Looking at music, science and education through the pianoscope

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Abstract: Over the last few years Companhia de Música Teatral (CMT) has been developing a series of original ideas that has designated as "artistic-educative constellations". CMT's work is deeply rooted in music but explores links with other artistic languages and technology and proposes an intrinsic articulation with education (in a very broad sense). The CMT projects are a kaleidoscope of Performance pieces, Installations, Workshops, Publications and TransFormation activities and the piano has been central to many of these projects. One constellation in particular, Anatomia do Piano, has made the piano the "attractor" of a series of initiatives that connect the "main-stage" with the classroom, the science laboratory or the community. The installation Pianoscópio, part of this constellation, is the subject of this communication: it is based on the idea of "deconstructing" the piano, in order to contribute to a more profound understanding of music, creating an opportunity for discovery and expression. It is an experience that transforms the piano into a collective instrument, a sound installation/sculpture capable of producing sounds of a myriad of colours, a space to be inhabited by people and produce sound through their combined interaction. In this paper we report on the experience using the Pianoscópio in a wide range of situations, from workshops with children to concerts and recordings with professional musicians, science-based projects or projects with the community.
Keywords: piano; artistic-educative constellations; pianoscópio; community project; performance practices

Overture

The Piano as a "matter"

Whereas in the realm of "classical music" and other "standard practices" the visual aspect of the modern piano seems to have "stabilized", as well as its "common use", a series of different approaches have been put forward by musicians and visual artists that have enlarged the sound and visual "pianosphere" and the piano is still regarded by artists, designers and engineers as an interesting "object" or "subject" to act upon. "Expanding" the conventional sonorities dates back to the work of composers such as Maurice Delage, Henry Cowell or Villa-Lobos, but it was John Cage that catalyzed the series of developments that led to the "reinterpretation" of the piano, both purely as a musical instrument and as a "subject" or "element" for the visual arts. Cage's legacy might have inspired musicians of different "musical credos" (George Crumb, Arvo Pärt, Toshiro Mayuzumi, David Brubeck, John Cale and The Velvet Underground, The Grateful Dead, Brian Eno, Aphex Twin, Hauschka, The Bowed Piano Ensemble, amongst others) as well as several visual artists or practitioners of emerging new languages, in particular within the Fluxus movement. Nam June Paik´s case is paradigmatic and the association is clear as early as in *Exposition of Music – Electronic Television* (1963), as well as later works. In fact the piano became a recurring element in Paik´s work and at the forefront of his approach to widen the field of visual arts and it is possible that this might have "resonated" in the other artists' works, too.

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The piano, more than any other musical instrument, seems to have followed, or perhaps even inspired, some important turning points in the "art world" that led to the emergence of new artistic practices today recognized as installation-art, sound-art, kinetic-art, performance-art, public-art, and so on. As far as the Art world is concerned, over the last decades the piano "left the music room" and the "representation in a painting hanging on a wall" to become a "matter" upon which artists act, a "substance" with "real presence" in art-galleries, streets and public spaces. A few examples of the "ubiquitous" presence o the piano in recent contemporary art-forms include Stephen Cornford´s kinetic sculpture *Extended Piano*, Kathy Hinde´s installation and performance *Piano Migrations,* Allora & Calzadilla´s performance *Stop, Repair, Prepare*, Robert Gligorov´s installation *Dollar Note*, Chiharu Shiota´s installation *In Silence,* Ken Unsworth´s installation *A Ringing Glass* and sculpture *Raptured,* Sanford Biggers´s multimedia installation *Blossom,* Rachel Horn´s mechanised sculpture *Concert for Anarchy,* Luke Jerram´s street art installation *Play Me, I'm Yours* or Trimpin´s installation *Red Hot.*

