

HUMAN VOICE AND INSTRUMENTAL SOUND: EMBODIED PERCEPTION AND PERFORMATIVE SPACE

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1. Introduction

My artistic research, *Human voice and instrumental voice: A comparative study in timbral content*, concerns the relations between the human voice and instrumental sound, seen from an embodied and performative point of view. During the research process, I have been investigating the relations between the spoken language and instrumental sound, looking for possible similarities between the timbre of the spoken voice and that of string instruments.

Each of us has an individual repertoire of gestures and body movements and ways of speaking and pausing, the "style" of which may be recognizable. How does this transfer into our way of making music? Is this perceptible in a person's individual sound?

Among the first ways of producing sound, the human voice stems from the body. Its timbre depends on the throat, mouth, and facial cavities (see phonatory system). Voice is crucial in identifying a person; it is a mark of identity.

Through audio and video recordings with performers from different backgrounds, I investigate personal ways of speaking and body language together with the timbre of their instrumental sounds. A person's mother tongue plays an important role in this process, as it reveals the rhythm and tone color of a musician's spoken voice, which is reflected in their instrumental sound.

According to Adriana Cavarero (2003),¹ the history of Western culture has been largely videocentric and logocentric. The term *idea* comes from the Ancient Greek *ideo* ("I see"). With the predominance of logos, concept, and word, vision became privileged at the expense of other senses. Cavarero invites us to rediscover the *phoné*, "logos vivified through a throat of flesh." Voice also unveils the hidden, the subliminal.

As recent studies confirm, the link between speech and music is strong: Steven Mithen (2005)² affirms that the ability to make music was born at about the same time in our evolutionary history as the ability to speak. Both music and language develop over time and have organized structures. They both require social abilities, the capacity to listen and to interact. Language may have originated from one of its musical qualities—prosody.

¹ Adriana Cavarero. 2003. *A più voci. Filosofia dell'espressione vocale* (Milano: Feltrinelli, p. 76).

² Steven Mithen. 2005. *The Singing Neanderthals: The Origins of Music, Language, Mind and Body* (2006 ed. London: Weidenfeld & Nicolson, pp. 11-27).

1.1 Embodied perception

In experimental psychology literature, parallelisms have been drawn between speech and music. In the article “Temporal Modulations in Speech and Music” (Ding et al. 2017),³ it is affirmed that “rhythmic structure is a fundamental feature of both” as “both domains involve sequences of events (...) which have systematic patterns of timing, accent and grouping.” This study makes use of a big quantity of data, short samples of music from different music genres. One finding is that speech rhythm differs across languages and across speakers: “people speak at different rates and pause with different patterns.” Speech rhythm is also crucial for identifying a certain voice.

“Preliminary analysis suggests that humans can classify speech and music, based on temporal modulation information.” Speech rate, in all languages, is usually much faster than music rate. “Statistical regularities of slow temporal modulations may be intrinsic signatures of both speech and music.”

The conclusion is that further study is needed and to include music excerpts from different cultures, namely outside the Western world.

Another field of interest regards studies in embodiment, neuroscience, and cognitive psychology. Many show the importance of the environment in the shaping of an individual. According to N. Katherine Hayles (2017),⁴ nonconscious cognition works along with consciousness and biological and technological material processes. It integrates somatic markers, such as chemical and electric signals, into coherent body representations.

For Antonio Damasio (2000)⁵ “there is no self without awareness of and engagement with others.” Realizing the importance of multiple levels of human interactions with the surrounding environment forms a strong basis for considering bodily engagement in a performance situation, and the mutual interactions of artists on stage. In this view, space can also be redefined and shaped through sound, visuals, and performance.

³ Nai Ding, Aniruddh D. Patel, Lin Chen, Henry Butler, Cheng Luo, David Poeppel. 2017. “Temporal Modulations in Speech and Music.” (*Neuroscience and Biobehavioral Reviews* 81, pp.181-187).

⁴ N. Catherine Hayles. 2017. *Unthought: The Power of the Cognitive Nonconscious*. (Chicago, London: The University of Chicago Press).

⁵ Antonio Damasio. 2000. *The Feeling of What Happens: Body and Emotion in the Making of Consciousness*. (New York: Mariner Books).

1.2 Performative space

In the past few years my interest has leaned towards an extension of the concert form, towards performances which involve multiple senses used at once. As brain studies point out, human perception is multimodal, that is, in a normal environment, we are immersed in a network of stimuli involving many sensory modalities.

The concept of space in music has also been evolving during the second part of the twentieth century (especially with the works of Xenakis, Nono, and the French spectral movement). Today it is another parameter to take into account in music composition, a parameter brought even more to the fore by acousmatic music.

Experimenting with space, decentralizing the listening point, and finding alternatives to the fixed concert paradigm (e.g. the audience sitting in front of the stage) have captured my interest during the research process.

Space is physically defined by the acoustic properties of the hall as well as by the disposition of performers and instruments in unconventional ways. Through visuals and electronics, a virtual space can be shaped: a space where the audience can have a more active role, unlike in the traditional concert, where the audience may have only a passive experience.

In the five doctoral projects part of this research, I explore these questions from an artistic point of view, with a series of new electroacoustic compositions. To do so, I have developed long-term collaborations with artists from other art fields, such as with the experimental film maker Marek Pluciennik, the media artist Roberto Pugliese, and the composer and researcher Juan de Dios Magdaleno.

In the first doctoral project, *Imaginary Spaces* (18 October 2016),⁶ the listening point moved; the audience could change position in the hall and even explore the sonic space and perform with interactive sonic objects. Meanwhile, the musician (the cellist/composer Juho Laitinen) performed in two opposite parts of the hall. Video projections by Marek Pluciennik created augmented spaces, with projections of body parts on black and projections on other surfaces, such as an inflatable half-sphere. In the second one, *Voices and Spaces* (20 October 2017), the theme of space was especially apparent in two works, the string quartet *Suonno* (2004, new spatialization 2017) and the new work *The end of no ending*.⁷ In this project there was another important element, one I had started to explore in

⁶ *Imaginary Spaces*. Video recording. Directed by Otto Olavinen. Online 2016, <https://vimeo.com/paolalivorsi>

⁷ Paola Livorsi. 2017. *The End of no Ending*. Music score. (Helsinki: Music Finland).

Imaginary Spaces, namely how the performer's body, through voice and bodily expression, affects the quality of the sound produced. The human voice too is highly physical and its quality dependent on the vocal tract; it is something very individual. So is a performer's "instrumental voice," which is also connected with personal body language and movement style.

The third project, *Voice and Cello* (April 2019) will focus on the interaction between spoken voice and cello (one player), through the collaboration with the singer and cellist Anni Elif Egecioglu.

During 2016-2019 I have been collaborating and recording with musicians such as Juho Laitinen, Dominik Schlienger, Sergio Castrillón and Anni Elif Egecioglu, building up an audiovisual database of over 500 samples, which I am currently studying and analyzing. The database will be published online once the research will be completed.

1.3. Conclusions

This research opens up innovative views in the fields of human voice, mother tongue and music making with voices and string instruments. It also includes bodily aspects that have been traditionally not considered. It aims to explore the multiple relations of gesturality and bodily interactions in real and virtual spaces.

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