

## Audience engagement and immersion: the expanded narrative from the early works of La Monte Young and Terry Riley to the digital era

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AUDIENCE ENGAGEMENT AND IMMERSION: THE EXPANDED NARRATIVE FROM THE  
EARLY WORKS OF LA MONTE YOUNG AND TERRY RILEY TO THE DIGITAL ERA

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A thesis submitted in partial fulfilment of the requirements of  
the University of Wolverhampton for the degree of Doctor of Philosophy

August 2022

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## ABSTRACT

This investigation interprets the praxis of La Monte Young and Terry Riley's early work during the 1960s to present both composers as pioneers of what we now consider immersive artistic practice. Through a consideration of multidisciplinary fields, and both composers' innovative and engaging early works – which borrow much from the experimental, performative, and participative arts of the period – the subversion of the roles of audience and performer are placed within the concept of the 'expanded narrative'.

This expanded narrative is shown to demonstrate the relationship between an audience and an immersive artwork, which extends from the Wagnerian *gesamtkunstwerk*, and can be broken down into three elements – the active space, cross-disciplinary collaboration, and the active audience. Consideration is given to how advances in technology towards the end of the twentieth century led to new affordances in immersive experiences through the creation of new forms of active space, such as virtual reality, and collaborations at the intersection of art, design and technology.

Through the analysis of three early works by both composers, this thesis evidences an investigation into two discrete areas within Minimalist music: the compositions themselves and their presentation/performance (the latter drawing parallels with the Minimalist artistic movement of the same time) – to contribute new knowledge on how the expanded narrative both facilitates an immersive experience and remains relevant today.

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## INTRODUCTION

It should be noted that some of this work has been presented in part and in altered form in the following chapters, journal articles and conference papers:

1. Mills, J. (2022) 'The Gamification of Arts and Culture: The expanded narrative and the virtual space from digital media to COVID'. In the proceedings of *EVA London 2022*. UK: BCS, Electronic Workshops in Computing (accepted)
2. Mills, J. (2021) 'Space, Engagement, and Immersion: From La Monte Young and Terry Riley to Contemporary Practice' in Williams, J., and Horlor, S. (eds.) *Musical Spaces: Place, Performance, and Power*. J Stanford Publishing.  
(<https://www.routledge.com/Musical-Spaces-Place-Performance-and-Power/Williams-Horlor/p/book/9789814877855>)
3. Mills, J. (2018) 'Engagement and Immersion: The extent to which an expanded narrative is present within American Minimalist Music during the 1960s and 1970s' in *Geography, Music, Space. Musicology Research*.<sup>1</sup> (Autumn, 2018, Vol. 5, pp507-529).  
(<https://musichealthandwellbeing.co.uk/publications/engagement-and-immersion-expanded-narrative-and-presence-in-minimalist-music-1960s-1970s>)

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<sup>1</sup> *Musicology Research Journal* is now published as *The Journal of Music, Health, and Wellbeing*.

4. "*Engaging the Space: A Practical Investigation into the Influence of American Minimalist Music on Immersive Audio-Visual Artworks*": Paper presented to Sounding Out the Space: An International Conference on the Spatiality of Sound, Dublin, November 2017
5. "*The Magic Theatre: Examining Immersion through the Lens of Minimalism*": Paper presented to the Royal Musical Association Research Student Conference at Canterbury Christ Church University, January 2017

The researcher has also taken opportunities to present and discuss this research at the University of Wolverhampton with both staff and students.<sup>2</sup>

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<sup>2</sup> A further paper based on the additional material included post-viva has been submitted for consideration of inclusion within the International Electronic Visualisation & the Arts (EVA) Conference in London – to take place in July 2022. The investigation has also informed and supported the researcher's submission for a Leverhulme Fellowship in both 2020 and 2021; while both were unsuccessful the latter was praised for its content and disciplinary fit to the host institution.

This investigation crosses multidisciplinary fields to interpret the praxis of La Monte Young and Terry Riley's early work during the 1960s – from the year that Young moved to New York and completed his *Compositions 1960* to the year of the first exhibition of Young and Marian Zazeela's *Dream House* immersive sound and light installation – to present both composers of what we now consider immersive artistic practice. Young and Riley have been selected firstly as contemporaries and collaborators, but primarily for their innovative and engaging early works, which borrow much from the experimental, performative, and participative arts of the period, and which subvert the roles of audience and performer.

The aim of this thesis is to provide a historical account and overview of Young and Riley's early works, aligning them with the three central elements of the expanded narrative – active space, cross-disciplinary collaboration, and active audience – before making a shift to consider this concept through the advent of the digital to contemporary methods and uses of creative practice.

The expanded narrative is shown to extend from Richard Wagner's philosophy of the *gesamtkunstwerk*, which Ingrid Macmillan observes as being first used by Wagner in 1849, and "based on the ideal of ancient Greek tragedy, in which all the individual arts would contribute under the direction of a single creative mind in order to express one overriding idea" (Macmillan, n.d.). This term, born in relation to music in the nineteenth century, is shown to have wider relevance to society (through for example, virtual worlds). This could be argued to, in turn, draw parallels with László Moholy-

Nagy's *Theatre of Totality* which envisaged the development of this synthesis of arts and media through mechanical means; and Roy Ascott's *Gesamtdatenwerk* which concerns "the integrated data work" and "its capacity to engage the intellect, emotions, and sensibility of the observer" (Ascott, 2003; Third Space Network, n.d.). Moholy-Nagy himself was a pioneer of multi-sensory and immersive artistic spaces, including his 1928 design for the Kinetic constructive system which allowed the viewer to "move freely", within the "rotational movement" of the building; while Ascott's concept of *behaviourism* suggests that the potential of the artistic experience and the outcome is of more importance than the work itself, and is discussed further in chapters 3 and 4 (Hiller, 2019).

In Wagner's *The Art-Work of the Future*, he claimed that the *gesamtkunstwerk*, or total work of art, is a synthesis of all artistic mediums (such as music, singing, artworks used as stage props) united by using various narrative devices. Beyond this, Randall Packer and Ken Jordan note that the concept "was driven by a vision of theater in which the audience loses itself in the veracity of the drama, creating an immersive experience" (Packer and Jordan, 2002, pxxiii). This total artwork aimed to reinvent the public as not a passive spectator but as an active subject which is transformed and shaped by the audience. While there is potential for a solely passive interpretation of immersion (as with an audience being mesmerized by a performance), this investigation considers it as involving an instigation to action, contribution, and performance. In this way, the expanded narrative can be seen as a non-linear structure of the *gesamtkunstwerk*.



Additionally, while immersion has traditionally been the preserve of the arts, it becomes universal and relevant to contemporary culture.

On a related note, according to Edward Strickland, Wagner's own work can be considered a precursor to musical Minimalism. Strickland describes the initial chord of the Prelude to *Das Rheingold* (1854) as "challeng[ing] Young in [terms of its] duration", while its "ominous simplicity functions primarily to provoke anticipation of the complex harmonic – and multi-media – tapestry that follows" (Strickland, 1993, p124).

While this investigation does not constitute a detailed survey of Minimalist art and music, it considers the artistic and cultural placing of Young and Riley's works under investigation (together with the genre with which both composers are associated – albeit a contested term amongst the composers themselves, see section VI.i). As such while the works by both composers are associated with Minimalism, rather than being defined by the genre, this thesis shows that they have much in common with behaviourist, participative and experimental art practices.

The first three chapters of this thesis are historically and geographically situated within 1960s in the United States of America (USA), where both Young and Riley lived and worked at the time.<sup>3</sup> This also reflects Robert Fink's description of Minimalism as being "a profoundly American cultural practice", which rose to prominence in its "industrialized, mass-media society" (Fink, 2013, p202). These chapters evidence the move of both composers away from conventions traditionally associated with music and

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<sup>3</sup> For the most part, in Riley's case, as he also spent some time in Europe travelling with his family.

compositions (for example, formal performances in concert hall settings) towards something new, more akin to the art of the period. Their embrace of environmental, installation and participative elements are here shown as contributing to an immersive experience through the concept of the expanded narrative.

The final three chapters then extend this discussion to the contemporary towards new forms of immersive artistic practice and its adoption beyond the arts, acknowledging the conceptual shift and technological movement towards the digital. It also considers the contemporary currency of both the active space and the active audience, and how the use of these terms should shift as a result of the mediations necessitated by the global demand for access to cultural resources during the COVID-19 pandemic (2019–present), which consequently further normalised the notion of online active space (see chapter 4.1.2).

### I. The expanded narrative

Within this investigation, the expanded narrative is defined as an encounter between the audience and artwork, resulting in an immersive experience. The audience both completes the work and allows it to exist in its truest, intended sense – a theme further discussed in chapter 3. While this definition takes into consideration the traditional understanding of both terms and their use within the arts and humanities, the following two points should also be noted:

- a) Expanded – as to spread out, to extend or enlarge. This term was used by Rosalind Krauss in 1979 in her essay *Sculpture in the Expanded Field*, in which

she examined the role of sculpture, architecture and land art within the expanded field of post-modernism;

- b) Narrative – as an ‘account of events’. Often used within the humanities as a story told by a narrator to an audience – which consequently results in the potential for either a subjective re-telling, as an ‘unreliable narrator’, or impartiality, through a ‘reliable narrator’.

The thesis also builds on these ideas as a way of framing a lineage of composers and artists who utilise the elements of the expanded narrative to enhance their work – indicating the innovative, immersive, and audience-centric artworks and performances which arose out of the material researched, and is further exemplified by what Brandon LaBelle terms the “extended conversation” between the “presence of a viewer or listener, and object or sound, and the spatial situation” (LaBelle, 2010, p81).

The narrative, and its connection to world-building and the creation of a meaningful encounter with material, whether written, performed, visual or aural, can be further expanded to encompass the experience as understood within this investigation. In particular, the fictional narrative is akin to the case studies, and the creation of immersive, active works.<sup>4</sup> In his text *Fantasy and the Narrative Transaction*, Brian Attebery presents the role of the narrator as one that can engage and immerse the reader in a world – which, while established by the author (for example, through

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<sup>4</sup> As opposed to the factual recreation of material or location – While *Dream House* and the *Time Lag Accumulator* have continued to be exhibited since the 1960s, there have been differences over time to the works.

characterisation, description, fictional languages, and place names) is completed within the mind of the receiver. The audience of such material has “an important role in shaping the stories themselves”, giving credence to these fictional encounters and bringing life to the world and its inhabitants without the need for them to replicate their own experiences (Attebery, 1991, p31).

Returning to music and composition and the relationship between artwork and audience, Margaret S. Barrett’s 2010 essay *Musical Narratives* establishes music as contributing to the formation of identity of both the performer and the audience. Taking as an example a child’s singing, a shared understanding is established between lived experience, family relationships (for example, *The Wheels on the Bus* and *Finger Family*) and making up songs about things that are important to them. In this way, shared performance and familiarity with the subject matter reinforces connections between the composer, material, and audience.

World-building is historically intertwined with human communication and experience. Designer Alex McDowell describes this as a “communal, collaborative weave of narratives” which developed with our own knowledge to allow us to understand our own world (McDowell, 2015, p144). McDowell notes that,

[f]rom the days of tales told around the tribal fire, storytelling was always the way in which we contextualized ourselves, explained the unexplainable, and found the human place and scale in the dark, unknown and undiscovered world around us (Ibid.)

We continue to use a process of world-building in our everyday lives. As Audrey Isabel Taylor notes, “[w]e construct meaning from what we see, smell, hear, and more, turning this into internal monologues and narratives that shape our lives” (Taylor, 2017, p13). World-building is widely used within the arts and humanities to make fictional spaces and situations more believable for the audience. In the written narrative sense, this involves the creation of fictional worlds, including the historical, linguistic, and geographical foundations of the civilisations that inhabit them, in order to immerse the reader fully in the story (examples of this include Hogwarts School of Witchcraft and Wizardry in J.K. Rowling’s *Harry Potter*, and Middle Earth in J. R. R. Tolkien’s *Lord of the Rings*). Writer Jerry Jenkins explains this process as, “paint[ing]... a world that transports [the reader], allowing them to see, smell, hear, and touch their surroundings” (Jenkins, n.d.).

World-building is also evident within the visual arts, historically with the construction of environments and installations, and later within virtual spaces. McDowell describes this script-based process as allowing the world being designed to “build out horizontally ... based on the absolutes of the world” (McDowell, 2015, p145). McDowell notes that by using a range of visualisation tools, such as “mixed-reality lenses ... driven by game engines, with procedural asset generation and crowd behaviors”, creators can develop engaging virtual spaces in which the user is able to participate (Ibid.).

Furthering the connection between world-building and immersive experiences, Yan Breuleux, Bruno de Coninck and Simon Therrien note that “immersing the viewer in the story makes him or her a full-fledged player within it”, describing the concept as both

“transauthor and transmedia by nature” (Breuleux et al., 2019, p3; p1). In their paper *The World Building Framework for Immersive Storytelling Projects*, Breuleux et al. discuss ways of ensuring that the audience (as viewer) is aware of the important elements of a scene, for example through camera angles, particularly, “[t]he first-person point of view [which] participates in co-constructing the story of the immersive experience” (Ibid., p3). An example of a publicly accessible commercial tool for world-building in the virtual realm is *Second Life*, which allows users to create and manipulate primitives (or single-part objects) and use their proprietary scripting language, Linden Scripting Language (LSL) to create items and effects, which in turn contribute to the development of virtual spaces and experiences on the platform.

In these examples, as with this investigation, the role of interpreting a narrative is an active one and connects the experience of being part of works such as the case studies, with the presence of Young and Riley’s scores and instructions in publications such as *Aspen* (see chapter 1.2). As Philip Alperson notes, the audience can connect with and contribute to the creation of a work in several ways including direct participation as “members of the artist’s circle”; indirectly through contributing to “interpretations and evaluations” of the work and the context in which they are created; and,

Last but by no means least, a work may be said to be actualized or realized in so far as it is imaginatively experienced by an appreciator. (Alperson, 2004, p255)

Artistic shifts during the 1960s included a more active role of the audience, and the blurring of the boundaries between media and the artistic space, leading to the

development of an expanded narrative. The expanded narrative exists outside of the work itself, with regards to the relationship between:

**audience <> work <> environment**

It is here presented as arising from the use of:

- an active space (see chapter 1)
- cross-disciplinary collaboration (see chapter 2)
- an active audience (see chapter 3)

The term 'active space' is used to imply a purposefully constructed or organised environment (or one which has been chosen specifically for its value or contribution to the finished work/performance);<sup>5</sup> while an active audience has agency within (or contributes to) a work. An expanded narrative between an active audience and artwork allows for the freedom to create individual understanding and interpretation through participation and engagement within the boundaries of the work or performance.

While a relatively recent term which is being retrospectively applied to three works by Young and Riley dating from the 1960s presented as case studies within this thesis (see section IV.i), immersion is alluded to through Riley's own words, when he describes his intention of creating a new form of "concert situation" where the audience could both listen and move around, ahead of the performance of

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<sup>5</sup> This could be to a considerable detail, for example in the case of *Dream House* (see chapter 2.3), this would include the colour of the carpet, the recommended removal of shoes, and the audio element playing constantly with the levels brought up for visitors.

*LaMonteYoung&MarianZazeelaTerryRileyJonHassell: A Collaboration* (1969, see chapter 1.3) in May 1969 at the State University of New York at Buffalo (SUNYAB) (Riley *in* Puttnam, 1969a, p26). This performance has also been described by Renée Levine Packer (administrator and later co-director of the Center of the Creative Arts at SUNYAB) as “definitely immersive”, particularly in relation to the presence of Zazeela’s light installation which accompanied the performance (Levine Packer in email conversation, 25 August 2016) (see appendix A). Further, immersion in an artistic sense is identified as an act of engaging multiple senses to create a constructed ‘environment’ that the audience can become part of.<sup>6</sup> In such works, an expanded narrative is present, existing outside of the work itself with regards to the relationship between audience, work, and environment. The use of a non-traditional performance space, together with collaboration across disciplines, and the move towards consideration of audience experience during the 1960s led to the creation of engaging, multiple media works, which encouraged audience participation and in so doing provided what is now understood as immersive experiences. Figure 1 shows how the performance space constructed through cross-disciplinary collaboration led to the development of new forms of artistic practice, which existed outside of traditional media (such as painting, sculpture, and music), and together with consideration of audience engagement, led to the creation of an expanded narrative.

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<sup>6</sup> The term ‘immersive environment’ thus applies to art works and performances set within a constructed ‘active’ environment, where multiple senses are engaged, and in which the audience is wholly immersed.





*Figure 1: How active, cross-disciplinary collaboration and audience engagement contribute to an expanded narrative*

From this research, it is proposed that the use of a non-traditional performance space, together with collaboration across disciplines, and the move towards consideration of audience experience during the 1960s, led to the creation of engaging, multimedia works which had the potential to immerse their audience or encourage active participation.

Young and Riley's constructed spaces identified as the first three case studies (see introduction, section IV.i) envelop their listeners in an immersive experience, in a similar approach to that of contemporary visual artists. The term 'expanded narrative' is used here both to describe the relationship between audience and performance in these early works, and due to its immersive properties, to align with contemporary practice. The nature of an expanded narrative apparent within these works is explored according to the extent to which senses are engaged to bolster the aural within the constructed active space (case study 1); and to enable the senses to have equal status (case studies 2 and 3). These constructed active spaces are then presented as allowing for

other affordances, such as movement or participation, resulting in an immersive experience that allows for a deeper engagement with the performance/artwork.

The relevance of the expanded narrative to post-1960s arts and culture is explored in chapters 4–6, through an examination of the adoption of technology to enable digitally augmented immersive experiences, and the contemporary relevance of online cultural experiences.

## II. Background to the investigation

Research began as an investigation into potential narratives present within Minimalist compositions from the 1960s, responding to an advertised studentship proposal. Initial fieldwork considered the catalogue of the so-called 'big four' Minimalist composers,<sup>7</sup> Young, Riley, Steve Reich and Philip Glass during this period, and consequently led to the discovery of three works by Young and Riley of which the performance and staging suggested an immersive and/or participative experience for the audience. Research then focussed on the work of these two composers and their collaborations with those from other disciplines, to bring lighting, incense, projections, and visuals into non-traditional venues in order to construct spaces where their audiences could move freely around in the soundscape.

The first work identified by the researcher as exemplifying a multi-sensory, immersive environment was *LaMonteYoung&MarianZazeelaTerryRileyJonHassell: A Collaboration* (1969 – see case study 1, henceforth referred to as '*A Collaboration*' for brevity, in

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<sup>7</sup> This phrase was used by both Strickland and K. Robert Schwarz to describe these four composers.

chapter 1.3), owing to its combination of sounds, imagery, and scent situated in a darkened auditorium – in a manner reminiscent of contemporary immersive installations. The second work identified for its immersive qualities was Young and Zazeela's *Dream House* (1969 – see case study 2, in chapter 2.3), drawing similarities to the first with sound, light, and incense, while taking the form of site-specific installation, which could be freely navigated by the audience. The third work identified for its use of a constructed space and its participative elements was Riley's *Time Lag Accumulator* (1968 – see case study 3, in chapter 3.5) installation. These readings of all three reflects their role as artistic works rather than purely musical or auditory ones, and the continuing relevance of Young and Riley's work is exemplified by recent exhibitions of both *Dream House* and the *Time Lag Accumulator* (see chapter 5).

While certain works from the period (for example, Young and Zazeela's *Dream House* – see chapter 2.3) are considered as audiovisual, immersive, environmental installations, and the term Minimalism used to encompass multiple artistic forms, the division between Minimalist music and art remains relevant today. This investigation aims to place Young and Riley in the liminal space between artforms and to establish ways in which the early works of both composers can be seen to contribute to the lineage of contemporary immersive creative practice through the concept of the expanded narrative. In this way, the investigation presents a conjoining of Minimalist art and Minimalist music, as leading to immersive practice.

This investigation continues the researcher's practice from her Masters study, where she began to incorporate sound through video and installations, and is of topical

academic relevance following the 2016 conference *Minimalism: Location Aspect Moment*, which considered both music and the visual arts.<sup>8</sup> Further, the contemporary relevance of digital and immersive experience is evident both through the ways in which the art and cultural sectors aimed to reach audiences during the pandemic, and the 2022 themes of conferences such as the London *Electronic Visualisation and the Arts* (EVA), the *Architecture Media Politics Society*, and the *Extended Senses and Embodying Technology Symposium*, which included (1) the use of new and emerging technologies in the arts, and (2) representations of space, place, and liminality, respectively.

### III. Research questions

The investigation contributes new knowledge on immersive forms of practice, and in so doing examines Young and Riley's roles within this contemporary, interdisciplinary art form through the concept of the expanded narrative. The primary research question is therefore:

- 1) To what extent do the early works of La Monte Young and Terry Riley inform current immersive visual artistic practice?

Two further sub-questions are also considered:

- 2) How did the range of media and performance spaces used by La Monte Young and Terry Riley during the 1960s enable new audiences to engage with their work?

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<sup>8</sup> This event, which was organised by both the University of Southampton and Winchester School of Art, was also promoted by the Society for Minimalist Music to their members as it aligned with their interests.

3) What immersive affordances did collaborations with those from other disciplines bring to the performance space?

#### IV. Methodology

This investigation began with a literature and contextual review undertaken to examine the historical and cultural context of Minimal art and music which employed an interpretivist paradigm, using qualitative methods of data collection and analysis of historical performances and artworks to further understand the composers' work (see section VI). These incorporated:

- Primary sources (archive recordings of works and performances, and personal recollections acquired through interviews);
- Secondary sources (historical descriptions and newspaper articles);
- Tertiary material (lists of performances and collaborations from print and online sources).

To capture the activities of all four composers during the 1960s, a spreadsheet was devised to map their performances and venues. This spreadsheet contained 240 performances across 84 venues between 1962 (the first listed performance) and 1970 (where information regarding both the venue and composition were available). Of these 84 venues, 77 were not held in conventional concert halls and auditoriums expected for performances of music compositions, but in non-traditional performance spaces such as theatres, galleries, museums and colleges. The information held in the

spreadsheet led to the identification of three works: *A Collaboration*, *Dream House*, and the *Time Lag Accumulator* (see chapters 1.3, 2.3 and 3.5 respectively), which were selected as strong examples for case studies to allow for deeper probing into how and why traditional performance spaces were being avoided by these new young minimalists. The data from this spreadsheet has been separated out both to highlight the venues used to form the table in chapter 1.2, and reframed by collaboration in Appendix B.

