

# My masterpiece essay sample

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Music participation provides a unique opportunity for literacy preparation. Whether the children are singing, playing, or listening, teachers direct them to listen and hear in new ways which exercises their aural discrimination. Playing instruments and adding movement to the lessons teaches children about sequential learning which is essential in reading comprehension. Plato once said that music “ is a more potent instrument than any other for education”. You will find many teachers of young children who would agree with him. Recent research has found that music uses both sides of the brain, a fact that makes it valuable in all areas of development. Music affects the growth of a child’s brain academically, emotionally, physically and spiritually. Music is academic. For some people, this is the primary reason for providing music lessons to their children.

A recent study from the University of California found that music trains the brain for higher forms of thinking. Second graders who were given music lessons scored 27% higher on proportional math and fractions tests than children who received no special instruction. Research indicates that musical training permanently wires a young mind for enhanced performance. Music is physical. Music can be described as a sport. Learning to sing and keep rhythm develops coordination. The air and wind power necessary to blow a flute, trumpet or saxophone promotes a healthy body. Music is emotional. Music is an art form. We are emotional beings and every child requires an artistic outlet. Music may be your child’s vehicle of expression. Music is for life. Most people can’t play soccer, or football at 70 or 80 years of age but they can sing. And they can play piano or some other instrument. Music is a gift you can give your child that will last their entire lives.

### Effects on Academics

Students that are involved in music become better readers, better at math, and better at test taking. The fact that you are using both sides of your brain when doing music affects all areas of learning. Music students create something from nothing. One day, some former music student is going to create a cure for cancer. Students who study music for one year have test scores that are higher by 11%. Students that study music for two years have test scores that are 14% higher, three years 19%, and four years, 26%. This all has to do with connections in the brain. Music has effects that nothing else does.

### Effects in Reading

Christopher M. Johnson and Jenny E. Memmott wrote in the Journal of Research in Music Education of 2006 that even schools with lower-quality instrumental programs score higher than schools with no music program at all.

In 2006, Dr. Laurel Trainor, Professor of Psychology, Neuroscience and Behaviour at McMaster University claims that playing a musical instrument significantly enhances the brainstem's sensitivity to speech sounds. This relates to encoding skills involved with music and language. Experience with music at a young age can "fine-tune" the brain's auditory system.

### Effects on Testing

In 1997, The College Board reported that students with four years of study in the arts outscored students with no arts instruction by a combined total of

101 points on the verbal and mathematics portions of the SAT. 1 Another SAT study by the College Entrance Examination Board found in 2006 that students with coursework or experience in music performance scored 57 points higher on the verbal portion and 43 points higher on the math portion for the SAT. 2 “ The reduction in school music programs is not only damaging from an aesthetic standpoint, it also flies in the face of research that suggests kids who study music perform better on tests. Numerous studies reveal that kids who participate in music programs show improved spatial-temporal skills, enhanced academic performance, and better social skills.” 3

### Effects in Math

Music and mathematics are both very logical. It is said that students who participate in music excel in math. “ Students who participate regularly in music are more capable of breaking down math problems and looking at them from different angles, increasing the likelihood that they will successfully and logically solve the problem.”

A recent study found that students who studied music significantly outperformed their peers. Researcher Barbara Helmrich reported, “ Formal instrumental instruction impacted algebra scores the most. Choral instruction also affected scores, but to a lesser extent.”

First graders from Rhode Island participated in an arts study and participated in special music classes. Their reading and math proficiency scores rose dramatically.

## Other Relevant Information

The Harris Interactive poll of high school principals from 1996 reported, “ Schools with music programs have significantly higher graduation rates than do those without programs (90. 2% as compared to 72. 9%).” They also found that “ Schools that have music programs have significantly higher attendance rates than do those without programs (93. 3% as compared to 84. 9%).” 2 “ The top three schools in America all place a great emphasis on music and the arts.” 11 “ The top engineers from Silicon Valley are all musicians.”

## STUDIES

### MUSIC AND ACHIEVEMENT

There have been a number of studies done on the effect of music on academic development. It has been shown that high school music students have higher grade point averages than non-music students in the same school. At Mission Viejo High School in Southern California in 1981, the overall grade point average of music students was 3. 59 and for non-music students the overall grade point average was 2. 91. This same study also found that 16% of the music students had a 4. 0 overall grade point average and only 5% of the non-music students had a 4. 0 overall grade point average. 3 A study of graduates of the New York City School of Performing Arts found that 90% of them go on to college. 4 Rees feels that involvement in high school music programs helps students develop the skills necessary for a variety of occupations. She states: “ Successful music students tend to possess the qualities and skills that are generally considered essential to employers in business, education and service organizations.” 5 She also

recognizes that music education assists students in improving their writing, communication skills and DOES improve analytical skills. Rees further states that to be successful in music, takes a great deal of self-discipline and notes that “ music majors have the highest SAT scores in all areas.”

Fred Hargadon, former Dean of Admissions for Stanford University, in a 1983 interview with Stauffer said, “ We look for students who have taken part in orchestra, symphonic band, chorus and drama. It shows a level of energy and an ability to organize time that we are after here. It shows that they can carry a full academic load and learn something else. It means that these particular students already know how to get involved and that’s the kind of campus we want to have.” Christensen (Biernat) has found that research studies have consistently shown that participation in student activities is beneficial to students. 6 Success in college can be more accurately predicted by levels of individual achievements in student activities (drama, debate, music etc.) than it can from SAT scores, class rank and grades in school. Conversely, studies of dropout students show that these students have had the least amount of participation in school activities. The Mode of American Youth (Biernat) reported that the most frequent co-curricular activity in American high schools was participation in a musical group. They reported that 38. 3% of all high school students say that they belonged to a band, orchestra or choir. 7 MUSIC AND READING

