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Listening to Nature, and Naturalising the Listener and Sound-maker: An Acoustic Ecology Approach to Music and Environmental Education

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Our times... Times of fast food and fast learning...

One might wonder what could be the role of a music education informed by acoustic ecology, in our times of speed, times of sitting for endless hours in chairs, times of looking at screens; in our times of environmental destruction, climate crisis and species' extinction? The urban way of life has estranged the human species from nature. It has led us to use extractionist practices, not caring for the sustainability of life-forms on earth. Our lack of firsthand physical contact with nature, as part of sustaining ourselves through food and shelter, has resulted in body-mind disintegration. We are left with weak, uncoordinated bodies which are unable to supply our intellect. We also feel alone in a natural environment which we no longer see as home. We deny our part in the environmental crisis and defer responsibility to larger entities. Closing our ears to suffering unless it hits home, we continue through life as usual, with the excuse: *I cannot save the world*.

Trying to persuade for a change of belief and action regarding environmental issues is often not effective. On the contrary, sound and music seem to be much more effective tools in environmental education and activism (Jacobson, Mallory, McDuff, & Monroe, 2007; Publicover, Wright, Baur, & Duinker, 2018). Perhaps the most striking example of the effect of sound/music in stirring mass environmental activism comes from the first recordings of whale 'songs' by Roger Payne, which became available to the public in 1970 with the title: *Songs of the Humpback Whale* (May, Dec. 26, 2014). Until then, people did not seem to care about the mass killings of whales which during the 20th century were estimated to be about 3 million (Cressey, 2015). Interestingly, sounds, especially the sound of a voice that was classified by scientists as 'song' (Payne & McVay, 1971), became the driving force for ecological action. It helped people perceive similarities between human and whale nature, establishing an important common ground. People identified psychologically with the whales and so reacted strongly to the human cruelties against these animals. Perhaps the main reason for Payne's unexpected success in raising environmental awareness on a global scale was that he shared with the public a scientifically based and emotionally-centered sound experience of nature.

Almost at the same time that *The Songs of the Humpback Whale* were listened to and were stirring up activism in the US, Professor Murray Schafer at Simon Fraser University in Vancouver, Canada, was introducing acoustic ecology as a sound-based creative approach to the declining quality of the modern world's soundscapes¹. He had realized that city

¹ The soundscape is defined as: "An environment of SOUND (or sonic environment) with emphasis on the way it

soundscapes were characterised by *too much* sound in terms of high decibels, as well as by what he called *schizophonia* (Schafer, 1994/1977, 1986). In the schizophrenic cities of Western civilization, the *here-and-now soundscape* was further saturated by sounds and music from different times and places around the world. With the passing of time, Western cities were becoming rapidly louder and more schizophrenic. Responding to the considerably deteriorating city soundscapes, Schafer proposed a creative, musical approach as a way of dealing with the problem of sound-noise pollution. He drew people's attention to the sound environment as a music composition which they co-create and could improve in beauty or contribute to its unpleasantness (Schafer, 1994/1977). It became apparent that sound pollution could be tackled with creativity and so people would be more likely to have an active, positive response to it.

Schafer's acoustic ecology target group was adults as well as children of all ages. Music educators in Canada and in various countries around the world were initially acquainted with acoustic ecology through Schafer's seminars and books. They also incorporated it into the music class mainly in the form of what Schafer called *ear cleaning* (Schafer, 2005, 1986). Concepts of the soundscape were taught and practiced in music classrooms through sound games and activities. These allowed for active-embodied involvement, collaboration in groups, and connections between various art forms, while students delved into the meanings and qualities of sounds. Among Schafer's first student collaborators, the soundscape composer Hildegard Westerkamp, in addition to her compositions and writings, also provided the public with essential knowledge about soundwalking, a practice with educational implications for adults and children.

Inspired by the work and worldviews of R. Murray Schafer and Hildegard Westerkamp, I have developed an active, embodied, creative, emotion-centered and community-based acoustic ecology approach to music and environmental education which is informed by personal exploration and indigenous, scientific, and arts-based knowledge. The main aims of this approach are to cultivate the human-nature relationship and encourage informed nature activism. Below I will focus on the following selected aspects of my approach: tools of acoustic ecology, biodiversity and sound diversity, nature understanding, filters of nature and technology, and Group Elemental Soundscape Improvisation, a specialized framework for nature-centered music making.

I will first present two of the tools of acoustic ecology: a) ways of listening, and b) the soundwalk.