A second period of field work in two areas – firstly, the emergence, use, and international relevance of digital technology within the arts; and secondly, the global need for (and uses of) digital technology in light of the COVID pandemic allowed the researcher the opportunity to reflect on her own practice undertaking during this investigation and its place within the wider examination of the expanded narrative, and the methods of immersion established through chapters 1-4.

#### IV.i Case studies

Three works were identified as case studies: *A Collaboration* (1969), *Dream House* (1969) and the *Time Lag Accumulator* (1968). They were selected as examples from Young and Riley's early works in that they maintain their relevance in contemporary culture and exemplified the apparent repeated ingredients of collaborations, constructed spaces and audience participation:

- 1) Active Space: *A Collaboration* (1969) (see chapter 1.3)
- 2) Collaboration: *Dream House* (1969) (see chapter 2.3)

### 3) Active Audience: The *Time Lag Accumulator* (1968) (see chapter 3.5)

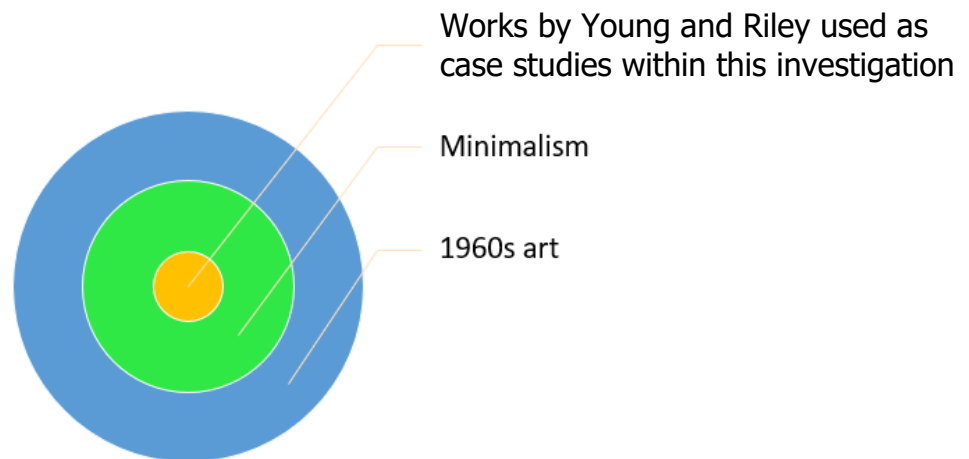
These three works stood out for their location within non-traditional performance spaces, their collaboration with other disciplines (for example, the visual arts and engineering), and their use of technology, which further determined the findings of the spreadsheet analysis and confirmed that these three factors were repeatedly at play in these works, forming an expanded narrative. The expanded narrative facilitated an enhanced listening experience for the audience by immersing them in an audiovisual environment as a world of sound. These works also illustrate how concepts which came into play during the 1960s in the art world (for example, the construction and exploitation of space as exemplified by Fluxus and happenings – generally associated with New York at the time that Young and Riley were living there) were adopted by composers.<sup>9</sup>

At this point, it should be noted that there is more than one understanding of what a happening entailed. According to David Ryan, Allan Kaprow defined two subcategories of happenings: firstly, 'Events' which incorporated traditional roles of performer and audience to examine phenomena, and secondly, 'Activities' which removed distinctions between these roles and encouraged participation (Ryan, 2009, p206). This investigation uses the second category in its use of the term, aligning this with the elements of the active audience within the expanded narrative.

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<sup>9</sup> It should be noted that Fluxus was also evident beyond the USA, as in the work of German artist Joseph Beuys.

While Young and Riley are associated with the Minimalist movement of the 1960s, these three initial case studies are identified as having more in common with other artistic methods and ideologies prevalent within the 1960s – such as participation, experience, experiments, use of space, concept, instructions (see figure 2).



*Figure 2: Placing case studies by Young and Riley within the context of 1960s artistic practice*

These works reflect the changing role of the audience within multidisciplinary art during the 1960s (most widely evidenced by Fluxus and the happenings), leading to new encounters between audiences and the performance/artwork. While they are very different pieces – not least in terms of longevity<sup>10</sup> – a closer inspection reveals shared elements of multi-sensory audience engagement through the use of colour, light, movement, smell and sound. Additionally, the fact that no two performances/exhibition days could be the same – different visitors, venue, lighting, order of notes, audience

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<sup>10</sup> The *Time Lag Accumulator* existed in situ for the duration of the *Magic Theater* exhibition, with further version created for exhibition in 2003 and 2019; while *Dream House* has altered many times throughout its history between 1969 and the present day, according to the venue in which it has been presented. By contrast *A Collaboration* was only performed twice within 1969, at different venues.



interaction, leads to the suggestion that it is the participatory nature of the audience itself which contributes to the completion of the artwork/performance.

4) From the physical to the digital: Pauline Oliveros (see chapter 4.1.3)

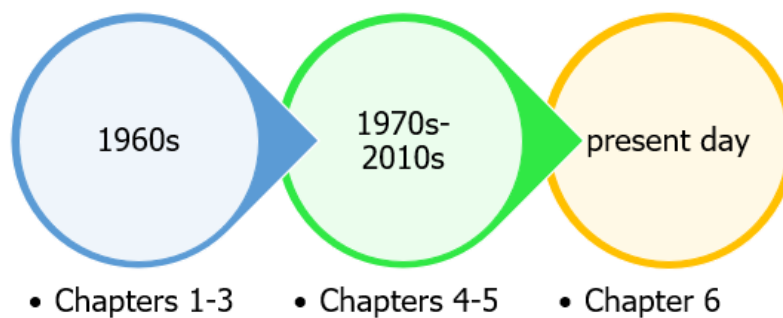
In considering the importance of digital technologies towards the latter part of the twentieth century and the continued relevance of the expanded narrative and its influence on composers, a fourth case study examines the work of Pauline Oliveros. A contemporary of Young and Riley, Oliveros's work emphasised the experience of the listener – and through experimentation her work bridges the liminal space between both the physical and digital.

5) The contemporary relevance of the expanded narrative: *A-Wakening* and *The Lull* (see chapter 5.4)

Finally, to further investigate how the multi-sensory and immersive qualities of Young and Riley's historical works can be now understood as a form of expanded narrative and as immersive works aligned with those in the field of contemporary artistic practice, two new works, *A-Wakening* (2018) and *The Lull* (2017), were created. These two works, one offline and one online, incorporated the expanded narrative components within both physical and digitally-mediated active spaces (the latter accessed by avatar), and explore how the use of space and cross-disciplinary collaboration facilitates the presence or perception of immersion, therefore augmenting the work's reception.

## V. Chapter summary

The six chapters are here presented as telling three parts of the same story (see figure 1). While the first three chapters are situated historically within the 1960s (and geographically within the USA, examining the individual elements of the expanded narrative – active space, cross-disciplinary collaboration, and active audience – chapters 4 and 5 show how techniques and concepts established during this period had far-reaching effects (both in terms of culture and geography), in combination with newer technology, and the move towards global communication remained relevant and even crucial to contemporary practice. Chapter 6 brings the investigation to the present day, taking into account the reliance and relevance of digital technology in an age of distancing, restrictions and uncertainty.



*Figure 3: Visual representation of chapter structure*

### Chapter 1: Active Space

This chapter considers the range of performance spaces and methods of distribution used by Minimalist composers such as Young and Riley during the 1960s as identified through initial research (including academic institutions, art galleries, museums and printed publications). In this way, expanded narrative is evidenced by the abundance

of new spaces for performance, which allowed for both a wider audience to engage with their work and for the creation of a non-traditional performance aesthetic.

Case Study 1: *A Collaboration* considers how constructing a performance space facilitates an expanded narrative and offers an immersive experience at a time when an increasing number of composers of the period “sought to control the environment in which their music was performed” (Levine Packer, 2010, p4).<sup>11</sup>

### Chapter 2: Cross-Disciplinary Collaboration

This chapter examines Young and Riley’s cross-disciplinary collaborations in order to consider how such partnerships allowed for a more diverse body of work to be created which encouraged an active audience experience. In this way, expanded narrative is seen to tie in with Dick Higgins’ multidisciplinary concept of *intermedia*.

Case Study 2: *Dream House* establishes that an active space with aural and visual stimuli allows for freedom of audience movement, while an active audience and intermedial collaborations (to engage multiple senses) need to be present for an expanded narrative to be created, and in their being present envelops an audience in an immersive experience.

### Chapter 3: Active Audience

This chapter examines the central role of the active audience, in conjunction with active space and cross-disciplinary collaboration, in the creation of expanded narratives, thus

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<sup>11</sup> Packer’s text recognises the move away from concert halls to “[l]oft spaces, art galleries, atria, outdoor sites” during the 1960s, noting that “even a swimming pool might be required” (Levine Packer, 2010).

facilitating immersive experiences. This active role is presented as essential to the work, which is completed by the presence or participation of an audience, without whom the work arguably would not exist in its true form.

The shift towards an active audience from the position of traditional passive spectator is examined, taking into consideration cybernetics, behaviourist art, and audience-centric artworks such as Fluxus and the happenings. In this way the expanded narrative is shown to tie into the multi-sensory nature of the *gesamtkunstwerk*.

Case Study 3: Riley's *Time Lag Accumulator* is presented as a case study to consider how an active audience facilitates an expanded narrative, thus allowing for an immersive experience.

#### Chapter 4: The Expanded Narrative in the Era of Digital Art and New Media

This chapter mediates between the historical and the digital, examining how the notion of an expanded narrative changes according to technological conditions. Bridging the gap between the 1960s and the present day, it considers how advances in technology towards the end of the twentieth century led to new affordances in immersive experiences through the creation of new forms of active space (for example virtual reality), and collaborations at the intersection of art, design and technology.

The virtual platform stands as a contemporary form of non-traditional and performative active space, which in conjunction with an active audience showcases the continued relevance of the expanded narrative beyond the 1960s, and allows for a more fully immersive experience.

Case Study 4: Oliveros is presented within this chapter as an innovator within both the physical and the digital, and as a pioneer of engaging space and audience (from *Deep Listening* and *Sonic Meditations* to the virtual environment, *Second Life*).

#### Chapter 5: Contemporary Non-Traditional Performance Spaces and Cross-Disciplinary Practice

This chapter returns to two of the works by Young and Riley presented as case studies in chapters 2 and 3 which remain present in contemporary artistic practice, evidencing their continued relevance within what is now termed immersive art.

The three combined components of active space, collaboration and active audience are thus presented as remaining crucial to the presence of an expanded narrative (with immersive properties), and to the work of artists and composers.<sup>12</sup>

Case Study 5: In response to the examination of the expanded narrative and methods of immersion established in chapters 1 through 4, two installations were created, one as a physically-constructed space, the other as a virtual world platform. *A-Wakening* and *The Lull* are presented as examples of the act of creation (and recreation) utilising contemporary technology.

#### Chapter 6: Conclusion

This chapter outlines the summary of the investigation process, findings, contribution to knowledge, and the trajectory for further research arising from this investigation.

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<sup>12</sup> It should be noted that there are some overlaps in the chronology of chapters 4 and 5 arising from the specific focus of each chapter, the relevance of the emergence of digital art and technology in the former and the continued presence of the expanded narrative in the latter.

Through an examination of the contemporary relevance of the expanded narrative in the light of the COVID-19 pandemic, this chapter considers how our use and acceptance of digital methods of communication and entertainment (for example, games) shapes our understanding and adoption of new experiences. Through social distancing and the suspension/closure of cultural attractions (museums, galleries, theatres), online communication and digitally augmented experiences enable new forms of work and play.

Developing on the combination of the expanded narrative and the digital established in the previous chapters, this chapter opens up potential for further research into this expanded version of the active space.

#### VI. Contextual and literature review

This contextual and literature review presents an overview of the relevant historical and cultural context to this investigation, from acknowledging the legacy of the experimentalism of John Cage to the wider arts and culture of 1960s USA. The first three chapters of this thesis contextualise the three elements of the expanded narrative within the arts and culture of the 1960s (active space, cross-disciplinary collaboration, and active audience).

Firstly, the active space is considered in the context of Young and Riley's early work. Lucy Bullivant's discussion of the "transformative effect" of interactive installations and environments is presented alongside Frank Popper's similar view of technological art and the virtual, in which Jeffrey Shaw saw the potential for artistic experimentation

(Bullivant, 2007a; Popper, 1993; Shaw, 1992). Further, Krauss's consideration of the architectural experiences of space stands against Michael Fried's criticism of the distancing of the viewer as present in Minimalist works (Krauss, 1979; Fried, 1967). These arguments are presented in relation to other works of the period, including Kaprow's environments, the Light and Space movement, and Oliveros's sonic performances.

Secondly, Young and Riley's early cross-disciplinary collaboration is presented as the second element of the expanded narrative. Milena Droumeva's concept of 'music-as-environment' as referring to a situation where the individual engages with a physical or virtual constructed space is presented alongside Frances Dyson's description of the sonic "vibration" as a transformative concept, which links the work of Cage with technologically driven new media theory and fluctuates between "being and becoming" (Droumeva, 2005; Dyson, 2009). Multiple forms of engagement are considered, from Sally Bane's discussion of the use of scent in rituals and events in the twentieth century as a prototype of the *gesamtkunstwerk*, to collaborations with the visual arts (for example, Fluxus) and publishing (such as Young and Jackson MacLow's *Anthology of Chance Operations*) (Banes, 2007).

Thirdly, the active audience is considered in the context of Young and Riley's early work. Nicolas Bourriaud's discussion of relational practice is presented alongside Brendan LaBelle's observations on the location and positioning of an audience as of importance to their experience, and consideration of cybernetic and behaviourist art forms – the latter described by Roy Ascott as an inclusive term which draws the

spectator into the participative act of creation, encouraging involvement on a physical, conceptual and emotional level via a “feedback loop” between the artist, artwork and observer (Bourriaud, 2002; LaBelle, 2010; Ascott, 1966-67). The problem of a suitable universal term to describe the active audience across genres and periods is raised with reference to Char Davies’ concept of the audience member as an “immersant”, and a discussion of multi-sensory engagement leads to the consideration of the term “intermedia” – conceived by Dick Higgins as describing works which fall between traditional mediums – to describe the three historic works by Young and Riley as identified as the initial three case studies (Davies, 1997; Higgins, 1965).

The expanded narrative is presented as a central concept within an immersive experience, considering firstly the importance which Wim Mertens places on the perception of a listener as actively participating in the construction of a composition; secondly, Jacques Rancière’s *Emancipated Spectator* as an example of how audiences are freed from passively viewing in order to take a more active role in the creation of meaning; and finally, Packer and Jordan’s discussion of the roots of the immersive experience as originating in both cave paintings (forming a backdrop to rituals and performances), and the *gesamtkunstwerk* – utilising multiple sensorial engagement through intermedial means in a constructed environment (Mertens, 1980; Rancière, 2009; Packer and Jordan, 2002).

#### VI.i The legacy of John Cage

The experimental performance styles of the 1960s discussed in this thesis owe a debt to those established by Cage, for example *Theatre Piece* (1952) (also known as the *Black*



*Mountain Happening*), which took place at the Black Mountain College and considered by many to be the first happening, and *4'33"* (also 1952), which encouraged the audience to pay attention to ambient environmental sounds.<sup>13</sup> In many respects *4'33"* could be seen to represent the first truly immersive musical experience in so far as it ineluctably draws the environment into the listener's range while also forcing audience engagement (either positively or negatively).

Packer and Jordan recognise Cage's influence on "nontraditional performance techniques" including happenings and interactive installations (Packer and Jordan, 2002, xxi). Their observation that Kaprow's interest in "blurring the distinction between artwork and audience" bears similarities with Cage's search for new forms of performance aesthetic, and foregrounds "[the] notion of the artwork as [both] a territory for interaction, [and] as a locus of communications for a community" (Ibid.; pxxx). As Michael Maizels notes,

In the early 1950s, Cage set out on an incredibly bold compositional gambit: to dissolve the bounded history of "music" (so conceived by Western standards and conventions) outward into the seemingly endless universe of sound. (Maizels, 2020, p124)

Young was introduced to the work of Cage in 1959 at the annual summer composition seminar in Darmstadt, Germany, led by Karlheinz Stockhausen (Strickland, 1993, p134).

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<sup>13</sup> In 2014, Cage's *4'33"* was released as an app for iPhone by the John Cage Trust and C.F. Peters, in which "[u]sers are able to capture a three-movement 'performance' of the ambient sounds in their environment, and then upload and share that performance with the world" (John Cage Trust, n.d. b).

According to Benjamin Piekut, both Cage and Young influenced the search for “revised definitions of performance”, in which the “boundaries separating music from other media were significantly blurred”, and where, as Piekut notes:

artistic or musical activities [arose] so new and strange as to be not only outside of or beyond any existing idiom but also at risk of no longer qualifying as “music” at all. (Piekut, 2011, p66)

The three works by Young and Riley identified as case studies can be seen to match this description, being audiovisual, multi-sensory, experiences. David W. Bernstein notes that both Young and Riley “helped introduce Bay Area Composers to ... Cage’s “total field of sound”” with ... radical “noise” works” which “included theatrical elements” such as Young’s *Poem for Chairs, Tables, Benches, etc. (or other sound sources)* (1960) and Riley’s *Concert for Two Pianos and Five Tape Recorders* (1960) (Bernstein, 2008, p205).

According to Strickland, Young “began to establish a climate in post-Cageian experimentalism”, citing Cage’s influence on works such as Young’s *Compositions 1960* and Riley’s *Ear Piece* (1962, see chapter 1.2), the latter continuing the Cageian tradition of any sound being considered as music (Strickland, 1993, p10; p135; p148).<sup>14</sup> Young’s interpretation of Cageian experimentalism led to some performances of *Poem for Chairs, Tables, Benches, etc. (or other sound sources)* (1960) running for “close to an

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<sup>14</sup> It should be noted that the experimental movement also existed outside of the USA during the 1960s and 1970s – for example in England, Cornelius Cardew (who published his article on Young in 1966 entitled ‘One Sound: La Monte Young’, Gavin Bryars and the Portsmouth Sinfonia.

hour and involv[ing] large groups of participants" (Ibid., p136). This use of the term 'participants' is interesting, as it stands separate from the traditional notion of the performer at a time when the traditional role of the audience is moving away from a passive to a more active one (a subject discussed further in chapter 3). This subversion of the role of the audience is evidenced in Young's *Compositions 1960 #4* and *#6*, in which the audience's activity – within a darkened space and in front of the 'performers', respectively – is the subject.

Additionally, Cage's aleatoric music, or "openness to whatever might arise" (as exemplified by the *Musicircus* (1967), where musicians were able to perform as they desired), bears similarities with the unpredictable qualities of Riley's *Time Lag Accumulator* (see chapter 3.5), which relied on both the presence and action of its audience-turned-participants in order to function (Piekut, 2011, p59). In fact, Strickland makes the relationship between Cage and Young's work even clearer when he states that,

[w]ithout the precedent of Cage, Young's *Compositions* are as unimaginable as the very different directions taken by later Minimalists without the precedent of Young and his preparation of an auditory context. (Strickland, 1993, p160)

Conversely, Strickland notes Young's influence on Cage's own work, for example the latter's late string quartet, *Four* (1989) (Ibid., p163). Strickland notes that Cage himself has been described as a Minimalist, in that his "embrace of any sound and no sound as music" can be seen as paving the way for both "the half-minute rests of Young's early sustained-tone works" and Young's "noise compositions" (for example, *2 Sounds*

(1959)) (Ibid., p124-5). Strickland later describes Cage's work as being both "not Minimal enough and too minimal" depending on the piece, for him not to be a Minimalist (Ibid. p125).

The performance techniques of the 1950s and 1960s laid the ground for an expanded narrative as exemplified by:

- The loft concerts associated with Young indicated a more relaxed relationship between performer and audience – similarly the use of different kind of spaces, such as Riley's all-night concerts and environments;
- Crossovers between art and music – for example, Young and Riley publishing their scores in *Aspen*, and Young's *Compositions 1960* as a series of directions for performers;
- The changing role of the audience – from passive receiver to performer or participant – for example, a butterfly being released into the auditorium or performers watching the audience, in Young's *Compositions 1960 #5* and *#6* respectively, or making sounds in Riley's *Ear Piece* (1962).

The above is evidenced and simplified by Michael Nyman, Robert Worby and Brian Eno, in their text *Experimental Music*, that,

experimental music emphasizes an unprecedented fluidity of composer/performer/listener roles, as it breaks away from the standard sender/carrier/receiver information structure of other forms of Western music.

(Nyman, 1999, pp22-23)

Young and Riley's continued portfolio of engaging and immersive works formed the central theme of the contextual and literature review undertaken for this investigation, followed by an examination of Minimalism in both music and the arts, and a consideration of the situational context of cultural developments in the USA during the 1960s.

#### VI.ii La Monte Young and Terry Riley

The beginnings of Young and Riley's association with experimental minimalist music can be traced to their early activities in California during the 1960s. As Bernstein notes, "it was in California that the dividing line between artistic radicalism and popular culture began to disappear" (Bernstein, 2008, p9).

Both were classically trained musicians who met at the University of California, Berkeley, in 1960, and were interested in challenging the notion of specialism in the arts and the perceived hierarchies between low and high art. According to Strickland, Young's compositions of extended tones "directly inspired" Riley, who found him to be a "spiritual brother" when he joined the institution (Strickland, 1993, p10). Strickland further notes that the composers began collaborating almost immediately after meeting, with Young finding Riley a more "sympathetic" audience to his work than others at the time, including composer and Seymour Shifrin – a Professor at the institution who arranged for a performance of Young's *Trio for Strings* (1958) at his home, to which the attendees (including Oliveros) reacted with "polite bewilderment" (Ibid., p122; p121).<sup>15</sup>

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<sup>15</sup> While Strickland doesn't give the exact date of this performance, he places it between September 1958 and September 1959.