Music participation does have a positive impact on reading. a reading program in New York dramatically improved reading achievement scores by including music and art in the curriculum. 8 Winston writes about how

learning to read music enhances the student's ability to perform the skills necessary for reading, listening, anticipating, forecasting, memory training, recall skills, concentration techniques and speed reading. 9 It has also been found that music students can out-perform non-music students on achievement tests in reading and math. 10 Referring to reading and communication skills, Kuffler recognized the contributions the arts can make to the development of perceptual and cognitive skills. 11 There are similar studies in the area of mathematics that show gains in test scores in math for music students when compared to non-music students. 12 Maltester found that increased instruction in music can lead to increased learning in mathematics. 13 A study conducted in the Albuquerque, New Mexico public schools concluded by comparing all areas of the California Test of Basic Skills (CTBS). It was found that music students in an instrumental class for two or more years scored significantly higher than non-music students. 14 Grace Nash, an Arizona music educator, has found that incorporating music into mathematics lessons has enabled students to learn multiplication tables and math formulas more easily. MUSIC AND SELF-ESTEEM

The Norwegian Research Council for Science and the Humanities has found a connection between students having musical competence and high motivation in that they were more likely to achieve success in school. They concluded that there is a high correlation between positive self-perception, high cognitive competence scores, self-esteem and interest and involvement in school music. 16 Whitwell came to much the same conclusion and contends that creative participation in music improves self-image, self-awareness and creates positive attitudes about oneself.

Marshall found that involvement and achievement in school music builds positive self-image which is a motivation for academic learning among urban black middle school students. 18 It has also been found that through involvement in group music activities on the high school level, individuals learn to support each other, maintain commitment and bond together for group goals. The process is a significant part of improved self-esteem. 19 Sward, in writing about Fred Miller, president of the Miller Summer Clinics, says that Miller has found that musical experiences “ instill: 1) positive attitude; 2) positive self image; 3) desire to achieve excellence; 4) co-operation; 5) group cohesiveness; and 5) ability to set goals.” Eisner writes about the importance of arts in education because they develop intellectual and aesthetic abilities. MUSIC AND THE BRAIN

There are a number of studies that show a connection between music and the development of the brain. Dr. Frank Wilson is an assistant clinical professor neurology at the University of California School of Medicine, San Francisco. He reports that his studies show that instrumental practice enhances coordination, concentration and memory and also brings about the improvement of eyesight and hearing. He further reports that the process of learning to play an instrument refines the development of the brain and the entire neurological system (Mueller, 1984). In a speech at the California Music Educators Association State Convention on March 17, 1989, Dr. Wilson said that he has found through music, people become an active participant in their own physiological development. He says that people can discover themselves and a sense of self in community through musical involvement. His research has shown that involvement in music connects and develops



the motor systems of the brain in a way that cannot be done by any other activity. In support of this, Dr. Wilson shared recent data from UCLA brain scan research studies which shows that music more fully involves brain functions (both left and right hemispheres) than any other activities studied.

Dr. Wilson feels these findings are so significant that it will lead to a universal understanding in the next century that music is an absolute necessity for the total development of the brain and the individual. A separate study shows that performance in music develops the intellect. These musical activities train the brain in aesthetic literacy and the students' perceptual, imaginative and visual abilities (Sinatra, 1986). Whitwell (1977) deals with the left brain/right brain issue. He says that when one talks about music, he is using the left side of the brain. To utilize the right side of the brain, one must creatively produce in an activity such as music. He says the "music is independent, separate unique from of intellect, a form of intellect through which man can communicate directly in its own inherent form" (p9). This seems to confirm Wilson's contention that music does have a developmental impact on the brain.

Whitwell chides the educational system for only educating half a brain. He points out that most attention or day-dreaming, the answer is to involve the right side of the brain in the learning process. Whitwell says that the complete man must have equal access to both domains (left and right brain) of understanding and this access has to include a creative activity such as the performance of music. Tedd Judd in a speech at the 1984 conference on the Biology of Music-Making entitled, "A Neurologist Looks at Musical

Behavior”, comes to the conclusion that involvement in music involves many parts of the interconnected brain (Roehmann, 1988). Dr. Jean Houston of the Foundation for Mind Research says that children without access to an arts program are actually damaging their brain. They are not being exposed to non-verbal modalities which help them learn skills like reading, writing and math much more easily (Roehmann, 1988).

Previous research has found numerous benefits to listening to music before performing a task- it improves attention, memory, and even mental math ability. It has also been found to alleviate depression and anxiety. However, the more realistic scenario is that students will study or do homework while playing “ background music.” A recent study at the University of Wales looked at how background music affects students’ ability to complete a serial recall (remembering items in a specific order) test. Students were given a serial recall test in five different scenarios- 1. A quiet environment 2. With “ steady state” speech. This means a single word (in this case, “ three”) was repeated for the duration of the test 3. With “ changing state” speech. This means a variety of words (in this case, random digits from 1-9) were played during the test 4. With “ liked” music, meaning a song of the students choice (such as Lady Gaga, Rihanna, or Arcade Fire). Students brought in their own music, the only requirement was that it had to have vocals 5. With “ disliked” music, which in this case was a metal song called “ Thrashers” by Death Angel (all students in the study disliked metal) The researchers expected that the changing state speech would have the most detrimental effect on the students’ performance. Think about it like this-

changing state is like having to do your homework while someone else is talking. Steady state is more like repetitive background noise (a noisy heater, for example), which is easier to tune out. Surprisingly, the results actually found no significant difference between test scores with liked music, disliked music, and changing state speech. In other words, whether students enjoyed the music or not, having it on while they worked was just as distracting as hearing someone talk.

Scores were significantly higher for tests taken in a quiet environment or with steady-state speech. In a subjective assessment of each scenario, students did say that the test with their liked music was “ more pleasant,” but they did not find it any less distracting. The researchers hypothesize that they would see similar results if they were to repeat this procedure using a reading comprehension test. But before you sadly put your iPod away, feeling that you’ve lost your only way of making homework bearable, consider this: Another similar study that tested liked music’s effect on attention found similar results, but the researchers also noticed something intriguing. The students who took a test with music did have a lower average score than those who didn’t have music, but the researchers noted that there was a lot of variation in the scores.

