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DIGITAL SPACES

**TECHNOLOGIES AS EXPERIENCE AND
NARRATIVE ENHANCERS**

Interpreting with Sound

The House Museum as a “Reactivated” Site of Memory in the Digital Age

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Keywords

Sound, Memory, House Museum, Design, Exhibition.

Abstract

Thanks to the development of digital technology, sound has been one of the most valuable contributors to the reactivation of memories in the space of museums. This article mainly focuses on sound design, sonic strategies with digital means and the relationship between sound and memory in European house museums through the lens of exhibition design. The research stated that it became apparent that many museums offer a multi-dimensional sound or musical experience, encouraging visitors to concentrate on the aspects that most deeply resonate with their interests, stories and memories. The foundations of academic literature, case studies, and an analytical tool called *Exhibition Sound Score/Partitura sonoro-allestitiva* support us in generating a unique typology framework that divides the sonic strategies into three distinct attitudes: *the hidden sound*, *the diffuse sound*, and *the interactive sound*. It analyses how house museums deploy sound elements in an effective way through different aspects, including contents, exhibit artefacts, sound equipment, interaction, the typology of cultural assets shown, and strategy, and identifies innovative sonic strategies that embrace new rituals, enhance omnichannel narratives and achieve immersive engagement.

1. Introduction

Postmodernism, the democratisation of knowledge, nostalgia, and a collective argument about a mediatised turn in museums can all be deemed responsible for the recent surge of interest in museums' memories and digital memories. Likewise, it demonstrates that memories are increasingly becoming regarded as a valuable resource and national asset, continuing to shape today's lifestyle, community, and culture. Traditionally, museums have been regarded as repositories of memories. Today, however, the remit of museums goes beyond merely the collection, which extends to interpretation and representation, while also providing opportunities for encounters with the memories of previous generations. Further to this point, the study spotlights the lens on the house museum, where the re-evocation of the memory is the crucial soul of the place. Dialogues, music, and soundscapes are all sealed within these memories and incarnated as "beautiful corpses" (Brooks et al., 2021, p. 33). These sounds are supposed to reveal the essence of the house museum, which is a living archive that plays witness to the changing times. Stocker (1995, p. 2) stated, "Once a sound is made, it can completely disappear in just moments, but it can leave an impression that may last for generations." Sound is an informative, interpretive, or immersive tool depending on various contributing factors, its multiple incarnations, as a narrative means or heritage, possesses an invasive strength to trigger memory and a sense of belonging for museum visitors. Through the lens of exhibition design, this article explores digital approaches related to sound and memory among sound-themed house museums in Europe.

List of selected house museums with sound strategies					
Museum name	Location	keywords 1	keywords 2	keywords 3	keyword 4
		house museum	sound	digital means	Memory-related content
Casa del Suono	Parma,Italy	√	√	√	√
Casa Natale di Giuseppe Verdi	Parma,Italy	√	√	√	√
Casa natale di Arturo Toscanini	Parma,Italy	√	√	√	√
Casa della Musica	Parma,Italy	√	√	√	√
Casa Museo di Antonio Gramsci Ghilarza	Ghilarza,Italy	√	√	√	√
Casa Rossini	Pesaro,Italy	√	√	√	√
Museo del Paesaggio Sonoro e Palazzo Grosso	Torino,Italy	√	√	√	√
Haus der Musik	Vienna, Austria	√	√	√	√
Beethoven Museum	Vienna, Austria	√	√	√	√
Mozarhaus Vienna	Vienna, Austria	√	√	√	√
Wien Museum Haydnhaus	Vienna, Austria	√	√	√	√
Johann Strauss museum	Vienna, Austria	√	√	√	√
Mozart's Birthplace	Salzburg, Austria	√	√	√	√
Das Richard Wagner Museum	Bayreuth, Germany	√	√	√	√
Gustav mahler museum	Hamburg-Neustadt, Germany	√	√	√	√
Mendelssohn House	Leipzig, Germany	√	√	√	√
Bach museum	Leipzig, Germany	√	√	√	√
Schumann House	Leipzig, Germany	√	√	√	√
Heinrich Schütz House	Bad Köstritz, Germany	√	√	√	√
Fryderyk Chopin Museum	Warsaw, Poland	√	√	√	√
The Beatles Story	Liverpool, United Kingdom	√	√	√	√
Beethovenhaus Baden	Baden, Austria	√	√	√	√
Franz Liszt Memorial Museum	Budapest, Hungary	√	√	√	√
Museum About Liszt	Weimar,Germany	√	√	√	√
Schiller Residence	Weimar,Germany	√	√	√	√

Figure 1. Yi Zhang and Raffaella Trocchianesi, The museum cases for Selection, 2022.

