the session of sangeetham contemplation progresses.

The 100% Alpha frequency in Group A and 90% Alpha frequency in Group C and 89.5% Alpha in Group B indicates good relaxed mental outcome. Further 68.75 Theta waves with low frequency and high amplitude was observed in Group A volunteers which indicates superior meditative mental outcome. It is noticed that in Group A and Group C, the EEG changes are related with the volunteer’s relaxed mental state. Incidentally, the mental state is evaluated by the background questionnaire survey data also. These EEG changes with the the appearance of Alpha waves and increase of alpha amplitude and appearance of Theta waves and increase of high amplitude paves well for the change of mental state. The value of increase frequency and amplitude of Theta waves and the presence of Delta waves all denote valuable information on the status of the relaxed brain activity. Thus in Group A, the Alpha, Theta and Delta activating pattern indicates the augmented level of consciousness and its regulation of the inner mind. It will be, therefore, expected that Swami Tyagaya sangeetham and meditation will bring about the relax pattern of the Alpha and Theta signals. Many studies on meditation, have linked lower frequency Alpha and high amplitude Theta waves to relaxed brain activities. These electrographic changes were also compared with that of the values of the studies done by Akira Kasamatsu and Tomio Hiraim, “An Electroencephalographic Study on the Zen meditation” and there were similarities to the Alpha and Theta brainwave activities (Psychiatrica et Neurologica, No 4, Vol 20:331).
In conclusion the researcher believes that Swami Tyagaya’s *sangeetham* indicates greater sensitivity to emotional expression and therefore this devotional sensation creates calm brain cell activation. This emotional neuro-psychological consequence is responsible for the visualization of ‘God’ which Swami Tyagaya experienced and noted in his kritis. Therefore, Swami Tyagaya’s *sangeetham* is a spiritual exercise which has a spiritual association. The consistent devotion and regular training of Tyagaya’s *sangeetham* produces meditational effect in the brain which is significant for sacred experiences. The spiritual experiences evolves to encounter with God or contacts with higher realities which are not ordinary happenings. This kind of mystical religious encounters are evolved experience of human brain which is amenable for scientific study. Thus, the influence of Tyagaya’s *sangeetham* is of interest to scientific studies, from the standpoint of theology, psychology and neuro-physiology.

iii. A Comparative Discussion of EEG 2&3 and EEG 1, 2, 3 and 4. brain signals (Table 54)

The researcher discusses further from a different perspective the electrographic changes of EEG 2 and 3 in relation to Group A (Tyagaya’s *sangeetham*) and comparing with the brain signals of EEG 1, 2, 3 and 4 and about its underlying neurophysiological changes of Group B and C. The EEG finding of stage 2 and 3 reported will show the different electrical signal patterns from the brain after 15 minutes and 30 minutes of concentration of Tyagaya’s Devotional *sangeetham* for Group A only and devotional song for Group B & C respectively. A summarized illustration of the comparative EEG 2 and 3 signals are mentioned for easy understanding of the percentage of Alpha, Beta, Theta and Delta signals.
Alpha waves

Alpha activity was noticed in 100% of the volunteers in Group A
Alpha activity was noticed in 89.5% of the volunteers in Group B
Alpha activity was noticed in 100% of the volunteers in Group C

Theta Waves

Theta activity was noticed in 83% of the volunteers in Group A
Theta activity was noticed in 53.5% of the volunteers in Group B
Theta activity was noticed in 75% of the volunteers in Group C

Delta waves

Delta activity was noticed in 29% of the volunteers in Group A
Delta activity was noticed in 3% of the volunteers in Group B
Delta activity was noticed in 5% of the volunteers in Group C

Beta waves

Beta activity was noticed in 96% of the volunteers in Group A
Beta activity was noticed in 92% of the volunteers in Group B
Beta activity was noticed in 95% of the volunteers in Group C

In the two stage EEG of 2 and 3, the Group A indicate a higher percentage of Alpha, Theta and Delta waves than group B and Group C. The emotional response which is activated after 15 minutes of listening is recorded as brain signals. The Group A, the Alpha and Theta values of Table 53 and Table 54 shows highest values in comparison to Group B and C. This high percentage of Alpha and Theta values of
Group A in all the three stages indicate that Swami Tyagaya’s *sangeetham* creates a greater sensitivity to emotional expression of the contemplating brain to envision God due to the experiential *sangeetham* influence.

