

THE EFFECTS OF MUSIC ON CHILD DEVELOPMENT

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ABSTRACT

Music is a very important aspect of human life. It is helpful to live life with happiness and health. It is very interesting to analyze various research studies related to music and child development. On the basis of this research the importance of music education in child development can be established. In this research article the endeavor is made to juxtapose varied research studies with the subject and tried to derive its educational implications.

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INTRODUCTION

Music can be found in every culture all around the world. Music has become such a big part of our lives, that researchers can't help but want to study how music affects people, especially children. Many parents, teachers, researchers are interested in learning more about the influence of music on the development of children. Others focus on how formal music training impacts various aspects of cognitive development such as perception, memory, and language skills etc. Some researchers are interested in documenting the effects that listening to music may have on children's development. The discussion of various research evidence is presented in this paper to establish relation between music and the development of children.

EVOLUTION OF HUMAN BRAIN AND MUSIC

The evolution of the brain has reached its present state after passing through several milestones. Man is sapiens, the thinking species of genus homo capable of judgement, planning, calculation and

flights of creativity. But how did the human brain develop increasingly in its complexity to meet the demands on it? It is believed that not just opportunity, but even man's original mind equipment is something special. Geshwind hypothesized that, during evolution man was under extraordinary selective circumstances with increasingly diverse activities and nature found it impossible to fit new machinery into man's brain to meet the demands on its function and to duplicate the mechanism in the two hemispheres. Laterlisation of the brain occurred so the one hemisphere become dominant. But the non-dominant part shares the general area of function. The right hemisphere is known to be the seat of creative activity and emotion. This evolution process helps us to understand about musical ability.

From the beginning communication was a primary requirement. The Gesture was developed as a core mode of communication and is phylogenetically older than speech. With the development of language man did not eliminate gesture, but made it a special element of emotional and aesthetic sense in theatre,

mime, dance and drama. It continues to embellish qualify and intensify the power of the spoken word.

Drumbeat, language codes and pictorial writing are other steps in this communicative drive. The close relation between language and musical expression is established this way. The stimulus of human interaction, communication and cultural input is essential for the development of language and for man motivated to learn.

Man's need to communicate through musical sounds and rhythm was probably initiated by the multifarious aural stimuli from nature and an inner urge for varied expression. The winds blowing through the bamboo groves. The bamboo stem having holes in them, bored by the wanton bees. This wind produces music of the flute. Indian music celebrates the break of dawn and the romance of the night and ushers the change of seasons with bursts of varied melodies for each season. Even the tonal quality of each note in the musical scale is linked as follows *Sa* (Shadja)- cry of the peacock, *Re* (Rishabh)- the lowing of the bull, *Ga* (Gandhara) – the goat's bleat, *Ma* (Madhyama) – the call of Krauncha bird, *Pa* (Pancham) – The cuckoo's call, *Dha* (Dhaivat) – The neighing of the horse, *Ni* (Nishada) – the trumpeting of the elephant, as if all music were derived from nature sounds.

Musical Ability

The seashore measure of musical talent attempts to score this ability, some areas of which are intangible and beyond scoring. To the neurologist, musical ability must mean refined auditory discrimination, good auditory sensory and

association areas of the brain, keen perception of musical symbols, musical memory and imagery and clean execution of motor commands for voice production or instrumental music delivery.

While enjoying a favorite piece of music, does the listener pause for a moment to think that billions of nerve cells in his head have digested the auditory signal and distilled them into the wisdom of musical perception? For the performer, as he picks up the bow to play on his violin, thousands of calculations have set the tone of his muscles and adjusted the strength of his grip. His knowledge of the weight of the bow, the force of gravity acting, the extent of pressure to be applied, the constant feedback from the ear to the brain and back to the hands are all part of a smooth unbroken chain reaction running second ahead of the music rendered!

Music and Brain Processes

The musician's brain in the course of his long learning must build up an internal schema of the musical symbols which he has received, registered, associated with earlier learning and when demanded, is able to retrieve it and express the same symbols through his voice or musical instrument. It is for performer to exteriorise this music within his head. Musical function localisation has not been demonstrated as consistently as speech localisation in certain brain areas. But there appears to be a pattern of localisation, depending on the type of musical processing that is required.

The left hemisphere may take a lead role when it comes to the sequencing and analytic aspects of music and the rhythmic aspects. The right hemisphere

is more important in melody recognition. The areas for prosody of speech, reading music and interpretation are also placed in the right hemisphere. Some researches show the close relationship between speech and music areas, both which may have similar processing requirements.

It is not possible to undertake a simple music piece without employing memory. Long term memory links with old learning and short term memory is essential for new learning. Musical memory requires the storing of auditory imagery, visual memory and sensor-motor plan.

Short term memory holds a record for minutes to hours and depends on the brain's electrical activity and is on a superficial level. Long term memory takes over if desired and the information is imprinted in the brain structure and no longer depends on the ability of nerve cells to transmit impulses to hold this memory. Synaptic connections strengthen this memory. The deepest layer of memory is emotive and words of a song help in this effort.

Over View

The Children receiving musical training develop aural skill for spoken sounds and spoken words faster than children who did not receive musical instruction. Gromoko (2005). Further musicians have greater verbal working memory span than non musician. Franklin, Moore, Yip, Jonides, Rattray and Moher (2008). The Music training can positively effect various cognitive abilities such as perception, memory and language skills. Critical evaluation of these research studies throw light on very important horizons of children's learning.

Research work done so far can be divided in two categories. First study focuses on what children learn about music itself by listening music. Another line of work investigates how listening to particular forms of music may impact development outside the musical domain. To know the effect of music on children's ability to match auditory and visual stimuli within domain of music are an example of the first direction.

