Sound Instance: Art, Perception and Composition through Soundscapes

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Abstract—The soundscape stands out as an agglomeration of sounds available in the world, associated with different contexts and origins, being a theme studied by various areas of knowledge, seeking to guide their benefits and their consequences, contributing to the welfare of society and other ecosystems. With the objective for a greater recognition of sound reality, through the selection and differentiation of sounds, the soundscape studies focus on the contribution for a better tuning of the world and to the balance and well-being of humanity. Sound environment, produced and created in various ways, can provide various sources of information, contributing to the orientation of the human being, alerting and manipulating him during his daily journey, like small notifications received on a cell phone or other device with these features. In this way, it becomes possible to give sound its due importance in relation to the processes of individual representation, in manners of social, professional and emotional life. Ensuring an individual representation means providing the human being with new tools for the long process of reflection by recognizing his environment, the sounds that represent him, and his perspective on his respective function in it. In order to provide more information about the importance of the sound environment inherent to the individual reality, one introduces the term sound instance, in order to refer to the whole sound field existing in the individual's life, which is divided into four distinct subfields, but essential to the process of individual representation, called sound matrix, sound cycles, sound traces and sound interference. Alongside volunteers we were able to create six representations of sound instances, based on the individual perception of his/her life, focusing on the present, past and future. With this investigation it was possible to determine that sound instance has a tool for self-recognition, considering the statements of opinion about the experience from the volunteers, reflecting about the three time lines, based on memories, thoughts and wishes.

Keywords—Sound instance, soundscape, sound art, self-recognition.

I. INTRODUCTION

THE soundscape is defined as the amount of sounds available in the world, related to different contexts and places, with the objective to share information, contributing to the organization of societies and ecosystems. Murray Schafer, the main author of this concept, focuses on the need for the recognition of sound reality, promoting a well-balanced mastering of the world. [27]. Here, the use of sounds for new conceptions of sound art (soundart), formulate new visions and compositions, in the musical and artistic field, fostering active listening to the small details of life, contributing to the degree of self-recognition, through processes of sound self-perception [21]. Through this theme, associated with contributions from other authors and relevant concepts, this article aims to explore,

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systematize, and propose a conceptualization of the individual sound universe, through the use of practical examples and contributions from six volunteers who were willing to share a bit of their sound universe.

This approach, called Sound Instance, will be proposed as a collection of sounds for the creation of an individual digital symphony, of artistic character, covering the sound spectrum inherent to the reality of the respective individual. Presenting an evolution of the playback theater line of thought, this model intends to collect information, inviting the individual to watch, as a spectator, his story, portrayed through the sounds associated with his reality, providing an immersive perspective of personal, professional and emotional journey.

II. SOUNDSCAPE

According to Schafer [27], the term soundscape can be defined as "any portion of sound, within an area of study (...) incorporated into physical or abstract environments, such as musical compositions or recordings (...)". In other words, this term refers us to the totality of sounds heard, regardless of space and time, highlighting the importance of any sound, under the concern of its impact on the individual, covering various areas of knowledge, such as natural, social and artistic sciences, promoting different perspectives on the purpose and intention of the listener, encompassed in natural, artificial or processed distinct sound environments [24]. Considering the diversity of sound environments available in the daily life of a totally sound abstracted society, it is important to highlight that the respective individual (sound) reality is verified as a means of assimilation of the acquired experience, considering sound as a symbolic concept of association and perception of time and space, building meaning through the sensory plane [6].

By identifying a soundscape as the primary subject of the story that follows, I pursue a way of thinking about sound first developed by the musician R. Murray Schafer about twenty-five years ago. Schafer defined a soundscape as a sonic environment, a definition that reflected his engagement with the environmental movements of the 1970s and emphasized his ecologically based concern about the "polluted" nature of the soundscape of that era. [30]

According to Haas et al. [12] the soundscape, produced and shared in multiple ways, provides various sources of data and orientation to the individuals, notifying and manipulating during the quotidian. Recent studies [14] on this concept and its

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impact have determined that there is a relationship between the sound environment and human behavior, highlighting the implementation of natural sounds and music in urban areas, highlighting a number of positive effects for individuals, developing social behavior (crowd behavior) and reducing antisocial behavior, demonstrating that "music has a real effect on the length of stay [of individuals] in public spaces (...)" compared to silent spaces [14]. Nevertheless, the study of soundscape itself guarantees an evident relationship in the way we produce and assimilate the surrounding environment, as a means of understanding, discovering, and explaining the world [9].