Young and Riley's early collaborations included roles as musical directors of choreographer Anna Halprin's Dancers Workshop (established by Halprin in San Francisco in the 1950s). Cage had put Young in touch with Halprin, whose workshop was itself renowned for its "Cage-influenced 'noise'" and an "aesthetic of multi-media sensory bombardment" (Ibid., p134; p10).

Like Cage before them, both composers moved from the West Coast of the USA to the East Coast. In Summer 1960, Young left California for New York on an Alfred Hertz Memorial Travelling Fellowship and never returned. While in New York, Strickland notes that Young studied electronic music at the New School under composer Richard Maxfield, while Riley remained at Berkeley to complete his master's degree before joining Young in New York in mid-1961 for a short time before moving to Europe with his family (Strickland, 1993). According to Strickland, Riley briefly returned to New York in February 1964, and again between 1965 and 1969, during which he spent some time working with Young's group the Theatre for Eternal Music and was interested in opening greater exposure for his music (Ibid.). Young and Riley were also both associated with Experiments in Art and Technology (E.A.T.), an organisation set up in New York in 1967 by Billy Klüver, Fred Waldhauer, Robert Rauschenberg and Robert Whitman to "push technology to its limits" (Kholeif, 2016, p28). Their work with the organisation included performing at E.A.T.'s benefit performance *American Artists in India* in December 1970 alongside performers and artists that included Zazeela, David Tudor and Whitman.

Strickland describes Young as representing “lower-Manhattan avant-garde experimentalism and perhaps the most rarefied attempt at musical transcendentalism in existence” (Strickland, 1993, p7). Young and Riley continued to collaborate with other artists and specialists during their careers – including both being associated with the Fluxus movement – and are known for creating extended duration, environmental works (for example *Dream House* – see chapter 2.3, and Riley’s all-night concerts).<sup>16</sup> While by no means the only composers creating audiovisual and multi-sensory environments (for example, Cage would develop *HPSCHD* with Lejaren Hiller in 1969), these two composers stand out both for their shared history and for their association with a genre known more for its simplicity than for its immersive qualities.

Young’s compositions are characterised by both their musical and conceptual qualities, incorporating Eastern influences (including Japanese Gagaku, which Strickland notes partially influenced his *Trio for Strings* (1958) (Ibid., p125), sustained sounds and drones, “sonic exploration”,<sup>17</sup> and performance – particularly with respect to his multi-sensory installations and his intent to “create work that expands the horizons of art” (Grimshaw, 2011, p69; Young in Smith and Walker Smith, 1995, p268); while Riley’s music has been described as “cultivating the use of pure frequencies, drones, repetition and overtones, [pushing] music and notions of tonality” to create “a static field of microevents, sonic details and perceptual intensities that take on physical weight and

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<sup>16</sup> Which Strickland notes began during his time in Europe around 1962-63 (Strickland, 1993, p133).

<sup>17</sup> Grimshaw specifically mentions *Poem for Chairs, Tables, Benches, etc.* (1960) as an example of spatialised sound that would later develop into installations such as *Dream House*, where the physical placing of the listener would affect their experience.

mass..." which the "listener observes in ever-different ways" (LaBelle, 2010, p80; Mertens, 1980, p40). This is particularly true of the relay and delay within the *Time Lag Accumulator* installation discussed in chapter 3.5.<sup>18</sup>

While this thesis recognises that Young and Riley are widely considered as Minimalist composers, the investigation moved away from the potential restrictions of considering the genre alone towards an awareness of their role in pioneering immersive multi-sensory artworks which encouraged activity or responses from their audiences – using the case studies as examples, while Riley planned for input from the audience in the *Time Lag Accumulator* (see chapter 3.5), Young organised the particulars of *Dream House* (see chapter 2.3) whilst being interested in the perceptual experience of the audience and allowing for movement and repose. The term 'Minimalism' is still useful, however, placing them historically and recognising their compositional legacy outside of this investigation.

In the context of this investigation, Minimalism is not presented as separate artistic genres but as the all-encompassing movement incorporating both composition and art (including the Light and Space Movement of the West Coast of the USA), in order to place the three works by Young and Riley identified as case studies as products of the wider artistic and cultural movements of the period, such as behaviourism and cybernetics.

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<sup>18</sup> Both composers explored the use of extended time durations within their work, including Young's improvisational *The Well-Tuned Piano* (1964-present), and Riley's 'time lag' process resulting in overnight concerts, such as *Poppy Nogood's All Night Flight* at the Philadelphia College of Art in 1967.



### VI.iii Minimalism

The 1960s saw the birth of two kinds of Minimalism – music and visual art – which have since been kept apart as separate categories within the greater 'Arts' field. In the USA, within the visual arts, the phenomenal, ambient works of the Light and Space Movement on the West Coast contrasted with the material, process driven works of the East Coast, where artists such as Carl Andre, Robert Morris, Donald Judd and Dan Flavin were working with geometric shapes, repetition, materials and methods of production.

Strickland describes Minimalism as,

a movement, primarily in post-war America, towards an art – visual, musical, literary or otherwise – that makes its statement with limited, if not the fewest possible, resources, an art that eschews abundance of compositional detail, opulence of texture, and complexity of structure. (Strickland, 1993, p7)

Strickland also notes that the movement remains most associated with the 1960s, with musical Minimalism dating slightly earlier from 1958 with Young's *Trio for Strings*, and its enduring reputation "may ... have benefited from its ... unparalleled transcendence of the barriers between media" (Ibid., p10; p3). The incorporation of its "once-outrageous vocabulary" into mainstream culture standing in stark contrast to its conception, when "composers ... were laughed off stage ... [and] artists were lampooned as opportunistic nihilists ..." (Ibid., p4; p2).

Strickland describes Minimalism as “an art exploring and exposing the building blocks of all its various media”, including restrictions to single hues or forms – in this way, parallels are observed between the lines used by Frank Stella (for example, *Hyena Stomp* (1962)) and Young’s conceptual instruction piece *Composition 1960 #10* (“to Bob Morris”), in which the reader is asked to “Draw a straight line and follow it” (Ibid., p12). Equally, Strickland notes that,

Young’s [use of] mathematics ... found a sculptural analogy in the widening intervals within the serial placement in Donald Judd’s grooved boxes and reliefs (Ibid., p135)

Young’s numerically influenced works also included the “random digits” which governed the movement of furniture within the “radically open-ended” *Poem for Chairs, Tables, Benches, etc. (or other sound sources)* (1960) (Ibid.). While this thesis argues for Minimalism as an all-encompassing term for the diverse artistic practices associated within the genre, for simplicity and clarity both music and arts are considered separately within this review.

#### VI.iii.a Minimal music

Musically, Minimalism followed on from (and according to Strickland, displaced) Serialism, which began in the early 1920s and was characterised by its use of series of musical elements (Strickland, 1993). Strickland draws a comparison between both movements in terms of stasis – with the “busyness” of Serialism making way for a deceleration of movement in Minimalism (Ibid., p126). According to K. Robert

Schwartz, the roots of the movement extend much further back than this in that it shared qualities with the “contemplative quality of Gregorian chant, the stasis of medieval organum, [and] the repetitive, motoric rhythms of Baroque music” (Schwartz, 1996, p10). Beyond this, Schwartz noted that Minimalism built on the sounds of American popular culture prevalent at the time, including the “simplicity” and rhythm of “jazz and rock-and-roll”, and that with works such as Riley’s *Poppy Nogood and the Phantom Band* and *A Rainbow in Curved Air* (both 1969), “minimalism had succeeded in eradicating the line between high-culture concert music and pop-culture accessibility” (Ibid., p47). According to Riley, Minimalism stood for simplicity in that it laid bare the essentials of music without unnecessary “decoration” (Riley in Smith and Walker-Smith, 1995, p231). Less a musical genre than a “climate”, Riley noted that “just like Impressionism, it made people feel aesthetically something they hadn’t felt in previous musics” (Ibid.).

Keith Potter suggests that Minimalism’s lasting legacy is “to have pointed the way towards the erosion of cultural as well as purely musical barriers ...” (Potter, 2013, p32). This can be evidenced by Strickland’s and Jonathan W. Bernard’s observations of Minimalism’s influence on later musical styles of the twentieth century – on seventies rock music (for example, *Baba O’Riley* by The Who), “New Age” music of the eighties and the synthesizer sequencing or repetitive loops of ambient and electronic dance music (including Orbital’s self-titled second album in 1993) (Strickland, 1993; Bernard, 2013). In mainstream culture, the genre’s influence ranges from commercials for

Special K and IBM to film scores including *Cyborg* (1989) and *The Grifters* (1990) (Strickland, 1993, p1).<sup>19</sup>

James Meyer attributes the application of the term 'Minimalism' to music to the "British composer and critic ... Nyman, who adapted it from the visual arts [in 1968] for its analogical value" (Meyer, 2004, p312). However, Strickland suggests that "[n]ineteen sixty-four may ... be considered ... to mark the efflorescence of Minimal music", listing Young's *The Well-Tuned Piano*, together with "the evolution of [Young's] ensemble work from progressively longer tones and held harmonies into the full-blown sustenance of the drone epic, *The Tortoise, His Dreams and Journeys*"; Reich's "systemization of Riley's freewheeling tape techniques into full-fledged process music"; and Riley's *In C* – which "became the first Minimalist work ... to begin to propagate the tenets of a new musical language that would come to dominate the aural landscape" as pertinent examples of the genre (Strickland, 1993, p10; Kings Place, 2014, p5).

Identifying an end date to Minimalism is a little easier: during the 1970s, it became more widely recognised, and began to be incorporated into the classical musical genre.

While the adaption of the name appears to have been simple, a concise definition of 'Minimalist' music is recognised by scholars as a difficult task, as noted by Kyle Gann, Potter and Pwyll ap Siôn, hindered in part by many composers having "disavowed" the term (Gann, Potter and ap Siôn, 2013, p3). Similarly, Dan Warburton suggests that,

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<sup>19</sup> More recent examples of Minimalist music in popular culture include Philip Glass's work on the drama *Mr. Robot* (2015-19), and the inclusion of Riley's *A Rainbow in Curved Air* in *Rockstar Games Grand Theft Auto IV* (2008).

[Minimalism] seems to be a name-tag that has no existence outside of question marks, and all minimalist composers are acutely conscious of its potentially misleading and even pejorative implications. (Warburton, 1988, p136-8)

Despite this, Young and Riley continue to be known as two of the “pioneers in the evolution of musical minimalism” (Potter, n.d.). Gann, Potter and ap Siôn note that, “no single technical criterion for minimalist music will suffice” other than there being a “general interest in a number of techniques, related but not easily reduced to a single principle” (Gann, Potter and ap Siôn, 2013, p4-6). They describe the stereotypical view of Minimal music as being “repetitive ... in which melodic or rhythmic figures are incessantly repeated, often with some gradual change taking place, like lengthening or phase-shifting”, while noting the incompleteness of this definition which fails to include other musical elements such as drones (Ibid., p3).

While Minimalist music was mostly associated with the USA, composers from other countries (for example, the UK, Belgium, Denmark, Hungary) began to experiment with similar methods and processes, sharing a “common interest in the auditory and psychological effects of certain static or slowed-down phenomena” (Ibid., p7). Maarten Bierens notes that European minimalist composers (such as Nyman and Arvo Pärt) “were active in a context that was more determined by Western Musical traditions ... than was the case in the USA”, and that “European minimalist-influenced compositions [such as those by Karel Goeyvaerts and Louis Andriessen] more openly take their position in relation to their cultural contexts” (Beirens, 2013, p62; 63).

Gann, Potter and ap Siôn note that between 1974-76 Minimalism began to be considered as more than an underground movement “when Glass’s *Einstein on the Beach* and Reich’s *Music for Eighteen Musicians* were premiered”, adding that, “in the early 1980s, minimalism shed its outsider status and went on to re-energize the classical music world itself” (Gann, Potter and ap Siôn, 2013, p2).

Minimalist music emphasises the simplicity of the concept and its production values. Modernist process and factory production was a central theme of both music and artworks of the period; for example, Morris’s *Box with the Sound of Its Own Making* which contained the echoes of its own construction, and the repetition of Young’s *arabic number (any integer) to Henry Flynt*.<sup>20</sup> Composers such as Reich laid bare the processes and methods of production, using tape looping, phase shifting and repetition in their works. Others, including Young and Riley, would embrace drones and other methods of creating and layering sounds to creative effect. Gann, Potter and ap Siôn state that “[t]he minimalism of the early 1960s ... was often deafeningly loud, gritty, unconventionally tuned and extended to lengths that challenged one’s attention span”, describing it as “the great success story of twentieth-century classical music: the ‘wacko’ avant-garde movement that went ‘legit’” (Gann, Potter and ap Siôn, 2013, pp2-3). They list the main features of Minimalist music as being harmonic stasis, repetition, drones, gradual process, steady beat, static instrumentation, metamusic, pure tuning

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<sup>20</sup> Who coincidentally conceived the term ‘Conceptual Art’.

and audible structure, while “emphasizing that no one of them can be found in all works we might want to term minimalist” (Ibid., pp4-6).

Within this investigation, repetition is presented as a transitional concept which links both Young and Riley with the Minimalist art movement of the period, referencing the large-scale sculptures of Andre, Morris and Judd, in which repeating physical shapes of different materials and textures feature. According to Mertens, for Riley, “the use of repetition results in the continuity of the uninterrupted process” while “Young’s use of continuity can be considered a particular form of repetition” (Mertens, 1980, p16).

Similarly, the use of sustained sounds and drones and the creation of a soundscape are here considered as the aural equivalent of the large scale sculptural ‘scenes’ created by Morris, Ronald Bladen and Fred Sandback. While Young is most notably associated with using drones, Riley has used gradual layering and tape loops to similar effect.

Repetition featured within the works of other Minimalist artists, including Sol Le Witt, whose works including *Two Open Modular Cubes/Half-Off* (1972) featured repeating images of square forms, and can also be related to Reich’s description of Minimalist music that featured “strong but ambiguous rhythms, shorter melodic patterns and a much slower rate of melodic change” (Reich, 2013, pxxiii).

It was not only the style of composition which could be identified as musically ‘Minimalist’ but the way that the works were performed, as exemplified by Gann, who considers “[m]any of the major minimalist works of the 1960s and 1970s ... to embody a new performance paradigm”, where,

works were often evening-length and suited to a listening mode more ambient and less formal than that of the standard classical-music concert; audience members might lie down or sit on the floor and could come and go as they pleased (Gann, 2013, p39).

This new performance style is identified as one of the three factors contributing to an expanded narrative in the three works by Young and Riley selected as case studies and detailed further in subsequent chapters. During such performances, composers would often issue a series of instructions to performers, with limited free reign to interpret the works in their own way. In a discussion of sonic art which appears to mirror the aspects of Minimalist music under discussion, Tony Gibbs notes that while electroacoustic works have traditionally been presented in concert halls, a more unconventional approach places these performances in non-traditional spaces such as clubs or galleries (Gibbs, 2007). This statement recognises the importance of the space when experiencing a sonically based work, a subject discussed further in chapter 1.

This thesis considers the elements of Minimalism which link the compositions of Young and Riley here presented as case studies more with the arts than music in the traditional sense. In this vein, Potter describes Minimalism as having a sense of “a cultural Other to ... ‘mainstream’ practice” and returning to the building blocks of music, drawing comparisons with the Minimalist art of the time, particularly the modular art works of Stella, Sol Le Witt, Morris and Richard Serra (Potter, 2013, p21).

The term 'audience' is usually applied to those attending performances traditionally held in concert auditoriums or theatres, while 'visitors' see visual art works in gallery



exhibitions. However, Claire Bishop notes that Minimalism as an artistic movement “had radical implications for the way art had hitherto been understood”, and “initiated an important shift in the viewer’s perception of the gallery space” as the location of artistic works, where audiences are required to physically enter an installation in order to experience it fully (Bishop, 2005, p54; p66). This suggests that artistic installations became holistic narratives in constructed spaces in a similar manner to theatrical performances with audiences rather than visitors.

#### VI.iii.b Minimal art

Rachel Rivenc suggests that the roots of the Minimal art movement “are to be found in some elements of the European Modernist legacy, namely formal reduction ... and [Marcel] Duchamp’s readymades” (Rivenc, 2016, pp12-13). Historically, the movement was preceded by the Abstract Expressionism of the 1940s and 1950s, which “established not only the independence of New York from Paris but its predominance” (Strickland, 1993, p3). According to Potter, Minimalist artworks (both as painting and sculpture), “proclaim[ed] not only a firm rejection of representational painting but also ... a rejection of the highly individualized and gestural outcomes” of this movement, which included such artists as Willem de Kooning and Jackson Pollock (Potter, 2013, p22).

Minimalism “arose in austere counterbalance” to the Op Art and Pop Art of the 1950s – 1960s (the former with a focus on technology and optical effects, and the latter with a lens placed firmly on popular culture), while the movement can be seen as an influence on later artists – for example the environmental art of Robert Smithson and sculptures

of Joel Shapiro of the 1970s and 1980s (Strickland, 1993, p3; p5). Chapters 4 and 5 consider forms of art which succeeded Minimalism from the 1970s onwards and can be seen to share elements of the concept of the expanded narrative.

Meyer describes Minimalism "not as a coherent movement but as a practical field" (Meyer, 2001, p6). Further to this, Fink notes that Minimalist artists "tended to avoid political statements ... the world of consumption and its ... signs", but rather chose to "align themselves with labor, not capital, and with overt imagery of production, not consumption" (Fink, 2005, px). This could be read as both a cultural and psychological freeing from the restraints imposed upon society and as an alignment with the public rather than those who may have sought to control them.

Strickland defines Minimal art as "prone to stasis ... and resistant to development", adding that it tended,

towards non-allusiveness and decontextualization from tradition, impersonality in tone, and flattening of perspective through emphasis on surfaces ... (Ibid., p7)

However, he notes the use of space by some artists (including Morris and Bladen), in turn calling back to the concept of the active audience navigating an active space (and thus the expanded narrative) considered within this thesis (Ibid., p261).

As principally a sculptural style, Minimalism has its roots in New York and Los Angeles. According to Barbara Rose, Minimalist artists "used standard units interchangeably" in order to "[set] up a measured, rhythmic beat in the work" (Rose, 1965, pp62-65). Rose describes Morris's "four identical mirrored boxes" as being "so elusive that they

appeared literally transparent”, while his “L-shape plywood pieces were demonstrations of both variability and interchangeability in the use of standard units” (Ibid.). While placing importance on a formal art object, Lucy Lippard notes that, “minimal art was ... anti-formalist in its nonrelational approach, its insistence on a neutralization of “composition” and other hierarchical distinctions” (Lippard, 2001, p5).

Meyers notes that the lack of emotion or intuition in these works contrast with the Abstract Expressionism of the preceding decades, and by its very placement on the walls or the floor of the gallery space they call attention to their existence and environment, “rendering the viewer conscious of moving through the space” (Meyers, 2000, p6). Rivenc notes that “Morris [in particular] ... regarded his work as purely sculptural and emphasized the participatory nature of the viewing experience ...” (Rivenc, 2016, pp12-13). In this way, Minimalist works stand apart from the ideas-driven Conceptual art of the period and share commonalities with both the active space and active audience as discussed within this thesis.

Sculptors such as Morris and Bladen created large-scale works from plywood which played with the notions of space and engagement, while other artists explored the potential of experience and navigation using other materials. Morris' *Untitled (Cloud)* (1962) is a large, grey square which was suspended from the gallery ceiling by wires as part of the *Plywood Show* in New York in 1964, where, as a collection, the objects required the audience to confront and navigate the gallery space, engaging with the sculptures as if they were part of the scenery/architecture upon a stage, an element of

the work which was criticised by Fried (see chapter 1.1.1). As LaBelle notes of these works,

the object no longer contains meaning as a private communication, but initiates meaning through activating space and perception ... (LaBelle, 2010, p80)

Bladen's *Three Elements* has a similarly theatrical presence. Three dramatic and imposing trapezoid structures stand in a row, seemingly defying gravity due to the angle at which they lean. The scale and placing of the sculptures invite the audience to walk around and take a closer look at the pieces, while the aluminium surface serves to attract, absorbing and softly reflecting the light. Sandback, by contrast, experimented with creating the suggestion of large objects using acrylic yarns which, according to Daniel Marzona in *Minimal Art*, "could appear and re-appear as the viewer walked towards them" (Marzona, 2004, p84). These works, together with others (including Andre's *Equivalent VIII* (1966) encouraged audience navigation and engagement by creating spaces-within-spaces in the gallery environment.

As Minimalism developed, differences became noticeable between the East and West Coasts. Rivenc notes that "[e]ven though exhibitions such as American Sculpture of the Sixties ... emphasized affinities between West Coast and East Coast artists, the Minimalist debate soon centered mostly around the works of New York artists Judd, Andre, Morris, Flavin, Ann Truitt, and Le Witt ..." (Rivenc, 2016, p13). While artists such as Morris and Andre encouraged the audience to engage with the physicality of their work (by moving around and through it), the Light and Space movement (also known as Finish Fetish) experimented with "immateriality and mutability by changing

colour, perceived shape or even disappearing as the viewer circumnavigates them” (Feldman, 2015, p27). Underlining the importance of this particular movement, Bernstein suggests that,

... although the minimalist movement thrived at the center of the New York “downtown” scene during the 1970s, it had actually begun a decade earlier on the West Coast, in a cultural environment that provided the ideal conditions for its emergence ... (Bernstein, 2008, p205)

The art of the Light and Space Movement, based in Los Angeles, has been described by curator Melissa E. Feldman as embracing “light, fog, shadows and colour, and materials that play with reflectivity and levels of transparency and highly reductive environmental installations”, identifying a shift within “the locus of meaning from the object to the experience; the crucial role of the participant/viewer; the primacy of perception; and the decentring or dematerializing of form in objects, installations and ... images via film, video and photography” (Feldman, 2015, p23).

Feldman notes that the embrace of “immaterial and experiential art”, “conducted light” and “architectural spaces” led to the development of installations which examined the way such works were experienced; and suggests that “the surf and car culture with their gleaming, obsessively maintained surfaces, and the ... palpable sunlight of California” played a key role in the growth of the movement (Ibid., p21). As stated by Feldman, there was a “philosophical shift ... in favour of the phenomenology of ... Maurice Merleau-Ponty, championed by Robert Irwin and others in the Los Angeles cohort, as opposed to the Cartesian rationalism that lingers in Minimalist ideology”

(Feldman, 2015, p23). At the same time, there was a move towards the creation of immersive, engaging work, leading to pieces such as Eric Orr’s *Zero Mass* (first created in 1969), and Larry Bell’s *The Iceberg and Its Shadow* (1974-75).