The above mentioned examples support the idea that the piano is an interesting challenge for artists due to its sonorous possibilities and visual presence, but above all because of its symbolic meaning. The piano is "the icon" of Music, maybe not "the direct and sovereign representative of music itself in its immaterial nature" as Thomas Mann proclaimed in Doctor Faust, but perhaps the strongest general representation of western practices and cultural assumptions about the "nature of music", as an art-form with complex codes, skillful actors and specific places and performing rituals. When artists choose to deal with pianos in their work their are in fact dealing with "music" or "cultural memories", frequently provoking the audience, raising questions or challenging accepted rules or behaviors, using the piano as a "poetic resonator". For example, when Joseph Beuys covered a grand piano with felter in the installation *Homogeneous Infiltration for Piano* he made a very strong statement about "silence". Many artistic, social and political interpretations have been given to this work and certainly this impact is related with the strong symbolic meaning given to the piano. Likewise it is possible to look at the street installation *Play Me, I'm Yours* (where pianos decorated by local artists and community groups are placed on the streets, parks or train stations bearing the simple instruction 'Play Me, I'm Yours') as a strong statement about the power of art to allow for communication between people, an invitation to engage and take ownership of their urban environment, an exercise in democratizing the access to art, a questioning of the codes surrounding the western vision of art as an activity that requires "sanctuaries" (either the art gallery or the concert room). There are, therefore, many reasons to look at the Piano as a dynamic and fertile territoire for artistic creation, particularly if one is interested to explore connections between artistic languages, as well as creative approaches to education. That is certainly the case of Companhia de Música Teatral.

CMT's 'artistic-educative constellations'

Companhia Música Teatral (CMT) is a portuguese group with a regular activity of nearly 20 years. Artistic creation is CMT´s pulsating source: departing from Music and looking for interactions between several languages and possibilities of artistic communication, CMT has built a path of discovery based on the idea of artistic projects as laboratories allowing multiple enquiries. CMT´s philosophy is marked by the creation of relations between art and education and by the articulation between academic research, artistic production, technological creation, community involvement and the dissemination of the importance of musical experiences, and art in general, in social and human development. CMT has been contributing decisively to a diversified and comprehensive cultural offer: CMT's repertoire is a kaleidoscope of performances, installations, workshops, medium and long-term projects, training activities, publications in various formats, participation in research projects and presentations of academic scope, nationally and internationally. The term 'artistic–educative constellations' has been used in recent years to define a working model and a metaphor for the vision that guides CMT. This metaphor provides

a poetic sense of a universe yet to be discovered, as well as an objective and a strong analytical framework of different 'bodies' interacting through conceptual and aesthetic 'forces' or 'fields'. Several "constellations" have been developed over the years and Constellation AdP is the context in which Pianoscópio is placed.

From 'Anatomia do Piano' to "Pianoscópio"

In 2011 CMT created Anatomia do Piano, a performing piece that aimed "to deconstruct the instrument that may be considered the most influential in the history of Western music". It involves two performers exploring areas of theater and dance connected by a solid musical "thread" that bridges different discourses organized in "tableaux". The piano is played both conventionally as well as with "extended" or "prepared piano" techniques that can rapidly be removed, allowing to explore several sonorities throughout the piece. The piano is also regarded as the main piece of scenery and the entire performance explores the idea of revealing the inside of the instrument. A series of articulated wooden pieces containing objects that can be used throughout the performance are attached to the piano, creating the idea of a "metaphorical surgery". One of these has a video camera that captures images in real time and the performers manipulate the articulated piece, revealing several angles of the piano´s inside, producing visual "landscapes" that are projected in a big screen. As the performance unfolds, the piano is revealed as "a place, a being with life, a sculpture, a stage, a house where music lives"[2]. Anatomia do Piano invites the audience to "enter" the piano and uncover normally hidden details, building imaginary worlds where the boundaries of the various arts become blurred. It proposes a journey in a poetic territory that is usually absent in performances for children and makes the Piano the great protagonist of a "total work" of art (Fig.1, left).

Figure 1. Aspects of Anatomia do Piano: left, final moments of the performance; right, audience approaching the piano after the performance.

Anatomia do Piano is a performance for families, with several moments of very close interaction with the audience, including at the end of the performance when people usually come to the stage and observe very closely some of the features they saw throughout the performance (Fig. 1, right). After a few performances it became clear this curiosity and desire to experiment should give origin to a new idea that would allow to further explore the possibility of the general public, children in particular, to be involved in a practical, participatory, collective experience around the piano. This idea was denominated Pianoscópio and a team of artists, including musicians Henrique Fernandes, Filipe Lopes and Paulo Maria Rodrigues worked with visual artist Ana Guedes towards a first version of the project to be premiered at the BIG BANG Festival in Centro Cultural de Belém (CCB), Lisbon, in 2013 (Fig. 2). The documentary Pianoscópio, Primeiras Notas by video director Luís Margalhau offers an overview of the creative process as well as the first workshop experiences at CCB.