Data collection for cases							
Museum name	pre-visit					on-site visit	
	Photos	Videos	official website	social media	literature	Observations	Brief Interviews
Casa del Suono	√	√	√	√		√	√
Casa Natale di Giuseppe Verdi	√	√	√	√			
Casa natale di Arturo Toscanini	√	√	√	√		√	√
Casa della Musica	√	√	√	√		√	√
Casa Museo Luciano Pavarotti	√	√	√	√			
Casa Museo di Antonio Gramsci Ghilarza	√		√	√			
Casa Rossini	√		√	√			
Museo del Paesaggio Sonoro e Palazzo Grosso	√		√		√		
Haus der Musik	√	√	√	√		√	√
Beethoven Museum	√	√	√	√		√	√
Mozarthaus Vienna	√		√	√	√	√	√
Wien Museum Haydnhaus	√		√	√		√	√
Johann Strauss museum	√	√	√	√		√	√
Mozart's Birthplace	√		√	√	√		
Das Richard Wagner Museum	√	√	√	√			
Gustav mahler museum	√	√	√	√			
Mendelssohn House	√	√	√	√		√	√
Bach museum	√	√	√	√	√	√	√
Schumann House	√	√	√	√		√	√
Heinrich Schütz House	√	√	√	√			
Fryderyk Chopin Museum	√		√	√		√	√
The Beatles Story	√	√	√	√			
Beethovenhaus Baden	√	√	√	√			
Franz Liszt Memorial Museum	√	√	√	√			
Museum About Liszt	√		√	√		√	√
Schiller Residence	√		√	√		√	√

Figure 2. Yi Zhang and Raffaella Trocchianesi, Data collection for cases, 2022.

2. Literature Review

Digital memories and sensory experiences travel back and forth between museology and exhibition design studies as the digital has transformed the past mode. It manifests that the concept of memory is extended and may be afforded a more vague, complex meaning (Arnold-de-Simine & Simine, 2013). To some extent, it is critical to recognise “digital memories as digital treasures” (Garde-Hansen, 2011, p.78). This raises intriguing questions about how to let memories operate within the context of cultural memories as valuable resources. For Maj and Riha (2009), communication is the core element, and it also hints that memories must contain time-tested transmissibility in a legible, understandable form and mediation.

If we observe the transmissions of memories in the broader historical context, we can detect a constant striving that humans try to expand memory’s capacity, media, and scope while improving its intelligibility, accessibility and understandability matched by corresponding social, cultural and technological developments. In ancient times, the reliance on oral tradition to preserve memories was an interaction between storytellers and audiences (Hoskins, 2017). In this case, perhaps vivid descriptions and passionate voices were the decisive factors in the process. Later, the advent of the letter unsettled the oral culture, brought humans into the written culture and transformed the way people perceived the world into a visual epistemology as a dominant approach. In contrast, the profound importance of oral/aural rationales seems to have been neglected since the literate era (Ihde, 2007; Cortez, 2021). This situation was in a state of constant flux until the inven-

tion of electronic communication (Parry, 2013; Drotner et al., 2018), and the ensuing rapid spread of sound devices enabled the preservation and repetition of sounds in the last century. In recent years, there has been a spectacular levelling up of digital means and communication tools as well as the emergence of sound studies as a renewed scholarly research field (Kelman, 2010), supported by the aural and multisensorial approaches on the strength of various media and creative cultural experiences to re-shape the museums' environment which can reflect memory and its diversity comprehensively (Hutchinson et al., 2020). Since Schafer introduced the concept of "soundscape", the academic community has gradually been interested in discussing the relationship between sound, environment, people and noise. This concept has also been applied to museology, and Zisiou (2011) advocated that museums should involve professional soundscape designers. Schafer divided soundscapes into three categories according to the features of sonic environments: "keynote sounds, signals, and soundmarks", and he argued that "soundmarks make the acoustic life of the community unique" (Schafer, 1993, pp. 239-240) and that soundmarks are the representations and memories of a certain place considering it cannot be found anywhere (Yelmi, 2016).

It is fundamental to introduce the concepts of *mediated memories* and *mnemonic imagination* when it comes to the nature of digital memories. Mediated memories could be interpreted as memories triggered by a collection of objects that reflect the past, including the memories hidden in photos and letters belonging to individuals. The mediated memories in objects

represent a person's identity and mindset at a particular moment and open up a perspective on observing and perceiving individual consciousness to connect meaningfully to the past, even community and generations (Van Dijck, 2007).

The aforementioned section indicated a shift in mediated memories, the abundance of digital items partially displaced the physical objects and the more distant traditional oral forms as carriers of memories. Yet, more importantly, the digital means here become a front-end tool to entice the viewer into the world of memory and offer a multi-layered, multi-sensory approach to convey memories, the medium of which is not external but are brought from within (Hoskins, 2017). Digital means include multi-layered and multi-sensorial approaches that can give the audience visibility and expression of memory authentically. In the company of friends and family, what the audience perceives in the museum is no longer a past memory belonging only to a particular person or family. Instead, it is the present, collective memories that contain social experiences dedicated to sharing and communication, which is considered a prominent type of the most satisfying experiences in museums (Pekarik et al., 1999).

Meanwhile, *mnemonic imagination* is a central topic in memory studies (Keightley & Pickering, 2012). Frederic Bartlett (1932), a psychologist who has significant achievements, claimed that remembering, for the most part, is reliant on recalling the past into the present to create a reactivated site of consciousness. In his opinion, remembering is not a formalized, fixed and directed re-motivation or simple repetition, it often relies on imagination to enable people to reshape and

create their world of memory. Neither memory nor imagination is a logical process, full of randomness and chance that varies from individual to individual, which is a severe challenge for designers (Sabiescu, 2020). In addition, *placeless* is an iconic characteristic of digital memory that is often regarded with fluidity, fragmentation and ubiquity (Mandolessi, 2021). However, spatiality is essential to refer to memory because it always takes place in a “specific site, a social context and a cultural location” (Chrzová, 2019, p. 6).

