

LISTENING AND THE SOUND DIMENSION IN THE TERRITORIAL EXPERIENCE

<http://dx.doi.org/10.21527/2237-6453.2024.61.16050>

Submitted: May 30, 2024

Accepted: August 17, 2024

Carolina Bee Araujo¹
Paulo Rogério Lopes²

ABSTRACT

This article presents and discusses the sensory and affective aspect of the relationship with the territory, delving into the experience of listening and sound environments. We understand that caring about listening and other individuals' sensory experiences is positively connected to the feeling of belonging, that it reveals territorial knowledge and influences the quality of human life, as well as the environmental quality of the surrounding ecosystems. The theme fits into the gap that is reproduced by modern scientific practice: the insistence on boycotting the body and its senses in the production of knowledge; ignoring the power of this aspect in the experience of both the researcher and the world under investigation. The article aims to present and discuss the sensory and affective approaches as theoretical bases and diagnostic, analysis and evaluation tools linked to the methodological procedures of studies and actions in the context of Sustainable Territorial Development, taking into account a more sensitive and creative approach to the individuals and experiences of a territory. The text begins with a theoretical foundation, drawing attention to the subjectivities of bodily and cognitive experience in the construction of territories, and then addresses relevant aspects of the study of sound and listening that form an overview of the subject; finally, it discusses potential contributions to the territorial approach to development. We believe that listening and sound environment studies can participate in the recognition and analysis of territorial realities, in order to prospect innovative and sustainable possibilities for territorial development, as well as promoting educational and sensitizing experiences.

Keywords: territory; perception; acoustic ecology; deep listening; soundscape.

¹ Federal University of Paraná (UFPR), Litoral Sector, Matinhos/PR, Brazil. <https://orcid.org/0009-0009-7526-9286>

² Federal University of Paraná (UFPR), Litoral Sector - Graduate Program in Sustainable Territorial Development, Matinhos/PR, Brazil. <https://orcid.org/0000-0002-3053-0622>

INTRODUCTION

In order to give substance to a territorial approach to development (Dallabrida, 2022), it is necessary to put together a set of epistemological, theoretical and methodological bases that favor the investigation of the complexity and multidimensionality present in the experiences and resources of a territory. It is necessary to design research tools that can combine to highlight territorial aspects, putting into perspective the diversity of its material and immaterial territorial heritage (Dallabrida, 2020). Through this survey, the aim is both to enhance the territorial identity aspect and to recognize the territory's assets and resources that can serve innovative and sustainable territorial development projects (Dallabrida, 2020). For the researcher, in addition to the diagnostic exercise, the parallel challenge is to learn how to act as a territorial enabler for sustainability during the course of their research. In this way, appropriate methodologies and tools can also foster new dialogues and reflections in the territory under investigation. More than just data collection tools, these can be potentially educational and sensitizing, actively contributing to the positive transformation of reality.

Santos (2019) draws attention to the need to return to the diversity of the world in terms of knowledge, experiences and cultures, which have historically been disregarded and suppressed by a way of understanding knowledge based on the epistemological models of modern science. He bets on the Epistemologies of the South to find territorial solutions and understands that it is fundamental to remember that the sensitivities of the body and affections are an irrevocable part of the act of knowing. Taking into account the multidimensionality of the experience in a territory and the subjectivities of the individuals who are part of it, we can understand the importance of propositions that explore the diversity of aspects of human experience, and we can begin to glimpse the importance of exploring the physical senses' power in the creation of perceptions and experiences (Tuan, 1980).

The aim of this article is to address the importance of sensory, affective and subjective experience in knowledge production, in order to contribute to the territorial approach to development. The more specific focus is on the listening and the sound dimension aspects, which can be tools for recognizing territorial dynamics. The article is a theoretical essay produced from a Master's research project that also involves practical experimentation with the theme. The text begins with three first parts, which make a theoretical presentation for a broader contextualization in this works' proposal: "Perception, attitudes and values in the experience of place"; "The body in knowledge production: the importance of activating the senses" and "Deep listening and the researcher's role", based on Tuan (1980, 1983) and Santos (2019). The text then presents another set of six parts that discuss the conceptual bases and guidelines for studying the sound dimension: "soundscape"; "acoustic ecology"; "high-fidelity, low-fidelity and schizophony soundscape"; "fundamental sounds, sound signals and sound marks" and "listening dispositions". This second set is dedicated to deepening aspects of the discussion on listening and the sonic dimension of experience, mainly based on studies by Schafer (2001, 2011, 2019), Westerkamp (2002), Truax (1984), Fonterrada (2004) and Krause (2013). Throughout the text, we seek to bring reflections and contributions from this area of knowledge, which we further develop in the last section entitled "Listening and the territorial approach to development".

The vision and experience of these musicians, educators and researchers support the view that the materiality of music, sound, noise and silence, also constitute various contexts

of both human and non-human realities. In addition, they project a broader meaning onto this vision, that concerns not only the care for the preservation of the sound world in which we live, but also a whole human potential, from a cognitive and affective point of view, which must be alert to possible socio-environmental transformations. The sound dimension of the world reveals events, announces presences, manifests relationships in time and space, provokes sensations, provides information and leaves clues that only attentive listening can capture and take advantage of, appreciating the subtleties of its dynamics. The symbolic experience with the universe of sound and music dates back to the dawn of humanity and plays an important role in spiritual experiences and beliefs, socialization and communication (Fonterrada, 2004).

This is a germinal theme in the context of territorial development, but it is very instigating, very interdisciplinary and deeply connected with the experience of the listeners, with socio-environmental perception, a sense of belonging, identity, local knowledge, feelings and memories. We believe that it is an enriching approach for research, debates and projects with a view to the Territorial Approach to Sustainable Territorial Development, and that it could lead to contributions mainly in the cultural, natural and human dimensions of territorial heritage (Dallabrida, 2022).

