The Sound of Artworks. Assessing Sound in Time-Based Media Conservation

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FUTURE TALKS
021
SMART SOLUTIONS IN THE CONSERVATION OF THE MODERN

TIM BECHTHOLD
EDITOR

DIE NEUE SAMMLUNG
THE DESIGN MUSEUM

CONTENT

LECTURES


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LECTURE 001 THE SOUND OF ARTWORKS. ASSESSING SOUND IN TIME-BASED MEDIA CONSERVATION

BY LIHI LEVIE, SANNEKE STIGTER

ABSTRACT

In many time-based media artworks, sound is a determining factor of their identity. However, the specific properties of various sound features are difficult to capture and define. This research aims to identify the issues with sound elements in time-based works of art and to better understand how these are communicated when installing works of art with sound, with the interest of preserving the artwork's identity. For this purpose, interviews are conducted with the prominent time-based media conservators Reinhard Bek of Bek & Frohnert LLC, New York; Amy Brost of the Museum of Modern Art, New York; Patricia Falcão and Jack McChonchie of Tate Modern, London; and Flaminia Fortunato of the Stedelijk Museum Amsterdam. In addition, an interview with the artist Camilo Sandoval is instrumental in analysing his interactive installation *Gloria Non Absentis* (2018) as a case study. Oral History data analysis is used to reveal that the discussion not only revolves around acoustics and equipment but also about communication between conservators, artists, sound professionals, curators and other museum professionals. The interviews illuminate the importance of both objective data and subjective descriptions to characterise sound qualities so they can be communicated better. The notion of the 'sound object' is proposed, encompassing both objective and subjective qualities for a more robust framework for time-based art conservation.

KEYWORDS

Audio art, documentation, conservator interview, oral history, preservation of sound, sound art, time-based media art conservation

INTRODUCTION

Sound is integral to the identity of many time-based artworks, not only for sound-based works but also for many other contemporary art forms, such as performance art, video-based art, and kinetic sculpture. Sound can become a significant characteristic of an installation's display environment, as Pip Laurenson, former Head of Collections Care Research at the Tate, indicates for the sound of the film projector in Bruce Nauman's film-based installation *Art Make-up* (1967) *(Laurenson 2011: 37)*. Researchers from the Cultural Heritage Agency of the Netherlands (RCE) and the Netherlands Institute for Living Media Arts (LIMA) quantified the importance of sound to an installation that contains video, kinetic parts and interactivity, ascribing sound a vast 20% of the significance in assessing a work by Jeffrey Shaw and Tjebbe van Tijen, *Revolution. A moment for the Television Revolution* (1990) *(Brokerhof, Scholte, Ankersmit et al. 2011: 96)*. And yet, sound is often overlooked and sometimes even avoided in conservation practices due to a lack of knowledge and difficulty defining and describing the various auditory components *(Kelly 2011: 13)*.

It is important to distinguish between the concepts of 'sound', 'audio', 'audible', and 'acoustics'. 'Sound' is used here as a blanket term to refer to all aspects of this field. 'Audible' refers to that which can be heard by an audience, emphasising the audience's perception. 'Acoustics' refers to the science that studies and measures the properties of sound and how it travels in space. 'Audio' refers to the recorded and played back sound. This taxonomy is based on philosophical ideas discussed by Francois J. Bonnet, composer, recording artist and sound studies scholar *(Bonnet, 2016)*. Sound studies is a developing field that covers not only physics and acoustics but also the philosophical and sociological aspects of sound *(Sterne 2012: 2)*. Being a highly specialised field in itself, sound studies is still fairly new terrain for conservators. Realistically, conservators cannot be expected to match the expertise of sound engineers and scholars. Consequently, sound remains an intangible element that can be difficult to describe, document and preserve. Therefore, implementing a comprehensive framework and systematic vocabulary for the treatment and preservation of sound in time-based media arts is crucial for conservators in their communication with experts and artists alike.