In Group A, 100% volunteers with Alpha activity with average of 10 cps and amplitude of 50Mv is seen and Theta activity is noticed in 83% with 7 cps and 50 Mv and Delta activity was noticed in 29% with 3cps and 50 Mv amplitude. It is recorded that during deep meditation the Delta brainwaves must travel through Alpha and Theta waves to be able to connect with deeper parts of the unconscious mind stage. However the experiment result show that from the electroencephalographic point of view, the comparative changes of Theta and Alpha waves are more in Group A when compared to the control Groups B and C. The hypnotic changes during Tyagaya’s *sangeetham* are more persistent and did not turn into deeper sleep pattern and the Theta signals are marked and Alpha signals are pronounced. In group B and C, the Beta, Alpha and Theta signals are fairly consistant but of lower percentage. The high percentage presence of Alpha & Theta waves are significant to consider the neurophysiological changes of the mental state during Tyagaya’s *sangeetham*. These results confirms that in Group A, Swami Tyagaya’s *sangeetham* stimulates a form of meditation or mental calmness.

In a comparative analysis, the Group A, EEG 1, 2, 3 and 4 denotes 100% Alpha and 68.75% Theta waves and EEG 2 and 3 denotes 100% Alpha and 83% Theta waves. The Group C, EEG 1, 2, 3 and 4 indicates 90% Alpha and 65% Theta and EEG 2 and 3, Alpha 100% and Theta 75%. The Group B, EEG 1, 2, 3 and 4 shows Alpha 89.5% and Theta 43.5% and EEG 2 and 3 shows Alpha 89.5% and
Theta 53.5%. From the electroencephalographic point of view, the comparative percentage of Theta and Alpha waves are more in Group A when compared to the control Groups B and C. Group B indicated a higher percentage than Group B. From the psychological point of view, it is observed that the Swami Tyagaya sangeetham and devotional songs both bring about the meditative changes of consciousness in the brain. Identical observations are reported by Akira Kasamatsu on the meditative changes of consciousness (Akira Kasamatsu, 1966:332).

These electroencephalographic signals lead to the following conclusions from the comparative study of the multiple approach discussion. The Group A of Tyagaya’s sangeetham produces the slowing of brain electrical activity which denotes through Alpha, Delta and Theta signals. The pilot Group A has a better percentage to the control Group B and Group C. The control Group C has a better percentage to Group B. Therefore, all the Groups A, B and C did indicate specific changes of consciousness and slowing of the brain activity. From a psychological point of view, Swami Tyagaya’s Sangeetham has a positive indication to elevate consciousness and spiritual values. The reference article by Dr Sundarachari et al, mentions that in their study during the state of meditation, it showed persistent Alpha activity wave pattern compared to the control group and there was a preponderance of Alpha waves in yogis (Sundrachari, 2013:55).

It is apparent that in Group A the brain signals shows a larger percentage of Alpha, Theta, and Delta brain waves. The theta waves are usually related to deep meditation or contemplation or dream state and Theta waves operate at a rate of between 4-8 Hz. The Group A volunteers are associated with emotional surges,
intuitiveness, imagination and spiritual experiences through Tyagaya’s *sangeetham*. The healthy neurotransmitters that we need, such as serotonin, melatonin, dopamine are responsible for the well being and peacefulness (Newberg, 2010:159). The Delta waves are the slower signals and are present in deep meditation and deep sleep. Delta waves operate at a rate of between 0-4 Hz. The alpha waves are slower than the beta waves and is associated with meditation and calmness. Alpha waves operate at a rate of 8-12 Hz. These three waves are high amplitude waves and low frequency waves. Theta and Delta brain waves are most commonly documented in EEG. brain activity while a person is in a devotional Yogic state, or in deep meditation or asleep. (Newberg; 2010;160).