This could imply that the effect of music can vary a lot from person to person, and they believe that more research needs to be done on how factors such as tempo, genre, or whether students are used to having music on, make any difference. Furthermore, we should also note that these studies only looked at music with vocals, and not music that was purely

instrumental. Research from the University of Dayton found that students performed better at spatial and linguistic processing if Mozart was playing in the background. So maybe having instrumental music can help performance, since it doesn't have any distracting vocals. Again, think about it like you're trying to work while someone's talking to you (or just consider that maybe you'll feel like singing along instead of doing your work!) The effects of music on children and young people.

### 1. The effect of music on IQ

Campabello, Nicolette; De Carlo, Mary Jane; O'Neil, Jean; Vacek, Mary Jill  
Music Enhances Learning.

Dissertations/Theses; Tests/Questionnaires. 2002

An action research project implemented musical strategies to affect and enhance student recall and memory. The target population was three suburban elementary schools near a major midwestern city: (1) a kindergarten classroom contained 32-38 students; (2) a second grade classroom contained 23 students and five Individualized Education Program (IEP) students; and (3) a fifth grade classroom. Students exhibited difficulty recalling facts and information in a variety of subject areas evidenced through an inability to gain mastery of grade level skill areas. Research suggests that young students have difficulty understanding concepts and lack the ability and desire to learn. A successful program needs to be developed to teach these concepts. A review of solution strategies suggests that the following musical techniques proved to be helpful for increasing student recall because the songs helped with phonemic training, mnemonics,

setting desired skills to familiar tunes, and linking connection to cultural themes.

Research has shown that preschool children taught with an early exposure to music through games and songs showed an IQ advantage of 10 to 20 points over those children taught without exposure to the songs. In the same study, students at age 15, had higher reading and mathematics scores in comparison to children without musical experiences. Brain studies indicate that exposure to music alters and increases brain function to make the necessary connections for higher order thinking. Post-intervention data indicated an increase in students' memory recall and emotional involvement. All these increases promoted the motivational connection, which encouraged additional success. Post-intervention data also indicated that the students learned the material so well that they were able to transfer skills across the curriculum into other subject areas, and into their personal lives.

Nering,-Marguerite-Elaine

The effect of piano and music instruction on intelligence of monozygotic twins. Dissertation-Abstracts-International-Section-A:-Humanities-and-Social-Sciences. Sep 2002; Vol 63 (3-A): 812 A great deal of research indicates a strong relationship between music instruction and increased intelligence in extra-musical areas. Most of these studies show correlation and not causation. Correlational evidence does not prove that music training caused the increase in intelligence or other abilities; other factors may have been involved. This experimental pretest -posttest study attempted to approach the causation issue more directly through special sample design. To

determine the effects of piano and music instruction on intelligence, a sample of preschool and primary-aged monozygotic twins was used. The sample consisted of ten sets of monozygotic twins, ages three to seven, with one of each set being the experimental subject who received private piano instruction and the other the control subject who received no training.

Monozygotic twins are genetically identical and have been shown to be at least twice alike as the next nearest population-dizygotic twins, who in turn are more alike than siblings, followed by unrelated individuals.

Because of the high equivalence of monozygotic twins, extraneous variables that may affect one twin also affect the cotwin, thus the threat of confounding variables on the treatment is reduced or eliminated, enabling the causation issue to be approached more directly. The duration of the experiment was from the beginning of November 2000, until the end of May 2001. Each experimental twin received two private forty-five-minute piano lessons per week, for seven months, for a total of fifty-two lessons each. Twins were pretested and posttested with complete Wechsler standardized intelligence tests (either the WPPSI-R or WISC -111). Pretests determined the equivalence of both groups. Experimental subjects showed statistically significant improvement in composite Verbal Scaled scores ( $p = .02$ ) and Verbal IQ scores ( $p = .03$ ), as well as total Full Scale IQ scores ( $p < .05$ ). Subtests that showed significant improvement were Arithmetic ( $p = .004$ ), Information ( $p < .05$ ), and Mazes ( $p = .03$ ). Control subjects did not show significant improvement. This research indicates that music instruction through individual piano lessons increases intelligence in extra-musical

areas, and that monozygotic twins appear to provide a more absolute design for approaching causation.

Schellenberg,-EGlenn

Music Lessons Enhance IQ.

Psychological-Science. Aug 2004; Vol 15 (8): 511-514

The idea that music makes you smarter has received considerable attention from scholars and the media. The present report is the first to test this hypothesis directly with random assignment of a large sample of children (N = 144) to two different types of music lessons (keyboard or voice) or to control groups that received drama lessons or no lessons. IQ was measured before and after the lessons. Compared with children in the control groups, children in the music groups exhibited greater increases in full-scale IQ. The effect was relatively small, but it generalized across IQ subtests, index scores, and a standardized measure of academic achievement.

Unexpectedly, children in the drama group exhibited substantial pre- to posttest improvements in adaptive social behaviour that were not evident in the music groups.

Yoon,-Jenny-Nam

Music in the Classroom: Its Influence on Children's Brain Development, Academic Performance, and Practical Life Skills. M. A. Thesis, Biola University, 2000

Child-Development; Developmental-Stages; Elementary-Secondary-Education; Literature-Reviews A growing body of research reveals the beneficial effects of music on education performance. Research indicates

that music plays an important role in the brain development of a child. Furthermore, researchers believe that children who have more exposure to music and music training benefit from enhanced brain activity which has been shown to increase students' abilities to perform certain academic tasks. In addition, many practical life skills are acquired through music learning and music training. Music education is believed to deserve the status as an equally significant core subject. A review of the literature demonstrates the benefits of music education, discussing the influence of music on the child's brain development, academic performance, and practical life skills.

## 2. The effect of music on memory and learning

Barr, Lori; Dittmar, Maureen; Roberts, Emily; Sheraden, Marie Enhancing Student Achievement through the Improvement of Listening Skills  
Dissertations/Theses. 2002

This report describes a program for the improvement of listening skills in order to increase academic performance. The targeted population consisted of elementary students in a middle class community located in western Illinois. The problem of ineffective listening skills was documented through data revealing the number of students whose lowered academic performance may be due to a deficiency of listening skills. Analysis of probable cause data revealed that many students are unable to concentrate on auditory input, or to combine the processes needed for effective listening, are not exposed to formal instruction in listening skills, are lacking sufficient concept imagery skills, and exhibit an absence of internal motivation and the physical preparation necessary for effective listening. Faculty reported



students' weaknesses in effective listening skills negatively impacted academic performance.