Valuable contributions on documenting sound include the work of Ina Čiumakova on preserving interactive sound art installations by analysing and comparing documentation strategies for effective preservation *(Čiumakova 2018: 18-21)*. An earlier contribution is by time-based media conservator Reinhard Bek, who recognised challenges in documenting sound as part of time-based media installations and addressed them by strategically recording the sound with microphones, the decibel levels in relation to visitor positions for comprehensive documentation of the sound of artworks *(Bek 2011: 206-7)*. Another significant contribution is *A Documentation Framework for Sound in Time-based Media Installation Art* by Amy Brost *(Brost 2021)*, a time-based media conservator at the Museum of Modern Art (MoMA). Brost recognises the need to 'be conversant with sound physics, acoustics, audio engineering and sound design,' to improve communication between conservators, artists, and sound professionals *(Brost 2021: 210)*. Her article focuses on sound documentation and provides a great starting point for getting acquainted with auditory features. Still, many aspects of sound preservation remain open for exploration, especially concerning the practices on the work floor. This research aims to understand the situation in exhibition spaces when installing a sound-containing artwork and the required involvement of the conservator, drawing from the experiences of professionals in the field of time-based media conservation. Finding commonalities between these experiences can facilitate a discussion about sound in the field of conservation.

SOUND IN DOCUMENTATION MODELS

When looking at early documentation models for contemporary artworks, sound is either not referred to or mentioned briefly. Such is the case in both *The Model for Data Registration (Foundation for the Conservation of Modern Art 1999), and The Documentation Model of Documentation and Conservation of the Media Arts Heritage (DOCAM 2005)*, where sound is mentioned as an immaterial aspect that is to be registered yet without further specifications on how to detail its characteristics.

In the Solomon R. Guggenheim Museum's *Iteration Report*, compiled by time-based media conservator Joanna Phillips, the element of sound is mentioned as a criterion of the exhibition space, taking into account the sound levels and insulation measurements *(Guggenheim 2012)*. Documentation templates from the Matters in Media Art project define sound in video works by audio properties (mono, stereo or mute), but a separate template to document audio artworks elaborates on technical information of the data carrier *and* format, such as tapes or discs *(Matters in Media Art 2015)*. While the properties of audio are extremely important to document, this form does not prompt to describe how the audio is supposed to sound in an exhibition space. Moreover, the template focuses on audio works by referring to the played-back sound, which is only one aspect of sound in time-based works of art, as will become clear.

The MoMA has made several documentation templates available through The Media Conservation Initiative (2016-2021). In its *Identity Report*, adapted from the previously mentioned *Iteration Report (Guggenheim 2012)* and a related publication *(Phillips 2015)*, sound is noted in a section on technical characteristics together with video-based characteristics *(MoMA 2018)*. In an additional *Display Documentation* template, sound levels and acoustic insulation are mentioned in a section describing space requirements *(MoMA 2018)*. One can imagine that while installing a sound-containing artwork, the subject is described and discussed on the work floor in other ways too. This raises the question of how sound is discussed and expressed in words among museum professionals when it comes to preserving the sound of artworks.

METHODOLOGY

To understand current conservation practices concerning sound more thoroughly, prominent time-based media art conservators are asked to share their expertise on the preservation of sound in art. They are Reinhard Bek of Bek & Frohnert LLC, New York; Amy Brost of the Museum of Modern Art, New York; Patricia Falcão and Jack McChonchie of Tate Modern, London; and Flaminia Fortunato of the Stedelijk Museum, Amsterdam. To allow for a good comparison and analysis, the participants are asked the same three open questions specifically designed to create an open yet standardised discussion. To contextualise the language and terminology used during these conservator interviews, an artist interview with media artist Camilo Sandoval is used as an additional source for cross-referencing. Sandoval develops interactive installations using experimental computing and audiovisual performances. His interactive arcade-inspired installation *Gloria non Absentis* (2018) is taken as a case study.

The interviews are crafted to lead up to answering a general research question, which is formulated below. The semi-structured interviews, conducted by video calling, start open and narrow down towards the end. The opening question aims to steer the discussion towards exhibition-based practices to find out what the conservators indicate as significant factors, and reads as follows:

- *What challenges do you face when exhibiting artworks with sound in exhibition spaces?*

This is followed by the second question:

- *How have you communicated sound terms with art professionals in the past?*

This question situates the respondent in the installation process itself and is valuable for learning what terminology is being used. The last question is more specific:

- *Are there specific key terms that you think are most important to know to improve communication?*

This question aims to provide direct input to answer the main research question: How do the various professionals communicate this topic to support the conservation of sound in contemporary art?

