EAR TRAINING

THE NEUROACOUSTIC AND RELATIONAL PATH FOR A NATURAL ACQUISITION OF LANGUAGE

Are they just little songs?
How and why singing makes me say "I'm good at languages": theory, experiences, considerations.

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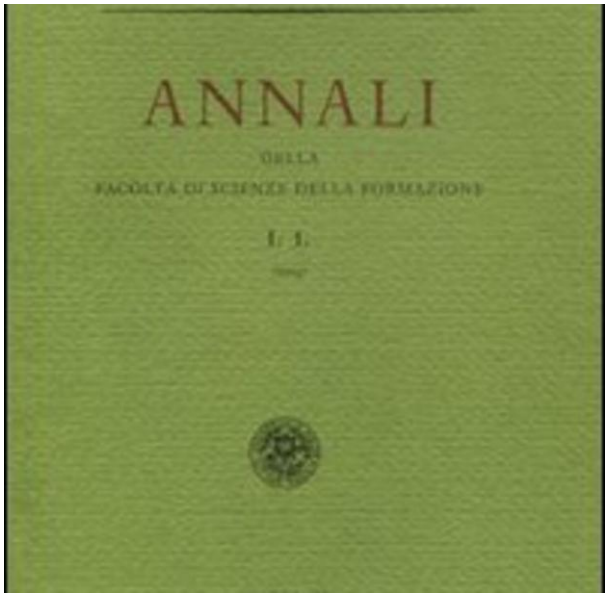
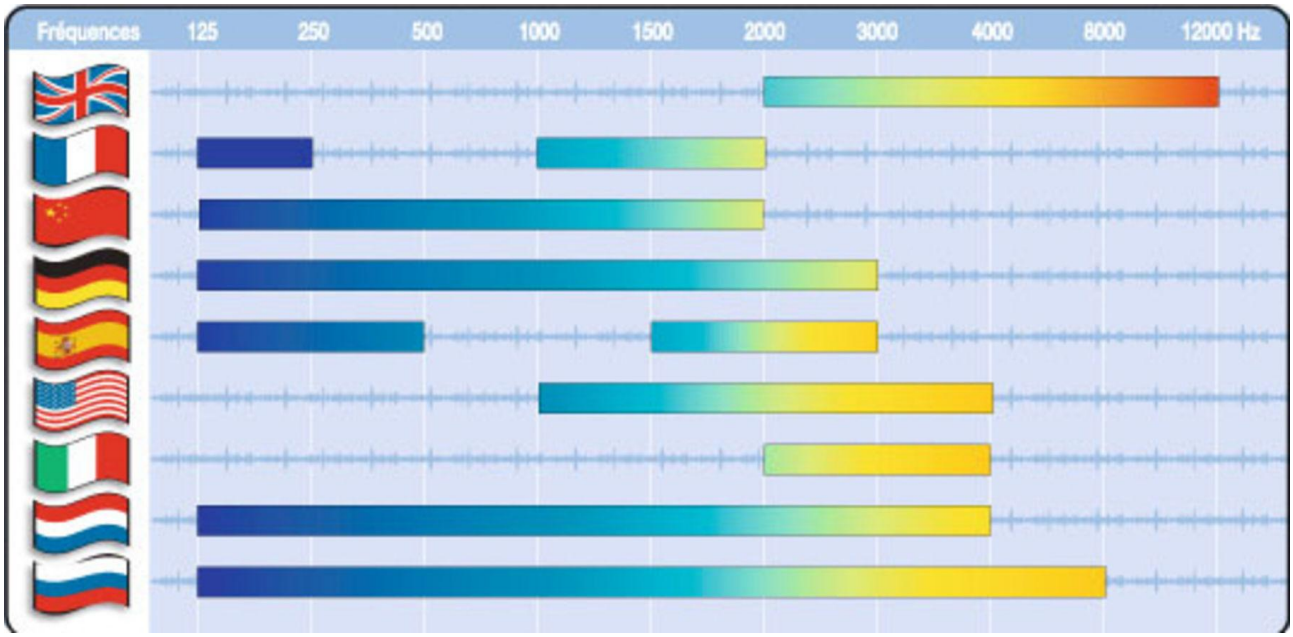


"*I'm just not good at languages…*" "A second language? I can understand it when I read it, but speaking… well, that's another story." How many times have language teachers come across such statements? But what does it mean to be "good at foreign languages"? In this article we will explore what predisposition for languages consists of, approaching the issue first from a neuroacoustic perspective, then from a relational one, and we'll examine how singing can foster a stable predisposition for learning languages. We will show how singing is not only useful for learning a foreign language but, in certain respects (neuroacoustic, relational, and value-based), truly indispensable. Finally, we will discuss some practical considerations for selecting the most suitable teaching material according to the students' ages.