However, babies, very young children, monks and people suffering from brain damage also register these waves. It is also important to note that devotional songs of Group B and C does brings changes to the brain cells as well. The electroencephalographic profile is modified by the practice of meditation of the devotional songs. In Group B shows less Alpha and Theta percentage changes than Group A. The cause could be due to less contemplation or less meditational brain activity. This report on the background of Group A, B and C facilitates the functional rationalization of the EEG signals of each group. Naturally, Group A, EEG signals are of better value than Group C and Group B. Group C signals are better than Group B. Further analytical observations can be done by neuroimaging studies, most often by employing fMRI. Some scholars state that the sleep-like changes of EEG, are observed in hypnotic trance where the Alpha,Theta and Delta pattern appear in closed eyes’ condition. EEG in the hypnotic state caused by sleep suggestion reveals the low voltage Theta pattern which is similar to the drowsy mental state.
Theoritically the hypnotic effect of the devotion and *sangeetham* can cause the Theta and Alpha waves which are recorded in EEG where the eye are open. It may corresponds to a hyponotic effect of *sangeetham* or deep sleep stage. It is noticed that the slow rhythm in hypnotic sleep is more similar to the rhythmical Theta activity seen in Zen meditation (Akira Kasamatsu and Tomio Hiram, 1966:335).

To clear the controversy of sleep, the researcher questioned the candidates if they were as sleep? The candidates categorically denied. Therefore, these electroencephalographic signals lead to the following conclusions from the multiple procedures that Tyagaya’s devotional *sangeetham* caused a meditation effect on the brain. The devotional contemplation of Swami Tyagaya’s *sangeetham* has the capacity to transcend the mind from a physical level to a metaphysical level. It may be said, therefore, that the large amplitude and slow frequency Theta and Alpha pattern of Group A is a foregoing pattern of transcendence to a higher level of consciousness. Perhaps, even the other forms of devotional music, such as experienced by Group B and C can cause the lower threshold in the brain activity.

The personal history denotes that the candidates of Group A are deeply involved with *sangeetham* and prayers which creates a positive setting for the brain wave modulation. The brain develops through behavioural experiences. The process of singing and understanding the language creates an experience. Experience is a brain condition and it is the knowledge acquired through the occupation. Therefore, their advance age and family status and Swami Tyagaya’s *sangeetham* experience are the cause for the high 100% alpha waves and 68.75% theta waves which is the proof to indicate that the positive brain signals are due to the stimuli of
sangeetham. The Group C volunteers findings indicated values for a second place and while Group B student volunteers were a distant third. It has become apparent in our study that the electrographic changes of Group A devotional sangeetham meditation have the appearance of high percentage of Theta and Alpha waves without regard to opened eyes. These Theta and Alpha waves increase during Swami Tyagaya’s sangeetham denotes meditational dimension of the relaxed brain. These findings are also parallel with the degree of Group C mental states. From the electroencephalographic point of view the results are coincidental with the EEG changes of lowered consciousness or vigilance states that the persistent appearance of alpha waves which indicates the brain function at the time of lowered vigilance in the Zen meditation (Kasamatsu, 1966:333).

Kasamatsu says, “Many empirical observations of Alpha waves point out its being not of action but of hypofunction of the brain and in attempting to relate the various stages of the EEG pattern to corresponding psychological states and the behavioral correlates. It states that during more or less continuous relaxed state of wakefulness, amplitude modulated alpha waves are characteristic”. According to Jasper's suggestion, it is said that the amplitude modulated alpha waves reflect the lowered level of the cortical excitatory states (Kasamatsu, 1966:334). EEG changes during Zen meditation seem to indicate that the cortical excitatory level will be gradually lowered even by the “concentration” of inner mind (Kasamatsu, 1966:332). The researcher points out that from a psychological point of view, that devotional sangeetham like Zen meditation have a hypnotic trance which bring about the change of consciousness to envision God. It is a personal experiential imagery and an extera sensory perception.
The background survey of the EEG volunteers indicates that the Group A and Group C volunteers had identical answers for the four questions which gives a score of 100% respectively. The volunteers of Group A and Group C were emotional and described their experience as a holy incident. The issue of belief in God was 100% positive in both these groups while Group B answered with less percentage. The finding proved valuable for the meditative nature of Group A and C. Table 54 explains the significance of the percentage of Alpha, Beta, Theta and Delta Waves. The EEG finding of stage 2 and 3 shows the different electrical signal patterns from the brain after the concentration of Tyagaya’s Devotional *sangeetham* and devotional songs. In Group A the volunteers perceive *sangeetham* and religion as important entity. Their devotional consistancy has contributed to their mental and spiritual health. They have experiencial knowledge of empathetic listening, documenting spiritual preferences and incorporating the precepts of their spiritual traditions and communities for overall wellness. Their practiseing knowledge of *sangeetham* cultivates their inner spiritual resources which has brought profound change to their brain activity and relaxed pious nature.