Figure 2. Aspects of Pianoscópio at the BIG BANG Festival, CCB, Lisbon

Pianoscópio was based on the idea of "deconstructing" the piano, in order to contribute to the construction of a more profound vision of music by creating opportunities for discovery and expression. Pianoscópio aimed also to challenge some conventions about Music by "transforming the piano into a collective instrument, a sound exhibit/sculpture capable of producing sounds of a myriad of colours, a space to be inhabited by people and produce sound as a result of their combined interaction". It was planned to work in a range of situations: a) an interactive exhibit that could be visited and explored freely, b) a series of resources and ideas that would support a workshop based on exploring the different sound elements as well as on the construction of musical pieces that would combine a predefined basis with elements of improvisation, c) a resource that would allow medium or long term creative projects with a focus on music but allowing to explore other artistic languages and areas of knowledge, as well as the development of social skills such as communication and cooperation. It was initially planned for schools, families or mixed groups of people from age six, but with time we realized that trained musicians, artists, educators or communities would also find interesting challenges in this work. After CCB, Pianoscópio had a long-term residency (over 3 years) at Fábrica Centro de Ciência Viva (Fábrica), a science centre in Aveiro working under the umbrella of the Aveiro University (UA), where it was presented as part of the science exhibits, as well as a training tool for teachers, artists and musicians. Some of these experiences will be described in more detail in later sections of this paper.

Looking at Pianoscópio

Components and Functioning

Pianoscópio has a stable core of elements, as well as some variable aspects, mostly scenic/theatrical, that were adapted to specific situations. In this paper we will follow the scheme developed with designer Miguel Ferraz for Fábrica, as shown in figure 3.

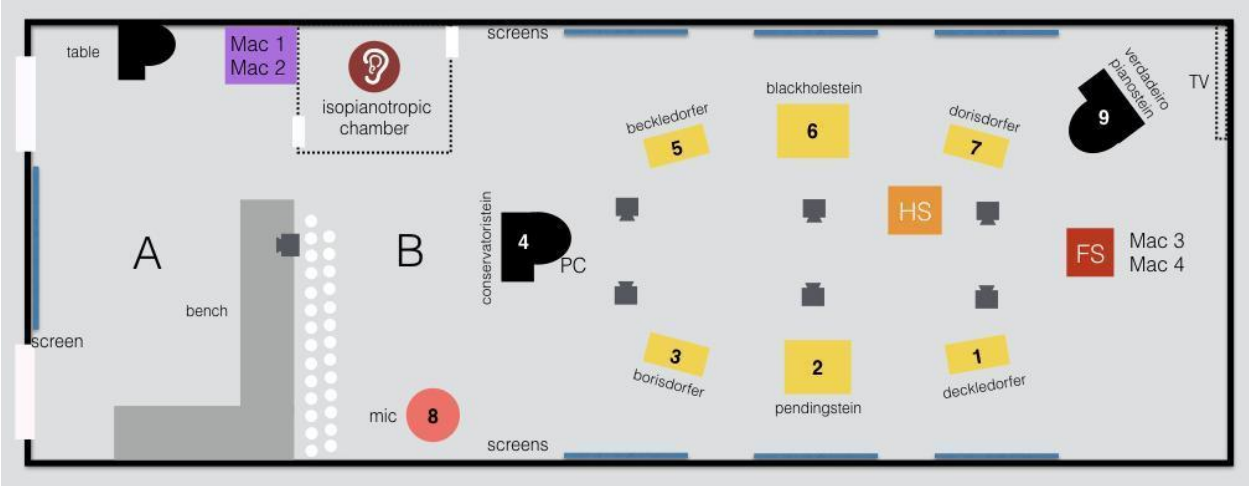

Figure 3. Implementation of Pianoscópio at Fábrica, Aveiro

The building that nowadays hosts Fábrica was once a milling factory. The conversion to host the science centre kept the original architectural features and the general atmosphere of a factory. Pianoscópio was implemented in one of the halls, a space of about 24x8 m, adjacent to an interactive exhibition about physics. The implementation at Fábrica followed the idea that within the "Factory" the Pianoscópio would be an unity devoted to "experiment" and "produce" sound and music, allowing people to understand some concepts about the physics of sounds, the functioning of the piano, but above all to enter the world of creating with sound in a practical and playful manner.