Many museums are conceived as a container for memories, in other words, they offer a platform for these memories to be encountered. Sound with its rich and subtle auditory dimensions, including surroundability and directionality (Ihde, 2007), also intrinsically interrelates to time (della Dora, 2021), when sound as an expressive tool can facilitate intellectual or emotional engagement. Moreover, sound is not only a tool for activating memories and imagination but also as content for memories that belong to a particular period in the past. In terms of sound as exhibition content, it is a meaningful way to experience historical sound that has been put in an authentic place (Baker et al., 2016; della Dora, 2021). Sound is an inherent dimension of museums (Stocker, 1995), and through clever arrangements by designers, can be harnessed to create new museum approaches, stories and effects that bring audiences multi-sensory, emotionally driven and empathetic experiences (Bubaris, 2014; Everett, 2019). In conclusion, the museum and sound with digital means under the comprehensive plan of the designers can provide audiences with a new spatial and temporal matrix that contributes to communica-

tion, reflection, and imagination among generations for enhancing memories' value.

3. Materials and Methods

The methodology is based on four orders of action.

Searching, Selecting and Analysing:

- Carrying out desk research about house museums in Europe and then highlighting these museums that claimed that they are usually sound-themed or have sonic strategies with digital means. Social networks and web platforms have been considered informal sources in the cases chosen to assess whether this museum contains innovative sound design with digital means.
- Selecting 24 house museums as paradigmatic cases according to the following criteria:
 - a. The museum is a house museum.
 - b. The museum is sound-themed or with sound content.
 - c. The museum is with digital means.
 - d. The museum is with memory-related content.

On-site visiting:

- Carrying out field research through on-site visits to verify whether the case fits the selection criteria and to gain further insight into the design content.

In-depth analysis and Envisioning:

- Verifying how the sonic strategies were adopted through a methodological tool called *Exhibition Sound Score/Partitura sonoro-allestitiva* that was previously created.

- Identifying innovative sound design scenarios and solutions in order to empower the cultural experience in terms of sound atmosphere.

Focus on *Exhibition Sound Score /Partitura sonoro-allestitiva*: This tool aims to analyse how museums deal with sound through different parameters in terms of the typology of cultural assets shown, contents, exhibit artefacts, sound equipment, interaction, and strategy, and how to generate sonic strategies for various contents.

Synthesizing and Framing:

- Seeking the digital technologies and corresponding narrative strategies that have effectively improved visitor experiences in the selected cases.
- Creating a design framework able to systematize potentialities, scenarios and solutions. On the one hand, this tool illustrates the diversity of sound practices while, on the other, supporting subsequent inquiry about how these practices are perceived and experienced by audiences. It can also support the meta-design approach to new ways of facilitating sound design in museums and temporary exhibitions.

4. A Framework for how Sound Reactivates Memory in House Museums

4.1. The Hidden Sound

The museum has long since been considered a silent place to prevent disturbing the journey of visual exhibits.

Museum Name	Sections	Strategy	Typology of cultural assets shown	Contents	Exhibit artefacts	Sound equipment	Interaction
Mozarthaus Vienn	/	Audio guide	Historical stories, celebrity anecdotes	Extensive information on the life and work of the Mozarthaus	/	Hand-held listening devices	Audiences enter the numbers to listen to the corresponding content
Museum About Listz	/	Audio guide	Historical stories, celebrity anecdotes	Stories of what happened in this room, and the origins of the objects	/	Hand-held listening devices	Audiences enter the numbers to listen to the corresponding content
The Beatles Story	/	Audio guide	information, video interviews, celebrity anecdotes	Extensive information on the life and work of the Beatles	/	Smart touchscreen devices and headsets	Audiences tap the screen to select the appropriate content to listen to
Wien Museum Haydnhaus	/	Audio guide	Historical stories, celebrity anecdotes	Extensive information on the life and work of the Haydnhaus	/	Smart touchscreen devices and headsets	Audiences tap the screen to select the appropriate content to listen to
Casa Natale di Giuseppe Verdi	/	Audio guide	Historical stories, celebrity anecdotes	Anecdotes and facts about the Master's childhood	/	An iPad and a pair of headphones with an interactive map	Audiences tap the screen to select the appropriate content to watch and listen
The Bach Museum	Listening Studio	Listening room	Music	All composition by Bach	Sofa, table lamp, the media stations and headset	The media stations and headset	Audiences can choose Bach's compositions from various criteria, such as the title and opening words, and then immerse themselves in the music
Johann Strauss Museum	/	Listening station	Music	Ten classic compositions by Johann Strauss of each station	Operating panels with ten buttons and chair	Headset	Audience can press the button to listen to the composition
The Beethoven Museum	Section 6: bequeathing	Listening station	Music	Classic compositions by Beethoven	Vintage letters, chairs and headphones	Headset	The music in the headphones is played all the time and the audience can hear it with the headset on
Schumann House	Listening Cabinet	Listening room	Music and literature	The works Clara and Robert composed in Leipzig and the selected literature about the Schumanns.	Sofa, exhibition panel, the media stations and headset	The media stations and headset	Audiences tap the screen to select the appropriate content to watch and listen
Schumann House	/	Listening room	Music and literature	Classic compositions by Mendelssohn	Chair with upholstery, table, iPad and headset	iPad and headset	Audiences tap the screen to select the appropriate content to watch and listen

Figure 3. Yi Zhang and Raffaella Trocchianesi, The Hidden Sound, 2022.