Table 1 compares the main features of both forms of Minimalist art on both the East and West Coasts of America during the 1960s:

<b>Minimalism (East Coast)</b>	<b>Light and Space Movement (West Coast)</b>
Material	Immaterial
Concrete	Indeterminate
Retinal	Sensorial
Anti-Illusion	Optical
Object-based	Ambient
Self-referencing	Situational, Experiential

*Table 1: Comparison of Minimalist artistic genres (based on Feldman, 2015, p21)*

Feldman notes the rift between both coasts, stating that “it was ... Judd and ... Morris who laid down the ground rules for Minimalism, rules that seemed to disqualify Light and Space art” (Ibid., p22). However, the artwork from both coasts was not mutually incompatible, as she points out that Morris’ “prop-like sculptural works of the 1960s ... insinuate time and the viewer’s moving body”, suggesting an embracing of some of the Light and Space movement’s aesthetics (Ibid., p23).

Parallels are evident between the traditionally repetitive nature of East Coast works, and the engaging, immersive works from the West Coast, and the work of the Minimalist composers Young and Riley who lived and worked in both areas during the 1960s. As Feldman notes, “[l]ong confined to Southern California, ambient elements such as light, fog, shadows and colour, and materials that play with reflectivity and

levels of transparency and highly reductive environmental installations have never been as ubiquitous in international art as they are now" (Feldman, 2015, p23). This understanding of engaging and immersive practice ties in with the case studies – notably *A Collaboration* and *Dream House* (see chapter 1.3 and 2.3 respectively), and the researcher's own works, *A-Wakening* and *The Lull* (see chapter 5.4).

The three case studies by Young and Riley have less in common with the formal style traditionally associated with Minimalism than with the more experiential Minimalism of the Light and Space Movement. Further, case studies 2 and 3 share commonalities with three other art styles of the period – Conceptual Art (being idea/experience driven), Fluxus (incorporating everyday objects and chance), and happenings (by placing the audience in a performative role). Adrian Henri observed that "Environments and happenings ... have a pedigree in most of the earlier art movements of [the twentieth] century", including Italian and Russian Futurism, Mixed media theatre, and the worker-artist collaboration of the Constructivist movement (Henri, 1974, p13). In this way, the performative and collaborative elements of the happenings may themselves have parallels with the notion of the *gesamtkunstwerk*.

According to Strickland, "[t]he border between Minimal and Conceptual art may be as tenuous in music as it is in the performing arts", citing Young's *Compositions 1960* as an example, for example #7, in which any number or combination of instruments are instructed to play two notes, B3 and F#4, for an extended period (Strickland, 1993, p139). Strickland notes that these "instruction pieces" were adopted by others, including Yoko Ono, who included some 'Line Pieces' in her 1970 edition of her

collection *Grapefruit*. One of these pieces contained the instruction "Draw a line with yourself. Go on drawing until you disappear" (Ibid., pp141-2). Strickland also notes that through his production of concerts at Ono's loft on 112 Chambers Street in 1960-61, which also featured Riley, Young became associated with the artists who would later be associated with the Fluxus movement (Ibid., p140).<sup>21</sup> Defining this movement as,

combin[ing] Cage, Dada, Artaud, Absurdism, and Spike Jones in a confrontational aesthetic with sadistic as well as Zen trappings (Ibid.)

Strickland notes that #15, purportedly comprising "little whirlpools in the middle of the ocean" was itself "dedicated ... to Richard Huelsenbeck, one of the original Dadaists" (Ibid., p138). According to Strickland, Young "found the pervasive element of destructiveness" of Fluxus "offensive" (Ibid., p141); however, the composer's links with the movement continued with the publication of *Compositions 1961* (or *LY 1961*) through Fluxus Special Editions in 1963, which took the form of a small, 9 x 9cm square book of 68 unnumbered pages stapled together with a paper cover.

The works by Young and Riley selected as case studies within this thesis are here situated not only as a product of the historical period, and in context to the artistic and musical genres which preceded and followed them – but as standalone works which

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<sup>21</sup> Strickland suggests that the first public performance associated with the Fluxus movement was Allan Kaprow's *Eighteen Happenings in Six Parts*, in October 1959. This performance took place at the Reubens Gallery in New York. He also notes that at this time the movement was not yet named Fluxus, although that term is inaccurately used to cover the whole period of the early 1960s in downtown art (Strickland, 1993, p141; p148).



challenge the notion of traditional composition and performance. While *Dream House* (see chapter 2.3) is described as a sound and light environment, and recognised for its immersive properties, this thesis seeks to place both *A Collaboration* (see chapter 1.3) and the *Time Lag Accumulator* (see chapter 3.5) within the lineage of immersive artistic experiences.

The expanded narrative is here shown to contribute to the immersive experience through the use of space, crossing disciplinary boundaries, and audience engagement. Through the presence of an active space (such as *Dream House* – see chapter 2.3), or a performative object (such as the *Time Lag Accumulator* – see chapter 3.5), a piece transcends the intention of the composer (or artist) and is completed by the presence (and subjective reading) of the audience. Jennie Gottschalk suggests that the experiential nature of experimental compositions present new realities along with (or in place of) those which are already known. Such music “has greater potential to resonate with the unique experience of each listener” if the composer resists placing their own meaning on it – a sentiment which is also true of art which actively seeks some form of engagement (and therefore experience) from its audience (Gottschalk, 2018, p5). In this way,

Psychoacoustic and otoacoustic phenomena challenge the concept of an objective, externalized sound construct. The work is completed only at the site of the unique psychology and physiology of the listener. If it is not heard, felt, and processed, it has not essentially taken place. (Ibid., p127)

Gottschalk describes the features of experimental music as indeterminacy, change, non-subjectivity, research, experience, and notes the difficulties of defining the genre.<sup>22</sup>

This parallels the difficulty in defining Minimal music as noted previously – and situates the three case studies by Young and Riley within this field. Perhaps the musical style most closely associated with the aleatorical work of Cage, the feature from this list of relevance to this thesis is the perceptual experience of the audience – which continues through the work of Oliveros and the researcher (as the fourth and fifth case studies respectively).

#### VI.iv Situating the expanded narrative within the arts and culture of 1960s USA

The move towards both the arts as experience, as a protest against established conventions, can be read as a response to the social and political landscape of the USA at a time of cultural immigration, prejudice, gender expectations, anti-war sentiment and increasing spiritual influence. This is borne out by Henri's observation that the roots of the art exhibition as a "total experience and a form of provocation" were established in the avant-garde Dada movement earlier in the century, associated in New York with artists including Man Ray and Marcel Duchamp, the latter of whom had moved to the area at the start of the first world war (Henri, 1974, p24). Additionally, Riley describes the "radical simplicity and hypnotic patterns" of his composition *In C* (1964) as "captur[ing] the spirit of an age that sought a return to the spiritual essence

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<sup>22</sup> The same could equally be said about experimental (and experiential) forms of art in the 1960s.

of life through social and political liberation” (Riley in Smith and Walker Smith, 1995, p227).

According to Riley, Minimalism ushered in a “new era of hope” (Ibid., p231). He describes the influence of Anton Webern and Arnold Schoenberg’s “gnarled, [and] anguished” music, and its time of creation as “a time of very great distress on the planet”, following the first world war and the discovery of the darkest parts of the mind through psychotherapy (Ibid., p232).

In contrast to Young and Riley’s move from the West to the East Coast of America, an influx of “culturally sophisticated émigrés” had moved to California to escape the second world war in Europe and the tensions that preceded it. While immigration to the USA was not a new phenomenon, artists and composers including Ray, Bertold Brecht, and Schoenberg had in part contributed to a more diverse creative landscape in North America, in which cultural shifts including the Beat Generation movement began to challenge the status quo (Rivenc, 2016, p2).

According to Bernstein, these cultural groups including poets, writers, composers and artists “formed an intellectual community [within San Francisco] that ... sought to break down boundaries between mass and elite culture” (Bernstein, 2008, p8):

This merging of radical and popular culture was an important social development during the 1960s. In general, the intellectual framework developed the avant-garde arts communities, which endorsed anti-establishment and experimentalist agendas, later took root on a much larger scale. (Ibid., p9)

This newly formed “intellectual framework” in turn “developed the avant-garde arts communities, which endorsed anti-establishment and experimentalist agendas” (Ibid., p9), a view supported by Riley, who noted that,

[a]fter World War Two there was a change in the climate, just before the 1960s – in my view the high point of the twentieth century in terms of really wanting to be free, to tear off the bonds of society which said you had to live a certain way or do certain things to be a valid individual. (Riley in Smith and Smith, 1995, p232)

Post-war technology coincided with economic prosperity which saw new materials and technology (including military surplus) become available for artists and composers alike, leading to “an environment of excess and experimentation” (Riley, 2008, p21).<sup>23</sup>

According to Lippard,

[t]he era of Conceptual art [which began in the mid-1960s] was also the era of the Civil Rights Movement, Vietnam, the Women’s Liberation Movement, and the counter-culture – was a real free-for-all, and the democratic implications of that phrase are fully appropriate, if never realized. (Lippard, 2001, pvii)

Civil rights were a topic of controversy during this period, with African American high school protests and race riots marring the decade despite legislation and the Civil Rights

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<sup>23</sup> The Great Depression occurred between 1929-39, commencing with the stock market crash of October 1929.

Act of 1964 being introduced;<sup>24</sup> a law which outlawed “discrimination or segregation on the ground of race, color, religion, or national origin” (Our Documents, n.d.).

In 1965, the USA joined the Vietnam War, leading to the development of the peace movement. The ‘Summer of Love’ centred in San Francisco in 1967, with events such as the *Monterey Pop Festival* and the *Human Be-In* rally drawing large crowds. The following year, 1968, is described by Van Gosse as a “a crucial fault line in American history” (Gosse, 1995, p660),

not only as a year of unexampled violence (the Tet Offensive, the assassinations of [Martin Luther] King and Robert F. Kennedy, the Chicago Democratic National Convention), but as the key moment of transition from the liberal-Democratic sixties ... to the reactionary-Republican sixties of Richard M. Nixon. (Ibid.)

Politically, socially, and artistically, there was a move to challenge perceptions and rise anew. New practices were developed which disrupted the flow of everyday life, such as Kaprow’s happenings – and those in a similar vein (for example, *City Scale* in affiliation with the San Francisco Tape Music Center) – which took place across parts of San Francisco in 1963.

Psychedelia was prevalent by the late 1960s. By 1967, the same year which saw the release of albums including Grateful Dead’s self-titled album and Jimi Hendrix’s *Are you Experienced?* Danny Goldberg notes that “the growing presence of non-Western spiritual and esoteric traditions [including the Maharishi, Hinduism, Buddhism, Hare

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<sup>24</sup> This Act was signed into law by President Lyndon Johnson in July 1964.

Krishna, Native American history and the I Ching] was part of the air that animated the hippie idea” among a section of the American population who was experiencing a “spiritual angst in the context of prosperity, modernity, and the echoes of World War II” (Goldberg, 2017, p208; p216).

It could be argued that, particularly on the East Coast, both these artistic disruptions and the psychedelic, free-spirited nature of the period (as exemplified by The *Woodstock Music and Arts Fair* which took place in 1969 in New York) led to the development of works which encouraged viewer engagement and/or participation – for example Andre’s *Equivalent VIII* (1966 – also known as *The Bricks*) and Morris’s *Untitled* plywood sculptures, which often forced engagement and participation through their placing in the gallery space, where the audience had no choice but to confront or engage with them to navigate the space. Additionally, artists from other disciplines, including painting – for example, James Rosenquist’s *FIII* (1964-5), and both Bell and Irwin, originally painters but moving towards installation and sculptural work during the 1960s as part of the Light and Space movement – experimented with space, scale, and placement, with the result that the audience no longer only observed the works, but now had little choice but to be engaged, surrounded, and immersed by such works. Audience engagement and immersion was further explored through exhibitions including the *Magic Theater* exhibition at the Kansas City Museum in 1968, which showcased environments at the intersection of arts and technology requiring audience participation, including Riley’s *Time Lag Accumulator* (see chapter 3.5), Boyd Mefferd’s *Strobe Lighted Floor* (1968), and Stephen Antonakos’s *Walk-on Neon* (1968). The East

Coast-based sound and light environments of Young and Zazeela are discussed in chapter 2, alongside *Dream House* which is presented as a case study (see chapter 2.3) and other examples of cross-disciplinary collaborations from the period.

Riley describes the climate during the 1960s as “one of hope, of deepening spirituality” which changed in the 1970s (Riley in Smith and Walker Smith, 1995, p232). According to Riley,

As far as I was concerned, by the time the public caught up with minimalism [in the 1970s], the real heart of the movement had gone. (Ibid.)

However, this latter decade is where the first part of the investigation ends, and the second begins, examining the legacy and the continued relevance of both the methods employed by Young and Riley, and the expanded narrative into contemporary artistic practice via the emergence and adoption of digital technology.

## CHAPTER 1:

### Active Space

The first element of the expanded narrative to be considered in terms of its relevance to the development of immersive relationship between audience and artwork is the active space. The creation (or organisation) of a space makes an important contribution to the value and effectiveness of the overall work and is considered in the context of La Monte Young and Terry Riley's early work. This chapter examines Young and Riley's use of non-traditional musical performance spaces during the 1960s, with specific regard to venues and media, which allowed for a more direct relationship between the audience and the work being performed/exhibited. *A Collaboration* (1969 – see 1.3) is presented as an example of a continuous event in which sound and other sensory experiences are combined with its environment to create a new form of immersive experience for its audience.

Within this chapter, Lucy Bullivant's discussion of the "transformative effect" of interactive installations and environments is presented alongside Rosalind Krauss's consideration of the architectural experiences of space in relation to other works of the period including Allan Kaprow's environments, the Light and Space movement, and composer Pauline Oliveros's sonic performances (Bullivant, 2007a).

As noted in the introduction to this thesis, the experimental performance styles of the 1960s shared much in common with those of John Cage (for example, the *Black Mountain Happening* and *4'33"* (both 1952)) and show a move towards more immersive



events and experiences placing the audience in more central and active roles. Edward Strickland noted Cage's influence on Young and Riley's experimental work, for example Young's *Compositions 1960* and Riley's *Ear Piece* (1962, see chapter 1.2); while Benjamin Piekut drew parallels between Cage and Young's search to redefine performance through the blurring of the boundaries between music and other media (Strickland, 1993; Piekut, 2011).

According to Kyle Gann, many Minimalist works from the 1960s and 1970s "embod[ied] a new performance paradigm" (Gann, 2013, p39). In a discussion of sonic art which appears to mirror some aspects of Minimalist music under discussion, Tony Gibbs notes a move away from traditional concert settings to unconventional spaces such as nightclubs or art galleries (Gibbs, 2007). According to Gann, these works were more suited to less formal spaces owing to the duration of the concerts, which "were often evening-length", thus enabling the audience to sit or lie and move around freely (Gann, 2013, p39).

Gann, Keith Potter and Pwyll ap Siôn describe the Minimalism of the early 1960s as "loud [and] gritty", with unconventional tuning and extended durations which "challenged one's attention span"; while the performance techniques of the period such as Young's loft concerts and Riley's all-night concerts and environments allowed for a more direct relationship between performer and audience within a less formal and relaxed setting (Gann, Potter and ap Siôn, 2013, p2). Within this investigation, the three works by Young and Riley identified as case studies are considered as audiovisual, multi-sensory, experiences; and the use of both extended duration and unconventional

tuning can be seen within both *A Collaboration* (see chapter 1.3) and *Dream House* (see chapter 2.3).

Both Potter and John Harle note the cultural “otherness” of Minimalism to the mainstream at the time. According to Potter, both musical and artistic Minimalism stood for a return to the “building blocks” of their respective disciplines; while Harle notes that the genre’s aesthetic was “essentially ... cross-disciplinary” (Potter, 2013, p21; Harle, 2013, p384). At the same time, composers associated with the genre were utilising non-traditional performance spaces – Philip Glass notes that “... no-one else would play the music ... the avenues for presenting new music were closed to us” (Glass in Smith and Walker Smith, 1995, p134). This suggests that the newly engaged and activated audience within these new spaces (see chapter 3.1) may have developed different expectations; and that open, or active spaces have allowed for and informed advances in artistic practice.

This investigation considers those works by Young and Riley which are featured as case studies within the thesis (*A Collaboration*, *Dream House* and the *Time Lag Accumulator* - see chapters 1.3, 2.3 and 3.5 respectively) to have more in common with the arts than music in the traditional sense; for example, the use of sustained sounds and drones and the creation of a soundscape, which are considered as the aural equivalent of the large-scale sculptural ‘scenes’ created by Morris, Ronald Bladen and Fred Sandback. The three works are also shown to have less in common with the formal style traditionally associated with Minimalism than with the more experiential Minimalism of the Light and Space Movement (see chapter 1.1). Additionally, the

contribution of Fluxus, the beginning of which both Young and Riley were exposed to during the early 1960s in New York, and the happenings (see chapter 3.2.2) should also be noted – themselves both making their own marks on participative and performative artistic experiences.

### 1.1 The active space

As discussed in the introduction to this thesis, the Light and Space artistic movement, which became established in Los Angeles during the 1960s, concerned aspects of light and material qualities, leading to the creation of experiential and environmental works which focused on the role of both the viewer/participant and the architectural spaces in which they were sited. While this movement was based on the West Coast at the time that Young and Riley were on the East Coast, the movement is relevant to this investigation regarding its emphasis on the use of space and its experiential qualities.

Artists associated with the Light and Space movement included James Turrell, whose projection pieces such as *Tycho White* (1967) involved controlled beams of directional light; and Larry Bell, who by the end of the 1960s had developed a method of making a series of large-scale works which brought the dimensions of the cubes and corners which fascinated him up to human scale, in the *Standing Walls* (including *Garst's Mind No. 2* (1971)). While artists associated with New York Minimalism such as Morris and Carl Andre encouraged the audience to engage with the physicality of their work (by moving around and through it), the Light and Space movement (also known as Finish Fetish) experimented with “immateriality and mutability by changing colour, perceived shape or even disappearing as the viewer circumnavigates them” (Feldman, 2015, p27).

As noted in the introduction to this thesis, the art of the Light and Space Movement embraced light, colour, and architecture, in the development of experiential and environmental installations. Curator Melissa E. Feldman describes a resultant shift in meaning “from the object to the experience”, placing the participant/viewer in a “crucial” and central role (Feldman, 2015, p23). Feldman notes that the resultant installations incorporated aspects of Merleau-Ponty’s phenomenology as a move away from “Cartesian rationalism” (Ibid.). Works associated with the movement include Eric Orr’s *Zero Mass* (first created in 1969), and Bell’s *The Iceberg and Its Shadow* (1974-75).

While Feldman contrasts the “immaterial”, “indeterminate” and “experiential” work of the Light and Space artists of the West Coast with the “material”, “concrete” and “object-based” work of the New York Minimalists, the use of space to encourage active engagement from the audience was also employed by artists including Morris and Bladen, with the former’s “prop-like sculptural works” used in such ways as to “insinuate time and the viewer’s moving body” (Feldman, 2015, p23). Both Morris and Bladen (along with many other sculptors, including Andre and Donald Judd) created architecturally scenographic spaces and structures within the gallery space, which the audience was forced to navigate (and thus engage with). In these examples, both the active space and active audience elements of the expanded narrative are evident.

The active space contributes to the immersive experience of an active audience (see chapter 3.1), whether it is a physical space or a virtual one – referencing the expanded narrative as identified in the introduction. This has parallels with what Bullivant terms

the “transformative effect” of interactive installations and environments (Bullivant, 2007a). According to Bullivant, such environments are “both ‘porous’ and ‘responsive’”, inviting the audience “to spontaneously perform and thereby construct alternative ... meanings” and she suggests that it is “the behavioural aspects – the unpredictable, ‘live’ quality of installations – that is compelling and with the active involvement of visitors ‘completes’ the identity of the work” (Ibid., p7). While these works often invited the audience to engage or interact with the space, others invited their audience to participate in a more peaceful, meditative way – such as Oliveros’s *Crow Two* (1974, see chapter 4.1.3) in which the composer led the audience in a guided meditation.

Oliveros, a contemporary of Young and Riley whose practice included examining the possibilities of the virtual environment, *Second Life*, as a collaborative and performative medium (see chapter 4.1.3), stated with regards to sonic performance that,

[v]arieties of music and acoustical spaces combine in symbiotic relationships that range from very limited to very powerful for the interweaving expressions of musical art, architecture and audiences. (Oliveros, 2006)

A further historic example of these kinds of active spaces is the ‘environment’ as developed by Allan Kaprow. Kaprow described his own environments as existing “for one or several persons to walk or crawl into, lie down, or sit in” (Kaprow et al., 1966, pp183-184). Further, these “[e]nvironments must be walked into” and were “generally quiet situations” which could change an audience’s “vantage point”, “[fill] an entire space or [evolve] one ... without restriction to conventional exhibition places”, enabling the audience to become “part of the whole” (Ibid.).

This understanding of engaging and immersive practice within purposefully organised and constructed spaces ties in with the three works by Young and Riley presented as case studies within this thesis – *A Collaboration*, *Dream House*, and the *Time Lag Accumulator*:

- While *A Collaboration* (see chapter 1.3) was performed in an auditorium with fixed stage and seating, the performers were able to manage the organisation of the lighting of the event (through Marian Zazeela’s light installation) and other factors, including the burning of incense in the venue
- *Dream House* (see chapter 2.3) has been shown in galleries and Young and Zazeela’s New York apartment building, allowing both to have full responsibility over the organisation of the lighting, audio and the setup of the environment
- Similarly, Riley’s *Time Lag Accumulator* (see chapter 3.5) was exhibited within a gallery and was a constructed physical installation in itself.

While *Dream House* (see chapter 2.3) and *A Collaboration* (see chapter 1.3) involved engaging three of the senses, the *Time Lag Accumulator* (see chapter 3.5) was a physical structure which the audience could actively interact with through their vocalisations, participating in both the content and the creation of meaning for the work.

