MUSIC AND CONCENTRATION AMELIORATES ACADEMIC PERFORMANCE

MUSIC.
A renowned music teacher and renowned musician Mr. Soordas Pawle defines music as under:-

“Sangeet gayan, vadan aur nritya ka avishkar hai.”

Music is a combination of the various swaras: Sa, Re, Ga, Ma, Pe, Dha, Ni, Sa in the appropriate tempo and rhythm.

Music has the power to influence human emotions and behaviour. It has been proved that music stimulates many parts of the body and the brain.

Music can be used as a healer, relaxer and mediator. Music is a kind of yoga system, through the medium of sonorous sounds (sounds that are not audible to the ear, but they have an impact on the functioning of the brain also influence our thought processes). These sounds act upon the individual, awaken and develop his proper functions to the extent of self-actualization.

When Albert Einstein was young, he did extremely poor in school. His teacher told his parents to take him out of school because he was too stupid to learn and that it would be a waste of resources for the school to invest time and energy in his education. Albert’s parents bought him a violin. Music was the key that helped Albert Einstein to become one of the smartest men who has ever lived.

MUSIC AND SELF-ESTEEM.
Music also helps us to accomplish non musical goals. One of these goals is the enhancement of our “Self-Esteem” [i.e. our self-image or self-confidence] Self-Esteem plays an important role in enhancing the academic performance of a student.
MUSIC AND ACADEMIC PERFORMANCE.
When we are listening to music, many different areas of the brain respond to the perceptual and emotional aspects of music.

Researchers have discovered that the information that is learnt, while listening to a particular song can often be recalled simply by playing the song mentally.

Music training has a tremendous effect on the brain development of young children, resulting in an improvement in memory and recall.

MUSIC AS A TECHNIQUE TO HELP CHILDREN WITH LEARNING DISABILITIES.

Learning to play a musical instrument aids dyslexia students to a great extent. A study conducted at the Stanford University showed that mastering a musical instrument improves the ability to process parts of the spoken language.

Teachers could incorporate music in their daily lessons in order to teach children with dyslexia and other learning disability to improve academic performance and to improve their reading and writing skills:-

1) Students can be taught to break a word into syllables by clapping or tapping for each syllable.
   For example:- Bigger words like ‘information can be broken up and can be learnt as ‘in’-clap, ‘for’-clap, ‘ma’-clap, ‘tion’-clap.
2) Students can learn grammar lessons through rhythm or songs. For example:- A child can be taught singular-plural and masculine-feminine by putting it in the form of a song or by using rhythm. For instance: “This is a cock and that is a hen” “This is a hen and those are hens”.

3) Students can learn facts in history by putting the information into music.

4) Songs from different cultures can aid students to learn history and social studies and improve their understanding for different cultures and the world around. For example: While teaching Maratha history and talking about Shivaji, the teacher can introduce it with a folklore as under:-

   “Jay jay Maharashtra majha,
   Garaja Maharashtra majha.
   Sayadri cha seehgarjto, Shiv Shambhu Raja,
   Dari daritunnaadgunjala,
   Jay jay Maharashtra majha”.

5) Steps in maths can be learned by clapping or rhythm to have a better understanding of the mathematical patterns and sequences. So also can be done while teaching mathematical tables. For example: 1) “2x1=2; 2x2=4; 2x3=6”. 2) “(a+b)² = a² + 2ab+b²”. 3) “(a+b)² = a² - 2ab+b²”. 4) “(a+b)(a-b)=a²-b²”.

MUSIC CAN HELP SLOW LEARNERS TO MEMORIZE BETTER.
Music is known to be very relaxing and stimulating, especially to developing minds.
One of best memorization tips for a slow learner with ‘auditory learning styles’ is to set the information to music. If you can create lyrics out of the facts and figures that you are trying to remember and then see them to the tune of a familiar song, you will be much more likely to be able to keep the information in mind. Different forms of music have been found to be effective in increasing the ability to focus and concentrate and enhance learning, creativity and critical thinking skills.

MUSIC AND HORMONAL SECRETIONS.
Research has proved that music influences the level of various hormones such as cortisol (which leads to arousal and stress), testosterone (which leads to aggression and arousal), oxytocin (nurturing behaviour).

