

The Music's Got It: Opening a Doorway to Emotion Understanding in Autism

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"I think I should have no other mortal wants, if I could always have plenty of music. It seems to infuse strength into my limbs and ideas into my brain. Life seems to go on without effort, when I am filled with music."

- George Eliot (1819 - 1880)

All of us have had the experience of being transported back through time when we hear one of our favorite songs – recall high school graduation, a backpacking trip through Europe or our first love. Music is a universal human trait, offering the mind a unique way to connect, to relate, and to interact with others. It is a means of experiencing different emotions, re-experiencing memories, and most importantly, serving as a social 'glue' that defines and unites cultures, ethnic groups, generations and social groups. People around the world use song and dance to tell stories, to conduct rituals, to teach children about their history and culture, to entertain and to enjoy. We relate to music spontaneously and effortlessly. One of the defining features of music is its ability to induce emotions in listeners. In fact, this is one of the main reasons people give for listening to music – to change their mood. These emotional responses to music are present in early life, and across cultures, indicating that the ability to perceive emotions in music may be innate.

Individuals with Autism Spectrum Disorders (ASD) have difficulties in emotion processing that are compounded by the inability to accurately perceive and understand emotional cues, such as facial expressions and body language. The implications of such deficits are many, not the least of which are emotional and physical isolation from family, peers and the environment. Impairments in social functioning and the inability to understand emotion also commonly result in peer rejection and poor social support; often producing higher levels of loneliness and poor quality of friendships for children with ASD, in comparison to typically developing peers.

In a classic 1943 paper by physician and professor Leo Kanner, in which he first described autism, he presented eleven case studies of children with autism and repeatedly mentioned musical abilities and musical interest in six of the children. Since then, researchers have studied the musical processing abilities of individuals with autism, and have shown that while language abilities may be deficient; individuals with ASD process music in similar ways to typically developing individuals. Moreover, individuals with ASD appear to show a spontaneous preference for musical over verbal stimuli, and it has been reported that approximately 40% of individuals within this population express a special interest in music. These reports of prevalent interest in music within the ASD population suggest that musical appreciation may be unimpaired in ASD, and may even represent a particular ability area. For example, in a study comparing musically naïve children with ASD and

three typically developing musically experienced children on their ability to sing back musical stimuli, it was found that children with autism performed as well or better than the more musically experienced, neurotypical children. Furthermore, a number of studies have indicated that individuals with ASD show superior pitch abilities. A study found that children with ASD performed better than control children on a pitch memory task, while performing equally well on a speech sound memory task. Indeed, children with autism remembered more tone/picture pairs one week after initial exposure than controls did after 2.5 minutes!

As part of an effort to harness the universal power of music to help children with ASD overcome their difficulties in social and emotional communication, myself in partnership with The Help Group – UCLA Autism Research Alliance have established the M.E.L.O.D.Y. Project. Music Enhanced Learning Opportunities for Developing Youth (MELODY) aims to:

- 1) Study the brain bases of socio-emotional deficits using neuroimaging techniques;
- 2) Conduct quantitative and qualitative evaluations of music education programs for children with special needs;
- 3) Develop a music-based therapeutic intervention to teach children emotion recognition skills.

In 2008, the GRAMMY® Foundation – a foundation to cultivate the understanding, appreciation and advancement of the contribution of recorded music to American culture - selected the MELODY Program as a recipient of one of its prestigious research grants, supporting a groundbreaking neuroimaging study of the brain of children with ASD and typically developing children during the processing of emotions in music and faces. In 2009, the NAMM Foundation – the trade association of the international music products association – awarded MELODY with a Sounds of Learning grant to evaluate the impact of music education of social, emotional and musical functioning in children with ASD. Ultimately, it is anticipated that these research studies will lead to new, evidence-based therapies that use the power of music to awaken the potential in every child for being 'musical' — that is, to be able to understand and use music and movement as forms of expression and, through that, to develop a recognition and understanding of emotions. An improved ability to recognize social emotions will allow children with ASD to form more meaningful social relationships and greatly improve their quality of life.

“If a man does not keep pace with his companions, perhaps it is because he hears a different drummer. Let him step to the music which he hears, however measured or far away.”
-Henry David Thoreau (1817 - 1862)