The two new works featured within the final case study in chapter 5, *A-Wakening* and *The Lull* (see chapter 5.4), similarly occupy such constructed or organised active spaces – the former in a physical, black box theatre space and the latter in the commercial

virtual environment *Second Life* (while the virtual is placed as a contemporary form of active space, made possible by advances in technology, in chapter 4).

### 1.1.1 Constructed spaces

Minimalist music, for example Young's *arabic number (any integer) to Henry Flynt*, highlights both concept and production, in a manner which evoked both factory production and the Modernist processes of artworks of the period such as Morris's *Box with the Sound of Its Own Making* which included a recording of the construction of the physical work itself. In this way, Strickland draws parallels between the lines used by both Frank Stella and Young (for example, Stella's *Hyena Stomp* (1962) and Young's conceptual instruction piece *Composition 1960 #10 ("to Bob Morris")*, in which the performer is asked to "draw a straight line and follow it" (Strickland, 1993, p12). Equally, Strickland compares Young's "[use of] mathematics" with the "intervals within the serial placement" in Judd's sculpture (Ibid., p135). In this way, Minimalism placed importance on the essentials of music without what Riley terms unnecessary, "decoration", and in so doing provided the audience with a different aesthetic experience than they had previously been exposed to (Riley in Smith and Walker Smith, 1995, p231).

Architectural and spatial works such as *Dream House* (see chapter 2.3) combine audio, colour and light to create an immersive environment for the audience in a manner which links back to the shift towards what Feldman terms the "immaterial and experiential" work of the Light and Space Movement (Feldman, 2015, p18).

Krauss commented on this move towards considering the structural design of a space, considering in particular the work of Irwin, Serra, Bruce Nauman, and Christo, where,

there is some kind of intervention into the real space of architecture ... [which explores] a process of mapping the axiomatic features of the architectural experience – the abstract conditions of openness and closure – onto the reality of a given space. (Krauss, 1979, p41).

This consideration “with the actual circumstances in which the beholder encounters [the] work” was criticised by Michael Fried, using the term “beholder” to refer to the audience, traditionally a term associated with the passive gaze of the spectator (rather than an active role such as a participant):

The object, not the beholder, must remain the center or focus of the situation; but the situation itself belongs to the beholder – it is his situation ... [b]ut the things that are literalist works of art must somehow confront the beholder – they must, one might almost say, be placed not just in his space but in his way.

(Fried, 1967, p15)

According to Fried, Minimalist (or what he terms “literalist”) works are problematic because they distance the viewer “not just physically but psychically” (Ibid.). An example of such work would be the multiple angles from which works such as Morris’s large-scale sculptures are viewed, in which the artifact itself “no longer contains meaning as a private communication”, but instead “initiates meaning through activating space and perception” (LaBelle, 2010, p80). In this way, this investigation draws



parallels between *Dream House* (see chapter 2.3) where the building features as an objective space facilitating movement and perception, and the *Time Lag Accumulator* (see chapter 3.5), where both the installation itself and the wider exhibition environment as curated by Ralph T. Coe were designed to enable the action and engagement of the audience.

Therefore, it is precisely this consideration of the environment in which a work is sited and the experience of the constructed space as a whole (almost as if setting a scene for a theatrical performance), which engages the audience, who are able to share a space with the work and experience it in a more engaging way than, for example, framed works or small intricate sculptures, which would traditionally be placed on plinths in a space shared with the beholder. This sense of theatricality, and the more active, performative role of the audience is discussed further in chapter 3 and builds on the concept of the expanded narrative as forming the basis of new forms of relationships between audience and artwork. By identifying the parallels between this almost scenographic quality and the three works by Young and Riley presented as the first three case studies within this thesis, both composers are therefore presented as occupying a space within that which we retrospectively recognise as immersive and actively engaging works, with certain examples of their work thus situated within both performance and relational art and participatory practice (see chapter 3.2). Additionally, both embraced the technology available to them (from projectors to custom-designed structures) to enhance the experience of their work.

## 1.2 La Monte Young and Terry Riley's use of non-traditional performance spaces

While Young and Riley certainly performed in traditional music venues within the 1960s (Riley performed concerts between 1964-65 at the San Francisco Tape Music Centre, while *A Collaboration* (see chapter 1.3) was toured to Carnegie Hall in May 1969, three days after being performed at the Albright Knox Gallery in Buffalo, New York) these were notably in the minority. It is worth noting that during this period, Carnegie Hall was not the prominent venue it is today, being smaller and less established at this time. However, a return to the formal concert hall environment beyond the 1970s suggests that Minimalist music has by now been accepted into the mainstream, for example The Barbican, London has hosted performances by Young and Riley in 1997 and 2016 respectively.

An examination of many of Young and Riley's early performances as Minimalist composers (see tables 2 through 9) reveal that many of these events were taking place in art/music departments of colleges and universities, and art galleries. Of the venues listed, the majority (shown in bold) are either cultural organisations (museums, galleries, theatres and specialist organisations such as the San Francisco Tape Music Center and the Filmmakers' Cinematheque) or academic institutions, as in tables 2–6 below. This demonstrates that 'traditional concert venues' (here describing spaces to which audiences would traditionally visit to listen to musical performances) are clearly in the minority, with only two listed, evidencing the shift towards alternative spaces during the 1960s.

Firstly, the following are examples of spaces traditionally associated with the visual and performing arts – concert halls, theatres, galleries, radio stations and nightclubs:

<b>Year</b>	<b>Composer</b>	<b>Venue</b>	<b>Piece</b>
1965	Young	Carnegie Recital Hall, New York	<i>The Second Dream of the High-Tension Line Stepdown Transformer from the Four Dreams of China</i>
			<i>Composition no. 6 (1960)</i>
1967	Riley	Baird Recital Hall, Buffalo, New York	<i>In C</i>
		Carnegie Recital Hall, New York	<i>In C</i> (New York Premiere)
1968	Riley	Carnegie Recital Hall, New York	<i>In C</i>
1969	Young	Carnegie Recital Hall, New York	<i>4 III 69 from Map of 49's Dream of the Two Systems of Eleven Sets of Galactic Intervals</i>
	Riley	Carnegie Recital Hall, New York	<i>Kundalini Dervish</i>
1970	Riley	Baird Recital Hall, New York	<i>Dorian Reeds</i>

Table 2: Spaces traditionally associated with musical performances

<b>Year</b>	<b>Composer</b>	<b>Venue</b>	<b>Piece</b>
1964	Young	Pocket Theater, Third Avenue, New York	<i>The Tortoise Droning Selected Pitches from The Holy Numbers for the Two Black Tigers, The Green Tiger and The Hermit</i>
			<i>The Tortoise Recalling the Drone of the Holy Numbers as They were Revealed in The Dreams of The Whirlwind and the Obsidian Gong and Illuminated by The Sawmill, The Green Sawtooth Ocelot and the High-Tension Line Stepdown Transformer</i>
1968	Young	Plaza Theater, Barbizon	<i>Map of 49's Dream</i>

Table 3: Spaces traditionally associated with theatrical performances

<b>Year</b>	<b>Composer</b>	<b>Venue</b>	<b>Piece</b>
1963	Young	Galerie Heiner Friedrich, Munich, Germany	<i>17 XII 63 the Fire is a Mirror</i>

<b>Year</b>	<b>Composer</b>	<b>Venue</b>	<b>Piece</b>
1965	Young	Albright-Knox Art Gallery, Buffalo, New York	<i>The Second Dream of the High-Tension Line Stepdown Transformer from the Four Dreams of China</i>
			<i>Composition no. 6 (1960)</i>
1966	Riley	Something Else Gallery, New York	<i>Concerto for Two Pianists and Tape Recorders</i>
1968	Riley	Nelson Atkins Gallery, Kansas	<i>Time Lag Accumulator</i>
	Young	Museum of Modern Art, New York	<i>Music and Light Box</i>
1969	Young	Munich Art Gallery	<i>Dream House</i>
	Young	Albright-Knox Art Gallery, Buffalo, New York	<i>4 III 69 from Map of 49's Dream of the Two Systems of Eleven Sets of Galactic Intervals</i>
	Riley	Albright-Knox Art Gallery, Buffalo, New York	<i>Kundalini Dervish</i>

Table 4: Spaces traditionally associated with the visual arts

<b>Year</b>	<b>Composer</b>	<b>Venue</b>	<b>Piece</b>
1967?	Riley	Radio station in Sweden	<i>In C</i>

Table 5: Spaces traditionally associated with the broadcast of music

<b>Year</b>	<b>Composer</b>	<b>Venue</b>	<b>Piece</b>
1967?	Riley	Electric Factory, Philadelphia	<i>You're No Good</i>

Table 6: Spaces traditionally associated with dancing and musical performances

Secondly, table 7 is gives examples of the use of space within further and higher educational institutions:

<b>Year</b>	<b>Composer</b>	<b>Venue</b>	<b>Piece</b>
1964	Young	Philadelphia College of Art	<i>Prelude for a (to a?) Tortoise</i>
1965	Riley	Cabrillo College, Santa Cruz, California	<i>Autumn Leaves</i>
			<i>R &amp; R</i>
1967	Riley	Nacka School of Music, Stockholm	<i>Olson III</i>
		University of Illinois	<i>Kundalini Dervish</i>
1968	Riley	State University of New York, Buffalo, New York	<i>Poppy Nogood and the Phantom Band'</i>

Year	Composer	Venue	Piece
			<i>'Environment' for Intermedia '68</i>
1969	Riley	Notre Dame University, South Bend, Indiana	<i>Kundalini Dervish</i>
1970	Riley	SUNYAB, New York <sup>25</sup>	<i>Excerpt from 'Blue Eyed Jungle Carousel'</i>
	Young	School of Continuing Education, New York	<i>12 I 64 first twelve Sunday Morning Blues</i>
			<i>20 x 63 day of the autumn feast Sunday Morning Blues</i>
			<i>23 I 70 7:35 - 8:40PM Houston from Map of 49's Dream The Two Systems of Eleven Sets of Galactic Intervals</i>
	Rice University, Houston	<i>Dream House</i>	

Table 7: Spaces within educational institutions

Thirdly, table 8 gives examples of 'experimental' venues, here defined as comprising those housing emerging groups of creative artists:

Year	Composer	Venue	Piece
1964	Riley	San Francisco Tape Music Center	<i>In C (premiere)</i>
			<i>Music for 'The Gift'</i>
			<i>Coule (Keyboard Study no 1) (premiere)</i>
			<i>Shoeshine</i>
			<i>I</i>
			<i>In Ab or is it Bb</i>
1965	Riley	San Francisco Tape Music Center	<i>Tread on the Trail</i>
		Filmmakers' Cinematheque, 41st Street, Wurlitzer Building, New York	<i>I (for 'Sames')</i>
			<i>It's Me (for 'Sames')</i>
			<i>That's Not You (for 'Sames')</i>
	<i>Sames</i>		
Young	Filmmakers' Cinematheque, 41st Street, Wurlitzer Building, New York	<i>The Tortoise</i>	

<sup>25</sup> The State University of New York at Buffalo.

<b>Year</b>	<b>Composer</b>	<b>Venue</b>	<b>Piece</b>
1966	Young	Filmmakers' Cinematheque, 41st Street, Wurlitzer Building, New York	(Unknown)

Table 8: Spaces associated with emerging groups of creative artists

Finally, table 9 provides examples of private residential accommodation and unknown venues:

<b>Year</b>	<b>Composer</b>	<b>Venue</b>	<b>Piece</b>
1962	Riley	Various, San Francisco	<i>The Gift (film)</i>
1963	Riley	Rented chateau, Paris	<i>Music for 'The Gift'</i>

Table 9: Private residential accommodation and unknown venues

The use of non-traditional spaces is here suggested to have led to experimentation with new forms of composition/performance. One performance that stood out from the examples in the tables above for its interdisciplinary nature was that of Young and Riley at the Albright-Knox Art Gallery in May 1969. A concert of continuous music performed by Young and Riley, together with Zazeela and Jon Hassell entitled *A Collaboration*, it featured a light installation by Zazeela, and the burning of incense. This performance is further discussed in chapter 1.3.

Further research revealed two further works which allowed for the audience to have some control over their experience – *Dream House* and the *Time Lag Accumulator* (see chapters 2.3 and 3.5 respectively). Following in the same vein as 'non-traditional spaces', these works could be termed 'non-traditional performances', suggesting that

they were specifically designed to create an immersive or active experience for the audience using specific methods of engagement.

- *Dream House* (see chapter 2.3) allowed free movement from the audience
- Riley's *Time Lag Accumulator* (see chapter 3.5) encouraged participative action

During the 1960s, both Young and Riley were demonstrating that their own compositions could be placed alongside other forms of art and could hold their own within a gallery or other non-traditional setting. While the following performances may not have involved the same degree of audience experience or action, they are worth noting for their cross-disciplinary nature, a topic which is discussed further in chapter 2:

- Riley's collaboration with Ken Dewey and Otto Donner on *Helsinki Street Piece* in 1963, which was "staged all over Helsinki, with musical performances, poetry recitals [and] marching bands" (Strickland, 1993, p149).
- Riley's involvement with the *Arts in Fusion* exhibition, initially held at Taylor School of Art of Temple University, Philadelphia, in 1966, after which the exhibition moved to Dick Higgins' Something Else Gallery.<sup>26</sup>
- Riley's inclusion in the *Intermedia '68* series of concerts in April 1968. These late-night events and environments took place across college venues in New York, including the Brooklyn Academy of Music.
- Young and Zazeela's *Music and Light Box*, exhibited in the touring exhibition *The Machine as Seen at the End of the Mechanical Age* which began at the Museum

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<sup>26</sup> *Intermedia* as a concept is discussed in more detail in chapter 2.

of Modern Art (MoMA) in 1968. Both presented *Sound and Light: A Program of Electronic Music and Light Works* as part of the same exhibition.

- Young and Zazeela's collaborative performance *Sound and Light*, part of the *Sundays at Three* series of concerts at the School of Continuing Education at New York University in October 1970.

This investigation concludes that the use of alternative spaces both influenced the experience of the work and reframed the relationship between composition, performance and audience as understood by the concept of the expanded narrative. As a result, the audience was now able to view the performance closer and more informally than previously possible within the traditional concert hall, as evidenced by the cushions made available to sit on within the *Dream House* (see chapter 2.3).

Examples of Young and Riley's published works further demonstrate the shift from the passive activity of watching a performance towards an active audience 'experience' to which the term 'immersive' can be applied retrospectively (a move which is discussed further in chapter 3). These pieces were (or appeared in) a physical, tangible form, which could be engaged with as a more intimate, personal experience – for example, within the comfort of one's own home – as with a personal recording of a musical composition. However, while a recording is designed for the passive listener/receiver, a printed text is designed for sight, and to be physically held or controlled. The latter may also take the form of instructions, inviting the reader to follow instructions to perform or complete the work – as with Riley's *Ear Piece* (1962), in which a visitor



places an object of their choosing onto their ear before creating sounds by interacting with the object).

Young's art book, *An Anthology of Chance Operations*, was published with Jackson MacLow in 1963 and included works by Cage, Higgins, George Brecht, Henry Flynt, Yoko Ono and Nam June Paik, alongside Young's own *Compositions 1960* and Riley's *Ear Piece* (1962). The combination of works included are reminiscent of the events which Young was curating at the time, including performances at Ono's Chamber Street loft. Further printed work by Young included an untitled text in *Dream Sheet*, a folded publication edited by poet Diane Wakoski in 1965, which included writings by Brecht, Duane Locke and MacLow.

In 1968, works by both Young and Riley were published in issues 3 and 4 of *Shit Must Stop* (S.M.S.), the art periodical established by artist and collector William Copley. The third issue featured a cassette recording of Riley's *Poppy Nogoods All Night Flight (The First Ascent)* alongside works including Higgins' *Ode to London* and Ray's *The Father of Mona Lisa*. The fourth edition of the publication included a cassette recording of Young and Zazeela's *Drift Study 4:37:405:09:50 5 VIII 68*, alongside Cage's *Diary: How to Improve the World (You Will Only Make Matters Worse)* and Roy Lichtenstein's *Folded Hat*, among other works. Young's *Dream Music* and Riley's *Keyboard Study #2* were included in the ninth edition of the avant-garde publication *Aspen* in 1970, alongside works including Zazeela's calligraphic work *The Soul of The Word*.

*A Collaboration* (see chapter 1.3) is presented as a case study to consider how constructing a performance space facilitates an expanded narrative and offers an

immersive experience at a time when an increasing number of composers of the period “sought to control the environment in which their music was performed” (Levine Packer, 2010, p4).<sup>27</sup> This work was selected to illustrate how an expanded narrative leading to a sense of immersion was created and enhanced through the engagement of multiple senses while remaining in the traditional concert format of a fixed stage and seating area (albeit within a gallery space affiliated with a University campus).

It should be noted, however, that there is no evidence to suggest that either Young or Riley were concerned with creating an immersive experience at this point. Rather it is a term which is being applied retrospectively. The basis for this claim arises from a quote from Riley in the *Buffalo Courier Express* in advance of the performance of *A Collaboration*, revealing his interest in “opening up a new concert situation ... to get away from a rigid audience structure where people are confined in rows of seats”, towards a situation where the audience is “listening in an open space, where they could move around” (Riley in Puttnam, 1969a, p26). It is further supported by Renée Levine Packer (administrator and later co-director of the Center of the Creative Arts at the State University of New York at Buffalo (SUNYAB), which facilitated the *Evenings for New Music* series of concerts, including *A Collaboration*), who through email correspondence, has noted that she felt that the performance “was definitely immersive”, adding that “[o]ne did feel part of another zone”, and that “Zazeela's [light

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<sup>27</sup> Packer's text recognises the move away from concert halls to “[l]oft spaces, art galleries, atria, outdoor sites” during the 1960s, noting that “even a swimming pool might be required” (Levine Packer, 2010).

installation] had a great deal to do with that [experience]" (Levine Packer in email conversation, 25 August 2016) (see appendix A).

### 1.3 Case Study 1: *LaMonteYoung&MarianZazeelaTerryRileyJonHassell: A Collaboration* (1969)

*A Collaboration* was a continuous performance of sound and light originally presented at the Albright Knox Gallery in Buffalo, New York on 3<sup>rd</sup> May 1969, at 8.30pm, and was curated by Riley while Creative Associate at the Center.

The Center was established by Lukas Foss and Alan Sapp with financial assistance from the Rockefeller foundation and was prominent in shaping and promoting new and innovative music of the period, generating radical approaches to music, space and the performer/audience relationship. Levine Packer was both administrator of the Center with Foss and Sapp, and later co-director with Jan Williams and Morton Feldman, and notes that the institution attracted "a group of talented individuals ... each drawn to Buffalo by the idea of finding new ways to make and think about music" (Levine Packer, 2010, p3). The *Evenings for New Music* concerts existed as a form of 'touring' performance series, with works often initially performed at the Albright-Knox Art Gallery before moving on to other venues including Carnegie Hall.

It is not known what proportion of the audience were traditional concertgoers, academic staff or students or what their expectations of the event would have been (although the printed reviews after the event seem to have been less than favourable – see p93-94); however, the placing of the performance in a non-traditional space would suggest some potential to create a more experimental and innovative experience.

While there would be a limited amount of free movement within a fixed seating format, and so the audience for this work cannot be termed truly 'active' in the sense presented by this thesis, the organisation and consideration of the space can be seen as lending itself to new forms of performance and engagement. In this way, the length and style of the performance was such that a certain degree of movement (and thus control over the subjective experience) was perhaps inevitable. Furthermore, the engagement of three senses makes up for this, to create a constructed immersive environment or active space.

Describing the scene which greeted the arriving audience, almost as if as an artistic installation, Levine Packer notes that:

[o]ne heard the sound even before one entered the darkened, amplifier-strewn auditorium. Mauve and green Indian-inspired filigree projections bathed the walls on either side of the stage. Incense permeated the space. (Levine Packer, 2010, p93)

Neither the program nor the promotional flyer for the event allude to the multidisciplinary nature of the performances or to the presence of incense within the venue which Levine Packer describes. However, they provide an impression of the style and tone of the works themselves.

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*A Collaboration* is here considered as an example of an immersive environment where audience experience is enhanced through the engagement of multiple senses within a

organised performative space. The performance itself could stand alone, but it is the presence of the audience which completes the work and allows it to exist in its intended form.

By presenting (at least) the first piece on the programme as a combination of sound, visuals and scent, *A Collaboration* engaged multiple senses while the length of the event (two hours and forty-five minutes, running from 8.15pm until 11.00pm continuously) would have resulted in some movement by the audience. However, the newspaper reviews of the concert suggest this movement may not have been intended to improve or further their experience. As journalist Herman Trotter noted in his article entitled *Creative Associates Offer Mod Thrust at the Curious*, not everyone appreciated the spectacle. Referring to Young's piece, he noted that,

[a]s novelty progressed to unrelieved tedium, people began filtering out, forming conversation groups in the auditorium. (Trotter, 1969)<sup>28</sup>

Equally critical, another journalist Thomas Puttnam titled his review of the concert *Young's Drone Music is Too Loud for Some*. In his account of the performance, he noted that,

Young drove a good many people from the auditorium ... with his loud electronic drone music, which was the opening section of the "Evenings for New Music" continuous music program. (Puttnam, 1969b, p11)

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<sup>28</sup> The original clipping had no page number included and I have been unable to locate this information to date.

Puttnam noted the presence of the projections and incense, which he understood “must have been meant as sedative to the music.” However, he adds that “there was no relief without retreating to the outer halls of the gallery”, where even here “[y]ou couldn’t shake it and even outside in the car, two pieces later, the sounds droned on” (Ibid.).

Yet another negative review, written by Harold C. Schoenberg for the *New York Times*, acknowledged the movement of the audience within the concert, again in an unflattering manner, claiming that “[p]eople walked in, blanched, stood it for a while, and walked out” (Schoenberg, 1969).<sup>29</sup> Schoenberg’s review is similarly unfavourable towards Riley’s piece, which he describes as “earsplitting ... as though a dozen 100-watt amplifiers were operating at full load” (Ibid.).