Tools of Acoustic Ecology

Ways of listening

While hearing depends on the sensitivity and limits of the ears, listening is affected by many parameters, external and internal to the listener. Such parameters may lead to discovering or obscuring certain kinds of knowledge. External parameters refer to the context where

is perceived and understood by the individual, or by a society. It thus depends on the relationship between the individual and any such environment." (Truax, 1999, <http://www.sfu.ca/sonic-studio-webdav/handbook/Soundscape.html>).

listening takes place with its particular characteristics as well as the characteristics of its soundscape. They also refer to the listening conditions, meaning the concrete, physical characteristics of our listening acts, such as whether we listen alone or with others, indoors or outdoors, in stillness or in motion, with our ears and body, or through headphones, etc. Of all the external listening conditions, acoustic ecology draws our attention especially to listening outdoors, listening in stillness, listening with or without microphones and speakers, and to listening during a soundwalk. Internal listening parameters, on the other hand, refer to the listeners' attention, intentions, expectations, prior knowledge, and preferences. Ways of listening may emphasise certain external and/or internal parameters of our listening acts and thus co-shape our listening experiences. Some of the most relevant ways of listening to the soundscapes are:

- Active listening (Clarke, 2005; Gibson, 1966)
- Listening with the Body (Glennie, 2007)
- Exclusive and Inclusive Listening (Oliveros, 2005)
- Listening for Sound Sources (Schafer, 1994/1977, 1986)
- Listening to Understand/Diagnose
- Listening to the Knowledge of others
- Listening to the Different/Neglected
- Empathic Listening
- Listening for Meanings of Sounds (Schafer, 1994/1977, 1986)
- Listening to the Soundscape as Music (Schafer, 1994/1977, 1986).

In this paper, I have chosen to focus on *Listening to the Soundscape as Music* (Schafer, 1994/1977, 1986)

Schafer's (1968, 2001) urge to listen to the soundscape as a 'macrocosmic composition' helps us build bridges between art and everyday life; in fact, it even places us in the center of musicking (Small, 1998), which is not limited to concert halls but extended to anywhere we are, in places of nature or culture. If the soundscapes we live in are listened to as music, then we will be able to focus on any sound object² and listen to how it begins, develops in time, and ends. We could thus perceive what Schafer (1986) called the 'life of single sounds' (pp. 146-9). We could also listen to how the sound events in the soundscape relate to each other and to the whole. We could ask ourselves whether the soundscape is well-balanced, or some of its powerful sounds mask the softer ones. We could appreciate the particular soundscape for its beauty or identify possible problems and try to resolve them. We have the power to perceive any sound environment as music by just shifting our attention from everyday to musical listening.

² Schafer (1994/1977) defines the sound object and distinguishes it from the sound event. In his words: "The sound object is [...] defined by the human ear as the smallest self-contained particle of a SOUNDSCAPE, and is analyzable by the characteristics of its envelope. Though the sound object may be referential (i.e., a bell, a drum, etc.), it is to be considered primarily as a phenomenological sound formation, independently of its referential qualities as a sound event." (p. 274)

Everyday activities and objects that we use for different purposes at home or at work could be listened to in action as music. Schafer referred to a Japanese tea master who 'may make music with his kettle' (Schafer, 2001, p. 65). Also the Swiss psychoanalyst Carl Jung in 1923-24 (Jung, 1989) described his kettle sounds as music. The two writers—both non-musicians—highlighted the significance of allowing for some time for preparation in the process of attentive listening to the kettle sounds. This time is characterised by stillness and silence. One could imagine that the human listener needs this preparation time and low activity condition in order to shift their listening perspective from the source of sounds and first-level meanings to a musical listening, which focuses on patterns of energy, sound relationships, and secondary meanings. Therefore, allowing time for the listeners to prepare and modeling a state of being still and quiet would perhaps be two points to consider when planning educational activities that aim to a musical, rather than an everyday, listening perspective.

Both Kakuzo (1906) and Jung (1989) admitted that they heard their kettle 'sing'. One could suggest that by attributing the ability *to sing* to the kettle, they pointed to a specific quality shared by the kettle (a machine), humans, and other animals who sing. Kakuzo's description of the kettle's sounds reveals their connection with sounds of nature by referring, for example, to 'echoes of a cataract muffled by clouds'. Jung's description, on the other hand, draws connections primarily between the sounds of the kettle and the sounds of culture and especially the sounds of musical instruments of the orchestra. Jung refers less often to sounds of nature, such as the qualities of water and wind. In the sounds of the kettle, Jung also recognises the non-romanticised face of nature, 'all discords of nature' as he calls them, thus accepting along with nature's harmonious qualities, 'her' darker identity, which he describes as 'dreadfully contradictory and chaotic'.