III. Sound Instance

Considering the concept and importance of the soundscape, Birdsall [5] produced a vast research on the influence of sound on individuals through the study of sound implications in the middle of World War II. In her work *Nazi Soundscapes - Sound, Technology and Urban Space in Germany, 1933-1945,* [5] the author highlights the role of radio and mediated sounds, associated with cultural practice and political aesthetics, as tools of manipulation, terror, control and discipline, providing a new overview on the study of soundscapes, highlighting their impact on "social organization, power relations and interactions with urban space", providing new perspectives on their historical importance and on human behavior [5]. According to Schafer [27] the multiplication of sound, through recording and reproduction, also called *schizophony*, promotes the decontextualization of sound, amplifying and automating its existence, as well as over-stimulation, which is harmful to the individual. In order to counteract this sound fatigue, Schafer proposes as solutions the acoustic ecology, as a phase of diagnosis of the problems, and the acoustic design, phase of implementation of measures to counteract the effects of noise pollution [27]. According to Adams et al. [2] the noise environment should be properly recognized as an essential component in the experience of the life of its human, influencing their quality of life, and consequently the society of the world, taking into account its political approach, through the implementation of noise laws, and its cultural character, involved in models of planning and personal expression.

(…) firstly, key soundscape elements differ along a gradient of urbanization; our analyses highlight specific sounds which characterize each environment. Secondly, universal trends in emotional associations of natural versus industrial sounds were observed; analyses of emotional association with sounds enabled exploration of soundscape sensitivities and values amongst groups. Thirdly, sounds reported in response to emotional cues are likely to be those of high personal relevance: sounds that do not have an impact on individual's life are less likely to be mentioned given that sounds have qualities that permeate the subconscious, affecting emotional state in humans. (…) This impression may also reflect the behavior of the community towards the sonic environment, the soundscape values and the state of industrialization at that location. [20]

Considering these contributions, we can state that sound has an influence on the personal and social lives of individuals, shaping their thoughts and attitudes, imposing new models of representation when used as a means of force and manipulation. Around this matter, it is likely to say that sound shares enough information in relation to individual representation, considering the environment or context he is in. In other words, it is possible to use data produced by sound, in order to represent the individual in social, professional and personal life. As a matter of fact, creating an individual representation, based on sound, means providing the human being with other tools for the long and hard process of reflection and acknowledgement of his environment, his life and his perception on the individual path. To provide additional information about the importance of this "inner soundscape", we introduce the term sound instance, in order to systematize the sounds that are a representation and consequence of the individual's life.

Sound Matrix

According to Tomio's [31] line of thought, Sylvester used the term matrix, a mathematical concept, through its "colloquial sense", determining a "place where something is generated or created". Santaella [26] states that the concept itself (sound matrix) is one of the three matrices of language and thought, which give origin to all kinds of language produced by mankind, throughout its history. Although the term is more used in the field of mathematics, according to Hartung [13] the study of matrices becomes essential to solve the most varied problems in geometry, physics, chemistry, biology, among others, simplifying and ordering the problem, providing new methods of resolution. Thus, this subfield intends to create a basis for auditory perception, through the discrimination of sounds that are part of the personal development process of the individual, through his culture, education and context, more focused on the periods of childhood and adolescence. Just like Schafer's keynotes sounds, which are a constant part of a sound reality [1], the sounds that are part of the sound matrix also function as a constant sound base, focused on moments of recollection and memory processes, remaining throughout the individual's journey.

Sound Cycles

Through their work on the influence of sound on human behavior, Cohen and Weinstein [7] emphasize the importance of the relationship between sound and daily tasks, aiming to establish the proper theoretical framework between sound and human performance. Here the authors refer to a set of tasks affected or not affected by sound, suggesting that "the ability to predict and control the occurrence of the noise mediates both psychological and physiological response", contributing to a better understanding of noise.