Reviews of curricula content and instructional strategies revealed a lack of curricular value and time, insufficient quality instructional materials, and most importantly a deficiency in teacher preparedness. A review of solution strategies suggested by knowledgeable others, combined with an analysis of the problem setting, resulted in the selection of three major categories of intervention: the direct teaching of effective listening skills, student ownership of self-monitoring, and the positive effects of using music in the classroom. Based on the presentation and analysis of the data on the improvement of listening skills, the students showed a notable improvement in academic achievement. The listening skills learned during the 16 week intervention period appeared to have transferred to students' academic growth and progress across the curriculum, and to have had a positive impact on their social interaction.

Bastian, H. G.

Musik(erziehung) und ihre Wirkung: eine Langzeitstudie an Berliner Grundschulen Schott, Mainz [etc.] 2002. 3. Auflage

Unter der Leitung des Frankfurter Musikpädagogen Hans Günther Bastian wurde zwischen 1992 und 1998 an Berliner Grundschulen eine Langzeitstudie ' Zum Einfluss von erweiterter Musikerziehung auf die allgemeine und individuelle Entwicklung von Kindern' durchgeführt. Die Ergebnisse: erweiterte Musikerziehung beeinflusst die Persönlichkeitsentwicklung von Grundschulkindern äußerst positiv. Im

Einzelnen bewirkt sie eine Verbesserung der sozialen Kompetenz, eine Steigerung der Lern- und Leistungsmotivation, einen IQ-Zugewinn, eine Kompensation von Konzentrationsschwächen, eine Förderung musikalischer Leistung und Kreativität, gute schulische Leistungen u. a. m. Die Studie bietet wichtige Argumente für die Forderung nach einem zentralen Platz von Musikerziehung in der allgemein bildenden Schule. Die beiliegende CD-ROM bietet Datenmaterial, Statistiken, Grafiken, Testverfahren, Korrespondenzen etc.

Hallam, Susan; Price, John; Katsarou, Georgia

The Effects of Background Music on Primary School Pupils' Task

Performance. Educational Studies. v28 n2 p111-22 Jun 2002

Presents two studies that explored the effects of music perceived as calming and relaxing on arithmetic and memory performance tasks of 10- to 12-year-old children. Reports that the calming music led to better performance on both tasks when compared with the non-music condition.

Weinberger, Norman-M

The Music in Our Minds.

Educational Leadership. v56 n3 p36-40 Nov 1998

New brain research shows that music improves our brain development and even enhances skills in other subjects such as reading and math. Music enhances creativity and promotes social development, personality adjustment, and self-worth. Music making provides the most extensive exercise for brain cells and their synaptic interconnections.

3. The effect of music on spatial insight and mathematical performances

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Bodner M, Muftuler LT, Nalcioglu O, Shaw GL.

FMRI study relevant to the Mozart effect: brain areas involved in spatial-temporal reasoning. *Neurol Res.* 2001 Oct; 23(7): 683-90.

Behavioural studies, motivated by columnar cortical model predictions, have given evidence for music causally enhancing spatial-temporal reasoning. A wide range of behavioural experiments showed that listening to a Mozart Sonata (K. 448) gave subsequent enhancements. An EEG coherence study gave evidence for a carryover from that Mozart Sonata listening condition to the subsequent spatial-temporal task in specific cortical regions. The article presents fMRI studies comparing cortical blood flow activation by the Mozart Sonata vs. other music. In addition to expected temporal cortex activation, it reports dramatic statistically significant differences in activation by the Mozart Sonata (in comparison to Beethoven's Fur Elise and 1930s piano music) in dorsolateral pre-frontal cortex, occipital cortex and cerebellum, all expected to be important for spatial-temporal reasoning.

Bryant-Jones,-Marian; Shimmins,-Kymberley-J; Vega,-Jill-D

Increasing Math Achievement through Use of Music. 2003

Master of Arts, St. Xavier Univ., Skylight Professional Development. This report describes a program for increasing math achievement through the use of musical interventions including repeated exposure to Mozart classical music and School House Rock, and introduction to teacher-made songs that introduce mathematical concepts in the music classroom. The students of the targeted second and fourth grade classes exhibited low levels of achievement according to local and national standards. Evidence for the existence of the problem included teacher- made pre-tests, parent

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questionnaires, and student questionnaires. Probable causes for low levels of student mathematical achievement were identified through a review of the literature and analysis of the setting and can be divided into student, home, school, teacher, and district influences.

The following probable causes were cited: disabilities, classroom climate, motivation, problem behaviours, lack of homework support due to lack of math competency, home-based factors, lack of professional training and frequent staff turnover, and low contact time in the arts due to funding problems. The solution strategy involved a review of current educational literature with analysis of problem setting, resulting in exposure to music of Mozart, School House Rock, and teacher-made songs that prepared and motivated students while implementing mathematical concepts. Post intervention data indicated a significant increase in students' mathematics achievement in the targeted skills for both second and fourth grades, including students with disabilities. Motivation and classroom climate were also noted.

Hetland,-Lois

Listening to Music Enhances Spatial-Temporal Reasoning: Evidence for the "Mozart Effect." *Journal of Aesthetic Education*. v34 n3-4 p105-48 Fall-Win 2000 Presents the results from two meta-analyses of the Mozart Effect studies. Explains that in Christopher Chabris' meta-analyses, 16 studies with subjects (n= 714) and 12 studies with subjects (n= 522) were analyzed; while in the author's meta-analysis 36 studies with subjects (n= 2, 465) and 31 studies with subjects (n= 2, 089) were analyzed.

Rideout BE, Taylor J.

Enhanced spatial performance following 10 minutes exposure to music: a replication. *Perceptual and motor skills*. 1997 Aug; 85(1): 112-4.