THEORETICAL FRAMEWORK

Perception, attitudes and values in the experience of place

The researcher Yi-fu Tuan was a founder of humanist geography when he turned his attention to aspects of human perceptual and subjective experience in the delimitation of their territories (Risso, 2014). Tuan (1980) argues that without understanding that we are beings who subjectively experience our relationship with place, the search for lasting solutions to environmental, social, political and other problems becomes fragile, as these are fundamentally human problems. As such, it takes a deeper look at the most basic dimensions of human experience and motivation: perceptions, values and attitudes. From this perspective, the concept of place encompasses individual experience, which is the result of the individual's appreciation throughout their experience of space. In turn, the concept of experience involves the creative result of the individual's interaction with the environment; it is the learning that takes place through a complex of perceptions, sensations, emotions and conceptions (Tuan, 1983).

In his book *Topophilia* (1980), Tuan dedicated himself to bringing together concepts to describe the sensory and cognitive means by which the external world is captured and signified, outlining the connections between perception and spatial representation, cultures and social relations. These means constitute both individual and collective filters, which ensure that the experience and description of the world is shared in common perceptions and, at the same time, that this consensus is permeated with singular, dissonant and individual elements. Its aim was to provide a cohesive reference and a starting point for analysis in the most diverse contexts about the relationship between individuals and their environments. It is a general study of the common ground human beings share in perceiving and valuing the physical environment, and also of how the experience of place can be so individual. In this way, Tuan's (1980) intention was to contribute to a more human study of territory in Geography, drawing attention to the aspect of sensitivity, affection and singularity in the environmental experience, stimulating, as a consequence, the emergence of the subjective in the researcher's mapping of territories.

Some definitions clarify how the author sees the main concepts of the general theme of his work: he defines toponymia as being “the affective link between the person and the place or physical environment” (Tuan, 1980, p. 5, our translation); perception being “both the response of the senses to external stimuli as well as the purposeful activity, in which certain phenomena are clearly registered, while others recede into the shadows or are blocked” (1980, p. 4, our translation); and attitude being “primarily a cultural stance, a position one takes towards the world. It has greater stability than perception and is formed from a long succession of perceptions, that is, experiences” (1980, p.4, our translation).

Tuan points to the need to be sensitized to the affective bond that individuals and groups create with space, the sense of “home” in the places that subjects experience through immersive living. This kind of sensitivity is required of the researcher who ventures into the most diverse territories in order to listen to people and to consider them (Risso, 2014). It should also be remembered that the researcher is creating their experience of the world through means that are not only rational, but also affective, perceptive and sensory, and their experience cannot be annulled in exchange for pure data (Padua, 2013).

His approach inherits the epistemological understanding of Phenomenology, in which there is no objective world disconnected from human existence and subjectivity. Knowledge arises from this entanglement, generating experience in a lived world (Merleau-Ponty, 1999, p. 1). From a phenomenological perspective, reality is analyzed descriptively rather than explanatorily. This epistemology opposes the separateness between subject and object idealized by eighteenth-century pragmatist science (Padua, 2013), by which it is assumed that it is possible to isolate external and objective variables, explaining them impartially from a neutral point of view. Despite not restricting himself to the phenomenological methodological procedure, making concomitant use, for example, of Lévi-Strauss’s structuralism and Sartrean existentialism (Padua, 2013), Tuan seeks to recover the role of human consciousness in knowledge and experience within the study of territory. From this perspective, the researcher should seek to act without presuppositions and be open to studying how the territory is structured and experienced subjectively by individuals.

A place is delineated in the relationships established by individuals. Individuals act and interact on the basis of values, and these are generated in a constant flow between thoughts, emotions, sensations and information captured by the physical senses that turn to the surroundings. Every rational, ethical, aesthetic, imaginary, affective formulation, every cultural and social reality of the human being is in constant dynamics with bodily experience, with the environment constituting a continuous sensory stimulus for the inner universe. For this reason, a theoretical and methodological framework that values human perceptions and feelings, which makes it possible to record perceptions, attitudes and experiences, is essential in participatory socio-environmental diagnoses, since this framework expands the possibilities for raising awareness, systematizing and problematizing local territorial realities, which are essential for decision-making and the construction of territorial development projects, programs and plans.

The body in knowledge production: the importance of activating the senses

Boaventura de Sousa Santos, in his book “The end of the cognitive empire: the affirmation of the epistemologies of the South” (2019), reserves the chapter “The profound experience of

the senses” to discuss embodied knowledge. What kind of knowledge is this? It’s not a specific kind of knowledge, but an essential aspect of knowing that has been disregarded by what Santos calls the epistemologies of the North: the philosophies, theories and methodologies that underpin modern Cartesian science. In these epistemologies, knowledge is validated only by reason, and only reason can be trusted. The experience of individual and collective bodies, the senses and emotions are relegated to obscurity in knowledge production. For modern science, the body and its complex of influences on experience is presented only as an inevitable vehicle to carry the intellect, which is considered valid as a producer of knowledge.

However, in order to recognize real prospects for transformations aimed at socially and ecologically sustainable human development, we need to challenge this naturalized logic that divides the body from the mind, discrediting one to the detriment of the other. Rescue the memory and power of the body in experience and include it creatively in scientific endeavor. Knowing is an activity that engages the five senses, if not a sixth sense itself. It is a bodily activity that involves sensations, emotions, perceptions, intuitions; it involves the whole human being and not just the rational aspect. Santos (2019) suggests that there are issues in relation to the sensory body in the production of knowledge and in the social struggles of the epistemologies of the South, which have yet to be identified. The epistemologies of the South, which Santos takes as a counterpoint to modern reductionist science, “refer to the production and validation of knowledge anchored in the experiences of resistance of all social groups that have been systematically victims of injustice, oppression and destruction caused by capitalism, colonialism and patriarchy” (Santos, 2019, p. 17, our translation).

Returning to the work of Tuan (1980), as we advance in the study of perception, we understand that the multisensory capture of the external world does not happen without cultural filters that select the information received, highlighting some, blocking others from consciousness, and assigning them various meanings. In addition to cultural filters and guidelines, much of what we perceive also has value for biological survival. These perceptual orientations are understood as attitudes, which vary between individuals and groups. Different groups and societies relate to and appropriate nature in their own ways, influenced by culture, even in similar geographical conditions.