The Group A, B & C findings will pronounce significant information of the activity of the brain during the influence of devotional meditative *sangeetham*. The findings of the volunteers’ environmental background will further help to substantiate the devotional and experiential values. Experience is a brain condition of neurobiological nature. The devotional experience of singing Swami Tyagaya’s *sangeetham* familiarises the brain through neural plasticity. The environmental factors interact with brain cells and bring changes. The intransic and extransic dynamics support one another in brain development. The comparison of the three
group experiential knowledge 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 objective EEG findings are scientifically significant to arrive at a favourable conclusion and prove that the current study is properly substantiated. Thus, the positive results of the EEG helps to strengthen the value of the third objective of the study.

5.8 RATIONALIZATION OF SWAMI TYAGAYA’S SPIRITUAL EXPERIENCES

The study reveals about the comprehension of Swami Tayagaya’s devotional sangeetham from the perspective of cognitive neuroscience and in association to spiritual experience. The study rationalizes the spiritual experience through scientific explanations. The findings indicate the society’s perception on devotional music and its spiritual manifestations and how they relate to life. The activating stimuli for neuroplasticity is concentration, belief, effort and devotion towards sangeetham. The mental activity of listening Swami Tyagaya’s kritis elevates the level of consciousness. According to Kasamatsmu; “Thus the activating pattern indicates the augmentation level of Zen meditation in the concentrated regulation of inner mind”. It is of prime interest to consider a relationship between the sangeetham physiology of the brain and the level of consciousness. The lowering of brain activity is confirmed by the EEG findings of the three groups. According to the instructions of Zen meditation, the regulation of inner mind is strongly emphasized and in the well-achieved meditation, it will be said that concentration without tension is the true concentration of the inner world of psychic life (Kasamatsmu and Hiriam, 1966:331).
God is great for the mental, physical, and spiritual health point of view. Swami Tyagaya’s composition written in accessible style with Upanishadic illustrations highlights spiritual experiences and righteous living with compassion, love, tolerance and selflessness. The devotional *sangeetham* of Swami Tyagaya elevates the mind to a higher spiritual level. Not only do prayer and spiritual practice reduce stress and anxiety, but the meditational feature of devotion may slow down the aging process and increase mental and physical health. The research offers the following breakthrough experience and informations of some Neuropsychologists. Many neuroscientists have performed complex researches on the brain when in religious contemplation and in meditative singing or chanting. They have put forth astounding theories of “God Centre” in the brain cortex. Modern Neuroscientists’ are able to visualize through modern imaging techniques the brain when in spiritual activation. Michael Persinger, a neuropsychologist of Ontario University, described a religious experience when the right hemisphere of the brain, the seat of emotion, is stimulated. The brain generates increase electrical activity with religious experience or God sensation.

Dr Andrew Newberg, is a prominent researcher on spiritual experiences and brain imaging. He has taken particular interest in meditation and neuro-psychological experiences. He says, “God is apart of consciousness and that the more you think about God, the more you will alter the neural circuitry in specific parts of your brain”. “That is why I say with utmost confidence that God can change your brain” (Newberg, 2010:4). Dr. Richard Davidson of the University of Wisconsin has been working with some advanced meditators and he found that these meditators had an extraordinary skills in manipulating certain parts of the brain that control thoughts.
and emotions including the capacity to generate compassion (Newberg, 2010:62). Dr. Daniel Levitin has worked on music perception and cognitive psychology. He has explained the role of cerebellum in music listening and the temporal cortex. Dr. Oliver Sach has wealth of experiences with normal brains dealing with perception, memory and individuality. He has contributed much in support of the effect of music on the human brain. Dr. V. Ramachandran thinks that there is a neural circuit for God experience somewhere in the temporal cortex (Ramachandran, 2012:179). Therefore, it is apparent based on the scientific research that Swami Tyagaya’s experience of the vision of Lord Rama is possible.

