

Impact of Music on Education of Primary Students in Colombo District

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Abstract— Education is the process of transferring skills, knowledge and habits of people from one generation to the next. Education is obtained through the methods of learning and teaching, and by life experiences. As Oxford University defines music is, “Vocal or instrumental sounds combined in such a way as to produce beauty of form, harmony, and expression of emotion”. One’s learning which is done in order to obtain education is affected by his or her learning diversity. So, It is hypothesized that music can be used as a tool of learning diversity which will be reliable to make the education of a primary student, more effective and meaningful.

Researches have been conducted about the application of ‘music for education’. But they have not researched its effect on primary students using the concentration power of music for the achievements of education.

The research was conducted as a quantitative research. Two sets of samples which each consist of 50 students of grade five were taken from Piliyandala Central College. It was decided to test the IQ of students in order to measure their performance. All of them were given an IQ paper which matches the IQ level of their age, of half an hour while one set is provided with a piece of pleasurable music throughout the paper while the other is not. Other than that, all the other factors which will affect their concentration and performance were kept equally to all the sets. This is a working paper. So, the same experiment will be conducted using the same samples twice a month for three months providing them different IQ papers

After three months, the controlled group will be changed. Those who were kept as the controlled group will be given those pieces of music while they face tests in the rest of three months of the research. The other set will be then considered as the controlled sample and they will not be given the

music. The tests will be conducted in the same manner, for the next three months and then the test papers will be collected and marked.

The expected differences of the scores obtained by two classes were assumed as the reflection of music which stimulate leaning.

Final statistical analysis using SPSS shows that the average marks obtained by the two groups; those who faced the test without any background music and those who did with a background music, does not have any significant difference. So the hypothesis is disapproved under the provided circumstances.

Keywords: Music, Education, primary level students.

I. INTRODUCTION

When the concept of globe becomes narrow day by day, people in every nook and corner of the world join hands with each other. Whereas it can be simply explained as communication, the number of aspects of development and technology in the world also expands rapidly along with it. Such; communication, development and technology began to grow even before the origin of present mankind, *Homo sapiens*; but it happen very slowly, through running towards an endless future at the moment also rapidly. Along with the evolution of communication, development and technology, they all carry us towards a concept called civilization or enculturation. Accordingly, the base which has uplifted the standards of development, communication and technology along with civilization and enculturation beginning from the historic ages, can be expressed as ‘Education’. Education is defined as the wealth of knowledge acquired by an individual after studying particular subject matters or experiencing life lessons that

provide an understanding of something (Anon., 2014). Furthermore, the education can be categorized as formal, informal and non-formal. Formal education is always organized and structured, and has learning objectives. Informal learning is never organized, has no set objective in terms of learning outcomes and is never intentional from the learner's standpoint. Often it is referred to as learning by experience or just as experience. Non-formal learning is organized and can have learning objectives (Dib, 1987).

Education has deep philosophical and psychological background. In psychology it is widely spoken about memory and the theories about education. It seems too simple to say that educational psychology is the psychology of learning and teaching. It is the scientific study of human learning. But it further involves with the study of how people learn; including topics such as student outcomes, the instructional process, individual differences in learning, gifted learners and specially, learning disabilities of people (Cherry, 2014).

According to the perspectives of psychology, the process of learning can be categorized in to five main groups as behaviorism, cognitivism, constructivism, experientialism and Social and contextual (Thompson, 2014). Each of them which are developed in various eras of psychology describe how people obtain education.

Bloom's Taxonomy (1956) describes the process of education. There it discusses about three main parts of education called Cognitive, Affective and Psychomotor. Cognitive domain describes about the process of education basically based on knowledge. Knowledge is described as facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject. According to Bloom's theory, the knowledge gathered is compared and illustrated collating the main ideas. The application of the acquired knowledge, analyzing them, synthesizing new facts using the given knowledge, and finally the evaluation of them are analyzed by Bloom. Then the affective domain describes the way that people try to understand the pain and the pleasure of living beings. He illustrates the last domain as Psychomotor where it speaks about manipulating tools which he describes as education (Armstrong, 2001).

For the purpose of education, people have to obtain facts or information from the environment, as described above. Firstly the information are sensed by our sensory organs as skin, eyes, ears, nose or tongue. Then the information is sent to the Central Nervous System (CNS) though Peripheral nervous system (PNS). CNS consists of Brain and Spinal cord. Then, the information received to the CNS is processed in short-term memory of the brain. Later, they are transferred to the structural core of the brain. There, the information received is compared with existing memory and then stored. The parts of the brain which are related to different senses are illustrated in Figure 1. Brain consists of Stem, Cerebrum and Cerebellum. The cerebellum can be divided in to several lobes as the figure describes. The brain acts as a dense network of fiber pathways. It consists of 10^{10} (100 billions) of neurons approximately (Ford, 2011).