Sound cycles, a term used by Calurano to name a work of his, based on field research, associated with soundscape recordings in various locations in the Iberian Peninsula, in order to demonstrate the sound reality of natural sanctuaries, little intervened by man, consists of a perfect analogy of the planet's life cycle and the natural passage of time [16]. Here, we find a

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symbiotic conjuncture between the term cycle, associated with several frequent moments in a certain space of time, inserted in the path of the individual, and the very sounding of those same moments inserted in the process of individual representation. Thus, in this subfield, we intend to frame sounds that represent present patterns, which repeat themselves in a certain period, determining certain periods in the individual's life, making available a vision (hearing) about several present instants that repeat themselves throughout a cycle. Taking into account Moreira's [19] definition of life cycle as the sequence of events in the reproductive history of an organism, sound cycles present a subjective portrait of these events, according to the individual's perspective, demonstrating its reproduction in several fields of knowing, being and doing (biological, emotional, professional, artistic, personal, etc.). In this subfield, it is important to measure the frequency (duration) of the cycle, as well as its own change, through the development of different versions of the individual's representations in different temporal spaces.

Sound Interference

Associated with the concept of sound signals, defined by Schaffer [27] as sounds, highlighted in the foreground, with the aim of conveying a message, through devices, heard consciously, corrupting the natural state of the sound environment [1], the sound interference refers to all sounds that, not made available more frequently in the respective individual daily life, occur unexpectedly and occasionally, causing impact in a destructive or constructive way, contributing to the development of the individual. According to Filho [10] "sound interference is the result of the superposition of two or more sound waves (...)", which may result in amplitudes that add up (constructive interference) or cancel each other out (destructive interference). In this way, either to arouse due interest or, on the other hand, observed as a mere sound excerpt without any meaning and importance, sound interference occurs in an unpredictable and natural way, through the free circulation of sound, through the respective sound agents, and through the very fusion and mixture of environments, which develop over time, constituting a constant mastering of the world.

Sound Traces

According to Barreto et al. [4] traces are considered any type of "preservation of indirect evidence, such as the impression or mold of the surface of an organism, or the result of its activity, (...)" also called ichnofossils. Thus, adapting the concept to the digital reality, we can state that audiovisual records themselves are verified as vestiges encompassed by technology. According to Rudi [24] unlike technological records (photographic, audiovisual, sound), which are static and objective, the memory process of the human being records and archives representations, which over time undergo mutations, giving rise to new perceptions of reality.

Considering the extensive complexity of human life, man has been resorting to new technologies to record and archive his history, immortalizing it through digital format, contributing to a temporal interconnection between past and future generations, in order to instruct the younger ones and celebrate the immortality of the ancestors. Considering this approach, the concept of sound traces, also, as indirect evidence, resulting from the activity of the individual, can be defined as any type of audio or audiovisual record, which remains, over time, as links and memory aids, between generations, with the main objective of ensuring, on the one hand, emotional, personal remembrance, on the other the true perception of reality, static and objective.

IV. Conceptualization

Following the approach of sound instance, its conceptualization should consider the articulation between the collection and exposure of the sound record, allowing a space for reflection before the represented individual. This tool should be framed in the production of a unique audio track, where all relevant sounds will be represented in an audio moment, according to the individual's reality and own decision. In order to achieve the conceptualization of this proposal, it is suggested that the process be done according to a progressive logic, based on a personal reflection through an interview, synthesis of the interview, choice of keywords, sound representation of the keywords, recording and production. To obtain a consistent result, we suggest the use of sound editing software, where it is possible to implement the various sound representations, in a sequenced manner, on a single track, with a sound base that promotes an immersive or even spatial environment (example can be found at [35]). Finally, it is important to emphasize that the conception of a sound instance only reveals the reality present in the moment it is conceived, and the production of new instances is encouraged and suggested, as a means of comparison between different representations, changeable considering the most varied circumstances.

Producing an example for a conceptualization of sound instance, entirely related to the practice of sound art, mixing art, sound and technology, intends to (re)contextualize moments, objects and thoughts in a single experimental work, enhancing the hearing for the small details of life, contributing to the literacy of individual identity, through digital verification and autoscopic processes [21].

V. Playback Theater

Considering the importance of observation/listening as spectator/listener, the production and development of the sound instance is entirely related to the reflection of the individual to his representation, providing a privileged place for self-recognition, following a logic similar to the playback theater. Created by Jonathan Fox and Jo Salas in the 1970s, playback theater articulates the personal life of the audience with the expressive and improvisational capacity of its actors and musicians, opening doors for instant and spontaneous representation [29]. According to Siewert [28], playback theater "is a form of theater in which people in the audience are invited to tell personal stories that will be staged by the actors and musicians (...)", providing a community and therapeutic component in the social and psychological scope. In this

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context, the individual is invited to watch their own story, portrayed, providing a vision of themselves, an open space for remembrance and nostalgia, as well as a sense of validation, reflection and belonging [17], counteracting social isolation, under the guidance of a better recognition of their feelings and reactions, fostering solidarity and mutual respect for individual needs [25]. Authors such as Moran and Alon [18] highlight the potential of playback theater in mental health, through social conception and artistic expression, contributing to processes of catharsis and active listening in the context of the shared story.