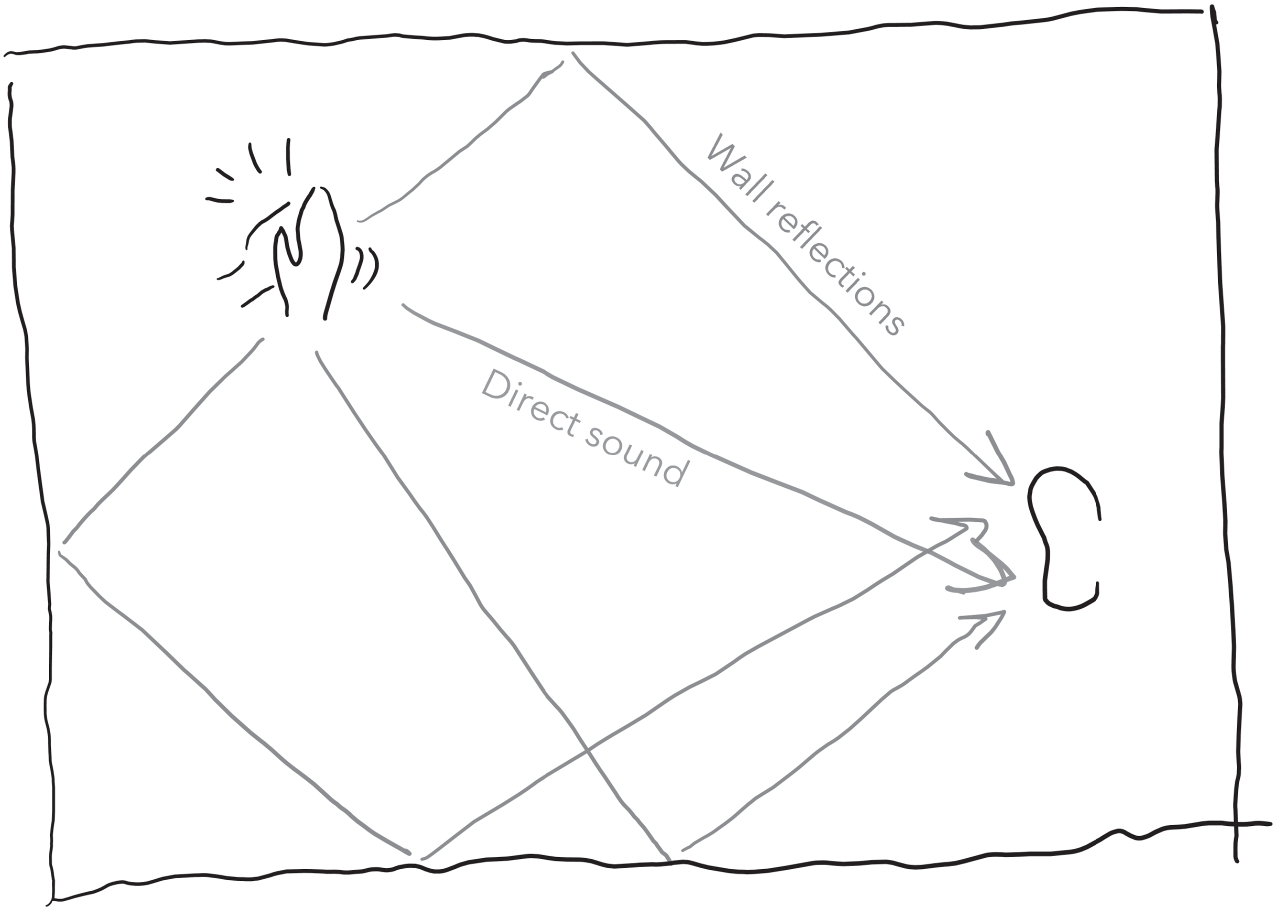

Figure 1
Sound is a combination of direct sound and how it interacts with the space. Illustration: Lihi Levie, 2021.

By analysing the interviews and comparing how experiences are narrated, central notions about sound in time-based arts are uncovered. The aim is to establish a common ground from which a fertile discussion can develop. Adhering to oral history analysis techniques that Patricia Leavy describes in *Oral History: Understanding Qualitative Research*, themes in the transcripts and notes from the interviews are identified and grouped to create sub-categories of data *(Leavy 2015: 58-63)*. This helps to identify the main concepts. Resulting from the interview analysis, four main concepts can be identified, (1) identification (of the sound and its source); (2) acoustics; (3) objective measurements and (4) subjective descriptions.