Tuan (1980) mentions perception as an extension into the world, but this activity requires movement to be effective. For example, we will better recognize the texture of a surface if, in addition to touching it with our fingers, we move over it. We can rest our gaze on an environment, but we will only find an object lost in it if we look for it by scrutinizing its details. In this logic, we can have eyes and not see, ears and not hear, depending on how we direct our attention and how we move, depending on the attitudes that operate with our sensory organs. Tuan (1980) explains that the direction of sensory exploration stops being free at a certain age in children and progressively becomes more directed by cultural values. Taking this dynamic into account, in addition to the diversity of attitudes in contact with the environment, the actual capacity of the senses differs between individuals and between cultures.

On this point, Santos (2019) attributes most of the difficulties in organizing struggles against dominant social groups to the diversity and inequality of bodies and their physical senses. This is because the strangeness that can be caused by a completely different way of experiencing sight, hearing, smell, taste or touch, can obscure the common inequality of the power of the senses. In this case, the experiential diversity of the senses can make a dominated

group “see” another dominated group as being a dominating group, neutralizing a possible convergence of interests. Santos argues that this effect is known to dominant groups, so that they promote diversity if it helps to hide, hinder or make impossible alliances between groups fighting against domination. In light of this, the author points to the importance of embodying the production of knowledge in bodies and senses, in order to make social transformations a reality. Thus, the author invites the researcher to commit to activating and expanding the power of the senses - the power to experience and to know.

Nadja Hermann (2005) philosophically discusses the relationship between ethics and aesthetics, concluding that aesthetic definitions are decisive in moral judgment and, therefore, possible aesthetic redefinitions have the power to allow ethical principles to be reviewed through the filter of sensitivity and not through a rigid rational mold. These redefinitions are necessary so that ethical principles can express themselves according to the plurality, contexts and historicity of reality, finding a balance between the exaggerations of morality and abstract rationality and a superficial aestheticism.

Deep listening and the researcher’s role

There is a difference between hearing and listening. Santos (2019), in his book, begins the topic of “deep listening” by differentiating between these two actions-intentions. Hearing corresponds to the functional use of the ear. You hear without the intention of connecting with what you are capturing. You hear out of the automatism of a physical sense and an internalized demand to hear the teacher, parents, etc. Listening, on the other hand, comes from a desire to connect with what one is getting to know (Tomatis, 2005 apud Santos, 2019), actively and intentionally engaging with what one’s ears and senses are accessing. In the way Western culture works, as in school education, not even hearing is privileged in comparison to speaking and writing (Santos, 2019), and it is not privileged in comparison to the act of looking. Tuan (1980) comments that modern society tends to rely more on sight. If hearing isn’t given any prominence, what about listening then?

Santos (2019) also differentiates between the abyssal researchers, who reinforce exclusions of peoples and cultures, and who hear with the intention of extracting data that corroborates their objectives, and the post-abyssal researchers, who are dedicated to learning to listen in their research. The researcher whom Santos calls abyssal or extractivist is based on modern science, on “knowing-about”, and is always hearing himself and his presuppositions, trying to isolate external sounds. When he turns his ears to the outside, he doesn’t do so with from an open listening disposition, but trying to extract the maximum amount of data he considers relevant in the shortest possible time. It is controlled hearing, with the intention of excluding what is not considered relevant and excluding the effect of their hearing from the analysis. The post-abyssal researcher, on the other hand, has subaltern ears. They are subaltern because they do not control “the sequences and rhythms of sounds and silences” (Santos, 2019, position 2.011, our translation), since they are not looking to extract only the data they consider relevant, but are exercising deep listening.

Deep listening implies closeness, it implies an interest in understanding the other and learning from the other, which is why it is based on “knowing-with” and not “knowing-about”. It involves not only what is spoken, but what is whispered, what is not said, it involves written

words, gestures, non-human sounds. It involves recognizing the silences that precede and follow the sound, respecting their existence and not eliminating them. It requires deep self-silencing on the part of the researcher. This self-silencing is not about excluding oneself from the investigation as a subjective being, it is not about falsifying the absence of the investigator's influence, but suspending the need to interpret and conduct the exchange, in order to be open to and experience the multiplicity of audible voices, but also the inaudible ones, muffled by abyssal exclusions (Santos, 2019).

In addition to inaudible sound, the absence of which can disguise indiscreet and uncomfortable senses of the realities being investigated, Santos classifies what he calls unintelligible sound, which is a complex aspect of research. The author exemplifies that "a non-human sound can be heard as a human sound, and vice versa; a sound from the past can be heard as a sound from the present, or even the future, and vice versa" (Santos, 2019, p. 211, our translation). In this intercultural translation, in the transmission of sound through language or code, lies unintelligibility, positioned before the listener as a presence that cannot be controlled (Santos, 2019).

In describing the post-abyssal researcher, Santos (2019) highlights what he considers to be two commitments that one should seek to assume in relation to the meanings in the production of knowledge:

Firstly, the researcher must consider that they may be dealing with unequal bodies and that, if left unchecked, the inequality of the senses can boycott their research and their role in the struggle. Secondly, research must be converted into a pedagogy for the liberation of the senses; transcriptions that produce passivity must be questioned in order to create space for alternative transcriptions. This double commitment allows the post-abyssal researcher to contribute to transforming victim-bodies into resistance-bodies, without them becoming victim-bodies of the researcher in the process (p. 296, our translation).

The first commitment mentioned by Santos requires the researcher to be attentive to the inequalities and difficulties of the senses, the difficulties of appropriation by individuals and communities of the power of their own bodies. We can think of many ways of expressing these inequalities. A deaf person is not necessarily unequal to a hearing person if they appropriate the meaning of listening in other intersensory and symbolic ways, but they can be considered different. Inequality here refers to the level of oppression, violence and alienation that bodies suffer in different social and cultural contexts, which ends up being expressed in the attitude and sensitivity of individuals, or lack thereof. Despite this challenge, when the researcher activates awareness of their own body and senses, they also assume the second commitment: to contribute to the liberation of the senses of others. The researcher's intention and attitude is capable of producing passivity, or producing the conditions for subjects to feel that they are constructing knowledge together with the researcher, based on their bodies and their capacities. By provoking participatory and creative practices, the researcher stimulates contexts in which alternative transcriptions can take place. This disposition in research helps transform victim-bodies into resistant-bodies, bodies whose capacities and singularities are valued and activated in the exchange and production of knowledge. And it is these resistant bodies that can feel capable of transforming the conditions of their surroundings.