VI. RESEARCH METHODOLOGY

According to Zanella [33], the concept of methodology aims to explain, evaluate, interpret, understand and assess the different methods and their approaches, contributing to the research processes in the search for knowledge.

Through a qualitative methodological approach, it is intended a collection of key information for the creation and development of the sound instance, not with the objective to explain reality, but to understand it [3], enabling a reflective listening on the individual. Articulated with research in artistic practice, this approach allows the expansion of consciousness to reach different perspectives, enabling the research artist to develop his own ideas and visions, through the creation of his work. According to Navarro [22] "interpretive and experimental artistic production allows and encourages, in turn, in the observers, a multiplicity of perspectives and interpretations".

Although focused on a qualitative methodology, the interrelation between researcher and individuals, for the sake of the production of the sound instance, can also be considered within ethnography, where the goal is focused on the production of anthropological knowledge data, through direct observation, informal and formal conversations, such as interviews, in a given context [23]. However, this approach, in search of the meaning of "daily life", discards the methodological position of manipulation of social problems, to the detriment of the apprehension, not totalitarian, of reality [15]. Through the use of research tools, such as questionnaires and interviews, a hypothetical deductive approach will be possible, considering a set of existing theories, as well as the formulation of problems around theoretical and empirical issues [8], associated with basic needs of the individual, imposed by reality. Thus, it will be possible the "conjunction between reason and experimentation of hypotheses submitted to proof (...)" making them "supposed truths or half-truths about the phenomena that were problematized as object of scientific study, given to verification through experimentation and testing (...)" thus contributing to the "creation of new theoretical assumptions for scientific research" [8].

According to Zavaldi et al. [34], the creation process is shown, in most models, as a linear sequence of phases that, through the orientation of the same, does not demonstrate capacity for its representation, the way they are portrayed. Thus, the authors argue that "to combine rationality and intuition is to explore the interdependence of problems and solutions, and to find the levels of abstraction and concreteness that describe the existing reality and the new reality that can be brought into existence."

In an a/r/cographic approach, the process of creation/ investigation of the respective artistic artifact is constituted through the "artistic experimentality: its meaning, the discoveries even if marginal, and its communication (...) based on the lived artistic practice of the individual" [32]. Through this methodology, the cohesion between different stages of evolution and development of the content is emphasized, highlighting seven moments, iterative and generative, inherent in the process of creation/research, considering that each one "feeds the next and, potentially, feeds itself and the previous ones through the (self)reflection of the artist/researcher" [32]. Following these approaches, it is to be considered that the process of creation/research associated with the theme shows a logic of experimentation, rationality and intuition, through the orientation based on the a/r/cographic stages that, without a totally bound order, provide a daily reflection on the work done and the results obtained, contributing to its development and evolution.

VII. FINAL CONSIDERATIONS

Considering all the subfields mentioned, we can state that the sound instance can be defined as the entire sound environment that portrays and represents the individual in space and time, in a personal way, ensuring the objectivity and subjectivity of his path, throughout his life. Thinking of the individual as a singular and specific being means attributing him/her personal and different characteristics from other members of his/her species, contributing to a greater understanding of the differences inherent in each one. According to Freire [11] the term instance, in the context of computational structures, means similar objects created by a class, demonstrating the particularity of the singular individual (instance) in relation to its species (class).

Schafer, key author of the soundscape research [27], promotes a perception of the world of sound, relating the extensive complexity of the surrounding environments inconstantly available for the reception of new sound contents, promoting a continuous mastering of the world, and consequently of the individuals themselves.

In conclusion, the sound instance intends to make available, within the study of the individual sound environment, a model associated with individual representation, as well as a tool for reflection and social and personal introspection, aiming to provide new perspectives, through personal recognition and validation, considering the framework of all subfields (sound matrix, sound cycles, sound interference and sound traces) inherent in it.

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