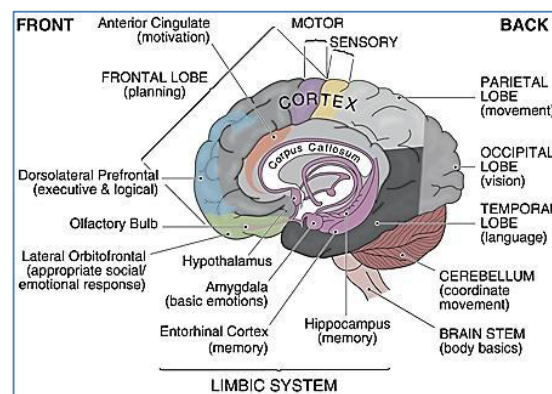


Fig 1. A diagram of how the brain works (Gamon D and Bragdon AD, 2003)

Researchers found that when two neurons frequently interact, they form a bond that allows them to transmit more easily and accurately. This leads to more complete memories and easier recall. Conversely, when two neurons rarely interact, the transmission is often incomplete, leading to either a faulty memory or no memory at all. (Ford, 2011)".

So the researches show that it is required to keep practicing or revising something in order to keep in memory. Complex set of organic compounds called "Hormones" such as Adrenalin and Noradrenaline function along with the co-ordination of Cerebellum of the brain and stimulates thoughts and perceptions of ours. The hormones which stimulate digestion, functions of tissues, sleep, metabolism,

respiration, sensory perception and excretion of human beings also help the process of education. “Extensive evidence indicates that stress hormones released from the adrenal glands are critically involved in memory consolidation of emotionally arousing experiences (Roozendaal, 2007)”.

Primary students who were selected as the target group of the research shows a higher growth rate of their brains related to the other age groups of the students. The growth rate of the brain of human beings depend on their age. The growth also depends on gender, genetic factors, early life stress, environment factors and the stimulants. The figure 3 shows how the brain develops even before the birth, expands its size rapidly within first three to four years. Then the growth rate of the brain slows down. Neurone development of the embryo begins shortly after conception.

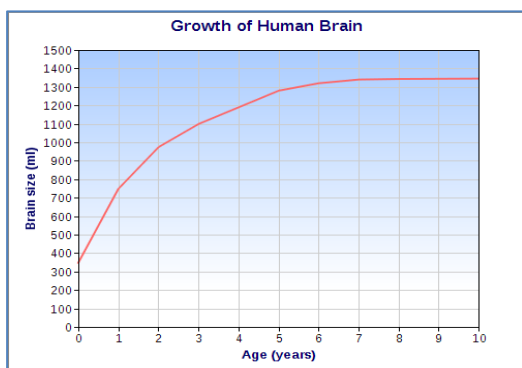


Fig. 2 Human brains grow rapidly before birth through the first year and into childhood

Thousands of neurotransmissions ensue at a time in the brain. Ultimately it results electromagnetic waves which are categorized as Delta, Theta, Alpha, Beta, and Gamma according to their frequency range, generated by the brain. Those frequency stages are as tabled in Table 1.

Among these four stages, Alpha is the most suitable stage of concentration in human mind for education, for a learning environment of human. Beta can be detected when people feel agitated, tense and afraid. Theta results due to reduced consciousness. Delta is transmitted in deep sleep. Music is the art of the application of various sounds under different formations and combinations. It is a universal language which can be understood, sensed and felt by anybody without any language

barriers. The cultural impacts such as religion, language and origin or, geographical impacts such as continent, country or province impact on the differentiation of music in various locations of the world. Music can be soothing or enervating. It induces melancholy or euphoria. But as the ultimate stimulation that can make our brains, music can be apply as a tool of healing people. Music therapy is the field which uses music for the purpose of healing patients professionally.