Turning to the issue of listening, another point that arises is the effect of capitalist domination by electronic media and technologies in everyday life, which end up conditioning

the use of the senses and conditioning their capacity for aesthetic appreciation. In addition, the noisy modern and industrial soundscape presents challenges by overloading individuals' attention with certain sound information, blocking out others. This also contributes to a generalized state of stress and inattention and, naturally, a lack of conscious engagement in listening in these social spaces (Cremonese, 2017). For this and other reasons, the attitude of listening needs to be activated and challenged, as well as that of the other senses, in order to break out of conditioned lethargy and empower one's possibilities of perception and knowledge production, based on the conscious integration of the sensitive body in the process.

Acoustic Ecology

Through years of systematic sound collection in various natural ecosystems around the world, since 1968, with the help of spectrograms applied to audios for analysis, ecologist and musician Bernie Krause has found that natural environments have become increasingly silent. Krause (2013) describes observations and listening in his immersive environments with a wealth of sensitivity, weaving a discussion about sound and preservation. In it, he also describes how places that once had a density of sound, reflecting large populations of animal species and strong biodiversity, years later began to show a soundscape greatly reduced in density and diversity. This silencing gives a bad feeling and raises questions about the real condition of ecosystems, even apparently well-preserved ones.

According to biologist Edward O. Wilson, who made an estimate in 1990, an average of 30,000 species of animals disappear every year (Wilson, 2005 apud Krause, 2013). In "The Future of Life: A Study of the Biosphere for the Protection of All Species, Including Humans" (2002), Wilson recalculated his estimates, imagining a future in which by 2100 half of the planet's animal and plant species will have disappeared, leaving a few fragments of private or government-protected ecosystems inaccessible to the population (Wilson, 2002). The reason for this is undoubtedly the loss of representative habitats.

Adding to the more well-known causes that impact habitats, Krause (2013) makes a valuable contribution to this by discussing the harmful effect of human noise growth, highlighting yet another trace of a society that is unaware of the flows of nature. The researcher explains that the noise produced by the way modern society works interferes with the subtle auditory textures of the remaining environments and this negative overlap tends to overload the entire communication network of species, which depend on it for reproduction, food and survival.

As well as interfering with the functioning of wildlife, leading to an overload of the species' communications network, noise from human activities also often leads to auditory stress, which can often be observed in animals kept in captivity. Krause (2013) cites a chilling example, when in 1993 a military jet flew over a Swedish zoo on a routine training exercise, causing tigers, lynxes and foxes to panic. In an attempt to protect their 32 cubs from the intense and threatening noise, the animals tore apart and ate 23 of their own cubs, resorting to infanticide.

The study that Krause (2013) focused on is called Acoustic Ecology, also called Sound Ecology in Brazilian research, and has been defined as "the study of the interrelationship between sound, nature and society" (Westerkamp, 2002, p. 52), with Acoustics being the study of the behavior of sound in different environments (Fonterrada, 2004). Krause (2013) classified

ambient sounds based on three origins: biophony, the sound of living organisms; geophony, sound from natural, non-biological sources; and anthropophony, all sound coming from human activity.

In his book *The Great Orchestra of Nature*, Krause (2013) draws a detailed parallel between the organization of sounds in a natural environment and the organization of sounds in an orchestra. In this comparison, each animal acoustic signal has its own preferred sound range, contrasting or merging with others, in the same way as orchestral suits. The author speculates that this relationship originally arose because music-making emerged in primitive societies from observing the sound organization of biophony in natural environments. However, when it comes to the landscape of a busy city, the whole range of noises in it is a “polyphony of simultaneities that is close to unintelligible and unbearable” (Wisnik, 2017, p. 55, our translation), due to the amount of information and the complete instability and vagueness of the sounds, making it difficult to make relationships with music at first.

Educator Marisa Trench Fonterrada (2004), in her book “*Music and the environment: sound ecology*”, gives a brief overview of the importance that sound and music have for people in archaic anthroposocieties and contemporary oral societies, in non-Western civilized anthroposocieties and Western anthroposocieties. This relevance concerns the creative function that is expressed through various myths dealing with the origin of the world through sound, uttered by a god or gods. It also has a symbolic function, in which the sound phenomena of nature are interpreted as divine voices. Both functions express a sense of belonging of human beings to nature, a perception generated by an integral involvement with their environment, as nature is understood as a force of divinity (Fonterrada, 2004). In the culture of many peoples, sounds and music have a magical ritualistic connection to community activities. They are also aesthetically the result of a closer connection with observing, listening to and interacting with nature.

In non-Western civilized anthroposocieties, written documents from the earliest times bear witness both to the relationship of sound reflecting human culture’s connection with the environment and the cosmos, its relationship with daily tasks, leisure, seasonal celebrations and war, and to the close connection between music, geometry and mathematics (Fonterrada, 2004). In Western anthroposocieties, music became more rigorous and controlled, reflecting both the ideologies of the Catholic Church and the interest in technical science. In the process of Western civilization, music lost the mystical sense of its closer relationship with the environment, words began to be guided more by thought than by imagination, and electrical, industrial and urban sounds were hardly recognized as divine voices, except as some malevolent deity due to their polluting effect (Fonterrada, 2004).

Fonterrada (2004) concludes that in the midst of so many technological transformations, industrial changes and the effects of globalization on the world, the local and global environmental consequences of which we are still trying to understand, human beings need to rediscover the sacred awareness of nature and that they are not separate from their environment, but part of it.

Soundscape

At the end of the 1960s, musician and educator R. Murray Schafer established a study group - The World Soundscape Project - at Simon Fraser University in Vancouver, focused on education and research into soundscape. The group, made up of composers, including Barry

Truax and Hildegard Westerkamp, and students, aimed to document soundscapes, mainly in Vancouver, but also in other cities in Canada and Europe, with the intention of alerting the population to noise pollution and its interference in collective life (Schafer, 2019).

