

## THE BRAIN & MUSIC

People usually complain that music is so ambiguous, that it leaves them in doubt as to what they are supposed to think, whereas words can be understood by everyone.

But to me it seems exactly the opposite. —Felix Mendelssohn (1842)

Music is complex, mysterious and ubiquitous. Music-making and listening have been shown to exist in all current and historically documented human societies, and have been the subject of much theoretical speculation and scientific research over many years from fields as diverse as paleontology, cognitive neuroscience, linguistics, anthropology, evolutionary biology and developmental psychology.

There has been an explosion of research in the past ten or fifteen years about music and the brain, and while many findings are fascinating, they are often greeted with what seems to be an eagerness to explain “what” music is, “where” it is and “why” it is. It is almost as if we need to find reasons why we love music and a need to find research that validates the importance it already has for both individuals and societies – precisely because of the complexity, mystery and ambiguity Mendelssohn mentioned.

As with all research, there is in research about music, a tendency toward both reductionism and generalization. An example of this recently was the “music makes you smarter” neuro-myth that became popular based upon slender findings from a study that showed limited and transient effects of music-listening and playing on spatial reasoning tasks. This became known as the “Mozart Effect”. So then, what are some of the research findings?

- A recent Stanford University study suggests that music engages the brain in such a way that listening to music sharpens its ability to anticipate events and sustain attention. This is true of both musicians and non-musicians.
- According to Nina Kraus of Northwestern University, actively working with musical sounds enhances neuroplasticity, which is the brain’s ability to adapt and change.

- Research from University of California at Davis is beginning to explain the association and resilience of musical and autobiographical memory in dementia patients, for which there is ample anecdotal evidence.
- Researchers in Amsterdam have shown that 2-3 day old babies can detect the beat in music demonstrating that beat perception is innate or learned in the womb. This research adds to what we already know about newborn’s preference for the timbre and pitch contours of their mother’s or father’s voice. We know that the auditory system is “on-line” at around 4 months and, therefore, one of our earliest experiences as human beings is auditory. The fetus feels the rhythmic vibrations from the mother’s heartbeat beating faster and slower, while hearing the melodic patterns of sounds and silences from the voices coming through the womb wall.

These are just a few of the recent findings and perhaps they can help us to begin to understand why music is so important to us. We are born into a musical matrix with many of our earliest emotional connections created through songs, gestures and rhythms, and our most robust autobiographical memories in old age are those linked through emotional association to songs and music.

Music is considered to be the art of time, molding our perception of the flow of time that is both cyclical and linear. It is the form of experience and emotion that is the “meaning” of music – a representation of the emotional quality of the subjective, lived time made audible. Music sounds the way feelings feel, mirroring their ups and downs, motion and rest, fulfillment, loss and change.

Perhaps one of the many “purposes” of music is that it brings people together in a particular place and time to experience the same sounds and ineffable series of moments together and yet with our own unique and deeply personal subjectivities, lives and minds. Perhaps in the end, music is that mysterious, complex, and ambiguous creation through which time and space are made clearly perceptible to the heart.



**Victoria Stevens, PhD**  
[www.drivictoriastevens.com](http://www.drivictoriastevens.com)