Table 1. Frequency Stages of Brain and their Function (Miller RA.1982)

| | STAGE | FREQUENCY | FUNCTION |
|-------------|-------|-------------|--------------------------------------|
| Unconscious | DELTA | 0.5Hz - 4Hz | Deep sleep |
| | THETA | 4Hz - 8Hz | Drowsiness |
| Conscious | ALPHA | 8Hz – 13Hz | Relaxed, but alert |
| | BETA | 13Hz – 30Hz | Highly alert and focused |
| | GAMMA | 30Hz – 42Hz | Supporting role for the other stages |

In the same way, pleasurable music can be used to enhance the outcome of education. By letting them to listen to pleasurable music their concentration can be taken to Alpha level. And also the selected kind of music, relaxation music is expected to act on them equally as students of grade 6 are not expected to expose and get used to any special style of music.

Even the primary students in Sri-Lanka (most probably grade 5 students) tend to get tensioned a lot due to the high competitiveness of the scholarship exam that they have to face in grade five (Amarasinghe, 2014). The time they should be with their family members, friends or with nature is stolen by the prevailing system of education. So the stressed mentality that they are expected to have while their studies can be settled down by the given music. So, it will be more meaningful to introduce this kind of pieces of music for children who are in such stressed states and also passing their growing ages in order to obtain more efficient results from them.

“Inputs from the environment are not always a good thing. Children born prematurely often associate the initial noise and clatter around them as painful. Research indicates that a quiet environment allows these children to catch up as

their neurons make (Semrud-Clikeman, 2014) This statement of American Psychological Association proves the importance of “Calming music”.

The prevailing education system for primary students in Colombo district is mainly enriched with private sector, government sector and tuition. With the development of technology, education and etc., the primary education has improved a lot. New psychological theories are used in teaching students along with new technology.

The government and private schools follow the curricula which is designed by National Institute of Education meanwhile International schools target their curriculums for international level examinations such as EDEXEL or Cambridge.

Western countries experience the value of ‘music education’ of primary students. But in Sri Lanka, the application of music should be applied as well as the education of music.

II. RESEARCH OBJECTIVES

This research study aims to illustrate the capacity of alpha music to enhance the academic performances of primary students (in Colombo district) through the level of concentration generated towards the paper they answer.

It will also be a pathway to analyze the impact of music on music students and other students and to evaluate its application on fields other than education.

III. RESEARCH HYPOTHESIS

H₁: Alpha music which is provided to students (as background music) while a test can enhance the outcome of the process of education that the students are involved in.

IV. LITERATURE REVIEW

Music is an aesthetic subject which entertains human beings. Not only that, it is also a rich way of communication and helps human beings to express their ideas or emotions effectively. As most of the aspects of music are not yet discovered, the attention of scholars is paid towards various aspects of music and its applications. Education is also a wide scope where the scholars research about. Accordingly, it is an important area where the aim

of scholars is towards this combination; the application of music for educational Purposes.

Steele (2014) says that the latest studies seem to be focused on the effects of classical music (or similar easy listening tunes) on chickens. Furthermore, he mentions that playing classical music to chickens in the coop will result in calmer hens and therefore greater productivity and larger eggs, since stressed chickens often stop laying, slow their laying or lay smaller eggs. With this empirical study, Steele proves the ability of concentration power of music which affected animals. He was able to observe results of a higher output from the hens by providing them pleasurable or classical music. In the same manner, the concentration gained using music is expected to act on human beings a lot in order to enhance the performance of education. Scholars have researched about access and retention of marginalized populations within undergraduate music education degree programs. The purpose of this collective instrumental case study was to examine the experiences of six undergraduates from traditionally marginalized populations with regard to their preparation for, admission to, and retention within a music education degree program (Kate R. Fitzpatrick et al, 2014). Here, the scholars study about those who study music. But in this research, the researchers study about non-music educated primary students.

The effect of early music training on child cognitive development is studied in another research which is published in the journal of Applied Developmental Psychology. Bilhartz et al. (1999) argues that their hypothesis; “There is a significant link between early music instruction and cognitive growth in specific non-music abilities” has proved by their studies. Furthermore they say that the findings of their study proves the theory that children trained to produce music vocally and on a glockenspiel-sequential training that uses and develops kinesthetic, aural, and visualization skills-become better able to perform the abstract reasoning tasks measured by the Stanford Binet Bead Memory subtest.