In educational or activism contexts, we often tend to omit the negative elements of nature's identity. Perhaps in our effort to compensate for a long history of ignoring and undervaluing nature, we may reach the other extreme and *romanticise* it. However, how could we foster a deep, reciprocal relationship with nature if we *hide* an essential part of its identity? Bringing all aspects of nature's identity—positive and negative—to light would allow us and our students to set the foundations for a deeper relationship with nature. The understanding and acceptance of its inharmonious, contradictory, chaotic, even fearful and cruel faces, would also contribute to the identification of these elements as parts of the human species in general as well as parts of one's own self. This process could lead to increased psychological integration and maturity. As listeners and sound-makers, by approaching nature in a non-romanticized way, we could collectively work through and better understand the challenging aspects of nature. Harper (1995) suggested planning 'whole and honest' educational experiences in the wilderness. In his view, such wilderness experiences should include:

what happens and what you feel when night falls, when the weather turns hot or cold or rainy, when the bugs come out, or when the cute little rabbit you have been watching screams a death-call as it is whisked away in the talons of an eagle (p. 187).

Music improvisation in a group, including the Group Elemental Soundscape Improvisation

(G.E.S.I.) which is suggested here, could provide the context for getting in touch with the difficult faces of nature, one among them being death and dying.

From the kettle sounds inside the house, we will now move outside to the countryside of Greece, where an object of Shepherd's work, the 'bell', in addition to its many meanings, is also approached by the shepherd as a musical instrument. A study by Anogeianakis (1996) in rural Greece revealed that the animal bells contributed to the animals' well-being, to the shepherd's work, as well as to the pleasure he drew from listening to these bells with a musical ear. According to Anogeianakis (1996), specialized bell makers would create bells of different shapes, size, weights, timbres and frequency tones by using various techniques and material. Those shepherds who appreciated beautiful sounds and could afford the price would take a lot of time and care to choose the best sounding and balanced combination of bells for their herd.

The shepherd's choices of bells were initially limited by the size, physical characteristics, as well as the patterns of eating and moving in space of the particular animal species of his herd. They were also limited by the characteristics of the individual animals. In the context of a reciprocal caring relationship between the shepherd and the goats, sheep or other animals, the well-being and ethics came first, while the pleasure of sound—the aesthetics—followed.

The typical actions of the shepherd choosing bells for his herd, as described by Anogeianakis (1996), remind us of the actions taken by a skilled musician choosing musical instruments for an ensemble. The shepherds' musical criteria for the choice of bells reveal their conception of sound-music making as something that unfolds, not on some music hall stage, but in the context of the ecosystem and the soundscape. The bells as musical instruments are checked for their own unique voice qualities and the way they interact sonically with the animal, the ground, the rain, with space, as well as for their good fit with the tone and timbre of the other bells. The instrumentarium of nature sounds and bells, would also include a specially crafted *flogera* (reed flute), which the musically sensitive shepherd adds and tunes to the tones of the bells. The resulting long, undulating soundscape improvisations seem to place the shepherd and the other animals in the center of nature in an intimate act of joining their voices harmoniously.

That is what shepherds used to do with the bells and their flutes several decades ago in rural Greece, given that Anogeianakis' book was published in 1996. As one could probably guess, in most cases, the bells and the shepherds' flutes do not play such an important role in the Greek rural soundscapes any longer. The study showed that even since the 1990's many shepherds had started not to care for the bells' sounds and best sound combinations. Anogeianakis (1996) mentioned the case of a shepherd at a Greek mountainous village, who, for a herd of 50 goats, had only two bells, one of which was a small, round, non pitched bell! Consider the losses: the loss of a sense of belonging, the loss of relationships with others in nature, the loss of musical intelligence, the loss of musical expressivity and interaction with human and non human beings, the displacement of aesthetics from everyday life, the shrinking of the ecological self... and the list could go on.

The Soundwalk

A modern way for the city person to restore or maintain their relationship with nature is the soundwalk (Westerkamp, 2001/1974), which is given special focus in the context of acoustic ecology. Westerkamp (2006) wrote that:

A soundwalk is any excursion whose main purpose is listening to the environment. It is an exploration of our ear/environment relationship, unmediated by microphones, headphones and recording equipment. It is an exploration of what the 'naked ear' hears and how we relate and react to it. Such a soundwalk can be done as a regular practice, in a group or alone (n.p.)

