

Music, an Invitation to Listening, Language and Learning

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Unfortunately, not every child loves music. Distorted or monotonous perception of musical sound may spoil for a whole lifetime a child's delight in something which ought to be his/her birthright. But some children's troubles do not stop there. They are often afflicted by underachievement in other areas of listening. They are poor, one could almost say disabled, listeners. But listening can be improved and the love for music can be regained. And in what it seems to be a paradox, music can play a key role in the restitution of listening. This, in short, summarizes the thinking and techniques of Alfred Tomatis.

ALFRED A. TOMATIS

Alfred A. Tomatis is a French physician - an ear, nose and throat specialist. Himself the son of an opera singer, Tomatis became interested in understanding why a great number of professional opera singers tended to lose their vocal qualities at a relatively early age - a handicap which forced some to interrupt their careers. In the late 1940's, Tomatis undertook a series of experiments which led him to conclude that our vocal and music abilities are directly linked with our ability to hear. In the early 1950's, Tomatis developed an electronic training device (now called the Electronic Ear) to help an increasing number of people with language, learning and communication problems.

THE TOMATIS METHOD

The technology, programs, and procedures that he developed are now known as the "Tomatis Method." The Tomatis Method is used in about 200 clinical and educational facilities worldwide, 20 of which are in North and Central America. The Tomatis Method uses sound stimulation to train and improve listening and listening-related skills. Music makes up a major part of the stimulation; the types of music used will be discussed later. The program is designed to reproduce through sound the various stages of child development - starting with prenatal life (when the ear is already operational) up to acquisition of written language. In other words, The Tomatis Method provides a "re-patterning" of the development of listening, vocalization, speech and language. Developmentally speaking, this "re-run" helps fill in the gaps.

The sound program is made up of two main phases - "passive" and "active". In the passive phase, trainees receive sound information through headphones without having to concentrate actively on what they perceive. Trainees can play, draw, paint, write, or sleep as they wish. The attempt during the passive phase is to reproduce the stages of development prior to babbling. This includes pre- and peri-natal life, as well as early

infancy. The active phase involves voice exercises and attempts to reproduce the stages of development from the time infants start babbling (pre linguistic stage) through the acquisition of speech, and finally to reading (linguistic stage). Through use of a microphone, the voice is fed back through the ears after being modified by the Electronic Ear. Singing, humming, and chanting are the main pre linguistic exercises used, while speaking and reading out loud are the linguistic ones.

HEARING, LISTENING LANGUAGE AND LEARNING

Tomatis points out that hearing and listening are two functions which involve different mechanisms. Hearing is the passive perception of sounds, while listening is the voluntary act which requires the desire to use the ear in order to focus on selected sounds. In other words, listening is the ability to select the sound information that one wants to hear in order to perceive it in a clear and organized fashion. The listening function is, therefore, very closely related to attention span, vigilance, and concentration. It plays a major role in integration, understanding, and retention of sound messages, especially the sounds of language. Listening is vitally important in the learning process.

Language development with children is itself a learning process during which listening plays an essential role. Well before babbling and expressing his first words, the child has trained his ear to focus on the sounds of his parents' language. He has already learned to listen to language structures, enabling himself to assimilate and memorize them. Later, when driven by the desire to communicate, he has to learn how to imitate language. He has to practice listening to himself, he must repeat sounds, phonemes and then words in order to find the proper way of producing and using language to communicate. Putting together this sound puzzle becomes a game which can be observed in the child's babbling and repetition of words. This exercise of listening to himself is the starting point of speech acquisition.

The child's speech should be well established by the time he starts working on written language at school. If this has occurred, the sounds of language which have been properly integrated and can be reproduced without distortion are easily translated into their written form. The child will probably learn to read, write, and spell without difficulty. But what is the role of music in a child's development of listening and language?