Meanwhile, some studies have claimed that musical objects in museums have dead and believed the collection of sound objects in museums from the perspective of preservation, aesthetic and symbolic considerations rather than their practical history, “operational state” (Cliffe et al., 2019, p. 2) and functionality, even though audiences argued their eagerness to listen to the original sound of the past (Sterne & De Luca, 2019; Rossi Rognoni, 2019). All serve to potentially convey a typical

impression about museums, a soundless, silent spiritual sanctuary within “a highly devotional and quasireligious” model (Wiens & de Visscher, 2019, p. 2). Until this point, museums have typically insisted on this silent and inanimate stereotype despite the fact that they were sometimes eager to incorporate sound into their settings and experiences (Bubaris, 2014), and this perspective also draws out the following type, *the hidden sound*. This type contains a cautious attitude that maintains the silent museum stereotype by hiding sound in museums to let audiences discover the entrances of sound in person, then put on headphones and listen to it, often without any feedback.

The diverse typologies of cultural assets shown by sound: the information, the music, the original file or the combination of sounds have conveyed a variety of content and information as visitors journey through exhibits and installations. In particular, the informative sound often occurs as the audio guide that mixes the audio description, oral testimony, and voice-over in the form of a mobile device or application, which is generally followed throughout the exhibition. One of the most strident examples is the audio guide of informative sound represented by *Mozarthaus Vienna*, *Museum About Liszt* and *The Beatles Story*. The audio guide in *Mozarthaus Vienna* is an ordered supplement that museums use to attempt to direct the audience’s gaze towards visual exhibits and attract them in a more dynamic and vivid narration, considering that the exhibition room has been refurbished so that the historical furniture and objects of the past rooms are no longer in existence, the historical atmosphere in the room has been somewhat diminished and has transformed into a more modern one.



Figure 4. Mozarthaus Vienna, the audio guide device. Photo by Yi Zhang, 2022.

In comparison to *Mozarthaus Vienna*, which has a larger space and a wide range of sound devices, *Wien Museum Haydnhaus* and *Museum About Liszt* are common in that there are fewer tourist crowds and less space. Through the audio guide, the audience gravitated into this calm and personal journey and immersed themselves in the atmospheric houses that had the composer's traces, manuscripts and personalities with a renewed sense of perspective and empathy. *Casa Natale di Giuseppe Verdi* offers each audience member an iPad and earphones with an interactive map and uses the audio sections to portray the composer's anecdotes.

The museum claimed that they applied a unique recording technique to create three-dimensional audio effects called binaural sound, interfused projections and historical video reconstructions in the original house into an audiovisual experience to support the narrations and it indeed gained potency.

The audiences' expectation of hearing the authentic sound and perceiving the soul of the master drove house museums to collect a series of original music and set listening areas. *The Bach Museum* offers multiple choices that include all of Bach's music classified by the title, year, and criteria into a menu for audiences of various backgrounds, from musical experts to people with only a limited understanding of music. Meanwhile, some museums do not have a wealth of sound collections and mature digital archives like the *Bach Museum*, *Johann Strauss Museum* and the *Beethoven Museum* set a tiny listening station that has an operating panel with either six or ten buttons, with each button representing a piece of music, this provides less choice, but guarantees that every piece is a classic.

This non-open approach that is played through the earphone drew some criticism as being conservative or outdated. However, the sound that creates an atmospheric background that belongs to the historical period is valuable enough to hit some audiences and offer them an opportunity to perceive the memory with an "authentic aura" (Meehan, 2020). According to some designers, particularly those in the house of the master, the design exhibits are supposed to drive the audience to hold their breath with a sense of reverence and respect during their visit. On the other hand, the designers do not expect too

much sound, crowd noise and its reverberation in a tiny space to ruin the solemn atmosphere.

It is probably a compromise for most museums that consider the constrained space and excessive sound source in one room may affect guests, but it does not indicate that design methods lose their potency here. The listening room in the *Bach Museum*, *Mendelssohn House* and *Schumann House* set comfortable sofas and soft lights to encourage people to lay back and enjoy music in a relaxed manner. Moreover, Mortensen (2012) suggested that sound artefacts slowed down audiences, because the activity of listening demands attention and time, unlike the audiences who could simply skim-read the visual information in a quick space. More frequently, museums set a specific sound area that offers *the hidden sound*, which both contributes to the concentrated audio experience for audiences and low-technical communication approaches for sonic memory archives.

4.2. The Diffuse Sound

The following sound approach is described as *the diffuse sound*, which is still bound to the inherent impression of the museum as a quiet learning place mentioned above.

It embraces a cautious attitude toward the sound and avoids making the room become a noisy playground at the design level. Nevertheless, sound has already sought opportunities to break the pure silence in museums and positively create a dialogue with the audience to express its narrative qualities. The sonic transmission has not only been confined to within the headphones, but from the headphones to the audience, the

sound diffused to the whole exhibition room, which led the room to become a showground for sound to unleash its potential charms.

