

Listening, The Ear and Development: The Work of Dr. Alfred A. Tomatis

By: **Don Campbell**

During the last half of the twentieth century, Alfred A. Tomatis, a French M.D., researcher and philosopher, defined the ear as a primary organ for multiple physical, emotional and neurological development responses. Not only is the ear and its complex ability to send information to the brain and the body primary for hearing and sound perception, it establishes balance and equilibrium. It is also primary for the development of verticality, spatiality, laterality and language development.

Tomatis's innovative research is based on the ear's ability to discriminate between sounds it selects to hear and the ability to tune out sounds that are unwanted. The ear's ability to listen and focus, select sounds spatially and regulate auditory information as it is perceived by the brain, has become the theme in over a hundred centers worldwide dedicated to assist children and adults with speech and communication disorders, attention deficit disorders, head injuries, and autism.

The listening process begins in utero when the fetus becomes aware of sound and frequencies in the liquid world of the heartbeat, breath and sound of the mother's voice. In *La Nuit Uterine* (Edition Stock, Paris, 1980), Tomatis explores in depth clinical observations on the state of intra-uterine listening. He defines the phylogenetic and ontogenetic progression of the ear and its neurological implications for the development of language.

Dr. Tomatis proved that the voice can reflect the state of the ear's ability to hear, a phenomenon known as the Tomatis Effect. When the perception of midrange and high frequencies is missing in the pre-natal and the first three years of life, difficulties in listening and learning often arise. Without any obvious traces in deafness, a deficient ability to hear frequencies below 1000Hz can cause difficulty in understanding and remembering spoken information. A listening test

for each ear was developed by Dr. Tomatis to show specific areas where frequency deficiencies occur. Defective variations in frequencies between 1000Hz and 2000Hz make it difficult to sing in tune. When there are difficulties above 2000Hz, the voice will be dull and not expressive.

Generally, a healthy adult can hear up to the 20,000Hz range, giving a bright and clear ability to distinguish sounds. When there is a loss in the high frequencies, it is necessary to strain. The ability to focus upon and select sounds or voices in a noisy room is one of the primary challenges of those with listening disabilities.

The following chart created by Timothy Gilmore from the "Overview of the Tomatis Method" by Gilmor, Madaule, and Thompson, 1989) shows the essential role of the ear.

Identification of a Listening Problem

Receptive Language

At the level of receptive oral language, the following can be considered symptomatic of a listening problem:

- * A need to have instructions repeated
- * Distractibility, restlessness, daydreaming, poor attention and concentration in learning situations
- * A tendency to misinterpret what is being said, which produces odd reactions and impedes communication with others
- * Difficulty with following and/or participating in conversations in a noisy environment

Body Image

At the level of body awareness or body image, the following can be observed:

- * Poor balance or coordination
- * Difficulty coordinating body movement
- * Clumsiness or awkwardness in body movement
- * Excessive body movement when speaking or listening (fidgety)
- * Poor posture: overly tense and rigid (hypertonic) or insufficient tonicity (hypotonic)
- * Mixed lateral dominance, letter and word reversals, signs of fine motor or gross motor coordination such as poor handwriting
- * Poor organization and planning skills
- * The tendency to withdraw or avoid communication in learning situations and/or social situations
- * A lack of curiosity or interest in learning
- * Lack of interest in oral communication and, in extreme instances, avoidance or active refusal to use language as the medium through which to communicate with others

Expressive Language

At the level of spoken Language, individuals with listening-based communication problems are frequently seen to have very poor audio-vocal control or self-listening. Such symptoms include:

- * Slow, hesitant, poorly articulated speech
- * A poorly modulated voice (too soft or too loud)

- * A poor voice, characterized by a dull, monotonic tone, and fluency
- * For adults, difficulty in sustaining the interest of a group while making a speech or presentation

Developmental Characteristics

In compiling clinical histories at listening centers using the Tomatis method, the following events have had an unusually high incidence among individuals with listening-based learning and communication problems:

- * Difficult circumstances surrounding their own birth
- * Difficult births or early separation from the mother as a result of illness or adoption
- * Recurring ear infections in the first years of life
- * The arrival of a younger sibling within two years of birth
- * Slow or poorly established preference for right or left hand
- * Delay in language development and, less frequently, in motor development
- * Difficult adjustment to school life and the recognition of problems by the teacher or by the parent within the first two years of school
- * Underachievement at school or on the job

Used with permission

Listening integrates sensations and perceptions. The complexity of multiple roles of the ear is difficult to measure because of the ear's simultaneous regulation of information it receives from bone and air conduction in regard to both cochlear and vestibular functions.