It was found that injections of the IGF-2 hormone in the brain strengths memory. It can be used for treatment of cognitive impairments such as dementia, Alzheimer’s and amnesia.

SCIENCE, CHAKRAS AND MUSIC.
The word ‘Chakra’ is a Sanskrit word which means ‘wheel’. It is considered as the ‘wheel of energy’.

We have 7 main ‘chakras’ in our body. Each of these chakras are associated with the various endocrine glands. Thus by focusing our mind on these ‘chakras’ through meditation and music (e.g.tanpura music) in the background, the ‘chakras’ can be balanced and we can create harmony between the mind and the body.
The 7 ‘CHAKRAS’ are as follows:-

1) **Muladhara Chakra.**
   - This chakra is located at the base of the spine.
   - It is visualized as red in colour.
   - It is associated with the inner adrenal glands.
   - This chakra governs the vagina, tailbone, teeth, bones, legs and feet.
   - Balancing this chakra leads to a sense of overall security for the individual.

2) **Swadhisthana Chakra.**
   - This chakra is located in the lower abdomen below the naval.
   - It is visualized as orange in colour.
   - It is associated with the gonads (ie; the genitals- ovaries and testes) prostate and endocrine glands.
   - It controls the uterus and kidneys
   - Balancing this chakra helps in the basic emotions of sexuality, intimacy, passion and pleasure.

3) **Manipura Chakra.**
   - This chakra is located in the stomach above the naval and below the chest.
   - It is visualized as yellow in colour
   - This chakra is associated to the pancreas and the adrenal glands.
   - This chakra governs the stomach, liver, gallbladder, intestines, sympathetic nervous system, blood sugar and the digestive system.
   - It helps to improvise personal energy, self-esteem and self-control.
4) **Anahata Chakra.**
   - This chakra is located in the center of the chest.
   - It is visualized as green in colour.
   - It is associated with the thymus, the immune system and a part of the endocrine system.
   - It controls the lungs, bronchial, arms and hands.
   - It helps in growth, sensitivity and understanding.

5) **Vishudhi Chakra.**
   - This chakra is located in front of the throat.
   - It is visualized as blue in colour.
   - It is associated with the thyroid and parathyroid glands.
   - This gland controls the hypothalamus, throat, neck, jaws and mouth.
   - It helps to develop feelings of honesty, kindness and trust.

6) **Agya Chakra.**
   - This chakra is said to be located between the eyebrows, however, it’s actual place is scientifically said found to be in the medulla oblongata, in the brain.
   - It is visualized as indigo in colour.
   - It is associated with the pineal gland which produces the hormone melatonin which regulates sleep and awakening.
   - This gland governs the cerebellum (lower brain), eyes, ears, nose and the nervous system.
   - Scientists have proved that the agya chakra has a magnetic field.
   - It helps to develop the mind-spirit connection. It acts as a link between the conscious and the unconscious.
   - It is a centre for outside knowledge keen experience. It is also a centre for intuition and will-power.
   - Balancing this chakra helps to enhance memory, imagination and creativity.
The hypnotists often use the agya chakra for conditioning their patients. Any obstacle in this chakra can create headache, insomnia, stress, tension, anxiety and depression.

The mantra to open the ‘agya chakra’ is ‘Om’.

To stimulate the agya chakra:
- Sit in a comfortable position, either crossed legged or on a chair.
- Take 5 deep breaths to open and fill up your lungs.
- Inhale and exhale slowly and deeply with each breath.
- Close your eyes and focus on the point between your brows, on your forehead i.e. on the third-eye.
- Your eyes should naturally move up without you having to move them. Continue for about 2 minutes.
- The recitation of ‘Om’ facilitates this process.

7) **Sahastrara Chakra.**
- This chakra is located on the top of the head.
- It is visualized as violet in colour.
- It is associated with the pituitary gland.
- This gland governs the cerebral cortex (upper brain), central nervous system and the hair.
- It helps the exploration of one’s consciousness and connection to the Supreme Power i.e. God.