Similar to the common practice in *Casa Natale di Arturo Toscanini* and *Haus der Musik*. Several house museums attempt to set up a listening room, then playback videos about historical documents or clips on a loop to gather people together and immerse them in a collective and memorial emotion. Simultaneously, sound is not the only element that plays a role.

Museum Name	Sections	Strategy	Typology of cultural assets shown	Contents	Exhibit artefacts	Sound equipment	Interaction
Casa Natale di Arturo Toscanini	Audio-video room	Listening room	The period movies and recordings	The private and artistic life of Toscanini	TV and seats	Loudspeaker box	/
Haus der Musik	1st Floor – Museum of the Vienna Philharmonic	Listening room	Performance Video	Classic compositions by Vienna's great composers.	TV and seats	Loudspeaker box	/
Mendelssohn House	The Belstage&Fanny's World	Audio-visual art installation	Music	Classic compositions by Mendelssohn	The lounge chair, the loudspeaker hidden under the cloud-shaped luminaire, watercolour illustrations, installation	Loudspeaker	When the audience recline in the lounge chair, the loudspeaker will be triggered and play the music
The Bach Museum	Bach's orchestra	Sound installation	Historical musical instruments and the sound of each individual instrument	Historical instruments sound, three orchestra pieces, and the way Bach composed music	Installation	Sound button	Audience can press the button with a light signal, the sound of the instrument will be amplified
The Bach Museum	Bach's organ/sound tubes	Touchable musical instruments	Instruments and its sound	Historical instruments sound	A group of pipes	Instruments	Audiences can experience the music by touching a group of pipes with their partners
Beethoven Museum	Section 2: rejuvenating	Installation	Music	A classic compositions by Beethoven	Installation	Loudspeaker box	Audience can shake or push and pull a lever to activate the sound
Casa della Musica	Ercolo e Anteo	App and interactive calls	Historical stories	The origins and story of the creation of the sculpture	Sculptures and exhibition panel	Mobile phone	Audiences can scan the QR code near to sculpture and then receive a call from "Ercolo e Anteo"

Figure 5. Yi Zhang and Raffaella Trocchianesi, *The Diffuse Sound*, 2022.

The embodiment of objects, videos or holographic images is supplementary in fostering a scene, drawing a familiar concept in the exhibition field – Scenography. Scenography is viewed as relating to light, sound, media, space, exhibits and their composition to create a scene with lived experience, narration and emotion (Brückner, 2010). In the context of house museums that were frequently houses of family or historic buildings with plenty of life slices, which are also considered to be an innate strength in designing a scene, in other words, it is to retrace or restore a scene that brings the scene in past moments back to the present by design approaches.

In the *Mendelssohn House*, the exhibition room is converted into an audio-visual art installation that has watercolour illustrations of the house or an installation wall with leaflets pinned up, era-specific pianos and tables, softly veiled curtains and light. A sense of atmospheric aesthetic exists throughout the room with a relatively abstract design language for visual contents and little to no information to read carefully. When the audience is attracted to recline in the lounge chair, the sound device hidden under the cloud-shaped luminaire will automatically be triggered and play the music of *Mendelssohn*. These settings intend to let the audience resonate better with the exhibition's content, and the sound serves as the primary contributor to bringing audiences towards empathy. A vivid illustration that depicts the conductor's enthusiasm at the concert, tree trunk shapes and specially treated coarse ground in the room of *Haus der Musik*, emphasizes the characteristics of the impassioned and vibrant music.



Figure 6. Mendelssohn House, an exhibit room with an audio-visual art installation. Photo by Yi Zhang, 2022.

Furthermore, the conversation between *diffuse sound* and audiences is broadened among audiences with simple feedback through installations, which have been given more diverse meanings. In the “Bach’s orchestra” section of the *Bach Museum*, audiences can press buttons to activate the sound played by each instrument. In Bach’s organ/sound tubes section, audiences can experience the music by touching a group of pipes with their partners. According to designers, these settings are expected to connect audiences to establish an impressive, playful, social experience, which is also conducive to engaging visually impaired guests and promoting accessibility.

Several installations in *Beethoven Museum* surprise the audience by requiring them to shake or push and pull a lever to activate the sound, which adds a sense of playfulness and exploration.

4.3. The Interactive Sound

The experience of interactivity is evoked by the coproduction of experience between audiences and exhibits that are in a constant state of flux (Roppola, 2012). *The interactive sound* intersects multiple forms of media, or interactive games expect to immerse audiences in the exhibition room. This attitude of sound tends to be reshaped and released in a dynamic flow rather than playback the original sound without any processing that belongs to the famous figures, then perforate the boundaries of museum stereotypes to arouse the audiences' passion and enlightenment. This approach drives audiences to understand, reflect and explore relatively sophisticated content with a positive attitude, and audiences receive diverse feedback based on the responses to promote a more profound introspective and educational experience (Pekarik et al., 1999). However, due to its penetration and radiation that often require a certain amount of space, it is not often seen in home museums.

The *Haus der Musik* claimed to aim to create a new style of experience that fosters a dialogue between tradition and innovation and offered several interactive programmes targeted at the demands of children's education. In the section of *Kundt's tube* and interactive musical adventure journey for children dedicated to the process of sound production and phenomena and to experience first-hand the sonic characteristics of a range of instruments.