Westerkamp (1974/2001) suggested that inexperienced listeners could begin their soundwalk by focusing on the sounds of their body as it interacts with the environment, then draw their attention to sounds close to them, later on to sounds far away, and eventually listen to the whole soundscape as a music composition, while the various sounds unfold and interact with each other. Westerkamp has also introduced a specialised type of soundwalk, the 'participatory soundwalk'. In this, the participants listen attentively and may produce their own sounds in relation to the environment, with the purpose of orienting themselves in the place, having a dialogue with it, or creating a soundscape composition for aesthetic purposes.

Children could prepare for soundwalks through silence and stillness activities and games such as the Montessori's (1965) *lesson of silence*³ and Schafer's (2005) game of *the silent passing paper* (see *Paper*, game No. 73, p. 90). The soundwalk could be adapted for groups of children by reducing initially its length to 3-5 minutes, or by alternating short intervals of participatory soundwalk with short intervals of silent attentive listening. Through teacher's modeling and regular practice, the young soundwalkers progressively would be able to remain silent for longer.

If our soundwalk takes us to a place where we can hear many different sounds, then we realise that the park, the lake, or any other ecosystem that we have reached, is characterised by high biodiversity.

Biodiversity and Sound-Diversity

According to Attenborough (2020) and Osuri et al. (2020), biodiversity on earth refers to the variety of life-forms at all levels ranging from the microorganisms to the species of animals or plants. High biodiversity contributes to the biosphere's health, balance and ability to cope with changes, including climate changes. Such an ability is important for nature to cope with the climate crisis today. If we listen carefully, biodiversity reveals itself as sound-diversity. Every species of animals and plants and each individual of these species has their own sound

³ In introducing the lesson/game of silence, Montessori (1965) points to the crucial role of the teacher in modeling the qualities of the motionless, silent body through her own posture and the tone of her whispering voice. A detailed description of the Lesson of Silence may be found in *Dr. Montessori's own handbook*. Schocken Books, pp. 118-123.

identity. Their diverse interaction in various ecosystems leads to unique, dynamic and rich soundscapes. However, not all ecosystems thrive; many of them might be in states of imbalance and deterioration; in states of low biodiversity. Their poor health status is reflected in the quality and low sound-diversity of their soundscapes (see Lamont, et al, 2022). These rich or poor concerts of nature are available to listeners including humans. If we truly listen to them, we perceive their diverse voices, we appreciate their aesthetic value or witness their imbalances; we understand; we are moved to co-create and act sustainably and protectively.

The sound-diversity of our local soundscapes affects our art creations and everyday actions. At the same time, its sound qualities affect us at a deeper level. The sounds of our environment co-shape our own language, which, as biodiversity diminishes, inevitably absorbs the losses. In Abram's (1996) writing:

As technological civilization diminishes the biotic diversity of the earth, language itself is diminished. As there are fewer and fewer songbirds in the air, due to the destruction of their forests and wetlands, human speech loses more and more of its evocative power. For when we no longer hear the voices of warbler and wren, our own speaking can no longer be nourished by their cadences. As the splashing speech of the rivers is silenced by more and more dams, as we drive more and more of the land's wild voices into the oblivion of extinction, our own languages become increasingly impoverished and weightless, progressively emptied of their earthly resonance. (p. 59)

The realisation of the connection between biodiversity and language is a way of understanding nature. I will next explore *nature understanding* as part of educating acoustic ecologists.

Nature Understanding

Knowledge *of* and *about* nature can increase students' respect, empathy, curiosity, and concern for particular life-forms and can also transfer understanding to various areas of nature, culture, and the self. It could further motivate acts of nature preservation and activism. I will now share an example of an animal-environment adaptation, which might change the way we *see* a tiny frog as well as challenge dominant worldviews of human superiority.

The male Bornean tree-hole frog *Metaphrynella Sundana* is a rather uncommon case of an animal who amplifies its call by using specific structures of its surrounding environment. This small frog with a soft voice sings its mating call from inside cavities of tree trunks which are partially filled with water. It adjusts up and down the pitch of its call until it matches the resonant frequency of the particular cavity, which varies based on the level of the water. When the frog finds this resonant frequency, its call naturally becomes louder and there is a good chance for him to attract a female (Lardner, & bin Lakim, 2002). Such nature knowledge by humans can make them realise the existence of intelligence and problem solving abilities even in small animals such as this frog, and can raise their interest in learning more. The phenomenon of resonance in human and non-human contexts could also be explored further.