This investigation establishes that the presence of an audience within an active space in which at least two senses are engaged – in this case aural (the performed compositions), visual (Zazeela’s light installation), and olfactory (the scent of incense within the venue) – contributes to the development of an immersive experience through the concept of the expanded narrative.

*A Collaboration* addresses three out of the five senses (aural, visual and olfactory). The audience’s aural sense was engaged through the performance of three pieces of music composed and performed by Young, Riley and Hassell:

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<sup>29</sup> The original clipping included no page numbers and I have been unable to locate this information to date.

Engaging a visual sense, Zazeela performed her light installation *Ornamental Lightyears Tracery*. The auditorium was simultaneously filled with the scent of burning incense, engaging the olfactory senses of the audience, and although the seats in the auditorium were fixed, audience members were able to move freely throughout the performance, thereby having some degree of control over their own experience. The use of incense in *A Collaboration* could be suggested to have some association with the concept of a religious ritual or meditative environment, given that both Young and Riley followed the spiritual teachings of Pandit Pran Nath.<sup>30</sup> Similarly, the scent may have been used to create a specific mood to set the tone of the event. Scent through incense is also a defining feature of Young and Zazeela's *Dream House*, which features as the second case study within this thesis in Chapter 2 (see chapter 2.3).

*A Collaboration* is here presented as a crucial event in the history of immersive multi-sensory works. By combining two innovative methods of audience engagement: multi-sensory elements and the potential for audience movement, an environment is created where the audience is effectively invited to 'step into' the constructed active space as a form of escape to an alternate reality for the duration of the performance.

At this point, it is relevant to consider to what extent, despite the name of the performance, the performance was actually 'collaborative'. The concert programme and the flyer for the event suggest that each composition was performed separately and individually – while there was some crossover between composers in the performance

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<sup>30</sup> While Young and Riley knew Pran Nath by this time, they did not become his disciples until the following year (1970).

of the pieces – with Zazeela’s *Ornamental Lightyears Tracery* listed underneath Young’s composition in the programme. However, a sketched diagram with some notes has been provided by the Music Department at SUNYAB, which suggests that the light installation in fact remained in situ for the whole of the concert, together with the burning of the incense, suggesting a more unified and holistic approach (see figure 4). As Levine Packer notes, “As I recall ... Zazeela's light installation ‘tracery’ remained visible throughout the concert – not just for [Young’s] piece” (Levine Packer in email

*IMAGE REDACTED AS UNABLE TO OBTAIN PERMISSION TO USE*

conversation, 3 February 2016).

*Figure 4: LaMonteYoung&MarianZazeelaTerryRileyJonHassell: A Collaboration*

The legacy of the active space, as evident within the early works of Young and Riley presented as case studies within this thesis (*A Collaboration*, *Dream House*, and the *Time Lag Accumulator*, see chapters 1.3, 2.3 and 3.5 respectively), the works of the



Light and Space Movement (see chapter 1.1), Fluxus, and the happenings (see chapter 3.2.2) remains present in contemporary practice. While this is examined in more detail in chapter 4, together with the contribution of the computing technology innovations of the late twentieth century, it is nevertheless a fitting conclusion to this chapter to include a discussion on how technological advancements later led to new forms of interactive and immersive experiences.

#### 1.4. Technology supported spectacle: the legacy of the active space

Frank Popper notes the legacy of spectator participation and interactivity which was left by movements such as Futurism and Constructivism, which towards the end of the twentieth century evolved through the incorporation of computers and sensors.

According to Popper,

technological art can (...) be illustrated ... through analysis of the transformation that was effected when they passed from a simple invitation to participate to an appeal for a more elaborate interactive involvement. (Popper, 1993, p8)

In his text, Popper refers to the work of Tom De Witt, whose *Pantomation* system (1977) foregrounded such motion-sensing devices as Microsoft's *Kinect* through a tracking and chromakey system, and Nelson L. Max, whose work *Carla's Island* (1982-3) enabled audience real-time modification of environmental parameters including the colour of the sky and the position of the sun. The relationship between a person and their experience is expanded to consider the separation between the physical, real world, which is tactile and sensory, and the comparatively disembodied world of the virtual or unreal (see chapter 4.1.2). According to Bonnie Mitchell, contemporary artists

have “[capitalized] on the psychological power of immersion” by “[creating] immersive spaces that enable the audience to escape to other realms and experience genuine emotional responses” (Mitchell, 2010, p99). Artists who have embraced advances in technology in the production of such work, leading to new methods of engaging audiences, include Jeffrey Shaw, Laurie Anderson and Char Davies.

Shaw defines the computer as a window through which digitally constructed works can be accessed (Shaw, 1992). He notes that artificial scenarios (such as installations or environments) are able to be created in virtual space which have the potential to alter the perception of those who experience them and “free the participant from a single, fixed point of view” (Ibid., p133). Through his works *Inventer la Terre* (1987) and *Legible City* (1989), Shaw creates spaces where technology can extend the possibilities of physical place by allowing the audience to travel beyond the screen into the digitally mediated space beyond, creating a “space of interaction between the image and the spectator” (Ibid.). Elizabeth K. Menon also describes the action within this computer-human realm as being shaped by the audience’s relationship with a work, a topic which is further explored in chapter 4.3.2 (Menon, 2007).

Shaw’s works *The Narrative Landscape* (1985) and *Going to the Heart of the Center of the Garden of Delights* (1986) allow the audience to define their own experience through the operation of a joystick and infrared sensors respectively, as a pertinent example of how the concept of the expanded narrative can be used to explain new relationships between audience and artwork here shown as being evident since the 1960s. Works such as these suggest that real-time interaction is key to engaging

participants, and that through intuitive interfaces the transition between the everyday familiar space and that of the digitally presented artwork is eased. For Shaw's work, the visitor remains outside of the screen while Anderson constructs immersive mixed reality installations, a method used within *A-Wakening* (see chapter 5.4).

Anderson is a composer and visual artist who is "known primarily for her multimedia presentations" (Anderson, 2019). Her virtual reality installation *To The Moon* (2018), developed in collaboration with Hsin-Chien Huang "is a work in two parts: a dreamlike VR experience that takes us on our own lunar exploration, and an accompanying installation with film, images and music" (Manchester International Festival, 2019). The exhibition allows the audience to "traverse numerous lunar landscapes, encountering rubbish sent from Earth, or enjoying a donkey ride in space" (Still, 2019). Describing the installation as a form of escapism from the screens which are ubiquitous within contemporary life, Anderson notes that,

It's a very good time to be creating new realities. The moon is a great subject for that – it's a great way to investigate the unreal ... (Anderson *in* Still, 2019)

Taking the notion of a constructed environment further, Davies' work creates the perception of the visitor being inside the computer through her use of virtual reality to juxtapose the natural with the artificial experience; examining consciousness as felt experience and suggesting that by enabling what she terms an 'immersant' to inhabit an alternative, computer-generated, virtual space, their perception may be altered.

In one example of Davies' work, *Osmose* (1995), the 'immersant' is required to experience the virtual space as if it were an actual physical space, through a head-mounted display, using breathing, movement and balance (Davies, 1997, p295). Both the physicality of movement and direct visual involvement enable the visitor to be embodied within the virtual space, while the technological apparatus of sensors and headset enable unrealistic actions such as moving up through the 'air' to see the code which creates the world, closely inspecting leaves and moving down through the water to see what life exists in the pools. This full-bodied yet encumbered engagement lends itself to a direct experience of constructed space, as compared to the more disassociated activity of grasping the perception of embodiment through an avatar. Similarly, the artist's vision and ability to build their own worlds to be inhabited by the audience stands in contrast to the use of commercially available virtual spaces such as *Second Life* (see chapter 4.1.2).

Jason Warren describes methods of creating immersive environments in his text *Creating Worlds*, suggesting self-contained spaces which further a narrative, and which allow for the audience to take on an active, performative role. As Warren notes,

An (interactive world) is free-roaming, allowing the audience to move through the space however they wish. It also gives weight to their actions and choices, often to the extent of allowing them to influence the end of the story. (Warren, 2017, pxii)

This extension of the audience/artwork relationship towards the expanded narrative relationship of audience/artwork/environment discussed above is further addressed by

Michael Smyth, who suggests that constructed environments “enable the experience of the concept they depict in the fullest sense” (Smyth, 2007, p148). By referring to works including Maurice Agis’ *Spaceplace* (1966-67) and *Dreamspace* (1996), Smyth alludes to the importance of free control over exploration as part of audience experience.

In works which allow the juxtaposition of real and virtual spaces, artworks exist in the virtual version which do not and cannot exist physically: three-dimensional objects suspended in space float through walls, while moving text appears to move behind picture frames. It is in this space between the actual and virtual that Shaw sees the potential for artistic experimentation:

This location of the virtual space in a contiguous relationship with the real space establishes a discourse ... between the virtual and the actual ... It is here that I believe the most interesting and challenging opportunities for artistic propositions exist. (Shaw, 1992, p136)

Such technological advancements are not solely the preserve of the visual arts and are equally at the root of continued innovation in composition and musical performance.

According to Dani Admiss, “[t]echnological innovation has long been associated with the avant-garde in music”, in that,

[a]s viewing experiences cross over to multiple mobile devices, musicians are choosing to work with artists to ... present their work, connect with larger audiences and allow their fans to contribute” (Admiss, 2014, pp148-149).

Both Young and Riley have incorporated technological elements within their work, for example in the constant presence and amplification of the drones within *Dream House* (see chapter 2.3.1), and in the development of the *Time Lag Accumulator* installation (see chapter 3.5). Oliveros also embraced the virtual within her work, performing (and recreating) pieces within *Second Life*, which are discussed further within the fourth case study in this thesis (see chapter 4.1.3).

Today, audiences of both artistic and musical events recognise the overlaps between multiple mediums – concerts are often accompanied by visual effects (such as Glass's *Heroes Symphony* at the Glastonbury Festival in 2016, performed alongside *iy\_project* by Chris Levine) and artworks often contain audio elements (as with Kurt Hentschläger's *Zee* (2008)). Both sound and vision come together to create something else entirely, an experience – which can then be further enhanced by the addition of other sensorial stimuli or the ability to navigate a space – thereby taking some control of the experience. Similarly, there is an understanding of how to behave or what to expect when an audience is presented with an immersive environment or installation, showing just how much audience behaviour and preconceptions have moved on since the 1960s.

As an audience, we are used to approaching an installation as something to be navigated/experienced, so we are comfortable with the notion of walking around and engaging with the space. This contrasts with the different expectations of the traditional music audience who are used to sitting or standing still in order to fully experience a work. As this investigation proves, the expanded narrative allows for new

forms of relationship to develop between audience and artwork/performance – particularly in the case of this chapter, in relation to the space in which it is sited – which herald a new way of both experiencing sonic works, and in expecting how they should be presented in order to remain current and relevant to contemporary audiences.

### 1.5 Conclusion

This chapter presents the active space as integral to the development of an immersive experience through the presence of an expanded narrative. Keith Potter suggests that Minimalism's lasting legacy is "to have painted the way towards the erosion of cultural as well as purely musical barriers ..." (Potter, 2013, p32). This investigation further argues for the continuing relevance of the themes and methods employed by Minimalist composers and artists, in particular perception and experience, to contemporary artists. The 2016 touring exhibition *Another Minimalism* showcased the work of several artists related to the Light and Space Movement whose work invites audience engagement and interaction. Similarly, artworks which encourage audience movement and/or participation include Pippilotti Rist's installations which require the viewer to place themselves in the 'correct' position to view her video works, and the *Colourscape* "walk-in environments" which allow free movement within the space (Eye Music Trust, n.d. c). The legacy of Minimalism and of the active space can also be seen in the work of artists that include Robert Smithson's environmental works (for example, *Spiral Jetty* (1970)) and Joel Shapiro's sculptures (for example, *Untitled 1980-1981*). Other examples of work which continue to attract audiences today and inspire contemporary audiences

include Turrell's *Skyspaces* (1974- ), which exist primarily as architectural light installations but have recently been utilised for their sonic properties by composer Robert Curgenvén (*Climata* (2016)); and Irwin's garden designs (for example, his 2001 design for the West Garden of Dia: Beacon), which are intended for installation/experience outside among the natural elements. While each are organised by their creators to a certain extent, the experience of each work varies with different lighting, temperature, and audience numbers.

The focus on Young and Riley within this investigation reflects their evolution as multidisciplinary, innovative composers, whose performances allow the audience to effectively become 'part of' or to 'complete' the work. The investigation therefore sets their compositions in a new narrative context, reflecting its broader contextual framework and its primary relationship to the visual art community rather than the concert hall, and the uncharted interactions between composer and artist. Multimedia spectacles reinforce the continued relevance of considering the placing and the physical construction of the work, as much as its content, referencing the concepts of both Richard Wagner's *gesamtkunstwerk*, and László Moholy-Nagy's more technologically augmented Theatre of Totality, as discussed in the introduction. An example of this is Cage and Lejaren Hiller's *HPSCHD* (1969), which took the form of an audio-visual environment which rewarded the active exploration of the audience (see chapter 3.1). As noted in the introduction to this thesis, the expanded narrative requires three elements (active space, cross-disciplinary collaboration, and an active audience) to be present in order to allow for an immersive relationship between audience and artwork.



The next chapter will discuss how both composers' collaboration with those from other disciplines contributed to their catalogue of immersive, engaging, multi-sensory works and performances.

## CHAPTER 2:

### Cross-Disciplinary Collaboration

The second element of the expanded narrative presented in this thesis in terms of its relevance to the development of immersive relationship between audience and artwork is cross-disciplinary collaboration.

As discussed in the introduction to this thesis, three factors are required to be present in order to create an expanded narrative and to facilitate immersion: an active space (see chapter 1), an active audience (see chapter 3), and at least two senses to be engaged (through cross-disciplinary collaboration). Building on chapter 1, which showed that the performance techniques of the 1950s and 1960s laid the ground for an expanded narrative as exemplified by crossovers between art and music. For example, La Monte Young and Terry Riley published their scores in *Aspen*, and Young's *Compositions 1960* can be understood as a series of directions for performers – partnership and involvement of specialists from other disciplines (within both the arts and wider technological disciplines such as the sciences and engineering) enable the creation of new forms of space. Through being more than the sum of their parts, these spaces facilitate a more immersive relationship between the audience and artwork, and such cross-disciplinary and multi-sensory works suggest the concept of intermedia as conceived by Dick Higgins to describe works which fall between traditional mediums (Higgins, 1965).

In this way, the three early works by Young and Riley which feature as case studies within this thesis (*A Collaboration*, *Dream House*, and the *Time Lag Accumulator*, see chapters 1.3, 2.3, and 3.5 respectively) are presented as examples of such – in that they all feature aural and visual components, with *A Collaboration*, *Dream House* also incorporating olfactory elements, and both *Dream House* and the *Time Lag Accumulator* encouraging the movement (and in the case of the latter, active participation) of the audience. By examining Young and Riley’s cross-disciplinary collaboration during the 1960s, this chapter considers how such partnerships allowed for a more diverse body of work to be created, which encouraged an active audience experience.

During 1959-60, Young and Riley “functioned as a performance duo ... experiment[ing] with many ways of making sounds” (MELA Foundation, n.d. d), while usually collaborating with others. Around this time, Young and Riley were also Musical Directors for choreographer Anna Halprin’s Dance Company, and both “frequently performed together in Riley’s composition *Concerto for Two Pianists and Tape Recorders* [(1961)]” (Ibid.). The two composers went on to perform at many of the same venues during the 1960s, including the Albright-Knox Art Gallery in New York (see chapter 1.3). Of note to this investigation, both composers also worked with visual artists during the period, such as Marian Zazeela, Ken Dewey and Robert Whitman (see appendix B).

Young and Riley’s early works were concerned with the manner of reception of their pieces. By embracing ideas from other disciplines for new forms of engagement within their early works and working with others to construct spaces for an audience using

lights, sound (and in some cases, scent), these works mirrored the cultural shift at the time towards cross-disciplinary performance and multimedia. In particular, Young's collaborations with Zazeela (such as *Dream House* (1969) – see chapter 2.3) are described by Adrien Henri as,

long, ritual music-events consisting of electronic sound with live music played over a sustained note, and light-projections added: a hypnotic, timeless flow owing much to oriental influence. (Henri, 1974, p157)

*Dream House* and the *Time Lag Accumulator* (1968) (see chapter 3.5) are presented within this thesis as two examples of innovative, cross-disciplinary collaborative works – the first being an organised audiovisual environment, while the latter is a constructed space where the audience contributed vocalisations, which were relayed to and joined by those of others within the installation. Other examples of works which blur the traditional boundaries of art and music dating from the same period include *HPSCHD* (1969), the large multimedia environmental work developed by John Cage and Lejaren Hiller (see chapter 3.1), and the San Francisco Tape Music Centre-led *City Scale* (1963), in which the audience encountered artworks and experiences around the city.

This growth beyond the purely aural, by adding visual and other elements, is connected to the concept of the expanded narrative (as presented in the introduction, section I) and is further extended through both Young and Riley's use of technology.

## 2.1 Cross-disciplinary collaboration

As mentioned in the introduction to this thesis, the cultural trends of the 1960s could be seen to have led to the development of engaging and immersive artforms. Similarly, interdisciplinarity and collaboration are suggested to be a reaction to the social and political backdrop at the time. In their text *Technocrats of the Imagination*, John Beck and Ryan Bishop describe interdisciplinarity and collaboration as products of the “anxieties” and “existential dread” arising from increasing conformity and control during the 1950s and the threat of the atomic bomb, together with a “widespread celebration of mastery and expertise” (Beck and Bishop, 2020, p4). They note that “cybernetics and systems thinking” (see chapter 3.2.1) were applied beyond their military origins and were combined with “other approaches to conceptualizing totality, such as Gestalt theory” (Ibid.).

According to Beck and Bishop, this “chimed with the broad contours of the historical avant-garde’s challenge to bourgeois art” (Ibid., p5). This chapter recognises the interdisciplinarity within the arts during the 1960s, which occurred,

namely through a rejection of individual genius and a stress on collective practice; a commitment to experimentation and process over outcome; a dismissal of medium specificity and a dismantling of the distinction between art and non-art, or, in other words, between art and life.” (Ibid.)

Within this investigation, the concept of collaboration is broadened to include both works created as a ‘coming together’ of multiple artistic or non-artistic disciplines, and those where the works themselves require some form of collaboration between

audience and artwork. Examples of the latter include Riley's *Time Lag Accumulator* (see chapter 3.5) and *Ear Piece* (1962, see chapter 1.2), some of Young's *Compositions 1960* (for example, #4 and #6, which both frame the action of the audience as the work itself) and to some extent *Dream House* (see chapter 2.3) in that it is an environmental installation into which the visitor walks in order to experience it.

Young and Riley are highlighted through this investigation for their innovative and engaging early works, which borrow much from the experimental, performative and participative arts of the period and which subvert the roles of audience and performer. Edward Strickland further notes that these composers began collaborating almost immediately after meeting at Berkeley in 1960, and their early collaborations included roles as musical directors of Halprin's Dancers Workshop (established in San Francisco in the 1950s).

The next sections consider two forms of cross-disciplinary collaboration of particular relevance to this investigation – firstly, collaboration between composer and the visual arts (together with Young's long-time collaboration with partner Zazeela), and secondly, between composer and technology (including Billy Klüver's Experiments in Art and Technology (E.A.T.) as an archetypal arts and technology collaboration of the time). The latter theme also extends throughout the latter half of this thesis in that the crossover between arts and technology remains relevant (and even essential) into the second decade of the twenty-first century.

### 2.1.1 Collaboration with the visual arts

During the early 1960s, Riley was associated with the Fluxus group and involved in street theatre and happenings while composing his own works, including *Ear Piece* (1962, see chapter 1.2), which was later published in Young and Jackson MacLow's *An Anthology of Chance Operations*. In 1963, Riley collaborated with Ken Dewey and Otto Donner in *Helsinki Street Piece*, which was "staged all over Helsinki, with musical performances, poetry recitals, marching bands, etc." (Strickland, 1993, p149).

In November 1965, Riley presented *Sames* alongside the *Ken Dewey Action Theater* at The Filmmakers Cinematheque in New York, and in 1966 Young's compositions were performed alongside imagery as part of The Filmmakers Cinematheque's *Expanded Cinema* series of events, which also featured artists including Jack Smith and Robert Whitman. Riley's work *Concert for Two Pianists and Tape Recorders* featured in the May 1966 exhibition *The Arts in Fusion* at Dick Higgins' *Something Else Gallery* in New York.<sup>31</sup>

In 1967, drones by Young accompanied three films by Andy Warhol at the Fifth New York/Film Festival at the Lincoln Center in New York. In November of the same year, Riley held his first all night concert at the Courtyard Studio of Philadelphia College of Art, entitled *The Music of Terry Riley: An All Night Flight/The Parametric Music of Terry Riley*. With a duration of 8 hours and 30 minutes, the concert lasted from 10.00pm

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<sup>31</sup> Previously, the exhibition was held at the Tyler School of Art at Temple University in Philadelphia, including the work of artists including Dieter Roth, George Brecht, John Cage, Dick Higgins and Jackson MacLow.

until sunrise the following day.<sup>32</sup> Further all-night events would see the composer collaborating with artist Robert Benson, with whom he also developed an environment for *Intermedia '68: A Festival for New York State*, which was exhibited in venues across America including the State University of New York at Buffalo (SUNYAB) and Brooklyn Academy of Music and involved artists including Paik, Dewey, Allan Kaprow, and Carolee Schneeman. Riley and Benson's environment "consisted of a 'tiny maze of sound chambers and mirrored rooms which contained microphones to capture fragments of conversation and automatically arrange them into sound collages of repeated patterns'" (quoted in Potter, 2000, p134).

Zazeela's lighting installations often provided the visual accompaniment for Young's solo performances, including *Ornamental Lightyears Tracery* at Young's *Sound and Light* concert in October 1970 at the New York University School of Continuing Education, part of the *Sundays at Three* series of concerts and film screenings. The same installation formed part of the continuous music event, *A Collaboration*, discussed in chapter 1.3). Young and Zazeela's audiovisual collaboration is here considered as contributing to the expanded narrative, engaging the audience through the creation of an organised environment in which to experience a work.