The work was based on the assumption that the general acoustic environment of a society is also an indicator of the social conditions that generate it, and of which paths it tends to follow. Taking this into account, Schafer's philosophy aimed to create an interdisciplinary acoustic project, involving various professionals, to study acoustic phenomena and their transformation throughout history. In this way, it was hoped to contribute to a sharper perception of local sound conditions, aimed at the well-being of their communities (Schafer, 2001), but also to discover whether it would be possible to determine soundscape design principles, by recognizing any particular or recurring models in the places studied that would lead to this (Schafer, 2019).

Schafer's idea of soundscape design is based on the concept that the entire universe of sound can be understood as a composition of which individuals are, at the same time, audience, composers and performers. Thus, the task of soundscape design would be to improve this orchestration, taking into account criteria of well-being, ecology and beauty. However, just as a composer studies intensively before writing his symphonies, soundscape design also needs to study acoustic environments and their relationships before devoting itself to thinking about intervention strategies (Schafer, 2019).

As a result of years of work and study by The World Soundscape Project, the book "The soundscape: our sonic environment and the tuning of the world" was published (Schafer, 2001). In it, we find a very broad definition of Soundscape: "The sonic environment. Technically, any portion of the sonic environment regarded as a field for study. The term may refer to actual environments, or to abstract constructions such as musical compositions and tape montages, particularly when considered as an environment." (Schafer, 2001, p. 366). The term soundscape had already appeared academically in the urban planning research of American geographer Michael Southworth (1969), whose aim was to investigate the acoustic characteristics of downtown Boston, analyze people's perception of the soundscape and experiment with techniques to analyze the city's soundscape, addressing the possibilities and importance of thinking about the sound designs of cities. Some of Southworth's (1969) ideas were also further developed in Schafer's work.

Even before the academic consolidation of the term Soundscape, however, noise in the world was already of interest to musicians, thanks to the Industrial Revolution which, between the 18th and 19th centuries, drastically increased the presence of noise in Western life, with its industries, machines and weapons. The technologies that emerged later, in the 20th century, opened up new possibilities for making music, such as experiments with recording and editing sound environments with magnetic tape (generating a movement called concrete music), and experiments with electronic sound generators (electronic music). Other more experimental aesthetics emerged at this time, moving away from erudite, scientific and logical musical aesthetics (Fonterrada, 2004).

Anthropologist and musician Tim Ingold (2015) objects to the use of the term "soundscape", because the concept of landscape suggests sounds as a set of static objects organized in a world external and distant from the individual. Ingold is based on a more phenomenological perspective of consciousness, which is why he observes that this way of

referring to and explaining sounds reproduces the separatist view of Cartesian thought. As a scholar of perception in anthropology, the author reinforces that the perceptual process takes place beyond a specific sensory organ, it occurs in a complex human whole creating its experiences of the world. So, from this perspective, not only do our perceptions not reveal a real, objective world outside of consciousness, but it is not possible to perceive only through ears and sounds, since the whole human cluster, mind and body, is continuously conjugating and signifying information. Despite this, Ingold (2015) recognizes the value of Schafer's pioneering work in highlighting research on the subject, but suggests revisiting epistemological conceptions based on perception studies.

High-fidelity, low-fidelity and schizophony soundscapes

In his book "The soundscape: our sonic environment and the tuning of the world", Schafer (2001) presents the concepts hi-fi and lo-fi. The term hi-fi is used to characterize natural environments in a state of good preservation, characterized by a type of sound quality defined by its high fidelity, an environment in which it is possible to hear more sound signals than noise, in which sounds can be heard clearly, identifying the details and spatial orientations they may have. In this type of environment, sounds overlap less frequently and are more organized. And the presence of a certain silence makes it possible to listen from a distance, inviting the listener to participate more and reinforcing a positive relationship between the individual and the environment.

The landscape introduced by the Industrial Revolution and expanded by the Electric Revolution, however, is characterized by an overload of intentional and unintentional sounds and noises; in this landscape, few sounds can emerge with clarity and appreciation in the listener's attention. This environment is called lo-fi (low fidelity).

The lo-fi environment has a signal-to-noise ratio of at least the same proportion or with a higher proportion of noise. This quality seems to produce feelings of separation from the environment. The person's attention is directed inwards as a way of escaping from the surroundings, and interaction with others is discouraged by the effort required to break through the noisy barriers that impair attention and communication, which can result in feelings of alienation and isolation (Truax, 1984).

Essentially, noise is the sound that disrupts another sound, with irregular frequencies and can also be characterized by high intensity (Wisnik, 2017), it is also usually an unintentional sound, but the consequence of a human act.

For Schafer (2019), noise is part of the world of merchandise, being manufactured and sold for a purpose. Behind these industrial and city noises, referred to by Schafer (2019) as "the voices of tyranny", there is always an institution that profits from the dissonance they cause. It's impossible to get away from noise when it's part of social and cultural life; it affects listeners positively or negatively, even if you're not aware of the effect.

While the eyes have eyelids that protect the individual from what they don't want to see, when it comes to listening, the individual can only rely on what Schafer called "psychological ear lids", that is, the ability to psychologically block out attention to sounds. This blockage, however, generates a generalized inattention to the sound environment. In order to protect themselves

from sound aggression, they need to unlearn how to listen and become insensitive (Schafer, 2019 ; Fonterrada, 2004).

Referring to the sounds transmitted or electronically reproduced in the environment, Schafer coined the term “schizophony”, which comes from the Greek prefix schizo (to cut, to separate) and the Greek word phone (sound/voice). What characterizes these sounds is the separation from their original source, something that has been made possible by the development of electronic and digital technologies. Schafer’s ecological approach takes a more radical aversive stance to the profusion of sounds transmitted by electronic means in collective environments; schizophonia is something disturbing, like a disease of the modern world, and its remedy is conscious attention to the sounds of the environment (Schafer, 2011).

In schools, environmental noise can be so great that children often complain of headaches and have difficulties with memory and concentration (Fonterrada, 2004). From childhood onwards, people are naturalized to accept noise as a minor aspect of living together, and there are no policies that take into account its effects on the health and care of the general population.