Previous research has demonstrated that 10 min. exposure to classical music can influence performance on a spatial task. The effect, however, has not been robust, suggesting a sensitivity to individual differences and task operationalization. The present study involved a further replication of this effect. 16 female and 16 male undergraduates completed two equivalent spatial tests, one following a control procedure and one following the presentation of Mozart's Sonata for two pianos in D major. Performance showed a small but significant improvement immediately following presentation of the music.

#### 4. The effect of music on writing, spelling and (pre)reading skills

Anderson,-Scheree; Henke,-Jeanette; McLaughlin,-Maureen; Ripp,-Mary; Tuffs, -Patricia Using Background Music To Enhance Memory and Improve Learning. 2000

Master's Action Research Project, Saint Xavier University/IRI Skylight. This report describes a program to enhance spelling word retention through the use of background music. The targeted population consisted of elementary students in three middle class communities located in the southwestern suburbs of Chicago. The problems for poor spelling retention were documented through data revealing the number of students needing an enhanced/alternative method of teaching spelling. Analysis of probable cause data supported the hypothesis that students are not as successful

using traditional spelling methods. Review of student test scores, anecdotal records, and observation checklists revealed that students could improve their spelling scores through modifying the learning environment. A review of solution strategies documented in research literature together with an analysis of the problem setting resulted in the selection of possible interventions. Teachers employed background music in order to promote higher student achievement in spelling. Post intervention data indicated an improvement in students' spelling word retention. Spelling test scores and report card grades indicated a positive academic growth. Music enabled the students to concentrate, relax and revisualize spelling words.

Butzlaff,-Ron

Can Music Be Used To Teach Reading?

Journal of Aesthetic Education. v34 n3-4 p167-78 Fall-Win 2000 Presents two meta-analyses of empirical literature focusing on the relationship between music instruction and reading performance, using reading test scores or general tests of verbal aptitude. States that the meta-analysis of correlational studies reflected music students have higher scores on standardized reading tests; while experimental studies did not show any reliable effect.

McKnight,-Rosemary

Does Listening to Slow Tempo Classical Music During Independent Writing Affect Children's On-Task Performance? 1998

This project explored the effects of slow tempo classical music on children's on-task performance during independent writing. The project sample

consisted of 24 students from a first grade classroom in the New York City Public School System. The students' on-task behaviour was observed with and without use of slow tempo classical music playing, and writing samples were collected. The results indicated that slow tempo classical music had a positive effect on children's on-task behaviour.

Standley,-Jayne-M; Hughes,-Jane-E

Evaluation of an early intervention music curriculum for enhancing prereading/writing skills. *Music-Therapy-Perspectives*. 1997; Vol 15 (2): 79-85

Evaluated the effects of music sessions designed to enhance prereading and writing skills of 24 children (aged 4-5 yrs) who were enrolled in Early Intervention and Exceptional Student Education (ESE) programs. The design utilized 2 groups of matched participants with repeated measures and counterbalanced treatment/control conditions. Each treatment condition lasted 7.5 wks and included two 30-min music lessons per wk for a total of 15 lessons. In the fall, music was designed to teach writing skills and, in the spring, to teach reading skills. The music treatment was provided in addition to the regular prekindergarten curriculum. The control condition was instruction in the regular prekindergarten curriculum without music involvement. All participants were pretested and posttested at the end of fall, and again at the end of the spring music lessons. Results demonstrate that music significantly enhanced print concepts and prewriting skills of the children as intended. Implications for academic, social, and motivational applications of music in early intervention programs are discussed.

## 5. The effect of music on self-esteem

Costa-Giomi,-Eugenia

Effects of three years of piano instruction on children's academic achievement, school performance and self-esteem. *Psychology-of-Music*. Apr 2004; Vol 32 (2): 139-152

This study of the effects of three years of piano instruction is based on a sample of 117 fourth-grade children attending public schools in Montreal. The children had never participated in formal music instruction, did not have a piano at home, and their annual family income was below \$40, 000 Can. Children in the experimental group (n = 63) received individual piano lessons weekly for three years and were given an acoustic piano at no cost to their families. Children in the control group (n = 54) did not participate in formal music instruction. Participants were administered tests of self-esteem, academic achievement, cognitive abilities, musical abilities, and motor proficiency at the beginning of the project and throughout the three years of piano instruction. The results indicated that piano instruction had a positive effect on children's self-esteem and school music marks but did not affect their academic achievement in math and language as measured by standardized tests and school report cards.

Hendricks,-CBret

A study of the use of music therapy techniques in a group for the treatment of adolescent depression. *Dissertation-Abstracts-International-Section-A:-Humanities-and-Social-Sciences*. Aug 2001; Vol 62 (2-A): 472 During the ages of 12-18, depression affects one in five adolescents. Depression contributes



to poor academic performance, adolescent pregnancy, anorexia nervosa, and substance abuse. Furthermore, depression is also linked with adolescent suicide. Given the impact of depression, a salient question arises: How can counseling reduce the effects of adolescent depression? Since music is an integral part of the adolescent's life and since most adolescents listen to music on a daily basis, music is a viable source for alleviation of adolescent depression. Although music has been used to treat adult depression in a group setting, the use of music in a school setting for the treatment of adolescent depression has not been investigated. The purpose of this study was to determine the effectiveness of adding music therapy techniques to cognitive behavioural group treatment for depressed adolescents.

The research questions were: (1) Does the use of music therapy techniques decrease depression when the techniques are used in conjunction with cognitive behavioural group techniques? (2) Does the use of music therapy techniques increase self concept when used in conjunction with cognitive behavioural techniques? and (3) Does the use of music therapy techniques increase achieved grades when combined with cognitive behavioural techniques? The participants in the study were 63 junior and senior high school students from two schools in a mid-size city in the South-western United States. The participants ranged in age from 13 to 18 years. The participants were randomly assigned to four groups. Group I (junior high) utilized cognitive behavioural therapy techniques. Group II (junior high) utilized cognitive behavioural techniques with the addition of music therapy.