The hall was divided into two areas, A and B, as shown. Area A worked like a welcoming area, as well as the space to plan or discuss the experiences held in area B (the space devoted to work with sound). This idea was integrated in the "theatrical atmosphere" of several activities, in area B no words should be allowed, only sounds, in order to not "contaminate" the experiments and products being developed. Area A had benches where people could seat, a screen where the above-mentioned documentary could be projected as well as an introductory animation with a riddle about the piano in the style of an audiovisual poem.

The separation between areas A and B was made with a curtain of tubes lit from inside, revealing with mystery that another area would eventually be visited. Area A also included an area where visitors would collect a kit with basic tools (home-made mallets, a home-made plectrum, a brush), prior to entering the "isopianotropic chamber". This "theatrical atmosphere" was planned allow for a "dress-up and code of behaviour" moment that would help a focused entry into area B.

The entry in area B was via the "isopianotrophic chamber", a space delimited by translucent walls, to which contact transducers were attached. In a normal situation, any group coming to Pianoscópio was required to gather in this space and listen to a sound composition emanating from the walls. This composition, about 1 minute long, included iconic Pianoscópio sounds and fulfilled the role of "ear cleaning", "sound washing" or "tuning" in the sound environment that people would be about to enter. It had a dramatic shape, using "science fiction"- like musical gestures to emphasize the sense of "travelling" or "displacement". The "isopianotropic chamber" was an important part of the "theatrical ritual", creating a strong statement about the need to listen and establishing the idea of entering a totally different world, where only intentional non-verbal sounds would be allowed (at least for a certain length of time).
Area B was the "working area" and contained all the elements of Pianoscópio:

i) old pianos' parts that had been transformed, (1,2,3,5,6,7 in Fig.3), referred to as Objects in the following paragraphs;
ii) a microphone to capture the sound of voices, (8 in Fig. 3);
iii) a station with two computers, an audio interface and an amplifier, (FS in Fig. 3);
iv) a station with a series of extra tools and small instruments that could be used to complement the kit that was distributed to the visitors, HS in Fig. 3), as well as some extra-resources (a fully functional quarter grand piano, 9 in Fig. 3, a "non-functional" grand piano (with a ruined mechanism), 4 in Fig. 3; a computer and several webcams; video-projectors; projection screens on the walls.

Figure 4. Aspects of Pianoscópio at Fábrica da Ciência, Aveiro

The idea behind i) was to display autonomously some components of the piano that usually work together and to create ways to produce sounds with each of them. In a normal functional piano several parts are purely mechanical and do not produce sound, or at least a big effort is made not to do it. In Pianoscópio we deliberately wanted to "give voice to the unheard sounds" (in a kind of "Cagean" statement) as well as to get away from the conventional approach of percuting the strings with hammers connected to a keyboard. We therefore isolated the components of several old pianos and created several visual objects that could be made to produce sounds with various techniques. Objects 1) and 5) of Fig. 3 were built with detached keyboards. Objects 3) and 7) use parts of the mechanisms that usually connect the keyboard with the hammers. Objects 2) and 6) are "table-like" pieces incorporating almost intact soundboards (with strings) of vertical pianos (one with a wooden frame, the other with an iron frame). All these objects could be made to produce sound either with the hands, with a series of tools that were either in the individual kit distributed to the participants or with a series of other devices that were placed in HS, namely: nylon strings (used to "bow" the piano strings), friction mallets (rubber bowls on top of flexible rods, used to "friction" wooden parts as well as strings); big foam mallets (to produce "cluster like" sounds with unnoticeable attacks); several types of brushes (that could be used to friction strings and wooden parts or to mute strings); wooden or metallic pieces that could be introduced between strings (creating a gamelan-like sound when played with mallets or hands); long-threaded rods with washers (to produce "rain-like" sounds that the soundboards naturally would amplify;

a series of small sound-toy objects. Figure 4 shows several aspects of the Pianoscópio at Fábrica.