Sources of Nature Knowledge

Nature knowledge can be acquired from various sources. However, the most essential part of students' nature knowledge comes from personal sound exploration in nature. This firsthand knowledge could be further enriched by the knowledge acquired from others, indigenous people, artists, scientists, through direct communication with them or through their available work products. Such information can be found in books, scientific papers, stories, video documentaries, field recordings, spectrographs, music and other art works, valid websites etc. We, as teachers, could model a balanced and critical approach to the sources of nature knowledge by always placing the personal sound explorations in nature at the center of our teaching and learning practices.

Aims of Nature Knowledge

An important aim of nature knowledge acquisition is for students to understand the basic anatomy and mechanisms of sound-production, sound projection and sound-reception of various species, as related to each species' adaptations to its habitat. Another aim of nature knowledge acquisition is the understanding of animal behaviours and the role of sound in these. Questions that could be addressed here are: How do certain animals use sounds and songs during courtship? How do animal parents teach the young the songs of their species? How do some species use sound to catch and/or kill their prey? etc. Students also need to understand the processes and relationships in the ecosystems and the soundscapes. An example of this kind of knowledge would be the exploration of the ways in which whales are related to phytoplankton, and the phytoplankton is related to ocean biodiversity and sound-diversity, or the ways in which whales' movements and feces in the ocean contribute to the solution of the climate crisis.

On top of understanding processes and relationships, students would need to think critically on ecological problems and their solutions by searching for answers to questions such as: Why is the climate crisis a problem? What are its negative effects? What are its possible solutions? An essential element in nature knowledge is students' awareness of their own role(s) in causing as well as solving ecological problems. If students are left with abstract, large-scale solutions to ecological problems, they might be in despair or denial. On the contrary, they should be provided with simple or complex actions that they could take to help solve the problems.

Nature knowledge in relation to sound may contribute to our understanding of the similarities and differences among species as a result of each species' adaptations to the distinct environmental conditions of its ecological and acoustic niche⁴ (Krause, 1993). It could also help us draw connections between these mechanisms and processes in nature and their existence in the products of human civilizations. We may acquire certain nature knowledge by ourselves, or through various, natural or mechanical, filters.

Filters of Nature and Technology

Natural sound filters exist in abundance. Ears or other structures used for listening are an example of such natural sound filters. Every animal who uses sound for communication has

⁴ Acoustic or sonic niche is "the channel or space in the frequency spectrum and/or time slot" occupied by a certain creature—and no other—at a particular moment (Krause, June 1993, p. 2).

its own sound filter—hearing mechanism—shaped by its needs and the characteristics of its habitat. We all hear differently and there are certain ethical implications that come from this. Some anthropogenic activities might not cause any problems to the human species but might harm other species. Therefore, especially when sound or music making takes place outdoors, an ethical consideration would be to find out whether other humans or other-than-human animals might be in danger (Etmektsoglou, 2019).

While the ears are natural filters, the microphone and the speaker are types of mechanical sound-filters. In our times of portable music devices, mobile phones, and tiny personal headphones, which are often placed in our ears, attention is very often diverted away from listening to the soundscape of the here and now. As Bull (2004) highlighted, 'Walkman users appear to achieve a subjective sense of public invisibility. They essentially disappear as interacting subjects, withdrawing into their chosen privatized and mobile states' (p. 185). This mechanically induced disconnection may contribute to a sense of estrangement from nature and the people around. Fun and emotionally engaging sound activities in nature for groups of adults and children can act as *antidotes* to the time that is spent in front of computers, or using mobile listening devices and phones. Such activities might even increase the desire for more unmediated nature experiences in the future. Projects could be designed to educate young people about various filters that might intervene between an actual event and its video-sound rendition. These projects could focus, for example, on mechanical filters, examining the characteristics and effects of microphones and speakers. Alternatively, they could focus on human filters questioning, for instance, the recordist's or the filmmaker's decisions to include or exclude certain sound events, highlight or set some of these at the background, etc. Other projects could explore the safe use of headphones and speakers in order for the participants to avoid serious problems of hearing loss and/or social disturbance.