Museum Name	Sections	Strategy	Typology of cultural assets shown	Contents	Exhibit artefacts	Sound equipment	Interaction
Haus der Musik	2nd Floor: Kund's tube and interactive musical adventure journey	Interactive musical instruments and installations	Music, techniques, sonic phenomena and knowledge of instruments	Knowledge about how to perform the instrument and its history and characteristics	Musical instruments, sound installations	Instruments	Audiences can experience the process of sound production and phenomena and first-hand the sonic characteristics of a range of instruments
Haus der Musik	2nd Floor: Sonotopia universe and lab	Interactive game	Sonic phenomena and knowledge	Interactive games including creative, colourful sound beings	Laboratory, blackboard and Interactive stations	Interactive stations	Audiences can create sound creatures with a personalised appearance, personality, and sound gather in the Sonotopia universe and become a long-lasting memory
Haus der Musik	4th floor: The Virtual Conductor	Virtual conductor	Music, conducting techniques and the way the orchestra works	Knowledge about conducting orchestras and classic compositions	TV and operating station	Loudspeaker	This installation responds accordingly to the audience's performances, audiences need to engage with active thinking to master correct conducting method
Mendelssohn House	Effektorium	Virtual conductor	Music, conducting techniques and the way the orchestra works	Knowledge about conducting orchestras and music	13 digital steles	13 digital steles with loudspeaker	13 digital steles that transform into instrument groups or voice registers can show the acoustics and colours depending on audience choice

Figure 7. Yi Zhang and Raffaella Trocchianesi, The Interactive Sound, 2022.

Another exciting area set in the *Sonotopia* universe and lab encourages the audience to create sound creatures with a personalised appearance, personality, and sound gather in the *Sonotopia* universe and become a long-lasting memory. The virtual conductor is also one of the museum's most appreciated projects, attributable to a specially tailored time-stretching algorithm and audio channel mixing strategy, which offers the opportunity for the audience to determine the volume, rhythm and beat of the orchestra in a special music room. The virtual *Vienna philharmonic orchestra* responds

accordingly to the audience's performances, audiences need to engage with active thinking to master correct conducting method. Similar practices in *Mendelssohn House* called *Effektorium* also test the audience's knowledge about conducting orchestras, each digital pillar represents one instrument with gradient colours, continuously changing as the show progresses to reflect the level of performance.



Figure 8. Haus der Musik, Vienna philharmonic orchestra , Photo by Yi Zhang, 2022.

5. Discussion

It is noticeable that the acoustics environment of house museums is generally constrained by the house scale and is typically limited to three to five metres in height, which affects the sound transmission and causes problems such as sound spill and reverberation. It may be one of the considerations responsible for the cautious use of sound in house museums. Several studies claimed the contribution of acoustics technology and techniques is essential to enhance the exhibition experiences (Rudi, 2021). Based on these cases, however, a noteworthy view is that sometimes the sound experience supported by comfortable service and the intimate atmosphere significantly improves the museum journey rather than in terms of sound functionality (Stocker, 1994). Sound in digital devices as a sensory artefact may become a reversal of the traditional relationship between museums' senses that are primarily visual (Mortensen, 2012). Therefore, it is urgent to recognise the possibility of sound and the balance of the overall arrangement that combines the sensorial elements in a way unlike the visual elements dominant the exhibit to portray a touching rhythm.

As was mentioned initially, these house museums hold various memory kinds, memories of people, traditional techniques or knowledge related to sound. The diversity in the memory attitudes indicates that the sonic strategies in these house museums have particular orientations considering the various emphases. Cultivating atmosphere is the keyword in house museums that concentrate on people's memories. Such house museums often provide opportunities for audiences

to retrace famous artists in their past glories through the attitudes of *the hidden sounds* and *the diffuse sounds*, which create an intimate atmosphere in which audiences sense that they can be so near to the life of a master. Education and interaction are the dominant themes in traditional technology or knowledge related to sound. A specific knowledge base is required to understand this memory in-depth. *The interactive sound* with a more challenging exhibit setting and sound interaction can increase the audience's awareness and engagement. A meaningful question is posed in response to this phenomenon, is it possible that sound can contribute to narration through cross-platform for broader sharing? The answer may be yes. The statue of *Theodor Van der* struck, called *Ercole e Anteo* is placed in the museum courtyard. Audiences are able to scan the QR code near to sculpture and then receive a call from *Ercole e Anteo*, who are the characters of this statue. If audiences answer this call, they can listen to the quarrel of *Ercole e Anteo* that may have happened more than three hundred years ago. This creative conversation in *diffuse sound* beyond time interweaves the real and virtual worlds and interprets the memories through digital media.

6. Conclusion

This paper presented an analytical tool called *Exhibition Sound Score/Partitura sonoro-allestitiva* to analyse and describes that multi-layered sonic strategies were presented accompanying several digital approaches in some house museums. Digital methods reshape the interpretative strategy of sound and offer opportunities for sound into more complex forms and diverse combinations to communicate with

audiences. The findings thus serve as a basis for future work in realising the typology of sound in museum contexts and in studies of how design methods and digital sound devices affect the holistic museum experience.