As Gold, Frank, Bogret and Brattico (2013) argues, mounting evidence links the enjoyment of music to brain areas implicated in emotion and the dopaminergic reward system. Furthermore they argue that dopamine release in the ventral striatum seems to play a major role in the rewarding aspect

of listening to music. Even though music entertains us all, the outcomes depend on the desires of the listener. Furthermore they have researched about effects of music in reinforcement learning according to the listener. The scholars have conducted their research with adults (undergraduates and people above that age limit) as participants. Musicians, non-musicians and amateurs who have music experience for a number of years have been taken for the research. People who were interested and had specialized in music were evaluated and researched. Some of them were given selected varieties of music to listen for over about two years. But this research paper analyzes primary students who do not have special trainings or special practices about any sort of music rather than their inheritance and the natural music they happened to listen being citizens of the environment of Colombo district in Sri Lanka.

Primary education should be given a considerable attention; as well as the university education, as it will be the foundation of one's future. Accordingly, the growth stage of a child is the turning point of that child's life. Unmet needs of a child could lead his life into violence in future. But, a child who is well loved and cared has a possibility of having good personalities and capabilities in future. "I am not a believer in the 'blame the parents' approach to life. I do believe that our childhood experiences, which include parents, combined with our own personalities, reaction to siblings and peers and the context of our lives send us off on a path with a particular set of beliefs and patterns that have a huge impact on our future relationships (Smith, 2010)". Primary school teaching and learning practices are mainly fulfilled by explaining or demonstrating the lessons by the teacher to the students. And also rarely by elaborating. The teachers should be sensitive to understand the changes of students and to take the best reactions for the actions of little students. And the teachers should be patient enough while dealing with them. A single mistake or an incident in their childhood can affect their whole life.

V. RESEARCH DESIGN

The school which was selected for the research is a mixed school where both male and female students study together. There were nine classes in which each class consists about 30 students of grade six in the school. Out of those nine, two classes (Named

"A" & "B") of grade six which consisted of 30 students in each, who had just passed from grade five to six were selected randomly for the research. Both sets were given an IQ paper which matched the IQ level of their age, of half an hour, while class A is provided with a piece of pleasurable music (Alpha music/Relaxation music) throughout the paper, class B is not.

And all the students of both classes were instructed to answer the IQ papers well, mentioning that the papers are going to assess their IQ level. Only the two authors of the research along with six prefects of the same school participated in conducting the test for half an hour. So each class got one of the researchers and three prefects. The students were not under the supervision of their teachers during the period of the test.

Furthermore, class A was informed that they would be listening to alpha music which can help them concentrate their minds throughout the test in the coming half an hour. Relaxation music was downloaded in video format from the site PURERELAX.TV (2013) and was converted to an audio format. Before the music was played, they were asked to listen to all the sounds that they here from their surroundings. While they listen to those sounds, the relaxation music was begun to play. The music consists of sounds of nature which are closer to children a lot. As an example, one of the pieces of music begins with the sounds of the sea waves. It precepts a scenery of sea which can really relax human minds. The students were asked to pay attention towards the sounds from the surrounding of the class and then they were taken towards the music which was played inside the class, step by step. Finally, they were informed to answer the paper well, using the concentration they obtained by the given music. The given music was continued throughout the test. After half an hour, papers were collected and marked.

One of the classrooms consisted of an area of 6m×6m approximately. Accordingly, the relaxation music was provided to the classrooms using a 104dB Subwoofer System (AL 251X)".

Other than that, all the other factors which can affect their concentration and performance were kept equally to all the sets. The same test was conducted using the same samples twice a month for a period of three months while providing them

different IQ papers. Then, the papers were marked and the marks obtained by the students were recorded for analysis. Further, average marks of each student from their last two term tests were obtained and then, mean of the average marks of each class were calculated.

As this research paper is a working paper, the next phase of the research will flow as follows. After three months, class “A” will be changed in to the controlled group and they will not be given any music while the test. Then the class “B” will be given those pieces of music while they face tests in the rest of three months of the research. The tests will be conducted in the same manner, for the next three months and then the test papers will be collected and marked.

All students who participated in the research were healthy. None of them showed any physical or psychological disorders. And also it was confirmed that they did not show any history of psychological or social disorder.

The tests were conducted in the second period of the school time table. As it was morning, the students of both classes were relatively active. It was decided to check the IQ level of the samples by an IQ paper in order to measure the performance difference between the two groups due to the assumed influence of music. Moreover, in this research, the amount of intelligence that is been expressed from the students under the stimulation of music and without that stimulation is assessed. Intelligence which is also called intelligent quotient (IQ) is described as the ability to think, solve problems, analyze situations and understand social values, customs, and norms. So the given IQ paper consists of all above described areas of IQ. And each of the given IQ papers consisted of 40 multiple choice questions while each of the question carry three answers for choice. Those papers were prepared adopting the grade five model paper set produced by Jayasinghe (2014). Even though the duration of the paper was set for 45 minutes for grade 5 students, the samples were given only a half an hour to answer those papers as they had already passed grade 5.