Although these Objects could work acoustically (ie, without amplification), Pianoscópio was designed with the purpose of amplifying all the sounds produced by them, as well as taking advantage of their resonant properties to diffuse sound. Adding this possibility was important not only for musical aesthetic reasons but also because it had deep implications in the creative aspects and learning contents that could be explored. In order to attenuate the visual presence of microphones and loudspeakers, as well as for “poetic” reasons, Pianoscópio makes use of piezzos (i.e. contact microphones) and contact transducers. The audio technology employed in Pianoscópio consists of a total of six piezzos attached and distributed one by one to Objects 1, 2, 3, 5, 6, 7 and six contact transducers attached in pairs on to the resonance boxes of Objects 2 and 6, as well as element 4. In addition to this, there is one condenser microphone used to amplify small choirs, narrators and/or voices. The audio signal chain converges to a station (i.e. Flip Station, FS) with an audio interface and a computer, and all the cables connecting these devices to the station run inside long plastic tubes creating the idea of a complex network. The computer runs an original digital application developed in MaxMSP that allows routing the different audio signals to be (or not) processed using audio plugins (e.g. delays, spectral processing, chorus, distortion, among others). In addition to processing the "dry" signal from each element, it is also possible to play pre-existing audio files (e.g. factory sounds, bird sounds, whale sounds). The audio signal from the station is then sent to a set of amplifiers which, in turn, send the signal to each contact transducer that uses the resonant parts of the Object to amplify and diffuse the sound to the space. Light was designed to emphasize the objects and tubes and to allow for the simultaneous projection of images in the screens. The images are processed in real time from a computer positioned at the FS by analysing the sound within the space and generating the correspondent waveform. These sound visualizations would be projected in some of the circular screens hanging on the area’s walls. Other screens would project images coming from webcams looking at the inside of some of the Objects.

Establishing a bridge between acoustic and electronic sounds and having the amplified sounds emanating from the installation elements was a strong feature of the installation. The strings of piano boards vibrate sympathetically, providing a rich solution that allowed to create a true “spatialization” of the sound. It was also a “poetic statement” about the piano as a “soundscapes resonator” and the fact that it was possible to amplify and process voice sounds and listen to them emanating from piano boards was particularly interesting. Working with the human voice was important not only for practical or pedagogical purposes but also because the “pianos” resonated the human voice, a “statement” about the “nature of music”. The possibility of working with previously recorded sounds was also important in order to create the “theatrical atmosphere” at the beginning of sessions, for example, establishing a mysterious atmosphere of “breathing machinery”, as if the installation was “alive” and waiting to be “awake”.

The Max/MSP patch developed for Pianoscópio is analyzed in this section. Max/MSP is an object-oriented language, with a series of modular pre-elaborated routines that can be interconnected to design specific flows of information. It allows the design of simple graphical user interfaces (GUI), making it possible to be used by the common user. Figure 5 shows the Pianoscópio´s GUI, accessible to workshop leaders and participants in the activities at Pianoscópio.