To illustrate more scientific evidences some neuroscientist have produced EEGs and images of the brains of Hindu sages, Buddhists monks and nuns in deep meditation and prayer. They scanned the brain to determine what part of the brain was active and what parts were was not active. Using a special X-ray procedure called fMRI or SPECT, the scientists were able to see unique activity in the brain during chanting of mantras and meditation. The different pattern of brain activity in the particular brain region may explain why meditators feel transported out of the physical world and into a spiritual world. Sangeetham, hymns, mantra chanting and meditation intensifies the focus, blocks out the external stimuli, and provides a pathway in the special brain areas for a mystical experience.

Dr Newberg says, “As the boundaries between self and physical surroundings go away, the meditator feels at one with something larger, whether a religious community, the world as a whole, or ultimately, God,” (Newberg, 2010:37). Newberg says, “Understanding how the brain works can go a long way toward understanding
the impact of religion, both physically and spiritually”. Newberg explains,”With religious experiences such as meditation or prayer, decrease and changes in hormone levels may improve the function of the immune system” (Newberg, 2010:34). Brain activity studies show that meditation is not just a passive experience but that increased excitability at peak meditation seems to confirm the “active bliss” reported by Newberg's study subjects. Newberg says,“They feel profoundly calm, yet highly alert and intensely aware”. “Spiritual experiences are more real to them than everyday reality walking down the street. Pietrini says, “We are looking at philosophy and religion in a more scientific way” (Newberg, 2010:82). “Science has no way to prove or disprove a Creator, but finding unique patterns of brain activity corresponding to religious experiences is entirely compatible with religious beliefs” (Newberg, 2010:91). EEG has been useful in understanding musical behavior of the brain structural points such as the frontal lobes, Broca’s area, Wernicke area and temporal lobes (Levitin, 2006:124). The brain music system appears to operate with functional independence from the language system and the evidence comes from many case studies (Levitin, 2006:125).

Though skeptics may argue that God lives only in the mind of the faithful, Newberg suggests that the opposite conclusion is equally valid. “If there is a God, it makes perfect sense that He would create a way for us to communicate with Him” (Newberg, 2010:104). Religion and spirituality are constantly changing and evolving, and this is a good thing for both the society and the human brain (Newberg, 2010:82). Vilayanur Ramachandran, thinks he may have found God. The neurologist believes that there may be neural circuitry for religious experience. He points to the fact that about 25% of patients with temporal lobe epilepsy are obsessed with religion.
Neuroscientists have shown just how intimately the amygdala is activated by music which has a strong emotional function with the hippocampus (Levitin, 2006:163).

Some studies conducted in various research centres suggest that the meditative nature of devotional sangeetham can help maintain a healthy structural balance of the mind and body. The biology is triggered by superior environmental education. Nature and nurture play an active role in the evolution of the mind to visualize God. The meditative wisdom takes place continually, and memories are being constantly revised. Spiritual ideas merge into consciousness. Spiritual sangeetham is a contemplation of God (Ishta Deva) which constantly creates a neuroplastic activity in the brain. It is understood that the spiritual concepts are formed in the frontal lobes, occipital lobes, limbic system and anterior cingulate cortex (Newberg, 2010:44).