1. Neuroacoustic Aspects

Let's begin with some examples. We have often observed that people from Eastern European countries can learn our language relatively quickly and, surprisingly, with minimal foreign accent. Conversely, Spanish speakers who learn English—even with perfect grammar—typically retain a strong Spanish accent. Spaniards, Italians and English speakers generally find Eastern European languages, like Russian, almost prohibitive to approach.

Dr. Alfred Tomatis (Paris) explains this through sonic analysis of different languages: it has been measured that each language utilizes different harmonic sound frequencies. In his graph, harmonic sounds are shown in hertz as used in various languages—not only those perceived by the ear but also those present in spoken language.



For example, French ears are most sensitive to sounds between 1,000 and 2,000 Hz; English to those between 2,000 and 12,000 Hz; and Italian ears focus on 1,500 to 3,000 Hz. German harmonic range is broad up to 3,000 Hz, Russian even broader, spanning low to very high frequencies. French listeners are particularly sensitive to frequencies from 100–250 Hz and again from 1,000 to 2,000 Hz.

This doesn't mean there's total "deafness" outside one's frequency range, but rather a reduced sensitivity, resulting in under-use of those frequencies. That's why French listeners (1,000–2,000 Hz) struggle to perceive British English (2,000–12,000 Hz). On the other hand, German speakers often find American English easier, since German and American English share frequency peaks around 3,000 Hz. Slavic speakers are more adept at picking up foreign languages due to their greater auditory openness or permeability.

Tomatis's early experiments weren't originally aimed at language learning. Treating a famous opera singer who was losing his voice, he found he could radically alter the singer's voice by modifying auditory input through electronic filtering. These experiments led to a simple yet profound idea: "you cannot reproduce a sound you cannot perceive." Similarly, you can only reproduce by voice the sounds your ear can accurately discriminate. Pronunciation and intonation errors in a second language are linked to missing auditory perception. These can't be corrected without enhancing one's ability to hear unfamiliar frequencies.

So, being "good at languages" is first and foremost an auditory matter: a person is predisposed if their ear can catch a wide range of sounds; they aren't if their ear perceives a narrower range than required by the target language.

Rather than just saying "speaking a foreign language," we should say "listening to a foreign language" in an acoustic space that varies by language.

Often, language teaching overlooks this: before teaching how to speak, one must teach how to listen. We'll return later to how singing specifically addresses this.

2. Relational Aspects

But neuroacoustics alone does not solve the problem. To use a second language successfully—even without perfect pronunciation—one must have the will to communicate. Even with excellent sound perception, if one lacks the relational will, language learning remains incomplete and ineffective. Thus, being predisposed to foreign languages is not merely neuroacoustic—it also encompasses relational dynamics. Here too, singing offers help.

In the early 1980s, at the school where I taught early computing (Commodore 64, Amiga, Vic-20), our headmaster—an expert in computing—once told us: "You don't learn to use the computer, but through the computer you learn to do things you already know more quickly and better." At the time, many of us were amazed, but today that idea has lost much of its novelty. Similarly, one does not learn English per se, but through English, one learns to express opinions, ask permission, describe reality—in short, to communicate.

Feeling capable of communicating is not always obvious or guaranteed. Some children and adults feel inadequate in relating, often unconsciously, as a defense mechanism. So here's a second answer: one is more predisposed to foreign languages the more free one feels in balanced communicative relationships—relationships where the mind does not need defense mechanisms against judgment. And as we'll explore, singing can help both teachers and learners enhance relational dynamics.

What underpins good relational ability? A satisfying relationship involves:

a. self-acceptance;
b. accepting the other as they are;
c. giving and receiving information openly.

a. Self-acceptance

Engaging in relationship means exposing part of oneself; self-acceptance involves recognizing both one's physical being and one's meaningful qualities. Some feel they're not good at languages because they subconsciously consider themselves undeserving of free communication. This can severely affect motivation and outcomes—especially among younger learners whose self-image is influenced by the affection and acceptance teachers convey through nonverbal cues and tone.

Teachers, too, need to be aware: success often begins with knowing and appreciating one's own strengths and weaknesses, and projecting authentic dedication to the profession.

b. Accepting the other

True connection means understanding others as they truly are. Communication breaks down when we form ideas about people before knowing them. Accepting a learner fully means recognizing their potential, their attitudes, and their unique learning style. Techniques from NLP (Neuro-Linguistic Programming) help here. Learning, like perception, happens through sensory channels—visual, auditory, kinesthetic, olfactory/taste. If a teacher neglects a student's preferred channel (e.g. visual for a visually-oriented learner), communication becomes less effective.

Teachers should ask: *Which communication mode do I use most? Which do each of my students use?* This awareness fosters teaching that truly meets students' needs.

c. Giving and receiving information

This is the natural result of working on the prior two aspects: self-acceptance improves our ability to share; accepting others enhances our listening. Communication thus becomes real *com-unic-azione*. Tone of voice, breathing, posture, and self-esteem literally shape how students perceive us—and whether they feel safe to learn a foreign language.

