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## The Relationship Between Music Education and Stages of Childhood Brain Development

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## The Relationship Between Music Education and Stages of Childhood Brain Development

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The relationship between music education and stages of childhood brain development  
annotated bibliography

Altenmüller, Eckart, Gundhild Liebert, Wilfried Gruhn, and Dietrich Parlitz. "The Impact of Music Education on Brain Networks: Evidence from EEG-Studies." *International Journal of Music Education* 35, no. 1 (May 2000): 47-53.

This article focuses on information taken from a study of EEG tests about the effects of music education on different parts of the brain. A group of neuroscientists who studied the relationship between music and the brain discuss which parts of the brain are affected by given aspects of music and music education such as parts of the cerebral cortex, and the functions of each part. There are many different aspects that impact how the human brain responds to music. This is important because if EEG technology can support the claims of the benefits of music education on neurological development, a case could be made for enhancing music education in schools, and other parts of children's lives.

Costa-Giomi, Eugenia. "Music Instruction and the Children's Intellectual Development: The Educational Context of Music Participation." In *Music, Health, & Wellbeing*, edited by Raymond A.R. MacDonald, Gunter Kreutz, and Laura Mitchell. Oxford: Oxford University Press, 2012.

This article covers history of research on music study and IQ, and how research on this topic has been carried out. A professor of music education discusses how the population has interpreted results of studies done over the last century, and how these interpretations have evolved over time. Additionally, the topic of media evolution in the history of music and neurological research is brought up. If people can understand the development of research methods for these topics, procedures for testing the hypotheses that music benefits intellectual development in child can be improved to get a more diverse sample size. Therefore, more accurate answers on this subject can be discovered.

Deere, Kelli Beth. "The Impact of Music Education on Academic Achievement in Reading and Math." Ed. D., Union University, 2010.

In this dissertation, a doctoral student in education discusses the evolution of music education in schools, and studies the effects of music education on student success in other school subjects such as reading and mathematics. Additionally, she talks about music education in the United States being in danger due to many schools having to place music on the backburner due to the high number of standardized tests in today's schools. The student also covers comparisons of music education in the states to music education in other countries. If schools realized the advantage of having music education, even for non-musicians, this could make a case for working out opportunities for music education, even if it isn't during the school day.

Fernandez, Sabrina. "Music and Brain Development." *Pediatric Annals* 47, no. 8 (2018): E306-308.

A pediatrician discusses changes in brain structure as a result of music instruction and performance. She covers the many functions carried out by the brain to play music, such as visual, auditory, motor skills, and other skills. The topic of music education for children at risk for developmental delays is also covered. If parents received information like this, this could push the parents to provide their children access to more opportunities for musical enrichment and education.

Flohr, John., and Donald A. Hodges. "Music and Neuroscience." In *MENC Handbook of Musical Cognition and Development*. Edited by Richard Colwell and Gary Scott Smith 7-39. New York, NY: Oxford University Press, 2006.

Two college professors of music education and research discuss strategies for conducting studies on the topic of music and neuroscience. Technologies such as MRIs and PET scans can aid in gaining more information on these topics. If neuroscientists, as well as music educators, know about these different strategies for conducting these studies effectively, this could provide more information which could lead to more people realizing the importance of music education in the big picture of brain function.

Gruhn, Wilfried, and Frances H. Rauscher. "The Neurobiology of Music Cognition and Learning." In *The New Handbook of Research on Music Teaching and Learning: A Project of the Music Educators National Conference*. Edited by Richard Colwell and Carol Richardson. 445-460. New York, NY: Oxford University Press, 2002.

A professor in music pedagogy and a professor in psychology discuss four ways of studying learning: Behaviorism, cognitive psychology, sociohistorical theory, and connectionism. Neurobiological bases of learning are also discussed, and different parts of the brain used for learning music are talked about as well.

Hallam, S. "Music Learning." In *International Encyclopedia of Education*. Edited by Eva Baker, Barry McGaw, and Penelope Peterson. 407-12. UK: Elsevier Ltd, 2010.

An emerita professor of music education discusses learning from the time humans are born. She also talks about how humans might listen and respond to music. There is also discussion on skills that are often learned from music education that are not necessarily musical skills, such as discipline, creativity, and motivation.

Harris, Maureen. *Music and the Young Mind: Enhancing Brain Development and Engaging Learning*. Lanham, MD: Rowman & Littlefield Education, 2009.

A creator of many music education programs for young children discusses how music education can engage children in learning and enhance brain development. She covers how children might learn, brain research, teaching children from different types of backgrounds, training music educators, and suggestions for plans for the music classroom. This is important information, because it not only supports the claims that

music is beneficial for neurological and cognitive development, but also how teachers can plan lessons that keep kids engaged.

Jordan-DeCarbo, Joyce, and Jo Ann Nelson. "Music and Early Childhood Education." In *The New Handbook of Research on Music Teaching and Learning: A Project of the Music Educators National Conference*. Edited by Richard Colwell and Carol Richardson. 210 -242. New York, NY: Oxford University Press, 2002.

Two professors of music discuss significant aspects of early childhood education in relation to music education. They also discuss studies done on musical abilities in children.

Reimer, Bennett. "New Brain Research on Emotion and Feeling: Dramatic Implications for Music Education." *Arts Education Policy Review* 106, no. 2 (November-December 2004): 21-27.

A music educator discusses responses from the brain to emotion, and talks about the connection of feeling to music. This is important not only to the brain development side of children, but also the emotional side. If they can learn to express themselves through a healthy activity, such as music, they will be less likely to engage in potentially risky behavior to avoid their pain.

Rose, Dawn, Alice Jones Bartoli, and Pamela Heaton. "Learning a Musical Instrument can Benefit a Child with Special Educational Needs." *Psychomusicology: Music, Mind, and Brain* 28, no. 2 (June 2018): 71-81.

Two professors and a research associate in music education in children and adults wrote on a case study done on a child with Autism Spectrum Disorder, ADHD, and some other educational challenges. The people in the child's life felt that music instruction could help the child with some skills to improve his skills in school. This is significant because sometimes, music teachers get a student with educational challenges, and if they know how to approach this, it can help both the student and the teacher tremendously.

Schellenberg, E. Glenn, and Ellen Winner. "Music Training and Nonmusical Abilities: Introduction." In *Music Perception* 29, no. 2 (December 2011): 129-32.

A musician and professor of psychology discusses a few studies done on children and adults on music education and skills and brain function that exists not only in the music world, but in the general world as well. If music instruction provides people with the opportunity to develop skills that are needed in any aspect of the real world, eventually, this may be enough to make a case for richer music education in K-12 school.

Tierney, Adam, Kathleen Johnston, Nina Kraus, Jennifer Krizman, and Erika Skoe. "High School Music Classes Enhance the Neural Processing of Speech." *Frontiers in Psychology* 6 (December 2013).

A group of researchers from the Auditory Neuroscience Laboratory at Northwestern University did a study on adolescents and their neural responses after being assigned to either music training or fitness training, and analyzed the results. This is significant information because if music training enhances neural responses to speech, this can really help people out in the real world, not just in music. This could make a case for school systems to provide more access to music education, even with the budget cuts and other cuts made in many schools today.