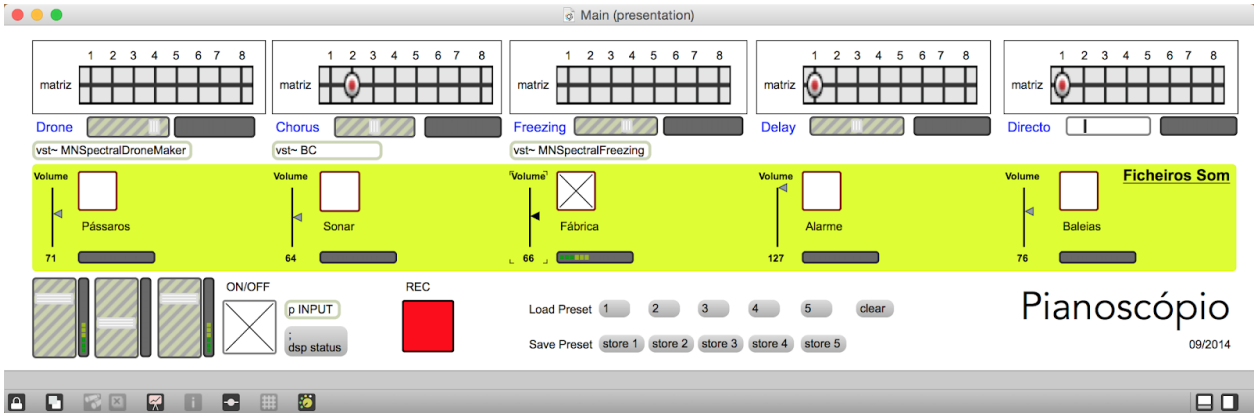

Figure 5. GUI of Pianoscópio´s MAX patch at Fábrica

The patch allowed:
i) to process the sounds coming from Objects 1-8 independently, using a series of pre-programmed effects as well as non-processed sound (top row of the interface). In the example of Fig.4, the sound of Object 2 is being processed by a "chorus" effect, whereas Object 1 had a "delay" as well as "direct sound". The amount of "processing" can be manipulated with the horizontal faders underneath the "matrix";
ii) to play previously stored sound files. The green highlighted area of Fig. 4 shows 5 boxes corresponding to 5 sound files that could be made to play and loop. These sound files could be replaced by clicking "ficheiros som" on the right side. The volume of each sound could be controlled with the vertical fader on the left side of the box;
iii) to send the electronic sounds to the transducers of Objects 2, 4 and 6 and control their volume independently (the three vertical faders in the bottom left side of Fig. 4);
iv) to save and recall combinations of the above mentioned parameters (Load Preset and Save Preset in the middle bottom of Fig. 4), allowing to prepare in advance setups for different situations as well as to introduce sudden changes in the context of a piece;
v) to record a musical session, e.g. a piece that would have been created in order for participants to take away the "product" of their work in the end of a session.

Experiences and Considerations
Several types of experiences were held at Pianoscópio in Fábrica. The following section intends only to show the variety of approaches involved.

The standard Workshop
A plan was developed and implemented as an experience that could be held with groups of visitors, regardless of their age. This was considered to be an experience that could work on its own or as the first of a series of others that would be planned as a medium-long term project. The so-called "Protocolo Fábrica" was as follows:
1) People entering the space would sit in the benches of area A as the projection with the introductory animation with the riddle (mentioned above) started. No words were used, as the intention was to create a mood of curiosity and unexpectedness. This would be followed by an introductory conversation welcoming the participants, the workshop leader(s) being dressed with a "Pianoscópio suit", an important aspect of the "theatrical ritual"
2) People would be introduced to the idea of entering a "laboratory" where experiments and products were developed having sound as a matter and therefore having to follow a "code of behaviour" (deep listening), to carry protection glasses and manipulation tools and enter the "isopianotropic chamber" in order to become prepared;
3) People would gather at the "isopianotropic chamber" and receive the "sound wash" experience described above;

4) People would enter Area B, having the “fábrica” soundscape as a background. The workshop leader would exemplify the use of the tools available in the “kit”, inviting progressively everyone to experiment. As explained in 2), no words were allowed.
5) a moment of “free-style” playing would follow, allowing people to discover the possibilities of the instruments and tools. This would normally culminate in a chaos that would be stopped by triggering the “alarm” sound (which had been explained in 2);
6) a first short discussion would then follow before and after the audition of a short pre-composed piece, emphasizing the need to articulate the different sounds in order to make music;
7) a first moment of explaining some basic principles about the physics of sound would follow (e.g. the different pitches/frequencies that can be obtained with different lengths and thickness of piano strings or different loudness/amplitude) usually accompanied by the observation of the sound-visualizer;
8) the interpretation of the graphic-scored composition “Rain Forest” (Fig. 6) would put the participants back into “practical mode”. According to the group, the piece could be interpreted with more or less rigour, and the score could even not be followed or shown if that would be the best option. The piece involves the use of some presets in the Max patch and normally this would occur as a “surprise” element during the first attempt to play. Having experimented both without and with sound processing there would be a discussion about the differences and an opportunity to explain some basic principles about amplifying and processing sound and how the Max patch could be used to do it. Two other collective pieces were available to be developed in this workshop and they would or not be implemented depending on the availability of time and focus. Whereas “Rain Forest” can be described as “textural” or “granular”, with no clear sense of rhythm or pitch, “TickTackClickClock” and “Searching for the Celacanto” deal mostly with rhythmic *ostinati* and a sense of pulse (with several layers of percussive sounds, with emphasis in gamelan-like sonorities) and long sustained sounds (drones produced by “bowing” the piano strings with fishing nylon strings or “frictioning” metallic and wooden parts with rubber mallets).