Despite the potentially harmful effects, the microphone and the speaker have been used with sensitivity and awareness in certain cases of soundscape compositions, in nature recordings, and more recently in environmental science. The hydrophone—a specialized microphone for underwater recordings—has provided access to the sounds of life in aquatic ecosystems, including the vast ocean ecosystems. Hydrophone's use in bioacoustics research projects appears to have a large impact on knowledge, understanding, education, and environmental activism (see Barclay in *Sound of Care*, 24/01/2021). Being knowledgeable about digital technology and critical about its role in various activities, students will be able to use it safely, ethically, intelligently, and creatively.

I will now move to Group Elemental Soundscape Improvisation (G.E.S.I.), an activity for groups of aspiring acoustic ecologists.

Group Elemental Soundscape Improvisation (G.E.S.I.)

Elemental Soundscape Improvisation is a group activity to resemble the process of multiple sound sources which are usually found in an ecosystem. Individually, and through interacting with each other, participants listen, explore, research, experiment, create, listen again, criticize, adapt, explore more, and so on, in cycles that lead to ever increasing sensitivity and understanding.

For the 'elemental' nature of this type of group sound improvisation I was inspired by the music education paradigms of Carl Orff and Murray Schafer. These two composers and educators lived at different times and developed different musical and educational means. However, they both made active music engagement using mainly body movement and speech, accessible to young children. Given the historical context, for Orff, the 'unsophisticated' was realised more through simple patterns and small forms of diatonic and pentatonic music. For Schafer, on the other hand, it was achieved primarily through simple gestures or patterns experienced in soundscapes of nature or culture. It is interesting to note that Orff referred to elemental music as 'near the earth, natural, physical' (Orff [1963] 2011: 144). This reference shows that he drew a connecting line between music as a product of a specific culture and soundscape as music. An additional meaning attached to the elemental nature of G.E.S.I. derives from it being 'unplugged'. This type of improvisation is unmediated by any filters of digital technology, which is an unusual practice for the current music culture.

Spoken language is a possible but not necessary element in the G.E.S.I. However, this type of improvisation must tell an ecological story with a focus on the local context. In the process of preparation, G.E.S.I. members focus on setting up the soundscape scene, as well as the temporal and spatial characteristics of the story, decide on the main foreground and background sound events, experiment with body sounds and sound generating objects that can be found in nature, and finally consider the ways and degree of interaction between their G.E.S.I. and the existing 'real' soundscape. The exclusion of commercially available instruments in G.E.S.I. encourages the development of an embodied relationship with the particular place as the participants explore it through sound. It also allows them to acquire essential empirical knowledge about materials, their properties, and affordances, that is, the various ways in which material could produce sounds without being destroyed (see Gibson, 1979).



Two Nature baguettes and a Nature scraper.
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Nature tambourine
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In the process of exploring material from the environment through the body, students of nature learn also about their own self (Gibson & Pick, 2000) and develop their skills. Based on an ethical ecological approach, G.E.S.I. participants learn to only use natural material that

has completed its life cycle, or else ensure that its extraction would not impede the sustainable development of another species.

For sounds that are difficult to imitate, such as songs or calls by particular animals, the G.E.S.I. participants conduct specialised research, practice with recordings and spectrographs, and aim for sound specificity and accuracy. Through striving for sound specificity, group participants have the opportunity to learn more about particular animals, their characteristics and their relationships with other animals and their habitat. At the initial stage of research and experimentation regarding sounds of an animal, the G.E.S.I. members could employ the proposed model *B.E.A.V.E.R.* (Etmektsoglou, 2018), which encourages teachers and students to focus their research on six main subject areas in relation to the particular animal: *Being – Not a Thing!*, *Excellence*, *Adaptation*, *Voice-Unique Characteristics*, *Environmental Balance (in the Ecosystem and the Soundscape)*, and *Relation to Humans*. After the group members complete the preparation stage, they can practice their G.E.S.I. in nature, as a one-time improvisation or a prepared improvisation-composition.

As aspiring naturalised listeners, we may employ various ways of listening that open access to different kinds of understanding. As we keep listening, we tend to perceive and understand more. Our refined perception and knowledge may naturally find their way to our music improvisations and compositions, our everyday life and interactions with the more-than-human world. The listening-centered acquisition of deep, embodied, empathic, aesthetic, informed, and shared knowledge of even a few species could possibly have the most profound impact on us and our students. By truly opening our ears to nature, we would naturally stretch more and more the outer boundaries of what each one of us perceives as *ecological self*⁵. By listening to it carefully, we may humbly rediscover our place in nature and feel the urge to protect it. We may at last be naturalised.

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⁵ According to Naess (1987), “the ecological self of a person is that with which this person identifies” (p. 35), and identifications may be made with the human and the more-than human world.

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