Group III (high school) utilized cognitive behavioural techniques, and Group IV (high school) utilized cognitive behavioural techniques with the addition of music therapy techniques. The length of treatment was 12 weeks. The design was a 2 x 2 quasi-experimental factorial design in which the dependent variables of depression, self-concept, and grade point average were compared by treatment and grade. The participants were administered the Beck Depression Inventory and the Piers-Harris Self Concept Scale. The results indicated a significant difference ( $p < .0001$ ) between the groups which utilized music therapy techniques and groups which did not use music therapy techniques. Results indicated that the use of music therapy techniques was positively correlated with reduced posttest depression scores and increased posttest self-concept scores for both junior high and senior high participants.

Lindberg,-Katherine-A

Songs of healing: Song writing with an abused adolescent.

Music-Therapy. 1995; Vol 13 (1): 93-108

Survivors of childhood sexual abuse are often left to deal with a variety of mixed emotions and in need of a means for self-expression. This article discusses the use of song writing with an abused adolescent female to increase expression of feelings and build self-esteem. A review of the effects of sexual abuse and the use of song writing in the literature is given, followed by a brief client case history, music therapy assessment results and goals, and a description of the author's procedure for songwriting sessions. Finally, client progress is shared through a number of original song lyrics.

Ostertag,-Joachim

Unspoken stories: Music therapy with abused children.

Canadian-Journal-of-Music-Therapy. Fal 2002; Vol 9 (1): 10-29 Music therapy literature and research has paid little attention to the application of music therapy in the treatment of abused clients. This article presents the findings of a 1-yr qualitative research project funded by the Canadian Music Therapy Trust Fund and the Children's Aid Society of Owen Sound and the County of Grey that examined the specific dynamics and outcomes of music therapy interventions with abused children. It is intended to foster discussion about the role and potential of music therapy as a valid treatment form for abused children. In the project 8 children (aged 6-12 yrs), referred by the Children's Aid Society, participated in weekly music therapy sessions where their music and behavioural changes were documented. The outcomes from this study show that music therapy can play a very important role in the change process of abused children, particularly in addressing emotional and relationship issues which are difficult to address with cognitive or behavioural treatment models. The article focuses on the unique experiences and benefits of music therapy for abused children and emphasizes the need for a well co-ordinated community response to violence against children that includes work with care givers.

Tervo,-Jukka

Music therapy for adolescents.

Clinical-Child-Psychology-and-Psychiatry. Jan 2001; Vol 6 (1): 79-91

Describes 20 yrs of clinical music therapy work with adolescents in co-operation with psychoanalysts and psychotherapists. Music, and in particular

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rock music, can give adolescents the possibility to express, be in contact with and share among themselves feelings of anger, rage, grief, longing and psychological disintegration. Music also provides adolescents with opportunities to experience closeness and isolation and to explore their sexual fantasies and feelings.

#### 6. The effect of music on pain or emotional disturbance

Bradt,-Joke

The effects of music entrainment on postoperative pain perception in pediatric patients. Dissertation-Abstracts-International:-Section-B:-The-Sciences-and-Engineering. Jun 2002; Vol 62 (11-B): 5073 Because of the continuing tendency to undermedicate children postoperatively it is of utmost importance that the effectiveness of nonpharmacological pain management interventions be investigated in pediatric patients. The purpose of this study was to examine the effects of music entrainment, an improvisational music therapy intervention, on postoperative pain perception in pediatric patients. Since pain perception is influenced by emotional state and perceived level of control, the effects of music entrainment on these variables were also evaluated. Thirty-two recovering orthopedic patients, ages 8 to 19, participated in two music entrainment conditions and one control condition over two consecutive days. These three conditions were sequenced according to a Latin Square design to control for order and time as confounding variables. During the music entrainment condition, live music was created by the music therapist to match the child's pain.

Once resonance was achieved between the pain and the music, the music slowly progressed into music predetermined by the child as healing. During the control condition, daily routine activities continued as usual. However, the subject was asked not to listen to any music during this time.

Measurements of the dependent variables were taken just prior to and immediately following each condition by means of a pain questionnaire. The results of the present study overwhelmingly support the effectiveness of music entrainment as a postoperative pain management technique for children. Large decreases in pain intensity ( $p = .000$ ) were found for both music entrainment sessions. In contrast, a small increase in pain, although insignificant ( $p = .144$ ), was identified for the control condition.

The pain-reducing effects of the music entrainment session were the largest as long as the music was present, and decreased after the music had stopped. Furthermore, data indicated that music entrainment was effective in enhancing the patients' mood ( $p = .000$ ): the children showed significantly higher levels of happiness, peacefulness, relaxation, comfort and calmness during both sessions. Finally, results suggested that music entrainment moderately increased patients' perceived level of control during the first session ( $p = .014$ ) as well as the second session ( $p = .005$ ), but not during the control condition ( $p = .573$ ).

Fratianne RB, Prensner JD, Huston MJ, Super DM, Yowler CJ, Standley JM. The effect of music-based imagery and musical alternate engagement on the burn debridement process. *J Burn Care Rehabil.* 2001 Jan-Feb; 22(1): 47-53.

Management of pain is a primary concern in the treatment of burn patients. The intent of this study was to test the efficacy of music-based imagery and musical alternate engagement in assisting burn patients in managing their pain and anxiety during debridement. Twenty-five patients, 7 years of age and older, who were admitted to the Comprehensive Burn Care Center were enrolled in the study, which used a repeated measures design with subjects serving as their own control. Subjects were randomly assigned to 1 of 2 groups. Those placed in Group A received music therapy intervention during their first dressing change, and no music therapy on the following day.

Group B received no music therapy intervention during their first dressing change and music therapy during their next dressing, on the following day. Data were collected at 4 intervals in the medical procedure; in the patient's room before transfer to the treatment room, in the treatment room during debridement, in the treatment room after debridement, and upon returning to the patient's room. The measurements taken were pulse, patients' self-report of pain, patients' self-report of anxiety, and the nurse's observation of patients' tension. There was a significant reduction in the self-reporting of pain in those who received music therapy in contrast to those who did not receive music therapy ( $P < .03$ ). music therapy is a valuable noninvasive intervention for the treatment of pain after burn injury.