**EFFECTS OF MUSIC ON THE BRAIN.**
The human brain is wired for music. Music has therapeutic value. It has been used in medical settings to soothe and heel patients with physical as
well as psychological ailments.

Different areas of the brain process different functions. The hippocampus in the brain helps to transfer the information in the long-term memory. Music helps to stimulate the areas of the hippocampus enabling better recall of the learned information.

Music has been found to improve memory. The auditory cortex interprets the sounds. Silence between two musical notes aids to trigger the brain cells and neurons, which are responsible for the development of sharp memory.

Music is essential as it aids to enhance creativity skills. Music has a great impact on the right side of the brain. It helps to trigger the brain centre that deals with the development of creativity.

Music also helps to stimulate the brain centres that deal with thinking, analyzing and planning, thus improving one’s organizational skills.

The rhythm used in music also plays a vital role. It has been proved that rhythm is highly useful for the students to learn mathematics.

In a study, animals exposed to Mozart’s music completed spatial mazes faster and with fewer errors. This is because music and spatial temporal reasoning activate the same neural pathways in the hippocampus of the brain. Music activates the neural pathways in the hippocampus, which leads to an increased efficacy of the neurons. This in turn, leads to the formation of new synaptic connections. Thus it has been
found that musicians who listen as well as perform music possess a larger number of biochemical links or pathways between and within the structures of the brain.

Another effect of music can be observed in patients with Parkinson's disease. Some patients who were absolutely immobile were found getting up and walking when the right kind of music was being played.

The string instruments are recommended for the enhancement of concentration and alertness.

However, not all the effects of music always positive. Some aggressive forms of music such as heavy rock music and rap can result in the brain losing its symmetry between the right and the left hemispheres.

THE MOZART EFFECT.

Wolfgang Amadeus Mozart was one of the most influential, popular and prolific composers of classical music. He gave the 60 beats per minute pattern of classical music.

The 60 beats per minute pattern simultaneously stimulates the left and the right hemispheres of the brain, resulting in improved concentration as well as recall.

MEMORY MUSIC.
1) Using Memory Music helps to enhance memory processes.
2) Just play the type of memory music you really enjoy, as long as it has a 60 beat per min pattern.
3) Make sure that the music being played lasts for the full study period.
4) Adjust the volume, such that it is playing pleasantly in the background.
5) Now just get on with your studies.
6) You don’t have to actually listen to it or do anything else with it.
7) The effect on memory is just automatic.

**MUSIC THERAPY.**

Music therapy means using the appropriate form of music for restoring, maintaining and improving the physical, psychological, emotional, spiritual health and well-being of an individual. It is a combination of ‘swaras’, to be sung in the appropriate tone, pitch, timbre and in the appropriate rhythm or taal.

Music has been used as a therapeutic agent from ancient time. Music therapy is an intervention that is used especially for those children with special needs or even for slow learners. A ‘raaga’ forms the basis of music therapy. The word raga comes from the Sanskrit word ‘ranj’ and means to colour with emotion. It is a combination of notes which act directly on the senses.

Music therapy is found to be effective in the three key medical areas:-

1. In pain, anxiety and depression.
2. For mental, emotional and physical handicaps.
3. For neurological disorders and ‘mesothelioma’.

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The great composers of
Indian classical music have attempted different forms of music therapy down through the years. The ancient Indian sages had devised several musical patterns emanating from the ‘Omkara’. The Shastric schools of music discovered the swaras: Sa, Re, Ga, Ma, Pa, Dha, Ni, Sa and further invented the basic classical ragas for activating certain specific streams of natural powers.

DIFFERENT RAAGAS AND THEIR USES.

1) **Raag Bageshri:-** This raga helps to cure diabetes, hypertension, feelings of darkness. It gives stability to life and brings calmness.

2) **Raag Ahir- Bhairav / Raag Kalyan:-** This raga aids in providing relief to patients suffering from high blood pressure.

3) **Raag Malkaus / Raag Asawari:-** This raga enables us in providing relief to patients suffering from low blood pressure.

4) **Raag Chandrakauns:-** This raga aids patients with heart ailments and diabetes.

5) **Raag Kaifi / Raag Khamaj:-** This raaga helps in the treatment of insomnia and sleep disorders.