It is known that by intensive meditative sangeetham there is a possibility to trigger an unusual form of neural activity and evoke specific emotions and focus the thoughts in spiritual forms of God, like Lord Rama or Lord Siva or Christ which can biologically influence the physical form. It is also known that by meditative singing essential body dynamics like respiration, circulation, body awareness, feelings, thoughts, tension and stress can be manipulated for good health. From Swami Tyagaya’s point out in his kriti “sobillu subtha awara”, the more one engages in spiritual practices like singing devotional sangeetham, the more control one gains over the body, mind, and destiny (Ramanujachari, 1958:596).
Some neuroscientists consider the anterior cingulate cortex, the frontal lobe, prefrontal cortex, the limbic and para limbic system to play a significant role in spiritual alteration (Newberg, 2010:130). Dr. Newberg’s experiment indicate that the brains of Tibetan Buddhists and Franciscan nuns as they engaged in deep prayer and mediation by injecting radioactive dye as the subject entered a deep meditative state, then he photographed the results with a high tech imaging camera. He noticed that when people meditate they have significantly increased activity in the frontal area which is the attention area of the brain and decreased activity in that orientation part of the brain (Newberg, 2010:6). Newberg unanimously acknowledges that meditation can change the neural circuitry and improve cognitive health, social awareness, empathy and spiritual health. Meditation can subdue vicious mental feelings, anger and negative emotions. The human brain through meditation has the capacity to rearrange the brain cells in response to a wide variety of positive spiritual responses.

Based on the scientific dynamics, Swami Tyagaya’s deep sangeetham contemplation and devotion can create a brain phenomena that influences the visualization of God, Lord Rama. The study points out this association as the evidence for the brain’s neurospactic capacity to envision ‘God’. The EEG results of Group A, indicates sufficient evidence to indicate special brain activities as per Table 53 and 54. Many of the brain changes occur when people are singing devotional sangeetham like praying (focusing on oneness with a deity) or meditating (focusing on oneness with the universe). The sangeetham activates the visual center, auditory center, language center and the senso-motor centers in the brain. Rationally the God vision is from the God centre in the brain. Dr. Newberg uses the term “God module” (Newberg, 2010:101).
Many neuroscientists have identified a region of the human brain that appears to be linked to thoughts of spiritual matters and prayer. Their findings suggest that God is programmed in the brain through intrinsic and extrinsic factors. At the moment of time, brain science is not absolutely certain how to measure and authenticate the neurological events associated with religious sangeetham to God. Philosophers and scientists have long argued that God is a construct of human mind. There has been fierce theological disputes over this matter. Now there are new evidence that the phenomenon of religious faith is in the brain. Doctors are currently studying on yoga practitioners and advance meditators to map the neurochemical changes caused by spiritual and religious practices (Newberg, 2010:6).

This discussion based on all the researches of the neuroscientists indicate that Tyagaya’s Sangeetham strongly influences the general perception on God, brain, devotion and spirituality. The spiritual experience of Swami Tyagaya is compatible to the scientific reasoning. Swami Tyagaya’s life was a confluence of spirituality, saintliness and sangeetham. His musical composition is an authentic revelations of what he directly experienced. His purpose of sangeetham is salvation, moksha. The survey brings forth the society’s view on the meditative nature of devotional sangeetham and to the broad range of holistic questions of spirituality in the brain. This research does not in any way negate the validity of religious experience or God but they merely provide an explanation in terms of the brain regions that may be involved in devotional meditation through Swami Tyagaya’s sangeetham. Scientists now look at the human brain as a constantly changing mass of activity and conclude that neurons act to spiritual singing and meditation. The different types of mantra chanting, meditation, prayer and devotional singing affect different parts of the brain
in different ways. Each meditative experience appears to have a beneficial effect on the neurological, physical and emotional health of the individual. The EEG experimental findings show that Swami Tyagaya’s devotional *sangeetham* relaxes the different regions of the brain like the frontal, parietal, temporal, and limbic areas or decreases the metabolic activity in these areas. The researcher’s EEG findings confirms with the observations of the studies done by Kasamatsu and R. Sudarachari.