Class settings were same for both classes. They were not sound proof as they were covered by a wire mesh. And the selected two classes were located in the ground floor of the same building, but

away from each other. So, all students were affected by the same surroundings. But the classes were not affected by the music provided to each other. The average of the students belong to families who were in the middle class economy. So the economy of the students may not be a factor which can affect the outcomes of the tests. Also all of the students come to school daily from their home. No one was accommodated in a boarding house or school hostel. So the psychological factors which can arise due to being away from homes cannot affect the final results. As all students were from around Piliyandala city, they may encounter somewhat equal social and cultural background belonging to that area.

Through the research, it is expected a considerable difference in overall performance of the students of controlled group and the other. The assumed enhance of marks of the group which listened music while the tests was hypothesized, as due to the concentration gained through provided background music. The marks of each group for tests can be analysed using the statistical software, SPSS to confirm whether there is any significance difference between them or not. Mean mark of each class gleaned from the student’s average marks at their last two term tests can be compared with each other to see if there are any significance differences among the two classes before joining them with the research.

VI. DATA ANALYSIS

The drawn box plots for each data set showed that all the data were normally distributed without any significance outlier among them. So, the average marks of the tests obtained by the students of each classes are calculated. Level of significance is considered as 0.05 while the two samples are analyzed and compared using the ‘Independent Samples T-test’. The results of the Independent Samples T- test are presented in Table 2.

Table 2. Summary of average marks of the Independent Samples T- tests

| Class | Mean of 2 nd & 3 rd Term Tests | First Phase | |
|---------|--|---------------------|---------------------|
| | | Means of Test set 1 | Means of Test set 2 |
| Class A | 64.150 | 68.667 | 72.000 |
| Class B | 68.200 | 72.500 | 75.333 |
| P value | 0.071 | 0.141 | 0.222 |

Above P values are named as, $P_1=0.071$, $P_2=0.141$ and $P_3=0.222$. Means of 2nd & 3rd term tests of class A and B are compared having hypothesized as below.

H_1 : There is a significance difference among two groups (A and B) before they face tests.

H_0 : There is no any significance difference among two groups (A and B).

P_1 being higher than the level of significance (0.05) proves that there is no difference between the average marks of the students of class A & B, initially before they participate in the research. It shows that both classes are equal in their average level of IQ initially. P_2 and P_3 show that exposure to music during IQ tests during the research has made no any significance difference on the performance of two groups (A and B).

Furthermore, the followings are the assumptions made in order to compare samples using "Independent Samples T-test". Dependent variable (IQ level of students) is continuous (Scale is ratio). And also the Independent variable has two categories as class A (with music) and class B (without music). The data observed from two samples were totally independently from each other. No any student represented both of the classes at the same time throughout the whole test.

VII. OUTCOME

Hypothesis disproved. Exposure to music during the tests has no any significance difference on the performance in the IQ level of the students.

VIII. FURTHER RESEARCHABLE AREAS

During the research it was unable to conduct tests having music, more than six times, twice a month for a duration of three months. The difference of the performance of two samples may be measurable more accurately if the tests were conducted throughout a period of few years. When selecting the sample of the research, a mix school was selected. But the percentage of gender within a class was not taken in to consideration. But it is vital to go on checking the impact of music for the performance of the students considering the gender difference of them as well as checking the responses of the students with no gender specification.

The students were checked providing IQ test only. But the given music may affect specially on their mathematical skills and reading skills. Or even they may affect the chemical balance of the brains. Or else the physical features such as blood pressure, heart rate and etc. Those areas should also be tested.

Western or Eastern classical music differ from relaxation music. So their impact on humans also vary. Music in the world which differs due to language, land and religion may impact on various sets of people in each and every nook and corner of the world differently.

Attention of the study was towards healthy children of 10 to 11 years of age. But it was not towards children with special needs. As Sousa (2001) says, those who suffer from mental or physical disorders, reading, writing or another kind of educational disorders which affect education may respond to given music in different manners. And also, students who have special abilities or skills respond to music in a different manner. So both categories should be considered for the study.

IX. CONCLUSION

In conclusion this paper is part of an ongoing research in the area of music as a learning aid for education. The initial phase of the study for the base was conducted to empirically investigate whether the music can enhance the outcome of education of primary students. The test designed and conducted disproved the laid hypothesis in this paper. Yet it is required to carry the test for several times to bring the solid demarcation for the findings of the research.