Mayers,-Kathleen-S

Songwriting as a way to decrease anxiety and distress in traumatized children. *Arts-in-Psychotherapy*. 1995; Vol 22 (5): 495-498

Describes a song production technique that can be used with traumatized

children. The technique involves children and therapists working together to produce a song. The children use the song to calm and reassure themselves by singing the song in a repetitive fashion as a therapeutic ritual, with the goal of decreasing anxiety and distress. Four cases are described of children (aged 4-7 yrs) traumatized by sexual abuse or by a hostile custody battle. The Ss were able to deal with many of their anxious feelings by creating and singing their own songs. The technique can also be used in group therapy.

Prensner JD, Yowler CJ, Smith LF, Steele AL, Fratianne RB.

Music therapy for assistance with pain and anxiety management in burn treatment. *J Burn Care Rehabil.* 2001 Jan-Feb; 22(1): 83-8; discussion 82-3.

The management of pain is one of the primary issues in burn care. Pain is not only a physiologic experience, but a psychological one as well. With this in mind, the treatment of burned patients must incorporate a holistic view of pain management and healing. Cognitive, behavioural, and pharmacologic interventions all have a role in pain management. Studies, as well as clinical experience, have shown that musical intervention has been helpful in assisting patients with pain management in a variety of medical settings. music is an element of normal life that can be easily adapted for the needs of individual patients and their current environment while providing a means for self expression and for normalizing the environment. This article examines the rationale for using music therapy with burned patients, describes several protocols that have been adapted to meet the specific needs of burned patients, and summarizes our preliminary findings, which demonstrate significant response to music therapy protocols employed on our patients.

Whipple,-Jennifer

Surgery Buddies: A Music Therapy Program for Pediatric Surgical Patients. Music-Therapy-Perspectives. 2003; Vol 21 (2): 77-83

Surgical experiences often produce anxiety in pediatric patients and their families that can last throughout hospitalization and sometimes longer. Much of this anxiety develops immediately prior to the surgical procedure when the children and their families are required to wait for extended periods of time before being taken to surgery. Consequently, a music therapy program entitled Surgery Buddies was developed to involve children, their families, and hospital staff in music activities immediately prior to surgery, in order to decrease the opportunities for anxiety to develop. Through program development and implementation, it was discovered that the Surgery Buddies program may not only assist the pediatric patient in coping with hospitalization, but also the patient's family in managing their own anxiety, and hospital staff in carrying out necessary surgical preparation procedures. This program description includes an explanation of the needs of presurgical pediatric patients, logistical challenges of program implementation and possible solutions, and types of activities used within sessions, as well as anecdotal evidence of the program's benefits.

## 7. The effect of music on social interaction

Duffy,-Barbara; Fuller,-Ray

Role of music therapy in social skills development in children with moderate intellectual disability. Journal-of-Applied-Research-in-Intellectual-Disabilities. 2000; Vol 13 (2): 77-89 Investigated the effectiveness of a music therapy



program in the enhancement of the social skills of children with moderate intellectual disability. 32 children (aged 5-10 yrs) from 4 intellectual disability centers participated. At each center, 4 children were randomly selected to participate in the music therapy program, while 4 children were assigned to a non-music control group program. One staff member was trained in each group procedure at each center, and requested to run 30-min group sessions twice weekly over an 8-wk intervention period. Five social skills were targeted for intervention: turn-taking, imitation, vocalization, initiation and eye contact. Measures of effectiveness involved comparison of pre- and postintervention scores on 5 target skills using a brief social skills test specifically designed for the study. Evaluation forms completed by teachers also provided feedback on the effectiveness of the intervention. The results reflect significant improvements in the 5 target social skills across both conditions following the 8-wk intervention. However, this difference was found to be independent of the music/non-music intervention. The operational definitions of the skills constituting the social skills test are appended.

Gourgey,-Charles

Music Therapy in the Treatment of Social Isolation in Visually Impaired Children. RE: view. v29 n4 p157-62 Win 1998

Reviews the literature on the use of music therapy with visually impaired and socially isolated children. Describes ways that music therapy can help the child explore his environment, modify blindisms (stereotypic, autistic-like behaviours), and encourage social awareness and interaction with other

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children. Discusses music therapy in the treatment of children with significant visual impairments. Observations strongly suggest a pattern of social isolation and withdrawal related to the visual disability. This pattern may be understood as a continuum: at the high end the child possesses a full capacity for relatedness to others but tends to be alone and withdrawn; in the most severe case, the child may appear to be autistic. Modification of blindisms and socialization in music therapy can address problems of social isolation on many levels. Music evokes deep responses without depending on words; therefore, music therapy can reach children with the severest disabilities.

Montello,-Louise; Coons,-Edgar-E

Effects of active versus passive group music therapy on preadolescents with emotional, learning, and behavioural disorders. *Journal-of-Music-Therapy*. Spr 1998; Vol 35 (1): 49-67

Compared the behavioural effects of active, rhythm-based group music therapy vs those of passive, listening-based group music therapy on 11-14 yrs olds with emotional, learning, and behavioural disorders enrolled in a special education program in public middle school. It was hypothesized that Ss who participated in active music therapy would more significantly improve target behaviours than those involved in passive music therapy. Achenbach's Teacher Report Form (TRF) was used to confirm changes among Ss in attention, motivation, and hostility as rated by homeroom teachers. Results indicate that Ss improved significantly after receiving both music therapy interventions. The most significant change in Ss was found on the aggression/hostility scale. These results suggest that group music

therapy can facilitate the process of self-expression in emotionally disturbed/learning disabled adolescents and provide a channel for transforming frustration, anger, and aggression into the experience of creativity and self-mastery. Recommendations for choosing 1 music therapy approach over another based on personality types and/or clinical diagnoses of Ss are included.

Ulfarsdottir,-Lilja-O; Erwin,-Philip-G

The influence of music on social cognitive skills.