Furthermore, the acknowledgement of sound design and digital memory as emerging themes in exhibition design studies may have considerable consequences and warrant further interdisciplinary efforts in the future.

Memorial Contents	Memories of people	Museum Name	Mozarthaus Vienna	Museum About Liszt	The Beatles Story	Wim Museum Haydahauss	Casa Natale di Giuseppe Verdi	Casa Natale di Arturo Toscanini	Casa della Musica	
		Sections	/	/	/	/	/	Audio-video room	Ercole e Arteo	
		Strategy	Audio guide	Audio guide	Audio guide	Audio guide	Audio guide	Listening room	App and interactive calls	
		Contents	Extensive information on the life and work of the Mozarthaus	Stories of what happened in this room, and the origins of the objects	Extensive information on the life and work of the Beatles	Extensive information on the life and work of the Haydahauss	Anecdotes and facts about the Master's childhood	The private and artistic life of Toscanini	The origins and story of the creation of the sculpture	
	Music	Museum Name	The Bach Museum	Johann Strauss Museum	the Beethoven Museum	Schumann House	Mendelssohn House	Haus der Musik	Mendelssohn House	Beethoven Museum
		Sections	Listening Studio	/	Section 6: bequashing	Listening Cabinet	/	1st Floor – Museum of the Vienna Philharmonic	The Belé tag&Fanny's World	Section 2: rejuvenating
		Strategy	Listening room	Listening station	Listening station	Listening room	Listening room	Listening room	Audio-visual art installation	Installation
		Contents	Every composition by Bach	Ten classic compositions by Johann Strauss of each station	Classic compositions by Beethoven	The works Clara and Robert composed in Leipzig and the selected literature about the Schumanns.	Classic compositions by Mendelssohn	Classic compositions by Vienna's great composers.	Classic compositions by Mendelssohn	A classic compositions by Beethoven
	Traditional techniques or knowledge related to sound	Museum Name	The Bach Museum	The Bach Museum	Haus der Musik	Haus der Musik	Haus der Musik	Mendelssohn House		
		Sections	Bach's orchestra	Bach's organ/sound tubes	2nd Floor: Kand's tube and interactive musical adventure journey	2nd Floor: Sonotopia universe and lab	4th floor: The Virtual Conductor	Effektorium		
		Strategy	sound installation	Touchable musical instruments	Interactive musical instruments and installations	Interactive game	Virtual conductor	Virtual conductor		
		Contents	Historical instruments sound, three orchestra pieces, and the way Bach composed music	Historical instruments sound	Knowledge about how to perform the instrument and its history and characteristics	Interactive games including creative, colourful sound beings	Knowledge about conducting orchestras and classic compositions	Knowledge about conducting orchestras and music		

Figure 9. Yi Zhang and Raffaella Trocchianesi, Memorial Contents, 2022.



References

- Arnold-de-Simine, S., & Simine, S. A. (2013). *Mediating Memory in the Museum: Trauma, Empathy, Nostalgia*. Palgrave Macmillan UK.
- Baker, S., Istvandity, L., & Nowak, R. (2016). The sound of music heritage: Curating popular music in music museums and exhibitions. *International Journal of Heritage Studies*, 22(1), 70–81. <https://doi.org/10.1080/13527258.2015.1095784>
- Bartlett, F. C. (1932). *Remembering: A study in experimental and social psychology*. Cambridge University Press.
- Brückner, U. R. (2010). Scenography – Opera as a Model for Integrative Design. In S. Lehmann-Brauns, C. Sichau, & H. Trischler (Eds.), *The Exhibition as Product and Generator of Scholarship* (pp. 79–91). Max Planck Institute for the History of Science. <https://www.mpiwg-berlin.mpg.de/sites/default/files/Preprints/P399.pdf>
- Bubaris, N. (2014). Sound in museums – museums in sound. *Museum Management and Curatorship*, 29(4), 391–402. <https://doi.org/10.1080/09647775.2014.934049>
- Chrzová, B. (2019). Performing a difficult past in a museum: The history museum of Bosnia and Herzegovina. *Slavia Meridionalis*, 19. <https://doi.org/10.11649/sm.1949>
- Cliffe, L., Mansell, J., Cormac, J., Greenhalgh, C., & Hazzard, A. (2019). The Audible Artefact: Promoting Cultural Exploration and Engagement with Audio Augmented Reality. *Proceedings of the 14th International Audio Mostly Conference: A Journey in Sound*, 176–182. <https://doi.org/10.1145/3356590.3356617>
- Cortez, A. (2021). Museums as sites for displaying sound materials: A five-use framework. *Sound Studies*, 8(1), 43–72. <https://doi.org/10.1080/20551940.2021.1975442>
- della Dora, V. (2021). Listening to the archive: Historical geographies of sound. *Geography Compass*, 15(11), 1–12. <https://doi.org/10.1111/gec3.12599>
- Drotner, K., Dziekan, V., Parry, R., & Schröder, K. C. (2018). *The Routledge Handbook of Museums, Media and Communication*. Taylor & Francis.
- Garde-Hansen, J. (2011). Digital Memories: The Democratisation of Archives. In J. Garde-Hansen (Ed.), *Media and Memory* (pp. 70–89). Edinburgh University Press. <https://doi.org/10.1515/9780748647071-007>