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REFERENCES

- Amarasinghe S (2014).
<http://www.island.lk/index.php?page_cat=article-details&page=article-details&code_title=95455> *The Grade 5 Scholarship Exam and psychological stress. What are the alternatives?* Accessed 10 July 2014.
- Anon (2014).
<<http://www.businessdictionary.com/definition/education.html>>*Education*. Accessed on 25 June 2014.
- Armstrong P (2001).
<<http://cft.vanderbilt.edu/guides-sub-pages/blooms-taxonomy/>> *Centre for teaching*. Accessed 17 July 2014.
- Carr K (2014).<<http://humanorigins.si.edu/human-characteristics/brain>> *What does it mean to be human?* Accessed 31 July 2014.
- Cherry K (2014).
<<http://psychology.about.com/od/educational-psychology/f/educational-psychology.htm>> *What is Psychology?* Accessed 12 July 2014.
- Ford D J (2011).
<https://www.trainingindustry.com/content-development/articles/how-the-brain-learns.aspx> *Content Development*. Accessed 06 July 2014.
- Miller RA (1982).
<<http://www.nwbotanicals.org/oak/newphysics/brainwave.htm>> *Neural Feedback and Brainwave Training*. Accessed 26 June 2014.
- Logsdon A (2014)
<<http://learningdisabilities.about.com/od/glossary/a/intelligencetest.htm>> *Understanding Intelligence Testing for Children*. Accessed 15 July 2014.
- Semrud-Clikeman M (2014).
<<http://www.apa.org/education/k12/brain-function.aspx#>> *Research in Brain Function and Learning*. Accessed 09 July 2014.
- Smith A (2010).
<<http://www.psychologytoday.com/blog/health-connections/201004/can-our-childhood-really-predict-our-future>>*Phycology Today*. Accessed 15 July 2014.
- Smithsonian (2014).
<<http://humanorigins.si.edu/human-characteristics/brains>> *Brain*. Accessed 10 July 2014.
- Steele L (2014).
<<http://www.backyardpoultrymag.com/does-playing-classical-music-benefit-yourchickens/?blogger=lsteele,%202014>>*Does Playing Classical Music Benefit your Chickens?* Accessed 13 July 2014.
- Thompson K (2014).
<http://www.bioteams.com/2012/11/05/the_five_major.html> *The five major theories of how people "learn"*. Accessed 15 July 2014.
- Treve Z (2012).
<http://www.unicef.org/infobycountry/tanzania_65313.html> *Locally sourced teaching aids are engaging students and improving education*. Accessed 15 July 2014.

JOURNALS

- Bilhartz TD, Bruhn RA, & Olson JE (1999). *The Effect of Early Music Training on Child Cognitive Development* [online] *Journal of Applied Developmental Psychology*,4(20),pp.61536<<http://www.artsearch.org/summaries/the-effect-of-early-music-training-on-child-cognitive-development>>
- Gold BP, Frank MJ, Bogert B and Brattico E (2013) *Pleasurable music affects reinforcement learning according to the listener*. [online] *Frontiers in*

Psychology.4(August).<<http://journal.frontiersin.g/Journal/10.3389/fpsyg.2013.00541/abstract>>

Psychology and Pharmacology.

BOOKS

Christa KM and Benno R (2007). *Adrenal Stress Hormones and Enhanced Memory for Emotionally Arousing Experiences.* Neural Plasticity and Memory. *From Genes to Brain Imaging.* Boca Raton,Florida: crc press.

Gamman D and Bragdon AD (2003). *Building Mental Music 2nd ed.* Yarmouth.Brainwaves.

Sousa DA, (2007) *.How the special needs brain learn.* California: Crowin Press.

Dib CZ (1987). *Formal, non-formal and informal e education: concepts/applicability.* Oaxtepec, Cooperative Networks in Physics Education, pp. 1,2,10.

Fitzpatrick KR, Jacqueline C. Henninger DM. Taylor, (2014). Access and Retention of Marginalized Populations within Undergraduate Music Education Degree Programs. *Research in Music Education*, 62(2), pp. 105-127.

VIDEOS

PURERELAX.TV (2013), Relaxation For Children - Music for Learning, Quiet, Positive, Harmony.video.26 June 2013. Viewed on 15 January 2014. <https://www.youtube.com/watch?v=VzrHwwWjXEs>

BIOGRAPHY OF AUTHORS



and music.

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