Arts-in-Psychotherapy. 1999; Vol 26 (2): 81-84

Investigated the social cognitive efficacy of music therapy (MT), particularly the effects of MT on Alternative Solutions Thinking (AST) and Consequential Thinking (CT), 2 skills in cognitive problem solving that underpin social adjustment. Experimental Ss were 27 preschoolers receiving a short-term MT intervention; there were 2 control groups: (1) 33 preschoolers receiving no treatment, and (2) 16 preschoolers in an institution with an established musical enrichment program. All Ss completed the Pre-school Interpersonal Problem Solving Test. Results showed no significant differences in the control or intervention groups between pre- and post-intervention assessments. However, a 7-mo follow-up showed significant differences. The children who had participated in the MT program showed significantly greater improvements in AST and CT scores than non-treated controls. For children in condition 3, who were attending the musically enriched preschool, there was a highly significant difference in the improvement of their AST and CT scores compared to non -treated controls and MT-intervention Ss.

Wimpory,-Dawn; Chadwick,-Paul; Nash,-Susan

Brief report: Musical interaction therapy for children with autism: An evaluative case study with two-year follow-up. *Journal-of-Autism-and-Developmental-Disorders*. Oct 1995; Vol 25 (5): 541-552 Explored the effects of a therapeutic approach on the social and symbolic development of an autistic child. The S was 3. 3 yrs old and noncommunicative when introduced to Musical Interactive Therapy (MIT). Treatment consisted of a musician accompanying the S's mood, timing, and meaning of activities, such as varied runs of mother-child games of swinging, patting tickling, blowing, stroking, vocalizing, action-rhymes, and singing. Onset of MIT was followed by improvements in the child's use of social acknowledgement, eye contact, and initiations of interactive involvement. Creative child contributions to interaction (including teasing) and symbolic play emerged later as predicted. Two-yr followup confirmed that these positive changes were sustained. The S no longer showed frequent social withdrawal.

#### 8. The effect of music in classroom management

Chalmers,-Lynne; Olson,-Myrna-R; Zurkowski,-Joyce-K

Music as a Classroom Tool.

*Intervention in School and Clinic*. v35 n1 p43-45, 52 Sep 1999 A study examined the effect of music on lunchroom noise level and on the behaviours of children requiring intervention. When classical music was played, the noise level dropped an average of six decibels. Popular music decreased the noise level by 10 decibels. Both types of music decreased behavioural interventions.

Godeli,-Maria-Regina-CS; Santana,-Paulo-R; Souza,-Vera-HP; Marquetti,-Gisele-P Influence of background music on preschoolers' behaviour: A naturalistic approach. *Perceptual-and-Motor-Skills*. Jun 1996; Vol 82 (3, Pt 2): 1123-1129 This study investigated possible influences of background music on preschoolers' behaviour in the classroom. A total sample of 27 preschool children (aged 4-6 yrs) were observed naturally during classroom activities. Observations of social interaction, spatial localization, and posture categories were made under music (folk or rock-n-roll) and no music conditions. A strong influence of both types of music occurred on targets of social interactions; during and after music presentations the frequencies of child-to-child social interactions increased significantly over the baseline and frequencies of interaction with the teacher as the target diminished.

Hallam,-Susan; Price,-John

Can the Use of Background Music Improve the Behaviour and Academic Performance of Children with Emotional and Behavioural Difficulties? *British Journal of Special Education*. v25 n2 p88-91 Jun 1998 This study examined effects of providing " mood calming" background music in a special class for children with emotional and behavioural difficulties. Findings indicated a significant improvement in behaviour and mathematics performance for all 10 of the children, with effects most noticeable for children with problems related to constant stimulus seeking and over activity. Improved cooperation and reduced aggression were also found.

Jackson,-Mary-F; Joyce,-Donna-M

The Role of Music in Classroom Management.

2003

Several studies have demonstrated that music has many uses in today's classroom. In addition to a positive classroom environment, stronger curriculum content, and effective teaching strategies, research indicates that music is also an effective management strategy. A musical program was designed for third and fourth grade teachers to achieve classroom management. Music reduces stress, improves behaviour, enhances learning, and provides an appreciation for various cultures. A well-managed classroom celebrates learning and facilitates a rapport between teacher and students.

#### 9. The effect of music on brain injuries

Formisano R, Vinicola V, Penta F, Matteis M, Brunelli S, Weckel JW. Active music therapy in the rehabilitation of severe Brain injured patients during coma recovery. *Ann Ist Super Sanita*. 2001; 37(4): 627-30.

Active improvised music therapy may offer an adjuvant from of treatment in the early rehabilitation of severe brain-injured patients. Active music therapy consists of musical improvisation between patient and therapist by singing or by playing different musical instruments, according to the vital functions, the neurological conditions and the motor abilities of the patients. We studied 34 severe brain-injured patients with a mean coma duration of 52 days +/- 37. 21 and a mean interval from coma onset to the beginning of rehabilitation of 154 days on average. Our preliminary results show a significant improvement of the collaboration of the severe brain-injured patients and a reduction of undesired behaviours such as inertia (reduced psychomotor initiative) or psychomotor agitation.

Noda,-Ryo; Maeda,-Yukio; Yoshino,-Atsuo

Therapeutic time window for musicokinetic therapy in a persistent vegetative state after severe brain damage. *Brain-Injury*. May 2004; Vol 18 (5): 509-515

To determine the therapeutic time window in which musicokinetic therapy (MKT) could be of potential benefit for a persistent vegetative state (PVS), this study analysed the relationship between the timing of MKT and changes in PVS score following MKT. Twenty-six patients who fulfilled the definition of PVS were treated consecutively by MKT employing a trampoline with live music performance for 3 months. The PVS score ranges from 0-30 and the condition which meets the definition of PVS is never scored greater than 20. As compared to patients with brain damage caused by trauma (n= 12) or subarachnoid haemorrhage (SAH; n= 9), those caused by other cerebrovascular accidents (n= 3) or anoxic encephalopathy (n= 2) appeared to demonstrate a much smaller improvement in their PVS score. When the patients caused by trauma or SAH were analysed in isolation, the effects of MKT were clearly better in those patients in whom the MKT was initiated within 6 months after brain damage. These findings suggest that, contrary to the commonly held belief, the therapeutic time window for MKT is far greater than 6 months, insofar as patients with brain damage caused by trauma or SAH are concerned.