6) **Raag Mohan:-** This raaga aids in the treatment of severe migraine attacks.

7) **Raag Bhairavi:-** This raga helps in providing relief from sinus cold and toothache.

8) **Raag Malhar:-** This raaga helps in the treatment of asthma.

9) **Raag Todi / Raag Poorvi / Raag Jayjaywanti:-** This raaga aids in providing relief from cold and headaches.

10) **Raag Hindol / Raag Marava:-** This raaga helps in blood purification.

11) **Raag Hansdhwani / Raag Durga:-** This raaga helps to ease tension and provides relaxation.

12) **Raag Puriya Dhanashri:-** This raga keeps the mind stable and prevents acidity.
DIFFERENT RAAGAS THAT FACILITATE MEMORY AND PERFORMANCE.

1) **Raag Bhoop** :- This raaga aids to overcome problems of attention deficit and lack of concentration in children.
   Instead of this raaga one can also use the song “Jyoti kalash chalke” or “Sayonara sayonara” to create the same impact.

2) **Raag Shivaranjani** :- This raaga helps to enhance the intellect and overcome memory problems.
   Instead of this raaga one can also use the song “Terenainasawanbhado” to create the same impact.

WHICH MUSICAL INSTRUMENTS TO USE?
Research has proved that the music of the string instruments help to facilitate memory and recall. It’s music stimulates the neurons in the brain, which create simultaneous vibrations in the left and the right hemispheres of the brain, leading to better and faster recall.

THE TANPURA.
The tanpura is the oldest ‘saaj’ or musical instrument and a popular accompanying musical instrument. ‘Taan’ means a musical phase and ‘pura’ means to complete. The tanpura is one of the oldest forms of musical string instruments. The word ‘tanpura’ is more common in the north, but in the south it is more popular as ‘tambura’.

It appears quite similar to a sitar, in appearance, but not exactly the same. It is quite huge as compared to a sitar. It is usually 3 to 5 feet in length with a round ‘tabli’ at the base and a long and straight neck.

A tanpura has 4 strings that plays the notes Pe, Sa, Sa, Sa; whose sound resembles the ‘Om’.
The swar Pe is played with the middle finger and Sa, Sa, Sa are played with the forefinger.

For each scale, there is a different tanpura. For instance, scale B has a different tanpura and scale C has a different tanpura.

A tanpura is generally played during classical music concerts and festivals. It is basically an accompanying instrument. On account of its unique quality, it is often combined with other instruments to create music.

THE ELECTRONIC TANPURA.
The electronic tanpura is an electronic musical instrument, replicating the sound of the ancient Indian string tanpura.

It was invented by G.Raj Narayan and was demonstrated at the Music Academy at Chennai in the year 1979.

The electronic tanpura is found to be more advantageous over the manual tanpura for the following reasons:-

1) It is easy to carry.

2) It is less costly since it does not require an expert to play the instrument.

3) All the scales are in one box. It does not require different boxes for different scales.

WHAT KIND OF MUSIC ENHANCES MEMORY AND PERFORMANCE?
Instrumental music has been proved to be most effective to enhance memory and recall.
Salame and Baddeley (1989) compared the effects of vocal and instrumental music on Short-Term Memory. The participants were made to recall number sequences with either vocal or instrumental music being played in the background. They were only asked to focus on the numbers, not concentrating on the music being played in the background. It was found that recall was better for participants who listened to instrumental music than for those participants who listened to vocal music. This was because the lyrics in the vocal music distracted the participants as they tried to recall the number sequences, while the instrumental music was not found to be distracting.

Classical music has been found to create a more tremendous effect on memory and performance. Tucker and Bushman (1991) proved that rock and roll music has a negative effect on mathematical comprehension. However it was found to have no impact on reading and verbal comprehensions.

Weinberger, Norman (2000) examined the effect of classical music's mathematical rhythms. Research has proved that the format of the mathematical rhythms in the Mozart's pieces contain various factors which enhance mental clarity.