MUSIC AND LISTENING

Music is made up of two elements: rhythm and melody. The inner ear, being the sensory part of the ear, seems to be perfectly conceived for the integration of music. The inner ear is actually made up of two parts: the vestibular system and cochlear system. The vestibular system controls balance and body movements. It also allows for the integration of movements which make up the rhythm of music. The way the body expresses musical rhythm is seen clearly in its response to rhythmic dance music or military marches. It is because of the vestibular system that music seems to have an impact on the body. The

cochlear system enables the transformation of acoustic vibrations into nervous influx, and thereby allows the perception of melody.

Music is a highly organized series of sounds that the ear must analyze. Therefore, listening to music is an excellent way for children to learn how to perceive sounds in an organized fashion, or in other words, to listen. Singing has a beneficial effect on the development of children's audio-vocal control or self-listening (ability to listen to oneself when vocalizing).

MUSIC AND SPEECH

The main characteristics of music - namely tonal pitch, timbre, intensity, and rhythm - are all found in spoken language. For this reason, music prepares the child's ear, voice, and body to listen to, integrate, and produce language sounds.

Furthermore, music can be considered a "pre linguistic" language since it has all the characteristics of speech except for semantic value. In order to understand the pre linguistic value of music better, consider the child who is beginning to talk. His babbling and repetition of words correspond to the scales of a musician. While repeating phonetic scales, the child integrates the sound structure of words auditorially and vocally. Later, and only later, will he attach meaning to them. Children's songs are an excellent illustration of how a child approaches language. In these songs, the emphasis is on the sound and the construction of words which "sound" pleasant; they are phonetically descriptive and fun. The young child is more interested in the sounds of the words than their meaning - the story told is secondary.

As in the case with babbling and repeating words, nursery rhymes and children's dances are also seen as games by children. Because they are perceived as games, the child's motivation is stimulated to listen, learn, and vocalize. As a result, children's songs act as a catalyst in this important transition from the infant's nonverbal world to the adult's world of verbal communication. In a way, these songs are like toys for the ear and voice. The educational value of such "toys" speaks for itself. All children should have access to them.

Children's songs and nursery rhymes harmonize body movements and motor functions by their effect on the vestibular system of the ear. They also increase the child's awareness of his body and help shape his body image. It is useful to view the body as an instrument which allows language to be expressed. Helping the child master the "body instrument" with music and song paves the way for successful language development. It is interesting to note that over 100 of the body's muscles are used when speaking. We must also remember the importance of motor functions in writing.

Counting songs illustrate that music may be considered highly mathematical in structure. Counting while singing invites the child to learn numbers in a playful way. This not only facilitates the integration of arithmetic facts and concepts, but it also allows for

better awareness of space and time. When we work with a child who has problems with his multiplication tables, we suggest that he sing them as a series of counting songs.

THE CHILD WITH LISTENING PROBLEMS

A child with listening problems cannot benefit from most of the effects of music that have just been described. In many cases, he does not like music, or else he ignores it. This makes sense when we know that defective listening permits only and unclear, distorted, or monotonous perception of sound. The child who is unable to listen is at a great disadvantage in the process of language development. This child will certainly have problems reading, spelling, and perhaps in arithmetic; he may also be diagnosed as learning disabled or dyslexic.

Whether this child sings in or out of tune, his voice often sounds "unpleasant". It is monotonous and dissonant when he speaks, as though he were speaking "off-key". His sense of rhythm is precarious and in some cases nonexistent. The same is true for his awareness of time and space. He doesn't like classical music, and he especially dislikes instruments which produce high-pitched sounds. He says that the sound of a violin is like a metal saw; it hurts his ears and sets his teeth on edge.

When learning how to play an instrument, he may have problems with hand and foot coordination. Just as he reads a text, he will read a music score slowly, with confusion, making mistakes along the way. At the same time, he would like to play drums and spends his time listening to rock and disco music, which very often is too loud. "It's music for the deaf!" his parents say. No, it is a poor listener's music.

USE OF MUSIC IN THE TOMATIS METHOD

The purpose of the Tomatis Method is to improve listening and reduce listening-related problems. Three kinds of musical information are normally used during the listening program: Mozart's music, Gregorian chant, and children's songs.