#### 2.1.1.a La Monte Young and Marian Zazeela

Young and Zazeela have collaborated prolifically for over fifty years, with Zazeela designing light and sculptural works in order to complement Young's compositions and

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<sup>32</sup> A cassette recording would later be released, entitled Poppy Nogood's *All Night Flight (The First Ascent)*. It is understood that this concert led to Riley being commissioned to create 'You're Nogood', a 'theme' for the Electric Factory nightclub.



in performances by the Theatre for Eternal Music since 1965 (Grimshaw, 2011). Their collaboration enabled a mood to be set which not only enhanced the performance of musicians but which also placed the audience in a position to more fully experience the work. Of their partnership, Young states,

I found at a very early stage in my performing career that the lighting could make all the difference in the world ... As we worked together in our studio we evolved a type of light environment we felt we could perform best in and which helped the audience to get in the mood we wanted. (Young in Pelinski, 1980, p8)

It is worth noting at this point the relevance of lighting in setting a mood. As Frank H. Mahnke states in his text, *Color, Environment and Human Response*, the presence and location of colour within an interior space,

can make a great deal of difference in influencing a room's character, the way it is perceived psychologically, and subsequent reactions to it. (Mahnke, 1996, p66)

Mahnke describes the colour pink as having calming, "comforting", and "intimate" properties – close in proximity to the magenta employed by Zazeela. This colour could conceivably be used to create a relaxed atmosphere – a suggestion additionally borne out by the use of incense within some works. According to Mahnke, and evoking Gestalt psychology, colour can also be used to stimulate sensory engagement and synaesthesia in that they "may evoke associations with odor and taste ... give tactile impressions [and] be associated with sound" in that "loud noises, strong odors, and strong tastes make the eye more sensitive to green and less sensitive to red" (Ibid.,

p72; p74). Mahnke lists pink as being one of the colours that “hold pleasant associations with smell” and suggests that violet and crimson, “have a velvety appearance” (Ibid., p75; p76).

Since 1967, Young and Zazeela have worked on a series of sound and light environments within physical spaces, including *Dream House* (see chapter 2.3). Together they have performed Young’s compositions and as part of the Theater of Eternal Music (formed in 1962, with Zazeela designing lighting installations for the group’s performances) including performances of *The Tortoise, His Dreams and Journeys* (1964) at the *New Cinema I Festival* (known as the Expanded Cinema Festival) at The Filmmaker’s Cinematheque in 1965.<sup>33</sup>

Young and Zazeela’s collaboration is characterised by a holistic, theatrical approach which foregrounds the contemporary immersive audience-centric performances of theatre companies such as Punchdrunk (see chapter 5.2). According to a quote which appears in Young and Zazeela’s text *Notes on The Theatre of Eternal Music and The Tortoise, His Dreams and Journeys*, Zazeela describes her collaborations with Young as follows,

As a performer, I had a part assigned to me by La Monte and improvised by me during the course of any performance. I was also completely responsible for the visual aspects of the presentations, including the costumes, lighting and staging,

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<sup>33</sup> together with Riley, Hassell, Terry Jennings, Angus MacLise, Tony Conrad, John Cale, Jon Gibson, Lee Konitz and David Rosenboom.

and usually I created the flyers and announcements as well. (Young and Zazeela, 2000, p23)

Young and Zazeela extended their repertoire by creating sculptural multi-sensory objects. In 1967, American philanthropist and photographer Betty Freeman commissioned Zazeela "to create a light and sound object" in collaboration with Young in 1967 (Mela Foundation, n.d. b). The resultant work, *Music and Light Box* (1968), was exhibited as part of *The Machine at the End of the Mechanical Age*, at the Museum of Modern Art, New York between November 1968 and February 1969, curated by K.G. Pontus Hultén (itself a collaboration between the gallery and E.A.T. to showcase technology in art – see 2.1.2.a). The exhibition later toured to the University of St. Thomas, Houston and the San Francisco Museum of Art, and included works by Marcel Duchamp, Alexander Calder and Vladimir Tatlin.<sup>34</sup> According to the catalogue for the exhibition, Hultén noted that "[w]hen connected to any standard monophonic or stereo hi-fi system ... [Music and Light Box] produce[d] a continuous, periodic, composite sound-waveform environment" (Hultén, 1968, p196). Hultén further describes his experience of this piece, as a visitor to it:

[w]hen one moves around a room in which this music and light sculpture is functioning, the vibrations of the sound waves can be felt as well as heard. At some places in the room, the sound almost disappears, because it goes over

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<sup>34</sup> Listed as 'Title To Be Determined' in catalogue p196.

one's head; elsewhere it becomes very strong, because it passes at ear level.

(Ibid.)

These vibrations parallel what Frances Dyson describes as the vibrational phenomenal characteristics of sound, which “coordinate with the physiology of the ears, to create a perceptual experience” in a manner which leads to the immersion of the listener in an environment (see chapter 3.4.1). *Music and Light Box* (1968) subsequently featured in the *Summer of Love* exhibition at the Whitney Museum in 2007, suggesting its continued relevance to contemporary practice, as with the most recent exhibitions of both *Dream House* and the *Time Lag Accumulator*, which are discussed in chapter 5.

Other works from the period which rely on audience participation included Simone Forti's *Rollers* (1960) shown at the Reuben Gallery, New York, in which the artist and dancer together with her collaborator Patty Oldenburg sang while being pulled around the exhibition space by visitors. By contrast, Robert Rauschenberg's combine *Broadcast* (1959) incorporated three concealed radios. While the audience was able to interact with the controllers protruding through the painting, the radios were set to simultaneously be controlled by each to ensure continual variation in frequency and volume. *Broadcast* was exhibited as part of the 1966 *Sound, Light Silence: Art that Performs* exhibition, curated by Ralph T. Coe (who would later curate the Magic Theater exhibition featuring Riley's *Time Lag Accumulator* – see chapter 3.5). According to Coe, art had historically been “produced by waves between tensions both physical and mental”, which until this exhibition had been limited in their application (Coe, 1966, p4). To address this, he suggested that,

[t]o define these stimuli visually ... neon tubing, vibrating steel, sonic tapes, cinematic projection could be employed as *technics* in dealing with the different senses simultaneously. (Ibid.)

As with Mahnke's description of the use of colour, this would suggest a synaesthetic quality arising from the engagement of multiple senses. Coe also described an emerging form of "art as communication", in which the experience resides in the effect on the audience rather than within the work itself (Ibid.). In this way, the relevance of the audience as receptor is established, predating the more active role that they would play in his 1968 exhibition – and in particular within the *Time Lag Accumulator*, which is considered in detail in chapter 3.5).

Reflecting the move at the time towards acknowledging a more active audience and more engaging artworks, some artists and composers turned towards technology in the pursuit of innovative, experimental work. As the next section shows, Young and Riley were no exception.

### 2.1.2 Collaboration with technology

The *Time Lag Accumulator* installation (1968 – see chapter 3.5) was a collaboration between Riley and Ron Steinhilber (later Stuart Hutchison), which was exhibited within *The Magic Theater* exhibition at the Nelson-Atkins Museum of Art in Kansas City, Missouri (see chapter 3.5).<sup>35</sup> The links between this exhibition and new multi-sensory, cross-disciplinary forms are evidenced by Coe, who noted that artists of the time

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<sup>35</sup> Known as the Nelson Gallery of Art and the Atkins Museum at the time.

“[work] beyond formal laws of painting or sculpture in that [they] can ... command many media – among them essences (color), elements (electricity), or gases (neon)” (Coe, 1970, p13), and that,

[the artists'] format can be tailored to fit the arena of experience he wishes to promote. He is no longer bound by paints, brushes, marble, chisels or pen ... he can reach beyond his own limitations ... (Ibid.).<sup>36</sup>

This cross-disciplinary way of working evidenced that sound was at the artists' disposal. However, it could equally be claimed that visual art was at the composer's disposal. In this manner, the sculptural installation presentation of the *Time Lag Accumulator* (see chapter 3.5) has more in common with visual art than more traditional forms of performance of compositions. The engagement of multiple senses is thus crucial to the audience experience.

Returning to the theme of collaboration between the arts and technology, Manoli Moriarty describes Cage's *Variations V* (1965) as "... arguably the first performance to feature technologically facilitated interaction between music and dance" (Moriarty, 2020, p124).<sup>37</sup> This work was a collaboration between Cage and Merce Cunningham, and consisted of indeterminate audio facilitated by engineers Klüver and Robert Moog, who developed a system by which the movement of the dancers triggered "the transport controls of several tape machines storing Cage's sound palette" (Ibid.).

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<sup>36</sup> The *Magic Theater* follows on from Coe's *Sound, Light, Silence: Art that Performs* exhibition of Pop and Op Art in November 1966.

<sup>37</sup> Young and Riley also collaborated with choreographers – as exemplified by their work with Anna Halprin.

Both Young and Riley were associated with E.A.T., an organisation set up in New York in 1967 by Klüver, Whitman, Fred Waldhauer, and Robert Rauschenberg to “push technology to its limits” where art was concerned,

to consider not only what it could do to art, but more importantly, how artists could reshape and reform the essence of technology through their artistic processes (Kholeif, 2016, p28)

Additionally, Young and Riley appeared alongside performers and artists including Zazeela, Whitman, and David Tudor as part of E.A.T.’s benefit performance *American Artists in India*, in December 1970.<sup>38</sup>

#### 2.1.2.a Experiments in Arts and Technology

Beck and Bishop suggest that the growth of American art after the Second World War, and in particular New York as an artistic centre, “elevate[d] the self-image of American artists and aligned them with the perceived cutting edge of American innovation” (Ibid.). According to Beck and Bishop, collaborations between engineers and artists at Bell dated to the 1930s, when,

engineer Harvey Fletcher worked with composer Leopold Stokowski on stereophonic sound, and the labs’ research on speech, hearing, and visual perception had a hand in the development of sound in films and the beginnings of television. (Beck and Bishop, 2020, p82)

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<sup>38</sup> The same year in which Young, Riley and Zazeela began studying under and performing with North Indian Raga vocalist Pandit Pran Nath until his passing in 1996.

Beck and Bishop note that Klüver joined Bell Labs in 1958 and became associated with the New York arts scene, including working with Jean Tinguely on *Homage to New York* (1960). In 1966, Klüver and Rauschenberg developed a series of events to show how engineers and artists could work together – The *9 Evenings: Theatre and Engineering* events in 1966 inspired both to form E.A.T., together with Waldhauer (also of Bell labs) and Whitman – and composers involved with these events included Cage and Tudor.

Two years later, E.A.T. ran a competition for art and technology collaborations, alongside the Museum of Modern Art's exhibition *The Machine as Seen at the End of the Mechanical Age* (which included Young and Zazeela's *Music and Light Box* (1968 – see 2.1.1.a)). The resultant exhibition, *Some More Beginnings: An Exhibition of Submitted Works Involving Technical Materials and Processes*, was presented at the Brooklyn Museum in 1969.

E.A.T.'s activities beyond the 1960s included the 1970 *Pepsi Pavilion* at *Expo'70*, Osaka Prefecture, Japan, which "was envisaged as a rolling program of artist-led immersive environments" (Beck and Bishop, 2020, p97). Further, *American Artists in India* was a cultural exchange "which allowed artists to travel and work [in India] for a month" in 1970-71 (Beck and Bishop, 2020, p105). According to Beck and Bishop, participants included both Young, Riley, and Zazeela, together with dancers and choreographers Trisha Brown, Steve Paxton, and Yvonne Rainer; composer Lowell Cross; and visual artists Jared Bark, Jeffrey Lew, and Kate Redicker (Ibid.). In 1972, Klüver published a book with E.A.T. newsletter editor Julie Martin and art critic Barbara Rose. Entitled *Pavilion*, it included "accounts by artists and engineers on the innovations they



developed during the process” of creating the *Pepsi Pavilion* alongside the proposals received from artists and composers, including Young and Riley, Kaprow, Pauline Oliveros, and Alvin Lucier (Ibid., p98).

The crossover between arts and technology could arguably form an extension of Higgins’ concept of intermedia. Coined in 1978 to describe works which fall between two or more artforms, the term is applied here to the works of both composers involving cross-disciplinary collaboration with others.

## 2.2 Intermedia

Higgins’ concept of intermedia dates from the 1960s and concerns interdisciplinary artistic activities, which “fall between” traditional (single) mediums (Higgins, 1978, p12). Writing retrospectively about the 1960s, Ken Friedman supports Higgins’ concept of the genre by describing intermedia as “an art that lies on the edge of boundaries between forms and media” (Friedman, 2005, p52). Artists named by Higgins as creating intermedial works include John Heartfield, who he described as “invading the land between collage and photography”, and Duchamp, whose works Higgins saw as existing “between sculpture and something else” (Higgins, 1978, p14).

Randall Packer and Ken Jordan describe intermedia as “a myriad of emerging genres that spilled across the boundaries of traditional media” through which “any available object or experience can be incorporated into the artwork” (Packer and Jordan, 2002, p28). The development of intermedia coincided with the growth of institutions such as the San Francisco Tape Music Center, which championed experimental cross-disciplinary

work, much as the Black Mountain College had done previously.<sup>39</sup> Robert J. Gluck states that “[d]uring the 1960s and 1970s, New York City’s “Downtown” was a center for the development of electronic music within the context of multimedia arts” (Gluck, 2012, p50), listing Cunningham’s Dance Company (and associated composers, such as Cage), Fluxus, Kaprow’s happenings, and E.A.T. as some of the major multimedia activities occurring at the time (see chapter 2.1.2). Gluck cites Morton Subotnick’s move from San Francisco to New York in 1966 as “[paving] the way for the development of a new center of activity [in Greenwich Village] including the Electric Circus, a new multi-sensory venue” (Ibid.) As Gluck notes, Subotnick was involved in many cross-disciplinary cultural organisations in San Francisco before his move, including the San Francisco Tape Music Center, the San Francisco Mime Troupe,<sup>40</sup> and Halprin’s Dance Company. The Electric Circus hosted a regular series of concerts, *Electric Ear*, featuring “electronic musicians and multimedia artists” including performances by Riley (Ibid., p54).

These intermedia arts acted “as a meeting and mixing place for the traditional arts”, and in so doing, “[assumed] their own identity” (Frank, 2005, p17). Peter Frank stated that this fusing of the arts began after the Second World War, although he notes that it can also be viewed as a ‘re-fusion’ of arts which were separated in part during the Renaissance and Baroque periods, and the later establishment of academies for

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<sup>39</sup> During the period between 1933 and 1957. Other musicians associated with the centre included Riley and Pauline Oliveros, who is discussed further within chapter 4.4.1.

<sup>40</sup> Other musicians associated with the Troupe included Steve Reich.

individual artistic disciplines included the "School of Arts Intermedia Program" at the New York University, which,

attracted a cadre of young composers ... among them Charlemagne Palestine, Rhys Chatham, Éliane Radigue ... Maryanne Amacher ... [whose] work spanned a wide range of approaches, among them ... live electronic music and multimedia, early forms of what later came to be called minimalism, interactive sound and art installation (Ibid., p52).

Today, interest in such courses continue with institutions such as the University of Edinburgh (UK) and Lund University (Sweden) running undergraduate courses in the subject (The University of Edinburgh, n.d.; Lund University, n.d.).

Ursula Bertram demonstrates how the understanding of intermedia has evolved over time, classifying the genre as "an attitude of mind" and noting that "[a] sub-section ... the New Media, results from a new structure of thought and action" (Bertram, 2005, p271).<sup>41</sup> According to Bertram, the "16 statements on the fixing of a non-fixable medium" (which define intermedia) are as follows:

- Intermedia is in between [*sic*].
- Intermedia means turning one's back on compartmental thinking.
- Intermedia means turning away from the idea of adapting work to material.
- Intermedia does not mean using different disciplines to illustrate a theme.
- Intermedia is the synergy of possibilities.

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<sup>41</sup> As a form of new media predating the digitally augmented new media of the 1990s.

- Intermedia is artistic thinking in every discipline.
- Intermedia is a palette with no hierarchical structure.
- Intermedia is a child of its time.
- Intermedia is by its essence temporary.
- Intermedia does not obey the laws of statics.
- Intermedia is de-constructive.
- Intermedia means thinking athwart and beyond.
- Intermedia abolishes linear thinking.
- Intermedia links worlds.
- Intermedia gives no answers, but asks questions.
- Intermedia has reached its sell-by date as soon as it has developed a normative structure of its own.

(Ibid.)

To realise the works presented as case studies, this investigation states that both Young and Riley needed to work with others. The resultant intermedial forms also suggests an expanded narrative beyond that of the classic reception of a musical composition, where an audience sat still, facing the performers, and listened passively.

Both interdisciplinary collaboration and the concept of intermedia as defined by Higgins (see chapter 2.2) exemplify an expanded narrative resulting in an immersive environment for the audience. *Dream House* is an immersive multi-sensory environment created by Young and Zazeela, here presented as a case study to consider how collaboration (in this case between a composer and a visual artist) facilitates an

expanded narrative and offers an immersive experience (see chapter 2.3). The case study supports the research findings that an active space (see chapter 1), an active audience (see chapter 3), and interdisciplinary or intermedial collaborations (to engage multiple senses, as considered within this chapter) need to be present in order for an expanded narrative to be created, and in doing so envelop an audience in an immersive experience. *Dream House* is an intended audiovisual environment recognised for its immersive nature, taking the form of a constructed space containing aural and visual (and olfactory) stimuli which also allows for freedom of audience movement. Originating in the 1960s, the work remains exhibited today, demonstrating its continued relevance and interest to audiences and scholars alike.

### 2.3 Case Study 2: *Dream House* (1969)

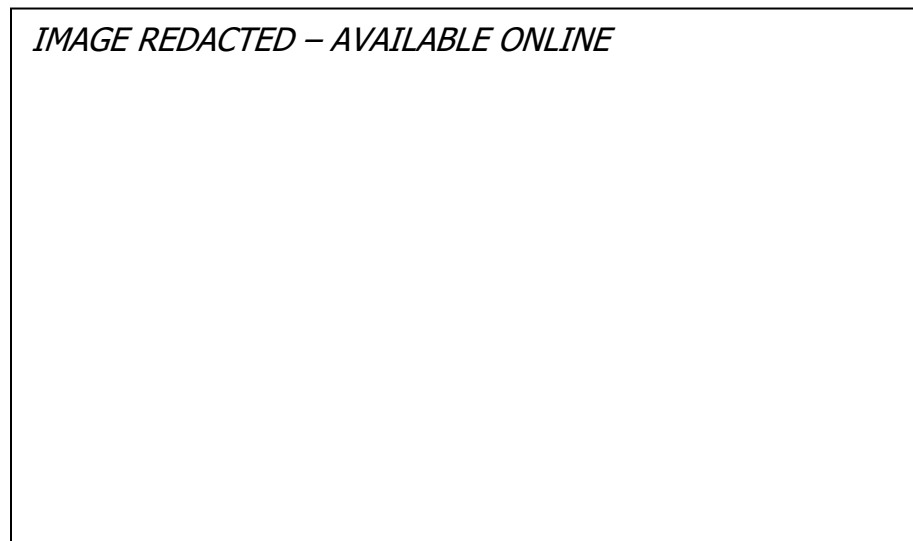
In his book *Draw a Straight Line and Follow It: The Music and Mysticism of La Monte Young* (the title taken from the text of Young's *Compositions 1960 #10*); Jeremy Grimshaw describes the *Dream House* as an extension of Young's search to "get inside of a sound". He also refers to Young's concept of the spatialization of music, which "[o]ver the course of the 1960s and '70s ... became less a poetic description and increasingly a straightforward assertion" (Grimshaw, 2011, p114). As Grimshaw notes,

It stands to reason that, in attempting to release music from the perceptual frame of time, Young's work should align itself so closely with the architectural and the visual. (Ibid., p115)

Young's biography states that the concept of the *Dream House* was "formulated" in 1962, with each version of the environment described as "a permanent space with

sound and light environments in which a work would be played continuously” (Mela Foundation, n.d. a). While Grimshaw notes that the environment is “limited to the geographic space of what is, essentially, a large studio apartment”, he also comments on the atmosphere within the space being “meditative and otherworldly” (Grimshaw, 2011, p120; p121).

The first public exhibition of the work took place at the Galerie Heiner Friedrich in July 1969, following which it has been exhibited in different forms and locations until 1993, when it was installed at the MELA Foundation, 275 Church Street, New York (see figure 5), where it remains at the time of writing.<sup>42</sup>



*Figure 5: Dream House at 275 Church Street New York*

Grimshaw notes that against a backdrop of Young’s compositions,

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<sup>42</sup> Where in recent years the installation has incorporated compositions and artwork by Jung Hee Choi.

Zazeela's mobile forms are arrayed in symmetrical patterns with lights placed in precisely symmetrical positions creating symmetrical colored shadows; the wall-mounted light sculpture and the neon are both symmetrical forms. (Ibid.)

Each performance of *Dream House* is site-specific, adapting according to its location in terms of space and content. It has been presented as a constructed and organised environment within galleries as well as within domestic settings, culminating in its current location in New York.

The continuous nature of the work lends itself to being visited at various times of day, in different seasons, and with small or large audiences, all which would affect the engagement with (and experience of) the work.

Zazeela's biography describes the environment as "a major ongoing architectural project involving the presentation of continuous sound and light", in which,

[t]he ultimate design of each installation is determined by the architectural structure of the exhibition site, thereby making each light environment a unique work with its own shape and dimensions. (MELA Foundation, n.d. b)

Zazeela describes the lighting environments which she devised for her collaborative work with Young as creating "a specific atmosphere which ... enhances one's ability to concentrate and listen", describing it as a "soft light ... like performing at dusk" (Ibid., p271). According to Young, this "serene, majestic and profound" lighting "brings out the most noble aspirations in the performer and in the audience, so that you have

something to focus on visually when you need to focus" (Ibid.). Grimshaw suggests that,

the special psychoacoustical properties of the *Dream House* seek literally to blur the boundary separating the ordinary *ahata nada* (instrumental, "struck" sound) from the mystical *anahata nada* (cosmic, "unstruck" sound) of Vedic thought ... (Grimshaw, 2011, p120)

This in turn contributes to the "resonance" between physical navigation of the space and "one's aural exploration of the harmonic space articulated by the work's composite sine waves" (Ibid.). This focus on visuals and their use to augment the experience of listening is emulated in *A-Wakening* (see chapter 5.4).