### 5.9 CONCLUSION OF EEG RESEARCH

The EEG data analysis explains significant Alpha and Theta activities in Group A against the two control groups. All the Group A volunteers find that their devotional emotions are heightened and linked with very deep states of both physical and mental relaxation when listening to Swami Tyagaya’s *sangeetham*. Alpha and Theta waves are associated to *sangeetham* lovers who are in meditative states. This emotional state probably is the cause for 83% Theta brainwaves of Group A volunteers. In Group A, the influence of Swami Tyagaya’s *sangeetham* has produced 100% Alpha activity in both the stages which denotes meditational brain state. The Group B and C findings also denotes significant information of the activity of the brain during the influence of devotional songs. The research clarifies the nature of *sangeetham* and devotion in Group A and identifies the long environmental influence that perhaps creates the state of relaxation of the brain to visualize “God”. The Alpha findings denotes meditational state and relaxed brain activity. The significant observation is that the Alpha and Theta activities of Group A confirms with the results of the studies done by Sundarachari and Kasamatsu.
The evidences of the EEG results are scientifically significant to arrive at a favourable conclusion and prove that the study is properly substantiated. The study successfully rationalizes the devotional *sangeetham* and spiritual experiences through theoretical and scientific explanations. The study explains the comprehension of Swami Tayagaya’s devotional *sangeetham* from the perspective of cognitive neuroscience. The study elaborates the society’s perception on Swami Tyagaya’s *sangeetham*, devotional music and its spiritual implications from a psychological point of view. The positive results of the EEG strengthens the value of the third objective of the study.

5.10 Conclusion of the Questionnaire survey and the EEG research

In conclusion, the complex study has focused on many theoretical and empirical evidences that the practice of Swami Tyagaya’s *sangeetham* clearly facilitates brain changes and spiritual values. The study reports several statistical findings in the survey and also reports on the results of the EEG experiments. The specific statistical findings reports a number of critical demographic information. The information demonstrates both descriptive statistics and anova tests results based on gender, age, academic specialty, economic status, musical skills, and research productivity which indicated positive evidences. The survey results with the SPSS 22 statistical module correlates significantly with the objective of the study. The survey methodology approach is forceful and practicle to the rationale of the study. The individual data are realistic and can be used as an exemplar for other alternate level of studies.
The survey model is recommended for many other macro-level models in the future. The survey results integrates more realism into the subjective and the objective evidences of the study. The demographic information is also investigated against six null hypotheses and the results showed strong positive correlation between sangeetham, devotional reliance, God, brain and spiritual feelings among the Indians. The Six null hypothesis is rejected with the alternate hypothesis successfully. The conclusive statistical data are that, 80% of respondents believe God acts through devotional music through the spiritual enlightenment; 75% feel that compassion and tolerance are important for life; Faith in God is stronger among women and sangeetham lovers. 75% believe that God acts through Tyagopanishads are more likely to be Carnatic musicians.

The evidences of the EEG electrical signals correlated differently towards Swami Tyagaya’s sangeetham versus devotional songs. The Group A, EEG electrical signals are different from Group B and C brain activity. There are increase number of Alpha and Theta signals in Group A volunteers indicating relaxed mental states. The background evidences of the volunteers have assisted to substantiate the importance of Alpha, Theta, Delta waves. In the Group A volunteers the Alpha and Theta signals correlated positively and showed that there was a single underlying factor that we may call “God module in the brain.” In Group A, the dominance of the Alpha and Theta signal suggested a localized relaxed brain activity which incidently co-related with the EEG research findings of Kasamatsu and R Sudarachari.
The evidences of both the survey and the EEG provide strong statistical significance and scientific implications to the value of the study. The demographic findings, the questionnaire survey results, the alternate hypothesis and the high percentage of Alpha and Theta waves in Group A facilitate to uncover and clarify the social, philosophical and scientific knowledge of Swami Tyagaya’s Sangeetham. The EEG results clarifies the scientific nature of devotional sangeetham and identifies the long environmental influence that perhaps creates the state of relaxation of the brain to visualize “God”.

The study shows clear evidences to infer that there is a close link between long term devotional sangeetham singing and brain changes. Specific brain areas are associated with superior spiritual quality. The research proves that Swami Tyagaya’s devotional sangeetham brings spiritual changes in the brain. The devotional dimension creates a paradigm shift from the physical level to a metaphysical level. The subjective survey evidences are statistically significant and the objective EEG signals are scientifically significant to arrive at a favourable conclusion that Swami Tyagaya’s sangeetham produces brain changes for spiritual nature. The study demonstrates the feasibility of Swami Tyagaya’s devotional sangeetham in the attainment of divine sentiments and God realization as a self-regulatory approach to emotion management. The evidences of the literature review, the questionnaire survey and the EEG results substantiates the first, second, third and fourth objectives of the study.