Mozart's Music

In observing the effects of different kinds of music, Tomatis came to the conclusion that few musical examples produced the sought-after therapeutic effects on the listening function. For instance, "Chopin-type" music has a relaxing effect but in some cases may reinforce daydreaming and absentmindedness - tendencies which are often found in children with problems at school. Other kinds of music such as Paganini's, Wager's or military marches, have an energizing effect, which may increase hyperactive and aggressive tendencies, as well as irritability in certain children. These are also characteristics we recognize in children who have problems adapting to school. The highly rhythmic, low-frequency sound of rock, disco, and other modern music has the same effect as marching music on young people. It appeals to them because it heightens the level of body sensation, but the quality of the sound diminishes the ear's ability to listen.

Mozart's scores seem to achieve the perfect balance between the relaxing and energizing effects of sound. Most of the music used in the listening program features the violin, as in Mozart's symphonies, divertimentos, serenades, and concertos. This music is modified by electronic filters which remove or soften the low-pitched frequencies so as to stimulate the perception zone of the high harmonics, a zone of prime importance in the listening function.

The filtered music of Mozart is used all along the program. During the passive phase of the program, it prepares the child to listen and communicate. It relaxes the child and at the same time awakens the child to the world of sounds. During the active phase of the program, the filtered music is used to allow the child to relax between singing, repetition of words, and reading exercises.

Gregorian Chant

Gregorian chant is a musical genre which has a rhythm consistent with the breathing and heartbeat of a calm, relaxed person. In other words, the rhythm of Gregorian chant parallels the physiological "rhythm" of a non-stressed person. During the program, Gregorian chant is used to calm impulsive, irritable, tense, or anxious children. Singing exercises using Gregorian chant are introduced during the active phase of the program. These exercises improve the quality of the voice and thus prepare the way for active sessions in which the child repeats words and reads aloud. Teaching the child to produce a good sound with his voice is key to developing good audio-vocal control or self-listening. A child who likes the sound of his voice will be happier to use it for speech and language.

Children's Songs

The role of counting songs, nursery rhymes, and other children's songs as an invitation to language has already been explained. For children under the age of 8, a selection of these songs is used during the active phase, which deals with children's pre-linguistic stage of development. First they listen to the songs; then when they want, they begin to sing them. For older children and adults, vocal exercises using Gregorian chant replace nursery rhymes.

CONCLUSION

In summary, the use of music in the Tomatis method relaxes and energizes the child, stimulates listening and, in so doing, invites the child to communicate and learn. Furthermore, the use of songs and chant prepares the voice and body for the expression of language.

Affects of selected music used in specific situations of the Tomatis Method are beneficial for children with specific language, learning, and communication problems related to weak or impaired listening. Moreover, benefits are also experienced by adults who suffer lack of energy, fatigue, irritability, difficulty maintaining attention and

concentration, coping with stressful situations, delivering a speech to a group, as well as other communication difficulties.

After 25 years of experience using music to help children, I am absolutely convinced that children need music to grow and develop harmoniously. I believe that they should be exposed to music as soon as possible, that is, during prenatal life through their mother's singing. Music education should be at the top of their preschool activities list. Through music education, children should learn that music is not only a highly efficient tool; music is also a great companion for the rest of their lives.

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Paul Madaule is Director of The Listening Centre in Toronto. He studied psychology at the Sorbonne in Paris, graduating in 1972. He had previously met Dr. Tomatis who helped him overcome problems related to dyslexia. Madaule moved to Canada in 1978 and started The Listening Centre in Toronto - the first of its kind in America. He has subsequently helped other professionals create Listening Centres in the U.S. and Mexico. As one of the world's leading authorities on listening, Madaule spends much of his time lecturing, giving seminars and workshops, or participating in media events on the subject. He originated "The Listening Experience" workshop and is author of a book entitled *When Listening Comes Alive*.

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