A complete overview of the theory and clinical work of Dr. Tomatis is given in Perspectives of Listening, part of the Communication and Information Science Series under the editorship of Brenda Dervin at Ohio State University. Billie Thompson, Ph.D. has prepared a comprehensive chapter, "Listening Disabilities: The Plight of Many" in this book. (Ablex Publishing, Norwood, New Jersey, 1993) In the late 1950's and 1960's Dr. Tomatis developed the Electronic Ear, a device for training the ear for optimal listening. With the information has been assessed from the listening test, the speaking voice, chant and the music of Mozart is then filtered through the Electronic Ear. It is then possible to exercise and literally train the ear to listen more efficiently. Programs range from fifty to two hundred hours of auditory stimulation over a period of a few months through both air and bone conduction. This process is monitored by a specialist to observe the progress of the ear's ability to become a better receptor for more subtle discriminations in linguistic, musical and emotional response. There are passive phases of listening when drawing, resting and working with puzzles assist the listening process. In more active phases of reading aloud and chanting, the Electronic Ear filters and gates sounds so that the ear receives optimal stimulation at the most needed frequencies.

Tomatis was keenly aware that every language has a particular frequency range and accents at certain points. By stimulating the unique frequency ranges through music and vocal participation, the foreign tongue becomes familiar to those studying the language. A richer, more melodious expression of the new

language becomes evident as study and the Electronic Ear stimulation work together for ease of the learner.

Medical research for the Electronic Ear is beginning in Europe and Central America. The State of Washington now supports a Tomatis program for those on welfare. The research and work of Tomatis is evident throughout the world . Born on Christmas Day, 1920, Dr. Tomatis passed away in Carcassonne, France, on Christmas Day, 2001. Over a hundred and fifty centers in fifteen countries are continuing the research with the power of music, Mozart and the Electronic Ear.

Bibliography

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Perspectives on Listening

Edited By Wolvin and Coakley, Ablex Publishing, Norwood, NJ, 1993

When Listening Comes Alive

Paul Madaule, Moulin Press, 1994.

For online information on Tomatis Centers worldwide:

<http://www.tomatis.com/English/Addresses/USA/USA.htm>

<http://www.soundlistening.com/ftomatis.html>

About the Author

Don Campbell is a renowned musician, composer, educator, and author who has become an internationally recognized authority on the role of music in education and health. He is the author of nine books, including the 1997 best-seller, *The Mozart Effect*. In this book, Campbell provides compelling evidence of the influence of particular sounds, tones, and rhythms on mental performance and spiritual outlook, as well as in the treatment of disease.

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The Mozart Effect®

Don Campbell, known for his energetic and empowering teaching skills, has been exploring the healing powers of music for twenty years and has become one of the world's foremost authorities on how music influences our lives.

The universal quality of sound and music have been found to have the beneficial effects of improving memory, awareness and the integration of learning styles as well as improving mental and physical disorders and injuries, activating creativity, reducing depression and anxiety. This remarkable phenomenon is known as the "Mozart Effect".

This lecture will serve as an introduction to Mr. Campbell's unique approach of incorporating the Mozart Effect principals into the field of music therapy in clinical settings. With an emphasis on listening and observation skills, participants will learn the basic premise on which the subsequent workshops of Therapies and Applications and Empowering the Practitioner will be based.

1:30 - 3:00

Therapies and Applications

While most studies and training in the field of music therapy focus on the healing effects of patient interaction with music, little emphasis has been given to a methodology of listening and observation by the practitioner.

In this workshop you will learn to develop a new approach to observation and the assessment of a clients needs. Listening is a key factor in health practitionership. Learn new ways of listening to your clients and facilitate musical strategies that will assist in the therapeutic setting.

Learn how to use the voice and simple speech patterns as a bridge to a musical experience for pain and stress reduction and other modalities of wellness.

This is an "ears on" session with practical applications for practitioners.

Objectives:

- learn to effectively listen to the environment of healing
- learn to observe rhythms, tones and harmonies in a patient
- from these assessment techniques, learn to choose client specific music for caregiving
- learn to use the healing powers of your own voice as a practitioner

- review strategies for using music in health facilities (surgery, neonatal, OT, PT, chemotherapy, stress reduction)

3:30 - 5:00

Empowering the Practitioner

In this workshop you will learn what you can do to maintain a sound mind and body. Experience first hand how the use of the voice, imagery and movement can improve health and mental functions. Learn how you can apply the latest techniques used in the allied health field to help reduce your own stress, improve mental skills and awaken creativity in your life and benefit the lives of those you work with.

This workshop will be interactive - be prepared to participate.