Keynote sounds, signals and soundmarks

Southworth (1969) coined the expression “sonic signs” to refer to sounds that stand out against the urban sound background, containing more information, provoking specific sensations and effects in the people of the city. Schafer (2011) developed this initial idea by creating the expression “soundmarks”. Schafer (2011) classified the elements of the soundscape into three elements: fundamental sounds, signs and soundmarks.

Fundamental sounds are those produced by geographical and natural local events, energy sources such as wind, water, sea and animals. These are sounds that are generally perceived as background, in which the signs stand out. Sound signals are intentional sounds of human activity and often have the function of being heard as alerts, such as bells, whistles, horns and sirens. The emotional impact of some recurring signals in certain environments can end up strengthening a sense of identity around them, such as church bells, ship whistles and train whistles. The sound mark, on the other hand, refers to the sound of nature or human activity that has the quality of uniqueness in relation to the place, a sound that has been in a certain place for a long time, defining an essential character of the community, which can be considered special for that people and in relation to the place (Schafer, 2019). For Schafer (2001) sound marks are important because they are a fundamental aspect of the soundscape of a place. They can be used to create a sense of place and to convey information about the history, culture and natural features of an environment.

Schafer (2019) argues that when identifying such marks, they should be cultivated and preserved, as they represent aspects of cultural identity, which can easily become extinct when overwhelmed by urban transformations, leading to an affective disconnection between people and their surroundings. Just as there are associations that take care of preserving landmarks in the landscape, sound landmarks should also be taken into account.

Schafer’s (2011, 2019) soundscape approach involves an environmental engagement with an ecological and educational basis, assuming a critique of urban noise pollution. The environmental concern includes the debate about the sounds that emerged in the process of urbanization and also the sounds that could be extinguished. Sound marks are like sensory anchors that

constitute the feeling of being at home; this is important in a time and social condition in which technological changes are very rapid and can make people feel like refugees (Schafer, 2019).

Listening dispositions

Barry Truax (1984) evaluates listening through the logic of figure-ground, establishing three basic forms in the exercise of listening that guide soundscape composition and are common to all listeners: “listening-in-search”, a type of selective listening, which involves the ability to look for focuses of attention to the exclusion of others, and “listening-in-readiness”, an intermediate type, in which we are aware of the surrounding landscape, but are directing our attention to another interest. In this second form, specific sounds in the background do not occupy our attention, because the information is not relevant, but they are familiar and we can access them with our focal attention at any time. This listening readiness, however, depends on a favorable soundscape for it to be effective. The signal-to-noise ratio of an environment will define how favorable that environment is. When the presence of noise is equal to or greater than that of identifiable signals, which is what characterizes a lo-fi environment, the ability to identify sounds when listening-in-search is compromised. In addition to the two mentioned, a third type of listening was called “background listening”, in which we pay less attention to the sound environment, but it is still possible to report having heard something specific if we are asked.

Schafer (2019) points out that no sound is heard the same way more than once, even if the physical vibrations and the conditions of the environment are the same, listening attitudes towards them are continually changing. For Truax (1984), the lo-fi environment destroys the fundamental basis that enables effective acoustic communication. These are just a few initial classifications coined to explore the exercise of listening and recognizing the sound dimension of environments.

Throughout his experiments deepening his students’ listening, Schafer (2019) developed a series of listening guidelines that he called “Ear Cleaning” exercises, in which music students also worked with sounds, starting to create models of soundscapes, following the author’s goal of training people capable of being soundscape designers. Some examples of what these exercises could be, according to Schafer (2019): (i) Find a low-pitched sound followed by a high-pitched sound; (ii) try to tell a well-known story only with sounds, without using words; (iii) bring to class a humming sound, a tinkling sound, a banging sound, a scratching sound; (iv) keep four sounds going for two minutes.

The final exercise in Schafer’s basic soundscape course was: “Choose a sound. Do anything you want with it for five minutes, but don’t let me get bored” (Schafer, 2019, position 1960). With the intention of laying the foundations for a culture of ear awareness, Murray Schafer widely explored proposals for music education and soundscape with his book “The Thinking Ear” (2011) which, in turn, naturally opens up a range of possibilities for articulating interdisciplinary knowledge.

Listening and the territorial approach to development

The emergence of the study of the environmental sound dimension is already imbued with interdisciplinarity. Since then, this topic has only grown, gaining depth in different places and becoming increasingly multifaceted, based on research in multiple areas of knowledge.

Research in Acoustic Ecology describes the ecological importance of the sound quality of an environment, introducing an innovative approach to analyzing the state of natural environments and their biodiversity. Capturing sound and analyzing it represents a reliable tool for revealing the balance of a natural environment, as it records aspects of animal life that tools such as photographs and satellite images, used to monitor deforestation, do not detect. In Brazil, the inclusion of analysis of the sound environments of ecosystems has been gradually expanded in studies of Biology and Ecology, through interdisciplinary research groups on the sound dimension of the environment. These groups already exist at universities in São Paulo, Rio de Janeiro, Rio Grande do Norte, Minas Gerais and Bahia (Zorzette, 2019).

In addition to analyzing aspects of species, populations and relationships in a natural ecosystem, investigating the sound dimension can serve other diverse purposes, such as: investigating the relationship between human and non-human sounds in a territory; understanding the effects of environmental sounds on the health and well-being of individuals; recognizing knowledge and affections connected to sound elements in the territory; investigating territorial identity elements and ways of perceiving individuals or communities through the exploration of listening, speech, memories and affections associated with sounds; as well as being able to serve multiple educational possibilities for raising awareness and artistic creations. Applications such as these can produce knowledge and experiences in the cultural, social, natural and human/intellectual dimensions (Dallabrida, 2022) of a territory. The subject is increasingly being investigated in various fields, such as: geography, technology, engineering, architecture, anthropology, ecology, communication, health, art education, environmental education, artistic creation, among others. It is a recent focus of research in the field of Sustainable Territorial Development, which has been emerging on several fronts, containing many glimpses of interdisciplinary connections and practical experiments for expansion.