1. IDENTIFICATION

Identifying the types of auditory qualities in works of art is crucial yet difficult because audible elements are included in a variety of time-based works, perhaps even in all of them, given that we simply cannot perceive absolute silence *(Bonnet 2016: 53)*. A repeating notion that emerges from the interviews is the need for clarification about the different sources of sound in time-based artworks. What exactly is being referred to when the sound of artworks is discussed? Reinhard Bek explains:

'There are many artworks that produce sound which are not necessarily sound artworks. In my experience, most artworks that produce sound are video installations. Sound in video installations is usually played back, which has its own challenges, while moving artworks may produce their own sound, which can easily change due to wear and tear. These are two very different preconditions for sound.' (1)

Thus, one could distinguish between a played-back sound and a live sound that is produced in the space of the exhibition. An audio source can be part of video artworks or sound installations. But kinetic art, performance art, or an immersive installation with a special acoustic environment produces live sound as a work-defining property *(Laurenson 2006)*. In order to give greater emphasis to sound as an integral part of contemporary

Figure 2
Camilo Sandoval, *Gloria Non Absentis* (2018), interactive installation. Photo: Camilo Sandoval, 2018.

art that requires care and investigation, this paper proposes to treat sound, an inherently ephemeral phenomenon, as an object of conservation. This approach can bring a more holistic understanding of the auditory elements existing in time-based artworks. To work with this concept, the use of the term 'sound object' is proposed, adopted from Bonnet *(Bonnet 2016: 101-111)*. The sound object comprises three elements: 1. An object that generates sound in space; 2. The transmitted sound wave itself; and 3. The audience who perceives the sound with their senses. The sound object is constructed between these interconnecting angles. The sound object not only encompasses the different sound generators in artworks but also the physical properties of sound and audience perception. Assessing the sound object as part of works of art could, therefore, lead to a more comprehensive approach to preserving their sound qualities if it is reproduced in different settings.

Considering sound as an object suggests a more attentive approach to its various features, which may be beneficial for conservation. For example, with reference to the question of the relationship of the reproduced sound to a previous or 'ideal' presentation of the work, and to get a clear idea of which features are valued in relation to the content of the artwork and can be included in a new situation. Aside from the fact that everyone perceives sound differently, it remains difficult to find absolute indicators for quantifying and measuring the qualities of sound as they also depend on the location of the transmission. The inherent dependencies of sound demonstrate the importance of placing more emphasis on acoustics in the preservation of time-based arts. Acoustic qualities should be regarded in line with the visual aspects of time-based arts as they equally contribute to a full audience experience.

2. ACOUSTICS

Central characteristics mentioned by all participants can be largely classified under 'acoustics'. This term refers to the manner in which sound reacts to the space it is in and the science of controlling it *(Thompson 2012: 120)*. Sound is a combination of direct sound and how it interacts with the space *(Figure 1)*.

Bek speaks of the difficulty to foresee how sound will interact within a given space, considering the materials and dimensions of the walls, ceiling and floor. Therefore, he explains, it is important to evaluate the space when assessing an installation. Amy Brost adds that *'exhibition spaces are not designed with sound in mind.'* The 'white cube' standard of modern art means that oftentimes the space requires acoustic treatment, such as acoustic panelling or carpeting to absorb sound waves. Fortunato indicates the importance of inquiring, *'What is the space? How big is the space? Was the work ever shown in a similar space, and does it need sound treatment?'*

A significant challenge is that sound travels in space. Although a fundamental trait of sound, it is often overlooked in exhibition contexts, which can affect not only the identity of the work itself but also of works in its vicinity. Bek explains:

'First and foremost, I have experienced this challenge often when working with artists, curators, conservators, and museum technicians. There is always a surprise with sound, which is inherent to artworks when it comes to exhibitions, because of the proximity to other artworks. Sound takes over space. This is probably the biggest challenge. This is unfair to other artworks that do not do that. An exhibition planner must account for that and that is very hard. This is especially a challenge in group exhibitions.'