- Hoskins, A. (2017). *Digital Memory Studies: Media Pasts in Transition*. Taylor & Francis.
- Hutchinson, R., Loveday, C., & Eardley, A. F. (2020). Remembering cultural experiences: Lifespan distributions, richness and content of autobiographical memories of museum visits. *Memory*, 28(8), 1024-1036. <https://doi.org/10.1080/09658211.2020.1811874>
- Idhe, D. (2007). *Listening and Voice: Phenomenologies of Sound, Second Edition*. State University of New York Press.
- Keightley, E., & Pickering, M. (2012). The Mnemonic Imagination. In E. Keightley & M. Pickering (Eds.), *The Mnemonic Imagination: Remembering as Creative Practice* (pp. 43-80). Palgrave Macmillan UK.
- Kelman, A. Y. (2010). Rethinking the Soundscape. *The Senses and Society*, 5(2), 212-234. <https://doi.org/10.2752/174589210X12668381452845>
- Maj, A., & Riha, D. (Eds.) (2009). *Digital Memories: Exploring Critical Issues*. Inter-Disciplinary Press. <https://www.jstor.org/stable/community.32960594>
- Mandolessi, S. (2021). Challenging the placeless imaginary in digital memories: The performance of place in the work of Forensic Architecture. *Memory Studies*, 14(3), 622-633. <https://doi.org/10.1177/17506980211010922>
- Meehan, N. (2020). Digital Museum Objects and Memory: Postdigital Materiality, Aura and Value. *Curator: The Museum Journal*, 65(2), 417-434. <https://doi.org/10.1111/cura.12361>
- Mortensen, C. H. (2012). A Museological Approach: Radio as Immaterial Heritage. *SoundEffects - An Interdisciplinary Journal of Sound and Sound Experience*, 2(2), 21-35. <https://doi.org/10.7146/se.v2i2.6258>
- Parry, R. (2013). *Museums in a Digital Age*. Routledge.
- Pekarik, A. J., Doering, Z. D., & Karns, D. A. (1999). Exploring Satisfying Experiences in Museums. *Curator: The Museum Journal*, 42(2), 152-173. <https://doi.org/10.1111/j.2151-6952.1999.tb01137.x>
- Roppola, T. (2012). *Designing for the Museum Visitor Experience*. Routledge.
- Rossi Rognoni, G. (2019). Preserving Functionality: Keeping Artefacts 'Alive' In Museums. *Curator: The Museum Journal*, 62(3), 403-413. <https://doi.org/10.1111/cura.12327>

- Rudi, J. (2021). Designing Soundscapes for Presence in Virtual Reality Exhibitions: A Study of Visitor Experiences. *Visitor Studies*, 24(2), 121–136. <https://doi.org/10.1080/10645578.2021.1907151>
- Sabiescu, A. G. (2020). Living Archives and The Social Transmission of Memory. *Curator: The Museum Journal*, 63(4), 497–510. <https://doi.org/10.1111/cura.12384>
- Schafer, R. M. (1993). *The Soundscape: Our Sonic Environment and the Tuning of the World*. Inner Traditions/Bear.
- Sterne, J., & De Luca, Z. (2019). In Museums, There is No Hearing Subject. *Curator: The Museum Journal*, 62(3), 301–306. <https://doi.org/10.1111/cura.12325>
- Stocker, M. (1994). Exhibit sound design for public presentation spaces. *Museum Management and Curatorship*, 13(2), 177–183. [https://doi.org/10.1016/0964-7775\(94\)90075-2](https://doi.org/10.1016/0964-7775(94)90075-2)
- Stocker, M. (1995). Exhibit sound design. *Museum International*, 47(1), 25–28. <https://doi.org/10.1111/j.1468-0033.1995.tb01219.x>
- van Dijck, J. (2007). *Mediated Memories in the Digital Age*. Stanford University Press.
- Wiens, K., & de Visscher, E. (2019). How Do We Listen To Museums? *Curator: The Museum Journal*, 62(3), 277–281. <https://doi.org/10.1111/cura.12318>
- Yelmi, P. (2016). Protecting contemporary cultural soundscapes as intangible cultural heritage: Sounds of Istanbul. *International Journal of Heritage Studies*, 22(4), 302–311. <https://doi.org/10.1080/13527258.2016.1138237>
- Zisiou, M. (2011). Towards a theory of museological soundscape design: Museology as a listening path. *Soundscape. The Journal of Acoustic Ecology*, 11(1), 36–38. https://www.wfae.net/uploads/5/9/8/4/59849633/soundscape_volume11.pdf

IV

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Her teaching and research activity focuses on knitwear and textile design, mainly on the convergence of traditional techniques with advanced technologies, the evolution of the digital representation of textile products and the enhancement of sustainable design, processes and products.

She has been a visiting researcher and teacher at Birmingham City University, at the Swedish School of Textile and the Faculty of Architecture in Lisbon, and taught in several other international workshops.

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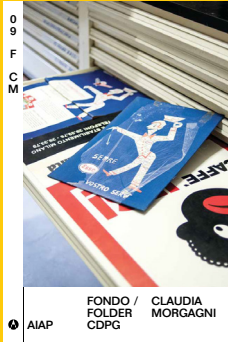
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