McCraty, Rollin (2002) studied the effects that the various genres of music had on the subjects through questioning and profiling. They tested four different genres of music: ‘grunge rock’, ‘new age’, ‘classical’ and ‘designer music’. The results proved that grunge rock music evoked hostility and reduced mental clarity and motivation.

During my research project, I happened interview various experts in the field of music:-

Mr. Soordas Powale, a famous musician and one of my music gurus states music has an impact on an individual’s moods. People listen to music and forget their worries. According to him, soft and soothing music helps us to relax and concentrate on our studies. Instrumental music such as flute, santoor, piano and violin create a
good impact on an individual. It has no language hence it is more appealing. Music should be introduced as one of the subjects in the curriculum of educational institutions and should be used as a learning technique.

Ms. Jyotsna Hardikar, a well-known singer tells us that music gives us happiness and peace of mind. She believes that soft and soothing music does help to enhance learning and memory. Thus it should be encouraged in educational institutions.

Mr. Pnanay Naigaonkar, a music consultant also shares similar views on music as the above.

Mr. Abhijeet Das, a casting producer affirms that music helps to create a new life. According to him, country music, soft rock and romantic music reduces stress, gives new ideas and helps in visualizing things. Thus it should be taught in educational institutions. He says that memorizing a song and then trying to sing it backwards helps to increase concentration.

MsUtkarshiniVashisht, an ACD for music reality shows states that music helps a person to be stress-free and relaxed after a busy day. It is classical music that makes a difference.

Mr. Deepak Walke, a renowned musician states that music is life’s energy and acts as a boost in life. He too affirms that music should be included as a learning technique in educational institutions.

CONCENTRATION
Concentration refers to focusing on the task at hand. In order to enhance the academic performance of the students, it is necessary that the students are able to concentrate and focus well on the learning material and that they have a sufficiently wide attention span.
If you want stronger muscles, you practice weight lifting, similarly, if you want a stronger brain (i.e. the one that is able to concentrate and avoid distraction), one needs to give the brain a work-out of its own. This will help to improve concentration and boost performance.

Thus in order to increase the attention span of the students and enhance their concentration skills, this research study has used the ‘Gyan Mudra’.

**WHAT IS A MUDRA?**

In Sanskrit ‘Mudra’ means ‘a seal’, ‘a mark’ or ‘a gesture’. The ‘mudras’ aid to direct the energy flow in the body through the finger tips.

Yogic science states that the different areas on the finger tips stimulate and activate the specific areas in the brain.

The tips of the fingers of every human being have many nerve root endings which are free energy discharge points. Science also confirms that around every finger tip there is a concentration of free electrons. By joining the tips of the fingers to one another or the finger tips to the other parts of the palms, this free energy (or Prana) is redirected into the body along specified channels, back to the brain. Since mudras work on the nerves, they are a ‘neural science’.

**The GYAN MUDRA.**

The ‘gyan mudra’ is considered as ‘the seal of knowledge’. The ‘thumb’ represents ‘divine nature’ and the ‘index finger’ represents the ‘conscious state’ of the human being.

The ‘gyan mudra’ is considered to be the provider of
wisdom.

Lord Krishna was in this mudra when he provided the knowledge of the ‘Gita’ to Arjuna. Similarly, Gautam Buddha was in this mudra when he attained enlightenment.

**Benefits Of Gyan Mudra.**

1. The ‘gyan mudra’ enhances concentration and aids to inspire the creativity skills of an individual.

2. It enables us to sharpen the brain and boost the memory power.

3. It facilitates the sleep cycles and aids in the cure of insomnia.

4. It enables us relax.

5. It aids in overcoming problems of hysteria, anger and depression.

As mentioned earlier, one needs to follow certain steps to practice the ‘gyan mudra’:-

- You need to be seated in a comfortable position, with a straight back.
- Create the ‘Gyan Mudra’ by joining the tips of the index finger and thumb of the same hand. The remaining three fingers should be stretched out.
- And follow the same for the other hand.
- As you practice this mudra, sit in a meditating position, concentrate on the third-eye and simultaneously chant ‘OM’.

The biggest advantage of this mudra is that you can practice it anywhere and at anytime. Besides it is so simple that once taught, even small kids can practice this mudra without any assistance.
CONCENTRATION TECHNIQUES CAN HELP SLOW LEARNERS TO MEMORIZE BETTER.