The complexity of orchestrating the required acoustic environment in an exhibition space becomes more challenging when the acoustic characteristics of the given space and the one necessary for keeping the artwork's identity are not sufficiently communicated between the professionals that are involved with the artwork. This is recognised by experienced conservators, but also by artists. Camilo Sandoval shares: *'It has been my experience that you come to a space and are handed a speaker. And they don't understand that sound will go all over the room, or that there is sound coming from other places.'* Sandoval refers to his experience with his interactive installation *Gloria Non Absentis* (2018), which consists of a video game he has programmed and placed in an arcade-like casing to be played during the exhibition *(Figure 2)*.

Sound is generated interactively as it was programmed to react to how the game is played and is not pre-recorded. Sandoval first presented this installation at the Academy of Media Arts in Cologne in 2018, where it was exhibited in a hall with other artworks. *'The only source of sound was my piece. When I proposed it, they didn't know it was going to be that annoying. So, I was asked to shut it down.'* Sandoval speaks of an unintentional disturbance. *'I was changing the whole mood of the space. That was not the intention.'* This demonstrates the powerful yet unpredictable presence of sound in exhibition spaces.

3. OBJECTIVE MEASUREMENTS

Some auditory elements can be quantified more precisely. As sound is a physical phenomenon, it can be objectively represented in several means that can be useful for conservation contexts. An example of a basic measurement is using a sound meter to determine the sound levels required for an artwork, as Jack McConchie suggests. One of these sound levels is 'volume', which seems straightforward, but actually refers to loudness affected by the sound power. This is how much energy is flowing from an object making sound and the sound intensity, meaning how much sound energy a hearing subject receives *(Goldsmith 2015: 20)*. This is closely related to acoustics, as the same volume level will sound different in every space, affected by different acoustic conditions *(Goldsmith 2015: 28)*.

A measure used to learn about the character of the room is impulse response, taken to measure how the different sound waves behave in the room. McConchie explains, *'It's as easy as popping a balloon in space and recording it. From the way the sound tails off, you can capture not only how long the sound reverberates for, but also what the liveliest frequencies are.'* Sound is created by a cyclic movement, transmitted through a surrounding medium, be it solid, liquid or gas. The motions create cyclic movement in the medium's molecules, creating areas of high and low pressure. The frequency of a sound wave is how frequently the motions occur during one second, measured in Hertz *(Goldsmith 2015: 11)*. Lower frequencies behave differently from higher frequencies, causing potential imbalances in a room. McConchie explains that room reverberation is often reduced with acoustic panels, but that consideration needs to be given to tonal imbalance since most panels tend to reduce only the higher and mid frequencies, while the bass frequencies have a lot more energy and require greater mass to absorb. Furthermore, lower frequencies are less directional than higher frequencies, making lower frequencies harder to control.

In some cases, though, a reverberation in space is an artistic choice. For instance, in Janet Cardiff's audio installation *Forty Part Motet* (2001), which consists of forty speakers grouped in a circular arrangement in a room, each playing the part of an individual singer performing a sixteenth-century choral work. McConchie and Falcão were involved in installing the work at Tate Modern in 2017. McConchie explained that the artwork embraces the architecture's acoustics to produce a sound that reflects the space. This approach avoids using acoustic treatments to create a standard sound and instead relies on the resonance of the sung notes bouncing off the exhibition space. As the sound reacts differently to each space that *Forty Part Motet* is installed in, the changes are managed on the spot by a knowledgeable sound engineer who travels with the work. He adapts the technical equipment to the acoustics of the room and creates the desired reverberation. As the person responsible for the preservation of such a work, it is important to understand what the sound engineer is doing and what technical adjustments they are making to suit the architectural conditions of a space. An objective way to record these differences could be to document sound waves in space by taking a sound sample. Fortunato uses Adobe Audition for the analytical analysis of audio samples. The program visualises characteristics such as amplitude, frequency spectrum and waveform, which allows for a condition assessment if a comparison needs to be made with a previous sample analysis of authorised iterations of the work.