If you breathe deeply and steadily, your voice projects security and openness; conversely, shallow or tense breathing undermines your vocal presence and can reinforce internal defenses. Voice reflects not just anatomy but emotional and relational equilibrium.

By cultivating "voice awareness," teachers and learners can consciously align vocal expression with self-image and relational intention. Practices like autogenic training, yoga, or simply taking moments of calm during busy lives help nurture this internal peace—and in turn, support predisposition for language learning.

3. Neuroacoustic Problems and Solutions

Revisiting harmonic sound differences across languages, we confirm: you cannot produce what you don't perceive. Why do languages vary so widely in harmonic structure? Think of a violin versus cello playing the same A-440 Hz: the pitch is the same, but the timbre differs due to each instrument's resonant cavity—like mouth and nasal cavities shape speech harmonics.

The inner ear (particularly the organ of Corti) learns to focus on certain frequencies, signaling to the mouth which sounds to produce. The question is: how to train the ear to perceive those missing harmonics? Tomatis invented an "electronic ear," used in centers where professionals re-train hearing via electronic filtering. Immersion in a target-language environment helps too—but singing can offer a practical alternative.

Sung human voice delivers a rich spectrum of high frequencies—from ~800 Hz to 8,000–10,000 Hz—especially via bone conduction, stimulating the cortex powerfully. For an Italian native ear accustomed to 1,500–3,000 Hz, singing in a foreign language for 4–5 minutes, in an upright posture before listening activities, primes the ear to receive higher frequencies—making listening more effective.

In essence: singing systematically in language teaching is crucial, because it "opens" the ear and supports accurate pronunciation and intonation. It also multiplies neural memory traces—physical and vocal memory distributed throughout the body. Music—rhythm, melody, body involvement—enhances memorization more effectively than spoken word alone.

4. Relational Benefits – Problems and Solutions

Singing before listening exercises also helps relationally. Singing together fosters group listening, mutual awareness, and engagement—even shy students feel supported by the ensemble. But when a student resists singing, the teacher should not force participation—they may be unable or unwilling to expose their voice socially. Instead, one should attend to their body language and relational signals. Forced singing is like forcing revelation; recognizing and respecting boundaries is key for productive learning.

Tomatis also highlighted deep ties between auditory and relational capacity—some audiometric tests can accurately reflect relational aptitude via head and ear structure. Thus, group singing not only improves hearing but relational comfort too. Experiencing one's voice in a foreign language early in lessons boosts motivation and self-image, especially in group settings like a circle where voices are visible and shared.

5. What to Sing: Melodies and Content

Choosing songs for teaching: traditional songs vs custom-designed educational songs. Traditional songs offer cultural familiarity, while didactic songs focus on re-usable vocabulary in communicative contexts.

As a songwriter, I consider five criteria for choosing songs (equally valid for teachers selecting materials):

1. **Vocal range**: For younger students (grades 1–2), range is typically Do-Sol; older, up to an octave, but avoid extremes.
2. **Melodic memorability**: Simple, predictable melodic phrasing aids recall.
3. **Text-music alignment**: Natural alignment of text accents and melody to avoid unnatural phrasing.
4. **Age-appropriate sound**: Songs must suit the age group and their expectations; low-quality recordings or childish style can disengage older students.
5. **Educational content**: Songs should carry communicative or moral themes—e.g. "I have/I don't have" tied to values like trying before judging (à la "I have a dream").

Also, ensure playback equipment supports high frequencies (~20,000 Hz). Many inexpensive audio systems top out around 10–11 kHz, which is inadequate for language teaching.

6. Experiences

At the comprehensive school in Castellarano (Reggio Emilia), we developed songs and didactic materials, included in published courses:

- *The Magic Book* (primary English course, 5 volumes, with Maria Grazia Bertarini, ELI, 2005)
- *Dreamers – Great people who have changed the world* (Book + CD, ELI, 2012)
- *Happy Kids* (primary English course, 5 vols, with M.G. Bertarini, ELI, 2014)
- *Now I Can* (primary, with M.G. Bertarini, ELI, 2014)
- *The Story Garden* (songs and chants for primary English course, with Bertarini & Huber, ELI, 2017)
- *Grammar Songs and Chants* (videos and exercises for natural acquisition of basic grammar, levels A1–A2, ELI Publishing, 2020)
- *Music Video for Grammar* (students' book & teacher's guide, ELI Publishing, 2022)

Additional unpublished material is available on my YouTube channel.
https://www.youtube.com@iottip

7. Final Considerations

Exploring what it means to be “good at foreign languages” is an exciting challenge for teachers—it demands re-examination of values, self-perception, vocal identity, theoretical frameworks and methodologies. Singing plays an indispensable role: it opens acoustic reception, fosters near-native pronunciation, promotes positive self-image and a sense of ‘communicating voice’ within a group. It allows high-value educational content to be conveyed naturally. So rather than saying “my students just aren’t good at languages…” or “it’s all just little songs…,” we can affirm that the right songs, the right ears, the right community—all guided by the teacher—make all the difference.