A) Breathing Techniques.

1) Help the child to take conscious, deep breaths to relax. Show him/her how to inhale and exhale.

2) Teach the slow learner to isolate different body parts and relax them with each breath he/she exhales. For instance, while lying on the floor, instruct the child to lighten or squeeze his/her toes on the left foot, then relax with a deep breath. Now tighten the left knee and upper leg, then relax and breathe. Proceed in this fashion to the right side of the lower body, to the abdomen and upper body, each arm, hand, fingers, chest, neck, jaws and face.

3) Guide the child to visualize that with each breath that he/she takes in, the body fills up with a soothing colour, aroma, sound, light, warmth or other pleasant and comfortable feelings.

4) Ask the slow learner to think of a colour that makes him/her feel comfortable, peaceful and relaxed. Then make him practice with closed eyes i.e. breathing in that colour and then blowing it or sending it throughout the body. For instance, if the child chooses ‘yellow’ guide him/her to visualize the ‘yellow’ colour going down his throat, into the neck, chest, down to the stomach and so on until he/she is filled with the beautiful ‘yellow’ colour and is relaxed and is in control.

MUSIC AND CONCENTRATION.
Improving both concentration and memory involves learning how to clear your mind, improving the focus and if necessary looking at what blocks you from efficiently using your mental capacity.

Concentration and memory work together. To concentrate refers to directing your mental power or your efforts towards a particular activity, subject or problem. Memory is the ability of an individual to remember experiences and people. Good concentration enhances memory thus leading to academic excellence. There are some specific skills that can be learned to enhance both concentration and memory such as concentrating on the flame of a burning candle for a certain duration of time.

Many research studies have proved that relaxing music improves the duration and intensity of concentration in all age groups and ability levels.

**MUSIC IMPROVES CONCENTRATION.**
Music is known to be very relaxing and stimulating, especially to developing minds.

Music is said to have a profound effect on the body and the mind of an individual thus helping to improve concentration:-

1) **Brain Waves:** The music which has strong beats stimulates the brain waves with the faster beats bringing sharper concentration and more alert thinking and a slower tempo promoting a calm and meditating state.

2) **Breathing and Heart Rate:** Changes in the brain waves also brings about a change in the bodily functions. Thus breathing and heart rate can also be altered with the help of music. Hence listening to music aids relaxation and prevents chronic stress.

3) **State of Mind:** Music helps to overcome depression and anxiety. Thus music helps to facilitate emotional well-being and in maintaining positive mental health.
Some of the benefits of music:-
- Increases test scores.
- Decreases the time to learn.
- Aids to calm down the hyperactive children and adults.
- Decreases errors.
- Enhances creativity and clarity of thought.
- Heals the body to heal much faster.
- Integrates both the hemispheres of the brain.
- Increases IQ scores by 9 points (Research done at University of California, Irvine).

**MUSIC AND CONCENTRATION TOGETHER INFLUENCE ACADEMIC PERFORMANCE.**

Music has a positive effect on the concentration level of its listen’s and also helps to improve memory. Flute music and instruments like santoor and sarod have been found to be useful for the enhancement of concentration and memory.

A combination of music and meditation (in the form of concentration) helps memory enhancement and facilitates academic performance, creating a balance in the physical and mental functioning of the individual. Music helps to stimulate the ‘agya chakra’ or the ‘third-eye chakra’ which is responsible for memory enhancement and creativity.

Thus this research study has used a combination of music and concentration to improve the academic performance of the students. We have used ‘tanpura music’ in the background along with the ‘gyan mudra’ to ameliorate (ie: to increase or to improve) the academic performance of the students.

The ‘gyan mudra’ stimulates the ‘agya chakra’ or the ‘third-eye’, helping the students to widen their attention span and concentrating well on the learning task.
The ‘tanpura’, on the other hand, which is a string instrument stimulates the neurons in the brain, creating vibrations in both: the right and the left hemispheres of the brain, leading to better retention and recall rates.

Both these techniques applied simultaneously can have a profound influence on the academic excellence of the students.