

MTGIC: Music therapy for people with special needs

The Music Therapy Gateway in Communications (MTGIC) organization was founded in 2003 as a non-profit organization in Tennessee. MTGIC's mission is to provide quality Neurologic Music Therapy (NMT) in the form of one-on-one therapy sessions and web-based software applications, thus making NMT universally available at little or no charge to families who would not otherwise have access to such therapies. The MTGIC laboratory is currently located on the campus of the University of Tennessee at Chattanooga (UTC).

The long-term objective of this endeavor is to bring together the two standards of NMT and computer technology, combining their individual strengths into the creation of an innovative piece of software that will initially assist persons with Autism Spectrum Disorder, and eventually support children with other developmental disabilities. Research has proven that children with such neurological disorders as autism respond extremely well to both music therapy and the use of computer technology. By combining NMT techniques with technology, there is greater potential for children with such developmental disabilities to reach physical and cognitive goals that will allow them to mainstream into regular classroom settings.

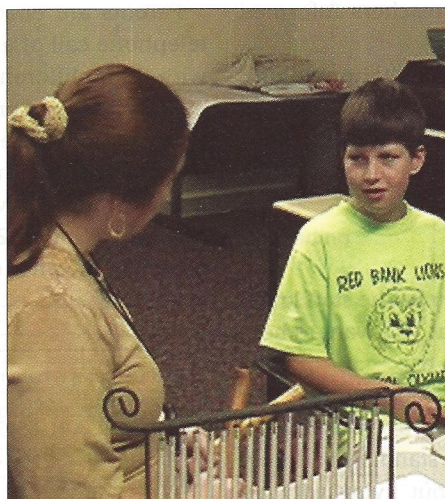
MTGIC is currently designed to specifically serve the needs of children with autism, but the organization scope will be expanding in the future to include serving the needs of those with additional sensorimotor, speech/language, or cognitive challenges.

Statement of Goals

1.) Deliver personalized, one-on-one NMT sessions to clients with autism, assessing their needs in the areas of motor, speech/language, and cognition development, and creating an individual NMT weekly curriculum to address these needs.

2.) Create and incorporate specially developed software into these sessions, designed to automate specific NMT cognitive techniques.

3.) Document each one-on-one or computer session and consistently analyze the results of the data attained to determine if changes are needed for the



curriculum to be more effective to the individual, or if changes are needed in the software to make it more useful.

4.) Provide periodic pre- and post-assessment testing in the areas of motor control, attention span, and academic progress completed as a result of the NMT.

What is Neurologic Music Therapy?

Neurologic Music Therapy (NMT) was originally conceived and developed at Colorado State University (CSU) and is defined at CSU as the therapeutic application of music to cognitive, sensory, or motor dysfunction due to neurological disease or trauma of the human nervous system. As a result of continuous research at the CSU Center for Biomedical Research in Music in the neuroscience of music and scientific foundations of music therapy, it has been confirmed that music and rhythm exist as deeply entrenched biological functions in the brain. Research shows the use of specific elements of music and rhythm utilized in precise musical tasks and functions will trigger the brain to develop in a way that will influence, and eventually make positive transference to, non-musical behavior and function.

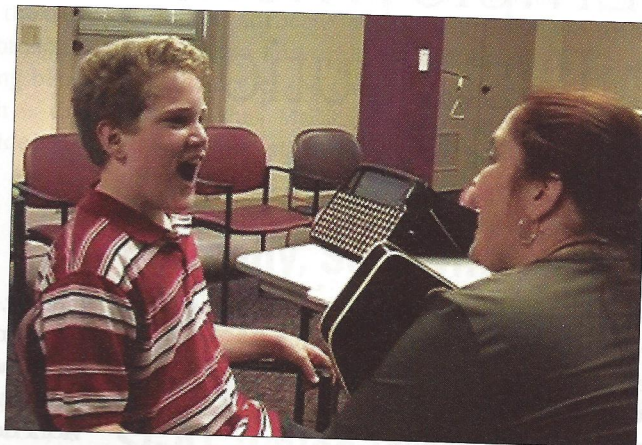
NMT techniques are specific to sensorimotor, speech/language, and cognition development training. It is not the more traditional music therapy based on a premise of using music as a social science to build human relationships with self and others, but rather breaks into a new paradigm of a model based on neuroscience where music actively engages the brain and behavior functions. This paradigm shift is driven by advances in evidence-based medicine and research techniques which have determined that the use of rhythm to organize time will regulate the interval-based neural response of the brain in a much more efficient manner.

MTGIC in Chattanooga

MTGIC has established working rela-

tionships in the Chattanooga area with various local social, medical, and academic organizations and agencies interested in the support of persons with autism. A vital partnership formation between UTC and MTGIC has attracted interdisciplinary UTC involvement, engaging administrators, faculty, and students from the diverse departments of computer science, psychology, special education, and music. A strategic planning process sponsored by UTC and MTGIC identified three critical needs: (1) children need access to NMT interventions to support critical developmental processes; (2) NMT services must be available in flexible delivery methods to meet diverse needs and abilities of children with autism and families; (3) families need access to cost-effective, on-going NMT services to achieve measurable benefits for their children. To help achieve these outcomes, UTC generously provided space for the MTGIC laboratory on their campus, and a munificent grant from the Community Foundation of Chattanooga made it possible to purchase all the instruments and computer equipment needed for the initial phase of the project.

In the MTGIC laboratory, an NMT facilitator conducts one-on-one sessions with a client; the curriculum of NMT techniques selected for the sessions is based on the client's individual needs. Generally, a combination of sensorimotor and cognition techniques are utilized in varying approaches with most clients, and specific speech/language techniques are added for non-verbal clients or those who have other speech impediments. All NMT techniques use the




auditory sense to help integrate an additional sense awareness, such as motor or cognition. It is important to note that the techniques chosen are selected based on the goals the client is undertaking.

The unique additional contribution of MTGIC is the extension of the one-on-one sessions with software designed to automate specific NMT techniques. The software is used either in one-on-one sessions with the NMT facilitator or in the client's home or school with a parent or teacher. Client accuracy is automatically measured and recorded for each individual response within the software; the parent or teacher of the child is permitted to access the data of their own children to assess and track the child's progress.

Software development was initiated in September 2004 following two years of research gathered during MTGIC pilot phases. Throughout the pilot periods, the one-on-one sessions were carried out with the goals of providing NMT to the client and determining which techniques would be feasible to build into the software. In addition to the initial research results collected, local agencies and organizations supporting children with autism were invited

to contribute feedback to the initial software model. This resulted in the creation of a high quality, flexible prototype to suit many needs.

The NMT techniques in the software are referred to as "games", and the parent or teacher will have the capability to modify factors such as music selection, length of time to play, etc., so the game is more personalized to their own children's needs. The first two games are developed using NMT techniques for auditory warm-up and the practice of sustained attention functions. These are followed by a third "cool down" game currently under development. Beta testing of the initial two games is almost complete with an expected release date of the first full release to the Internet before summer 2006. When the software is available to the general public, any parent or teacher will be able to request access for their children or students. MTGIC will utilize the ongoing data attained from these sessions to continuously research new and creative ways to further develop and improve the product.

For additional information about MTGIC, please visit the website at www.mtgic.org. Email can be directed to info@mtgic.org or snail mail to MTGIC, P.O. Box 334, Signal Mountain, TN 37377. 



**MTGIC will utilize the ongoing data
attained from these sessions to
continuously research new and
creative ways to further develop
and improve the product.**