When designing research tools for recognizing and analyzing territorial aspects, taking into account a decolonial perspective, it is necessary to go beyond the more extractive means of collecting and analyzing data. The new approach based on careful, affective listening, based on the principles of acoustic ecology proposed in this text, can become a structuring complement to models and methods of territorial analysis and evaluation, strengthening the qualitative, sensory, affective, educational, landscape and spiritual indicators that are essential to the systemic and integrative look of the Territorial Approach to Development.

The researcher needs to be what Santos (2019) called a post-abysal researcher, one who listens openly and works to liberate the senses in their research process. Both the researcher and the actor in a territory produce knowledge with their bodies, their actions, their listening, visions and experiments. The territory, in turn, is not something fixed, but exists from the subject, is constituted in their relationships and is continually transformed in a two-way street with the transformations of individuals. This is not an idea of a given territory, but of a constructed territory (Pecqueur, 2005).

Territory is also a result of practical and perceptive engagements (Pereira, 2022). Fishermen and crab collectors, for example, are also guided and extract information by the sounds of the mangrove, as Pereira (2022) describes in his ethnographic research. The sounds and sensory experiences constitute their knowledge, actions and notion of territory, as the author concludes:

Noises, therefore, when thought of from the perspective of the territory, point to the living (human or otherwise) present in the surroundings. It is in this sense that the noises emitted by small primates, birds, crustaceans and even the tide itself are understood here as expressions of lives and vital processes pulsating in the territory. The sounds heard by me and Querido [the fisherman] in the mangrove are indications of a life shared with others (Pereira, 2022, p. 159, our translation).

Categories such as anthropophony, biophony and geophony aim to guide the analysis of sounds, taking into account their sound sources and what they can indicate about the social, cultural and environmental context they constitute. What can a context in which residents no longer hear the song of a particular bird indicate? Or one in which anthropophonic noises have grown so much that they have eclipsed the subtlest sonic information in the environment?

In addition, there are sounds that can be sound marks, as Schafer (2011) defined them: sounds that are characteristic of a certain context and place, closely linked to the routine of the people who live there, related to their history, spirituality and ways of life. Sounds, like landscapes, food and other sensory experiences, can be part of the diversity of territorial heritages which, if not cared for, can easily disappear, overwhelmed by homogenizing development.

By dealing with the sensory, perceptive, affective and reflective human experience, this theme triggers dialogues about the relationship between the body and experiences of belonging, raising questions and serving to recognize territorial aspects. It is a production of knowledge that seeks to take into account the human whole in experiences, fostering bases for transformations in the way of relating to oneself, to others and to the environment, in a way that presents potential contributions to a territorial approach to sustainable territorial development.

FINAL CONSIDERATIONS

Studying the qualities of each physical sense makes it possible to draw attention to activating them in their potential to produce knowledge. Focusing on listening does not mean reducing and explaining the world by sounds or the absence of them, but rather pointing out the possibilities of consciously integrating this sense into territorial experiences, including new possibilities for aesthetic appreciation. In practice, perceiving happens as a whole, through a simultaneous interaction of the senses, in an intersensory way, even if they are conditioned to a small portion of their power.

Building paths for a territorial approach to sustainable development seems to require something that is often relegated to the background: creativity. Thinking about territory, development and sustainability means thinking about human beings and their way of relating to themselves, to other human beings and to non-human beings. These relationships are delineated in various contexts, illuminated by a diversity of cultural and social biases. And, despite this, they are made possible by the primordial experience of having a body, a sensory body that encompasses awareness of oneself and the world around them. This embodied experience is creative. Through it, existence is created and recreated. The creativity I'm referring to, therefore, doesn't happen intellectually, but bodily: body-mind. A body of emotions, memories, pains, pleasures, sensations and capacities. A body that is not usually cohesive and coherent, but multiple, dissonant and mismatched. Paying attention to this reality, which is so

essential in the production of knowledge, is to stimulate the sensitive reunion of human beings with themselves and with the planet they inhabit. The search for sustainability and human well-being, rather than depending on reason alone, is closely linked to affection and sensitivity, to what makes us humans capable of caring for each other. That's why we need to invest in the foundations for a science and projects that take this into account in their methodologies and actions.

The effects of separating body and mind, discarding one and valuing the other when engaging with knowledge, seem to be disastrous. To forget the power of the direct participation of the senses, sensations and feelings in perceiving, experiencing and knowing is to fail to actively reach out to the world, putting at risk the ability to feel it with breadth and to connect with others. We lose out on creative power, well-being and the possibilities of facing up to the transformations needed for human and ecological sustainability.

We hope that this introduction to a theoretical framework that discusses the reading of reality with a focus on the sound universe can contribute to the design of new diagnostic and intervention tools in territories. Furthermore, reflecting on listening works not only to pay attention to what we learn from the sounds and speech of others, but also as a metaphor for listening to aspects of life that we may be continually neglecting: listening to the senses, the body and feelings. The challenge for the researcher who wants to develop listening (not just technical listening, but deep listening) is to learn to put aside their noisy goals and precepts, to be silent, and then reconnect with the breadth of their own consciousness that is experienced through the world. Only then will one be able to listen to others too.