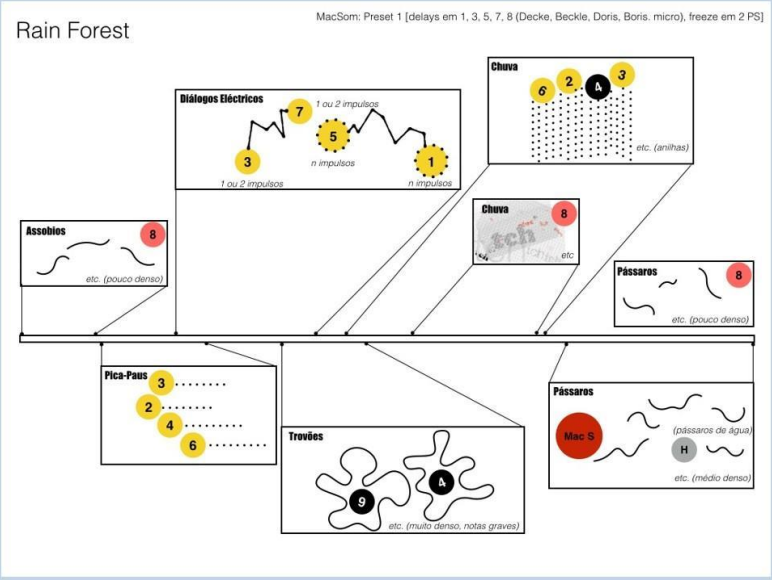

Figure 6. Rain Forest’s graphical score

9) The workshop would end with another passage through the “isopianotropic chamber” and a final conversation in area A. The documentary projection would be an option to consider, depending on the time available.

Missão Mar Profundo

A medium-term project within the course of Music, Creativity and Education from the Masters in Music Teaching at UA was developed during the 2015-16 first semester. Missão Mar Profundo (Mission Deep Sea) was the collective practical exercise proposed for students to apply and further develop some concepts and strategies that had been explored in the first half of the semester. The creation and public presentation of an artistic performance developed during the course was regarded as an important part of the teaching-learning strategy, creating practical "problem-solving" opportunities and "real life" challenges. The project's general aim was to explore the boundaries of Art and Science having the theme "deep sea" as an original and fertile ground. Departing from a lecture by marine biologist Ana Hilário, a researcher at UA working in the field of deep sea, in the first session of the project, students became acquainted with the main topics of the field as well as Ana´s particular research interests and methodologies. The information presented in the lecture was a first source of material for the next sessions, as well as Jules Verne's *"20,000 Leagues Under the Sea"*, Álvaro de Campos´s *"Ode Marítima"* and several other literature and musical references creating a "library" of ideas that would be approached musically at the Pianoscópio. After the introductory Workshop, the project's remaining sessions involved the students' creation of original pieces using both the Pianoscópio resources and classical instruments (their main area of study). Another important aspect was the development of imagery and theatrical aspects, as the project started to follow the idea of a voyage to the deep sea with the audience embarking in a vessel that would reveal imaginary soundscapes. Figure 7 displays the poster communicating the performance (left side) as well as a still frame of the projection that welcomed the audience entering the installation/stage (right side).

Figure 7: Poster of the performance (left side) and still frame of the video projection welcoming the audience entering the installation/stage.

Viagem a Dentro de Nós

A medium-term community project with a group of mentally disabled young adults from the association Pais em Rede and a small group of ex-students from the above-mentioned course took place during 6 consecutive weeks in May/June 2016. The initial workshop was adapted to the participants' cognitive specificities. The following sessions were very different from the project mentioned above as they were oriented by the principles of Community Music (see for example Higgins, 2012 and Lamela and Rodrigues, 2016). The sessions would include singing and playing songs as requested by the group, movement/dance activities and the introduction of Pianoscópio was progressive and punctuating the activities that seemed to interest the group mostly. A particular focus was given to the expression of individual personalities with moments for solos that could later be combined as elements of a piece. The resources of the Pianoscópio were in fact determinant, as they offered real opportunities for musical expression without barriers, but the work was mostly organized towards having the

people in the center of the activities and not so much with the focus on the sound resources available. The fact that there were a few skilled instrument players involved in the project (the students mentioned above) as well as a dancer, allowed to develop a very interesting combination of materials with original pieces aside with compositions and arrangements of music by others (e.g. one of the group's favorite themes was *House of the Rising Sun*) and moments of dance and music theatre. A final performance took place at the Pianoscópio entitled Viagem a Dentro de Nós (Voyage to the Inside of Us) and it was organized as an imaginary trip to the participants' inner worlds (their likes, habits and wishes) (Figure 8).

Figure 8. Aspects of Viagem a Dentro de Nós

Concerto nº 1 para Pianoscópio

It is reasonable to look at this experience as a long-time project, since the vocabulary acquired throughout the initial period, beginning in 2013 with musicians Filipe Lopes, Henrique Fernandes and Paulo Maria Rodrigues, was the basis upon which the creative week-long residence (October 2015) process of composition/improvisation was developed. A final concert presented the four compositions that had been created in the residence and recorded in the CD pictured on Figure 9.