Another objective representation of sound is equipment registration. It is important to communicate the equipment requirements to create the right sound experience for the artwork. In some cases, what would be considered the best practice does not meet the requirements of the artwork, as in Sandoval's experience with installing *Gloria Non Absentis*. First, he was asked to show the work with headphones instead of speakers, so as not to disturb the tranquillity of the space. For him, however, this was no satisfactory solution. *'Sound was the most important part. The monitor should be perceived more as an illustration of the computer processes that generate the sound.'* If exhibited with headphones, the viewer would experience the artwork differently. Moreover, his choice of equipment is intentional. *'It's nice to use low-quality instruments when you want to achieve textures. That's how I achieved the aesthetics I was looking for.'* In this case, the unique equipment requirements directly affect and create the required quality of the sound.

4. SUBJECTIVE DESCRIPTIONS

Naturally, a professional's background influences the language they use to describe sound. In this context, it is valuable to note the professional symbiosis in the collaboration between Patricia Falcão and Jack McConchie. McConchie is a time-based media conservator at Tate with a practical and academic background in sound engineering. Falcão is a time-based media conservator at Tate with a background in video conservation. She recounts that her training focused predominantly on the visual aspects. Regarding sound, *'the communication that I've had was always about how it feels in the space.'* Falcão refers to sound by asking questions about how the effect will be on the audience, *'Do you hear the sound from the next room? How much should you feel the bass?'* To describe sound in installations, she addresses the experience of the audience.

In the same interview, McConchie uses technical terms to describe sound, such as reverberation, frequencies, soundwave travel, and echoes. But he also uses descriptive vocabulary. For instance, the sound can be *'tinny'*, it can be *'well-produced'* or *'sound like a cinema.'* He notes the importance of Falcão's approach. *'It's important not to undermine the subjectivity in sound.'* In the case of *Forty Part Motet*, Falcão emphasises that the work's sound is a reference to choral pieces sung in a church, while the technical ability to produce this sound was provided by the technician.

Fortunato also observes challenges when communicating sound:

'I am a practical time-based media conservator. How to bridge that with the conceptual layers is always very important. Also, in the way we talk to engineers, who perhaps are very technical and want to go straight to the measurement.'

Fortunato points to both the conceptual message of an artwork and its technical realisation. The conservator is ideally equipped to build bridges between these different perspectives on the work, for which communication is key.

Much like conservators, artists have diverse backgrounds in sound. Sandoval has no professional background in sound and consciously makes this lack of experience part of his practice. He expresses a wish to communicate more intuitively. In his interview, Sandoval uses adjectives such as *'nice'*, *'annoying'*, *'crisp'*, *'textured'* and *'cool'* when he talks about sound. To specifically describe the sound in *Gloria Non Absentis*, he mimicked it with his voice. *'For what I do, it is important that I stay innocent in sound.'* He clearly emphasises the importance of expressing a particular effect rather than the specific settings needed to create it. This subjective description is important for understanding how Sandoval wants the interactive installation to be perceived, experienced or listened to.

All interviewees indicate that they have objective ways of handling sound on the work floor, while still emphasising the importance of its intangible and subjective qualities. While describing sound in time-based arts in an objective, quantifiable manner may be perceived as more scientific, using subjective language is as important for the identity of a time-based artwork. This observation echoes the dual nature of sound, sound as a physical phenomenon, and sound as a sensation *(Goldsmith 2015: 10)*. A phenomenological approach would claim that sound is only how the auditor experiences it, while it can also have a physical and practical definition *(Bonnet 2016: 81)*. All mentioned definitions play an important role in the identity of a time-based artwork. It is essential for conservators to consider both the objective measures of the sound object and its sensory, subjective traits. Communication is especially crucial for the preservation of the sound component because it comprises intangible features that are complicated to recreate. Each installation is a joint effort to produce the conditions for an iteration that is loyal to a work's identity. This means that each iteration is heavily dependent on the people that create it. Being well-versed in both subjective descriptions and taking quantifiable measures is important for good mediation. Fortunato sums it up nicely, *'It's always important to create a conversation, what I call diplomacy of conservation. This also entails fostering a collaborative team where everyone can understand each other.'*