REFERENCES

- CREMONEZ, B. H. *Percepção e tecnologia: a escuta em interação com os dispositivos tecnológicos*. 2017. 76 p. Dissertação (Mestrado em Ciência, Tecnologia e Sociedade) – Universidade Federal de São Carlos, São Paulo, 2017. Disponível em: <https://repositorio.ufscar.br/handle/ufscar/8780>. Acesso em: 25 set. 2022.
- DALLABRIDA, V. R. Abordagem territorial do desenvolvimento e o desafio de um instrumental metodológico multidimensional: apresentação de dossiê. *Revista Brasileira de Gestão e Desenvolvimento Regional*, Tatuapé, v. 18, n. 1, p. 8-12, jan./abr. 2022. DOI 10.54399/rbgdr.v18i1.6596. Disponível em: <https://www.rbgdr.net/revista/index.php/rbgdr/article/view/6596>. Acesso em: 18 nov. 2023.
- DALLABRIDA, V. R. Patrimônio territorial: abordagens teóricas e indicativos metodológicos para estudos territoriais. *Desenvolvimento em Questão*, Ijuí: Editora Unijui, v. 18, n. 52, p. 12-32, jul. 2020. DOI 10.21527/2237-6453.2020.52.12-32. Disponível em: <https://www.revistas.unijui.edu.br/index.php/desenvolvimentoemquestao/article/view/10533>. Acesso em: 20 nov. 2023.
- FONTERRADA, M. T. de O. *Música e meio ambiente: a ecologia sonora*. São Paulo: Irmãos Vitale, 2004.
- HERMANN, N. *Ética e estética: a relação quase esquecida*. Porto Alegre: Edipucrs, 2005.
- INGOLD, T. *Estar vivo: ensaios sobre movimento, conhecimento e descrição*. Tradução Fábio Creder. Petrópolis: Vozes, 2015.
- KRAUSE, B. *A grande orquestra da natureza: descobrindo as origens da música no mundo selvagem*. Tradução Ivan W. Kuck. 1. ed. Rio de Janeiro: Zahar, 2013.
- MERLEAU-PONTY, M. *Fenomenologia da percepção*. Tradução Carlos Alberto R. de Moura. 2. ed. São Paulo: Martins Fontes, 1999.
- PADUA, L. C. T. *A geografia de Yi-Fu Tuan: essências e persistências*. 2013. Tese (Doutorado em Geografia Física) – Universidade de São Paulo, Faculdade de Filosofia, Letras e Ciências Humanas, São Paulo, 2013. DOI 10.11606/T.8.2013.tde-09122013-114313. Disponível em: <https://www.teses.usp.br/teses/disponiveis/8/8135/tde-09122013-114313/pt-br.php>. Acesso em: 21 set. 2024.

- PECQUEUR, B. O desenvolvimento territorial: uma nova abordagem dos processos de desenvolvimento para as economias do sul. *Raízes*, Campina Grande, v. 24, n. 1 e 2, p. 10-22, jan./dez. 2005. DOI 10.37370/raizes.2005.v24.243. Disponível em: <https://raizes.revistas.ufcg.edu.br/index.php/raizes/article/view/243/225>. Acesso em: 10 set. 2024.
- PEREIRA, L. C. Ouvindo no mangue: território e vida a partir dos sons. *Ruris*, Campinas, v. 13, n. 2, p. 140-166. 2022.
- RISSO, L. C. Os conceitos de percepção e território como lentes para o entendimento cultural. *Terr@ Plural*, Ponta Grossa, v. 8, n. 2, p. 309-319, jul./dez. 2014.
- SANTOS, B. S. *O fim do império cognitivo: a afirmação das epistemologias do Sul*. Belo Horizonte: Autêntica Editora, 2019. Edição Kindle.
- SCHAFER, M. R. *A afinação do mundo: uma exploração pioneira pela história passada e pelo atual estado do mais negligenciado aspecto do nosso ambiente: a paisagem sonora*. Tradução Marisa Fonterrada. São Paulo: Unesp, 2001.
- SCHAFER, M. R. *As vozes da tirania: templos de silêncio*. Tradução Marisa Fonterrada. São Paulo: Unesp, 2019. Edição Kindle.
- SCHAFER, M. R. *O ouvido pensante*. Tradução Marisa Fonterrada et al. 2. ed. São Paulo: Unesp, 2011.
- SOUTHWORTH, M. The sonic environment of cities. *Environment and Behavior*, v. 1, n. 1, p. 49-70. 1969.
- TORRES, M. Os sons da paisagem: entre conceitos, contextos e composições. *Geograficidade*, Niterói, v. 8, número especial, p. 141-154. 2018.
- TRUAX, B. *Acoustic communication*. Norwood: Ablex Publishing Corporation, 1984. Disponível em: https://monoskop.org/images/1/13/Truax_Barry_Acoustic_Communication.pdf. Acesso em: 8 jul. 2023.
- TUAN, Yi-Fu. *Topofilia: um estudo da percepção, atitudes e valores do meio ambiente*. Tradução Livia de Oliveira. São Paulo: Difel, 1980. Disponível em: https://edisciplinas.usp.br/pluginfile.php/7471096/mod_resource/content/1/TUAN%2C%20Yi-Fu.%20Topofilia.pdf. Acesso em: 18 jan. 2023.
- TUAN, Yi-Fu. *Espaço e lugar: a perspectiva da experiência*. São Paulo: Difel, 1983. Disponível em: <https://fundacc.sp.gov.br/wp-content/uploads/2021/04/Espaco-e-lugar-a-perspectiva-da-experiencia-YI-FU-TUAN.pdf>. Acesso em: 5 out. 2024.
- WESTERKAMP, H. Linking soundscape composition and acoustic ecology. *Organised Sound*, Cambridge, v. 7, n.1, p. 51-56, 2002. Disponível em: https://www.sfu.ca/sonic-studio-webdav/WSP_Doc/Articles/Westerkamp-Linking.pdf. Acesso em: 21 set. 2024.
- WILSON, E. O. *O futuro da vida: um estudo da biosfera para a proteção de todas as espécies, inclusive a humana*. Tradução Ronaldo Sérgio de Biasi. Rio de Janeiro: Campus, 2002.
- WISNIK, J. M. *O som e o sentido: uma outra história das músicas*. 3. ed. São Paulo: Companhia das Letras, 2017.
- ZORZETTE, R. Tons e ritmos da natureza: pesquisadores de área nascente da ecologia começam a usar o som para caracterizar ecossistemas e diferenciar as alterações típicas de cada ambiente das causadas pela intervenção humana. In: *Revista Pesquisa Fapesp*, São Paulo, 16 maio 2019. Disponível em: <https://revistapesquisa.fapesp.br/tons-e-ritmos-da-natureza/>. Acesso em: 23 ago. 2023.

Corresponding author

Carolina Bee Araujo

Universidade Federal do Paraná (UFPR)

Setor Litoral, Rua Jaguaruaíva, 512, Matinhos/PR, Brasil. CEP 83260-000

carolbee91@gmail.com

This is an open-access article distributed
under the terms of the Creative Commons license.