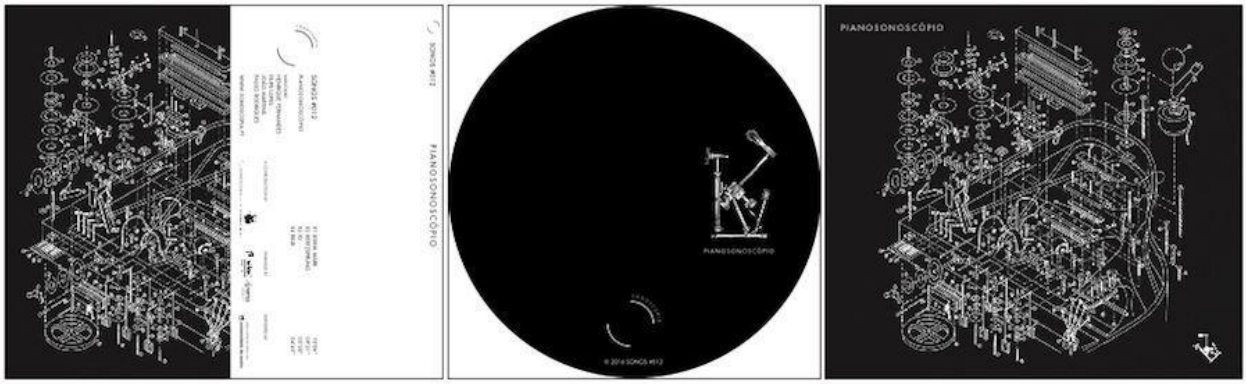

Figure 9. Cover of CD Pianosonoscópio.

Coda

Music is an important part of human life. While listening to music is nowadays available to practically everyone, creating and making music are often regarded as activities reserved to people that have formal music training. In our opinion this division is artificial and an obstacle to fulfill the musical potential we are born with. Music allows for self expression and the development of collective bonds. In fact, as there might be a "communicative musicality" in the way we learn to communicate with others (Malloch and Trevarthen, 2009) we believe there is a "collective musicality" instinct that seems to organize some of our collective behaviours (Rodrigues and Rodrigues, 2017). In "western cultures" or WEIRD (western, educated, industrialized, rich, developed) societies, to use the designation of Henrich et al. (2010), education and musical industry

have carved a division between passive listeners (the vast majority of people) and active music makers (a minority) and creators (an even smaller minority). With Pianoscópio we wanted to create additional opportunities for people to engage in the “experience of art” (Dewey, 1980) but we also wanted to open a door for musical sonorities and creative experiences that usually belong to a rather restricted group of “contemporary” or “experimental” musicians. The ideias of authors such as Paynter, Schaffer, Wishart, Lucier or Oliveros have been inspiring for several of our projects and teaching and Pianoscópio certainly reflects those influences (Paynter, 1992; Schaffer, 1986, 1994; Wishart, 1996; Lucier, 2012; Oliveros, 2005). The main reason to do so is not, however, to support the “cause” or the “future of contemporary music”: we simply believe that listening is a very important part of relating oneself with the world and with others and it is important to develop an aesthetic sense for “sound” as part of everyone's education, musical education included. In fact, very little “acculturation” to sound takes place in the process of music learning in conventional curricula, the emphasis being placed in music as pitch and duration. “Creating with sounds” opens another possibility to enter the world of music, it is a creative challenge in itself and we believe that creativity is an important part of human nature, a quality that needs to be developed by everyone in different manners. Making music creatively and collectively has immense rewards because it fulfills both the “need to create” and the “need to share time and space” with others. We wanted also to approach the idea of “experience of art” in a global, holistic, manner. In WEIRD societies, art became a fragmented territory with several artistic languages being regarded as independent, perhaps unrelated, realities. CMT’s work, despite having a strong musical root, is an attempt to connect different aspects of artistic expression and Pianoscópio, exploring the boundaries of music, sound, installation, sculpture and even theatre, is a clear example of our vision of art as a syncretic experience. By dealing with such an iconic instrument as the piano, by “giving life” to pieces that were “dead” and “voice” to sounds that are usually unheard, by creating possibilities to approach not only music but also education and science, by creating opportunities not only for skilled musicians but also to children or disabled people, we are indeed pursuing our vision of ourselves as artists, researchers and educators whose aim is “tuning people, birds and flowers”.

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