CONCLUSION

Interviews with art conservation professionals about their practical experience with sound in exhibition environments have made clear that describing the sound behavior in time-based arts in a subjective manner, for instance how it feels in the exhibition space, is equally important as documenting the objective traits of sound using scientific tools, such as sound meters and audio software. Understanding both forms of communication can pave the way for a better collaboration between conservators, artists, sound engineers, curators and other professionals entrusted with the care for the preservation of time-based artworks. Awareness of acoustic quality in time-based media works of art should be raised to the same level as of visual quality. In terms of methodology, conducting interviews has proved useful, as language plays an important role in characterising the sound of artworks. The proposed interview method and oral history analysis provide a good basis for further research and additional interviews to gain a broader range of perspectives and a more comprehensive approach to sound in time-based arts. The understanding of sound as a construct of three components, namely the object that transmits the sound, the sound waves themselves and the audience that perceives the sound, leads in terms of content to the concept of the 'sound object' as an integral part of an artwork. Understanding the sound object in art makes sound accessible and supports practices, such as documentation and reinstallation, that contribute to the preservation of the sound of artworks.

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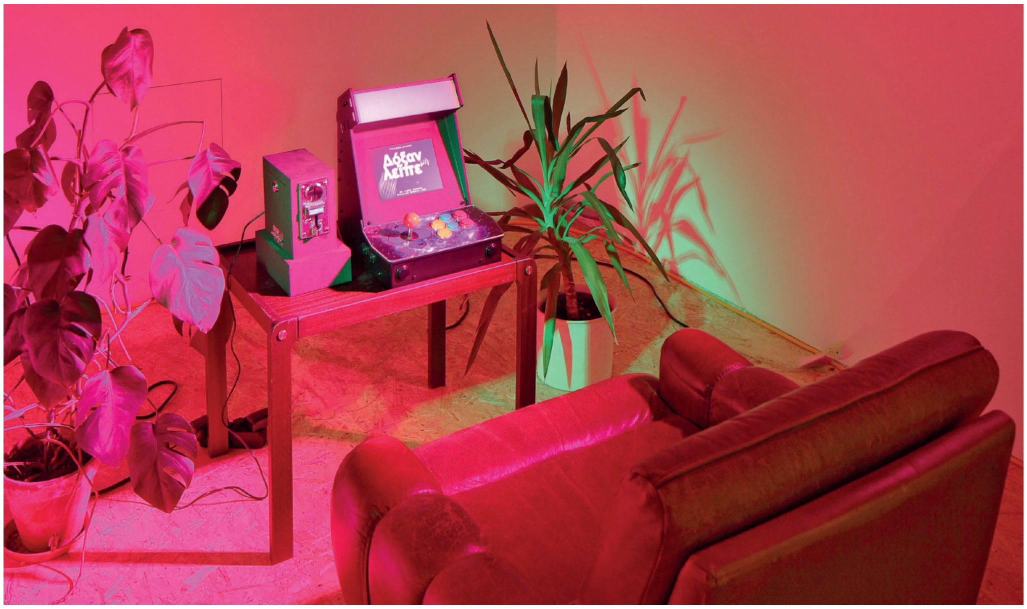
ENDNOTES

(1) All quotes derive from research participant interviews with Amy Brost (17 July 2020) [not recorded], Reinhard Bek (17 February 2021), Flaminia Fortunato (16 February 2021), Patricia Falcão and Jack McConchie (23 March 2021), and Camilo Sandoval (18 February 2021). The transcripts and approved recordings will be archived at DANS-KNAW, as part of the Interviews in Conservation Research collection, https://doi.org/10.17026/dans-zja-88ta; last accessed July 26, 2023.

COLOUR PLATES



Lecture 001 / Figure 1
Camilo Sandoval,
***Gloria Non Absentis* (2018),**
interactive installation. P
hoto: Camilo Sandoval, 2018.

Lecture 002 / Figure 1
The *Siemens-Studio* in the present exhibition
of the Deutsches Museum

SUPPLIERS AND REFERENCES

LECTURE 001

THE SOUND OF ARTWORKS

ASSESSING SOUND IN TIME-BASED MEDIA CONSERVATION

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LECTURE 002

DEVELOPING NEW DOCUMENTATION AND PRESERVATION APPROACHES FOR THE *SIEMENS-STUDIO FÜR ELEKTRONISCHE MUSIK*: A CASE STUDY OF ITS SINE WAVE OSCILLATORS AND EQUIPMENT CABINET

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LECTURE 003

ANALYSIS OF THE DEGRADATION OF TWO 3M SCOTCH® 550 TRANSPARENT TAPE SCULPTURES BY INKA NIEMINEN

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