Children's between the ages of 5 and 7 years of age can differentiate different kinds of instruments as well as instruments within instrumental families that differ in size and pitch. Children between the ages 3 to 4 years of age were able to differentiate different musical families, but not different instruments within the same family. Further, infants between 7 to 9 months of age looked longer at the instrument that corresponded with the soundtrack. (Pick, Gross, Heinrichs and Love. 1994).

Above mentioned research study explain the status and relation of age and musical milestone, but it leads us towards the inquiry that whether listening music has an effect on other areas of development outside music domain i.e. cognitive development.

Research clearly shows that Music training has an influence on a variety of aspects of development in early childhood. Music training includes many tasks like instrument playing, singing, reading of musical notes and its conversion in the instrument.

First of all, music learner has to read faster than others because they have to plan for upcoming notes. This very specific skill that once learned can make a musician more aware of the music. Drake

and Palmer (2000). This skill improves cognitive processes related to rhythm and structure.

No relation is found between music perceptual skills and any brain or visual-spatial measures. Norton, winner, Cronin, Lee and Schlaug (2005) Norton et al. found correlations between musical perceptual skills and both non verbal reasoning and phonemic awareness. In this connection the study of Hyde, Lerch, Norton, Forgeard, Winner, Evans and Schlaug (2009) revealed that children who played and practices a musical instrument showed numerous benefits such as greater improvements in motor-finger dexterity and in auditory melodic and rhythmic discrimination skills. Moreover, findings from MRI brain scans showed that 'structural brain changes in motor and auditory areas which has critical importance for instrumental music training.

The relation between music and linguistic development was established by the study done by Anvari, Trainor, Woodside and levy (2002). They found that music skills were correlated with phonological awareness and early reading skills. The basic auditory skill for music perception were similar to early reading skills which shared some of the same auditory mechanisms that predicted reading ability. Moreno, Marques, Santos, Castro and Besson (2009) found that even a bit of musical training can enhance reading skills as well as pitch discrimination abilities in speech.

Forgeard (2008) found that instrumental music training may enhance auditory discrimination, vocabulary and non-verbal reasoning skills. In the study of Gromko (2005) revealed that the children

received the training showed greater phonemic fluency than others. Further, this study also shows that children who receive musical training will develop aural skills for spoken sounds and words faster than others which helps them in learning in the classroom.

The music training has great effect on memory. Studies have shown that musicians have an advantage when it comes to long term verbal memory. Franklin et al. (2008) investigated effects of musical training in verbal abilities and verbal memory. The study done by Chan, Ho and Cheung (1998) found that those who began or continued music training indicated significant improvement in verbal memory, whereas those who discontinued the training did not show any improvement. The results support claims that music training affects memory processing.

In the study, researcher investigated how music instruction on music perception skills effect children. (Orsmond and miller (1999) Results showed that , Children with music instruction had greater improvement on the memory task than those not instructed. Orsmond and Miller (1999) suggest that music as a medium strengthens the integration of auditory, visual and motor coordination.

Research Gaps in Indian Context

The discussion of various studies and its finding, it is revealed that further research should be done in this area. The Indian classical music has very long and rich heritage. Moreover, some ragas has special qualities and specification. It is also suggested that each raga has its specific time and effects on body, mind and soul. Further research studies should be

taken to verify these hypotheses. Some studies have been done in this area, but still it is very thrust area for study. Gitanjali B. (1997) studied effect of Neelabari raga on sleep architecture and found that there is no specific effect of Neelambari raga on sleep. Nawasalkar R. & Butey P. (2012) studied analytical and comparative study on effect of Indian classical music on the human body. In this study the relationship between emotions and classical music are analyzed. A positive effect on brain after hearing of Indian classical music is more, as compared with other music after capturing the EEG signals. The Indian classical music is found to be more effective on emotional status as compared to rock music in the state of quiet wakefulness. (Open eyes) Indian Classical Music can be used as a tool to relieve tension/ stress and to relax. Kour H, Ravishankar R, Goudar S (2012) evaluates the effect of instrumental Indian classical and western music therapy on learning and memory in stress induced young rats. Stress significantly decreases learning and memory in the rats. However, significant improvement is observed after the treatment with Indian instrumental classical music among stress induced rats. Ramachandran R. & Singh A. examine the Effect of Hindustani Classical Instrumental Music Santoor in improving writing skills of students with Learning Disability. The study revealed a statistical significant difference in the results obtained among children who were exposed to Santoor music. These studies suggest that Indian classical music have an effect on the human brain, mind and behavior. But still some more concrete studies required in this

direction to get advantage of great Indian heritage of music.

There is a specific time and the effect of each *raga* so it could be more useful to establish relationship between *raga* and its effect on body, brain and behavior.

Educational Implications for Music Instruction

The pathways we use for spatial reasoning are similar to the music pathways in our brain. This has direct implication for persons related to child rearing. This study shows how music can help the development of children. From Birth to 6 years are very crucial for learning unscramble the aural images of music and to develop mental representations for organizing the music of the culture. Children process information in different ways. Music can aid in the use of using the three learning styles; visual, auditory and kinesthetic. When the child is learning to make a mental picture of the music he/she hears in her mind. That representation is called audiation and it is critical to musical growth. Without audiation no musical growth takes place. Most basic motor patterns develop before age five and merely strengthened after this age. When learning music, as well as learning with music is most beneficial during that most fruitful period of child. This period is from age three to ten.

Just as all children are born with the potential to learn to speak and understand their native language, all children are born to learn to perform and understand their culture's music. Both contemporary research and the traditions of many cultures have demonstrated a profound connection between

rhythm and movement. From the developmental perspective, children must experience rhythm in their bodies this can help them to successfully audiate rhythm in their minds.

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