The sculptural forms of Zazeela's lighting works "create coloured shadows" due to their location within the space and allow for an interplay between the real and unreal. As Zazeela notes,

[this is] an analogy to the harmonics [and] tones that rise in this cloud-like form out of the piano. They're not real either, and yet they're *completely* real. A very interesting parallel interplay between reality and illusion is conjured up by both the sound and the light. (Ibid., p271)

This interplay between the real and unreal suggests a parallel with what Dyson describes as the transformative concept of the vibration, which "fluctuates" between the actual and potential, or the "being and becoming" (Dyson, 2009, p10). It also features within *The Lull*, as one of the works developed by this author in response to this



investigation and forming part of the fifth case study within this thesis (see chapter 5.4), and in particular to the use of the virtual environment, *Second Life*, as a contemporary performance space (see also chapter 4.1.2).

The next section considers the experience of the environment, from the perspectives of both a volunteer “monitor” and visitors.

### 2.3.1 Inside the *Dream House*

Grimshaw recounts the time he spent as a ‘monitor’, responsible for the technical maintenance and preparation of the Church Street *Dream House* for visitors.<sup>43</sup>

According to Grimshaw, there existed a number of “strict protocols”, including the particular manner of turning on (and warming up) the lamps within the light sculptures, and the lowering and raising of the volume sliders for the sound element – which “never turned off or turned on, but simply lapsed into and out of a kind of hibernation” (Grimshaw, 2011, p122). This particular aspect echoes Young and Zazeela’s study (between 1966 and 1970) of the effects of continuous sound waveforms, during which Grimshaw notes “they maintained an almost constant drone array, which accompanied their everyday activities” (Ibid., p118). Beyond these technical requirements, Grimshaw describes other environmental aspects, which required attention in order to complete the work. These included ensuring that no stray lights entered the environment, such as from the lighting and placing of Nag Champa incense within the floor’s kitchenette.

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<sup>43</sup> The dates of Grimshaw undertaking this role are unclear from his description – he writes of visiting the environment for the first time in 2001, and he spent some time staying in the building as part of his research.

Additionally, visitors are instructed not to speak or make unnecessary sounds and asked to take off their footwear before entering the space, which,

though ostensibly encouraged to maintain the stark whiteness of the carpet inside, also serves to emphasize the spiritual nature of the space one is about to enter, or at the very least set the space apart from the outside world. (Ibid., p121)

Describing his experience of *Dream House: Seven+Eight Years of Sound and Light* at the same venue, Ted Krueger notes the scent of incense and the availability of “several pillows on the floor [which] invite repose”, while “[t]he white walls, ceilings, woodwork and carpet are bathed in an amazing magenta light, and an extraordinary sound pervades the space” of which “the frequency and intensity of the tones vary in each ear and that the changes correlate with even the slightest movement” (Krueger, 2008, p13).<sup>44</sup> This version of the environment incorporated Zazeela’s *Imagic Light* installation of suspended aluminium spirals, whose “ultra-slow spin [was] induced by air currents from a viewer's movements or thermal differences in the room” which “create[d] a slowly changing composition of shadows and objects in varying intensities of contrasting hues” (Ibid. p14).

Drawing parallels between the aural and visual elements, Krueger adds that,

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<sup>44</sup> This exhibition ran between 1993 and 2006 as documented at <http://www.melafoundation.org/DHpressFY06.htm>, however the final end date of this particular exhibition remains unresolved.

[g]iven the scale of the room, the compositions on both sides cannot be compared in a single view, and as I look to the other side I sweep my head through a melody. The interplay between movement and stasis, of sound and light, directly integrates these works. Each becomes the context for the other. (Ibid.)

Krueger summarises his review by commenting on the enduring appeal and commitment to the *Dream House* since the 1960s, which “evidences a radical understanding of craft and of the effort required to gain a profound knowledge of what one is doing” which “gives the work specific experiential qualities that cannot be yielded by other methods” (Ibid., p15). Such work requires a “commitment” from its audience:

It cannot be taken in briefly or casually, nor is it intended to be experienced passively. This is not entertainment. It requires an investment from the participant and rewards them in proportion to their degree of engagement. (Ibid.)

*Dream House* is an example of a self-contained audiovisual environment as an expanded narrative where the listening of an active audience (see chapter 3) is enhanced through the engagement of multiple senses, within a constructed performative space.

While the installation has taken place in several locations and taken many forms during its history (for example, at the Dia Art Foundation in New York between 1979-85 and in a restored mansion in Berlin in 1992), all take the form of an immersive multi-sensory

environment in which the audience can sit or freely move about the space to better experience the work.

To celebrate the millennium, the French government commissioned a four-month *Dream House* installation with an added projected performance of *The Well-Tuned Piano in the Magenta Lights*. While Young began to work on this piece as early as 1964, over 25 years later Geoff Smith and Nicole Walker Smith describe it as a “still-evolving epic” (Smith and Walker Smith, 1995, p261). An interview with Young describes his concept for the piece, where “even before speech was developed, there was a need to understand our position and relationship to universal structures and, in particular, to time ...” (Young in Smith and Walker Smith, 1995, p268). He suggests that “through listening to ... rational frequency ratios in simpler or more complex groupings that we can have our first real experience of vibrational structure in time”, adding that “by listening to more and more complex sets of those ratios, we have more and more profound experiences which are models for abstract vibrational structures” (Ibid., p270). In this way, we return again to the concept of vibration and experience, which is echoed in Dyson’s discussion of vibration (see chapter 3.4.1) as a transformative concept.

## 2.4 Conclusion

This chapter presents cross-disciplinary collaboration – both within the arts and beyond – as integral to the development of an immersive experience through the presence of an expanded narrative. Such multidisciplinary works can also be described as

intermedial in that they bridge multiple forms of traditional media to make something which is more than the sum of its individual parts.

The works discussed in this chapter present cross-disciplinary collaboration as a means of developing multi-sensory environments for enriched audience engagement through their immersive properties. The changing role of the audience during the 1960s and the move towards relational practice and participatory art (see chapter 3) are further considered to contribute to restoring what K. Robert Schwartz describes as “the severed link between composer and audience” (Schwarz, 1996, p8); and thus, can be argued to contribute to the ‘otherness’ as described in the introduction to this thesis.

The tangential move from mixed media to what Higgins termed intermedia allowed for new forms of practice and performance. The next chapter will consider how the audience, in taking a more active and performative role during the 1960s, contributed to the existence, development and understanding of Young and Riley’s work.

## CHAPTER 3:

### Active Audience

The final element of the expanded narrative to be considered in terms of its relevance to the development of immersive relationship between audience and artwork is the active contribution or movement of the audience. In addition to discussing this element, the following chapter also highlights the concepts of cybernetics and behaviourism as evidencing a move towards concern for the presence and involvement of an audience.

Through navigation, participation, or collaboration, the audience has the opportunity and potential to contribute to the presence, development and understanding of a work – forming an essential role without whom the work itself would not be complete (or arguably exist at all in its intended form). For example, without the presence of an audience, La Monte Young and Marian Zazeela's *Dream House* (see chapter 2.3) or Terry Riley's *Time Lag Accumulator* (see chapter 3.5) would solely exist as installations rather than as the experiences in which they are presented in this thesis.

This chapter engages with Milena Droumeva's concept of "music-as-environment" – a situation where the individual engages with a physical or virtual constructed space (Droumeva, 2005). Alongside Frances Dyson's description of the sonic "vibration" as a transformative concept, this chapter also links the early works of Young and Riley with the work of Cage and technologically-driven new media theory and the fluctuation between "being and becoming" (Dyson, 2009). Multiple forms of engagement are

considered, from Sally Bane's discussion on the use of scent in early theatre such as the Eleusinian mysteries (see p175), to collaborations with the visual arts (for example, Fluxus) and the act of placing the audience within a work (Banes, 2007, p29).

According to Randall Packer and Ken Jordan, the concept of immersing the audience in an artwork by addressing multiple senses has its roots in both the cave paintings of Lascaux, France, which formed the backdrop to tribal rituals and performances, and Richard Wagner's *gesamtkunstwerk*, or total work of art (Packer and Jordan, 2002). It is this sense of multiple sensorial engagement within a constructed environment through intermedial means that is particularly relevant in the creation of engaging immersive works, by becoming in a sense more than the sum of their different media (or parts).

Here, the performance techniques of the 1950s and 1960s are shown to have laid the ground for an expanded narrative as exemplified by the changing role of the audience from passive receiver to performer or participant. As stated in the introduction, the experimental performance styles discussed in this thesis owe a debt to those established by John Cage, for example *Theatre Piece* (1952, also known as the *Black Mountain Happening*) at the Black Mountain College, considered by many to be the first happening, and *4'33"* (also 1952), which encouraged the audience to pay attention to ambient environmental sounds – and represents an immersive musical experience by drawing the environment into the listener's range while also placing the audience as performer – and the sounds that they make as the composition is being performed.

Packer and Jordan recognise Cage's influence on "nontraditional performance techniques" including happenings and interactive installations (Packer and Jordan, 2002, pxxi). Their observation of Allan Kaprow's interest in "blurring the distinction between artwork and audience" bears similarities with Cage's search for new forms of performance aesthetic, and foregrounds "[the] notion of the artwork as [both] a territory for interaction, [and] as a locus of communications for a community" (Ibid.; pxxxi). As Michael Maizels notes,

In the early 1950s, Cage set out on an incredibly bold compositional gambit: to dissolve the bounded history of "music" (so conceived by Western standards and conventions) outward into the seemingly endless universe of sound. (Maizels, 2020, p124)

The extended duration of works including Young's *Poem for Chairs, Tables, Benches, etc. (or other sound sources) (1960)* have parallels with Cage's experimentalism; while the incorporation of 'participants' within the work illustrate the move from the traditional audience/performer relationship. This raises the issue of determining a suitable universal term to describe the active audience within this immersive relationship, as addressed by Digital media artist Char Davies through her concept of the 'immersant' (see chapter 3.1).

This subversion of the role of the audience is evidenced in Young's *Compositions 1960 #4* and *#6*, in which the audience's activity – within a darkened space and in front of the 'performers', respectively – is the subject of the composition. During such performances, a series of instructions were given to performers and/or the audience



who would have limited free reign to interpret the works in their own way; for example, a butterfly being released into the auditorium or performers watching the audience in Young's *Compositions 1960 #5* and *#6* respectively, or making sounds in Riley's *Ear Piece* (1962). Additionally, Cage's aleatoric music, or "openness to whatever might arise" (as exemplified by the *Musicircus* (1967), where musicians were able to perform as they desired), bears similarities with the unpredictable qualities of Riley's *Time Lag Accumulator* (see chapter 3.5), which relied on both the presence and action of its audience-turned-participants in order to function (Piekut, 2011, p59).

In this way, as stated in the introduction, the early works of Young and Riley have much in common with the experimental artistic movements of the period, which moved to challenge perceptions and rise new ones, matching the political and social mood at the time, which together with the free-spirited nature of the period (as exemplified by The *Woodstock Music and Arts Fair* which took place in 1969 in New York) could be argued to have led to the development of works which encouraged viewer engagement and/or participation. The *Vortex Concerts* at the San Francisco Planetarium (from 1957 to 1959) were an early example of what Robert R. Riley describes as site-specific "electronic sound and projected light environments" (Riley in Bernstein, 2008, p21). A collaboration between painter and filmmaker Jordan Belson and composer, radio engineer and programmer Henry Jacobs, these vortices of sound and light "immersed the audience in an environment of luminous imagery" while "spatially composed sound ... saturated the audience with multi-dimensional sounds and images" and contributed

to the emergence of multidisciplinary, experimental works on the West Coast during the 1960s (Ibid.).

Additionally, artists from more traditional disciplines such as painting and sculpture experimented with space, scale, and placement, with the result that the audience no longer only observed the works but now had little choice but to be engaged, surrounded, and immersed by such works; for example, James Rosenquist's *FIII* (1964-5), Carl Andre's *Equivalent VIII* (1966 – also known as *The Bricks*) and Robert Morris's *Untitled* plywood sculptures, which often forced engagement and participation through their placing in the gallery space, where the audience had no choice but to confront or engage with them to navigate the space. Similarly, artists associated with the Light and Space movement, including Larry Bell and Robert Irwin – who were both originally painters but moved towards installation and sculptural work during the 1960s – embraced the experiential possibilities of space and form.

The move towards “art as experience” is described as originating even earlier by Adrien Henri, who observes that the roots of the art exhibition as a “total experience and a form of provocation” were established in the avant-garde Dada movement early in the twentieth century, which in New York was associated with artists such as Man Ray and Marcel Duchamp, the latter of whom had moved to the area at the start of the First World War (Henri, 1974, p24).

The three works by the composers which feature as case studies within this thesis (*A Collaboration*, *Dream House*, and the *Time Lag Accumulator*, see chapters 1.3, 2.3 and 3.5 respectively) are examples of a new experiential performance and reception

dynamic between composer, performer and audience, mirroring that of the experimental music of the period. As Michael Nyman notes, experimental music “emphasizes an unprecedented fluidity of composer/performer/listener roles” by breaking away “from the standard sender/carrier/receiver information structure” within Western music which preceded it (Nyman, 1999, pp22-23).

This new audience dynamic – in moving from a passive to a more active role – is identified as one of the three factors contributing to an expanded narrative within this investigation – together with the construction or use of an active space (see chapter 1) and cross-disciplinary collaboration leading to the engagement of multiple senses (see chapters 2 and 3.4).

In this way, the expanded narrative is presented as a central concept within an immersive experience, considering both the importance which Wim Mertens places on the perception of a listener as actively participating in the construction of a composition, Packer and Jordan’s discussion of the roots of the immersive experience as originating in both cave paintings (forming a backdrop to rituals and performances), and the *gesamtkunstwerk* – facilitating the engagement of multiple senses through intermedial means in a constructed environment (Mertens, 1980; Packer and Jordan, 2002).

Further, although considering politics rather than art, Jacques Rancière discussed what the researcher interprets as a “psychological experience” in that audiences are freed from a passive way of “viewing” and move towards more active participation in the creation of meaning in his text *The Emancipated Spectator* (Rancière, 2009).

According to Rancière, emancipation “begins when we understand that viewing is also an action that confirms or transforms ... the opposition between viewing and acting”, with the spectator viewing a situation through their own lenses of experience and understanding (Rancière, 2009, p13). For Rancière,

[t]he spectator ... observes, selects, compares, interprets. She links what she sees to a host of other things that she has seen on other stages, in other kinds of place. She composes her own poem with the elements of the poem before her. (Ibid.).

These comments thus suggest a move towards participation and immersion in that the audience is beginning to recognise its own role in the interpretation of a piece, from which it is only a small step towards actively contributing to or controlling one’s own experience *within* a piece.

Recalling Nicolas Bourriaud’s writings on *Relational Aesthetics* (see chapter 3.2), this investigation considers artistic practice (within all of the arts, not solely the visual arts) as occupying an “arena of exchange” and having the potential to evolve according to the presence and participation of an audience (Bourriaud, 2002, p17). In *Dream House* (see chapter 2.3), this may involve positioning or movement, while in the *Time Lag Accumulator* (see chapter 3.5) the sounds that the participants make both contribute to and complete the work.

This chapter examines the cultural shift from a passive to an active audience during the 1960s, with specific reference to multi-sensory audience engagement and immersion,

where artists and composers construct spaces for audience engagement – here considered as one component to the creation of the expanded narrative.

During the early to mid-twentieth century, the high art experience within theatres, concert halls and galleries relied on the reduction of distractions and disturbances, and it would only be through “absorbing themselves in the sound or image” that the “observing spectator [would] be truly elevated” (Sedgman, 2018, p30). However, by the 1960s, a changing role of the audience orchestrated by the artists, together with the developments within cybernetics and behaviourist art, had led to very different expectations on the part of art audiences. While audiences attending classic musical performances remained more formal and restrained, the activities of Young, Riley and their contemporaries allowed for a movement across artistic disciplines where compositions were placed in non-traditional performance spaces and cross-disciplinary collaboration allowed for new affordances in media and experimentation, leading to a new form of audience experience.

### 3.1 The active audience

The historically passive nature of the audience began to move toward a more active participatory role during the 1960s, where the deepened audience experience with its richer interpretations was due to experimentation by artists whose artworks encouraged movement and action; for example, the environments, happenings and events of the Fluxus movement (1960s – present, see chapter 3.2.2). Artists and audiences together began to question the reality of their experience, with exhibitions such as *The Magic Theater* (see chapter 3.5) placing importance on engagement and interaction by

allowing the audience to contribute sounds, which were relayed and delayed within the installation. Similarly, artists including Morris, Fred Sandback and Ronald Bladen produced large-scale works, which through their size, scale and positioning encouraged physical exploration from the visitor.

The central role of the audience echoes the ideas of Duchamp, who viewed both the artist and audience as of equal importance in the completion of an artwork. *The Creative Act* was first presented and recorded in 1957 and first published in 1967, influencing artists towards the idea of an active audience, where,

the creative act is not performed by the artist alone; the spectator brings the work in contact with the external world by deciphering and interpreting its inner qualifications and thus adds his contribution to the creative act. (Duchamp in Sanouillet and Peterson (eds.), 1975, p140)<sup>45</sup>

The shift from passive spectator to active co-creator or participant raises the question of how to accurately define an audience from the 1960s: research as part of this investigation indicates that an active audience exists as one or more of the following: explorer, participant, traveller, user, critic, player, creator, judge, or visitor. Davies uses the term 'immersant' to describe the individual audience members of her immersive virtual reality environments, a term which here comes as close as possible to the

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<sup>45</sup> Duchamps text *The Creative Act* was originally published in *Art News* 56(4), in Summer 1957, and originated as part of a roundtable discussion at the American Federation of the Arts, Houston, Texas, in April 1957, where Duchamp participated in conversation with Professor William C Seitz of Princeton University, Professor Rudolf Arnheim of Sarah Lawrence College and the anthropologist Gregory Bateson. An audio recording of the paper was also published in *Aspen 5+6 The Minimalism Issue*, in 1967.

essential role of the visitor-turned-participant within a work or performance, regardless of their placing in either physical or virtual locations.<sup>46</sup>

Examples of primarily aural works during the 1960s which place the audience as active participants, or at the least in control of their own experience, include Fluxus style works including Riley's *Ear Piece* (1962, see chapter 1.2) and *HPSCHD* by Cage and Lejaren Hiller, which premiered at the University of Illinois in 1967.<sup>47</sup> *HPSCHD* took the form of a mixed media environment, within which audience members were free to move about in a space filled with projected images and multiple, simultaneous harpsichord performances. As Renée Levine Packer notes regarding the 1980 performance of *HPSCHD* at SUNYAB, the work was "an elaborate multimedia extravaganza" through which "[t]he density of sound and visual content was meant to envelop and overwhelm" (Levine Packer, 2010, p177).

Over the following decades, the audience would become more involved with audio-based performances (for example, Pauline Oliveros's *Crow Two* (see chapter 4.1.3) and Cage's *Lecture on the Weather* (see chapter 5.3.1)), and through the sharing of aural information. One example of how an audience can convey information is the *People's Microphone*, which enables a speaker (for example, at public events or protests, such as those arranged by the Occupy Wall Street movement in 2011) to ensure that their

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<sup>46</sup> The move towards the use of virtual environments exemplified by *Second Life* as a contemporary artistic and performance space, and beyond, is discussed within chapters 4 through 6.

<sup>47</sup> The name for this work was taken from the computer code for harpsichord.

words reach the whole audience through the repetition of short phrases by groups of attendees (Asher, 2011).

The act of walking around and exploring works in order to engage with the space is a feature of many of the large-scale artworks of the period, for example the sculptures of Morris and Bladen. While free movement was not possible within *A Collaboration* (see chapter 1.3) due to the fixed rows of seats which prescribed where audience members should sit, the audience is able to freely move around in the *Dream House* (see chapter 2.3) due to its open space, and are able to walk in and out of the compartments within the *Time Lag Accumulator* (see chapter 3.5).

While visual art sought to close the gap between art and life during the 1960s by encouraging a more active relationship with its audience, in effect such works invited the audience into an immersive experience to become 'part of the work'. This aligns with the consideration of the location/space in which work was situated was increasing within Minimalism as a whole. According to Melissa E. Feldman, "[i]t is well known that [Minimalist artists] made sure their work – a gridded display of aluminium boxes, for instance, or a series of geometric arrangements of firebricks – sat well within a given space." She continues with the example of Donald Judd, who "took this rigour to the extreme of buying buildings and altering their interiors for the permanent display of his work" (Feldman, 2015, p49).

Relevant compositions and performances by Young and Riley, which challenged the traditional relationship between performers and audience (or the invisible 'barrier' between both) include *A Collaboration* (see chapter 1.3), the extended duration of



which led to a degree of movement from the audience; *Dream House* (see chapter 2.3), constructed multi-sensory spaces which allow for the audience experience to alter within different areas of the installation, encouraging movement, and an informal, relaxed ambience where the audience can repose on cushions or the floor if so wished; and the *Time Lag Accumulator* (see chapter 3.5), where the audience became the performers and their actions and utterances formed the basis of the work.

This shift towards a more active audience is apparent within what we now consider relational practice, as presented by Bourriaud (see chapter 3.2), and the restoration of the previously “severed link” between the composer and audience through the “directness and accessibility” of Minimalist music (Schwarz, 1996, p8). Bourriaud’s discussion of relational practice is here considered alongside the placing of the audience as directly inside of, and integral to, a system or artwork.

### 3.2 Relational practice and the participatory role of the audience

In the early twenty-first century, Bourriaud described art as a state of encounter between the artwork and audience (Bourriaud, 2002). While Bourriaud’s text was published over thirty years after the three case studies were first shown, this description is useful for illustrating the change in audience relationship from passive to active occurring over the 1960s. Claire Bishop suggests that constructed situations such as these lead to “... the desire to create an active subject, one who will be empowered by the experience of physical or symbolic participation” (Bishop, 2006, p12). She adds that “[u]nattached to a privileged artistic medium”, audiences would not be divided into “active and passive, capable and incapable” but would be invited to

“appropriate works for [them]selves and make use of [them] in ways that their authors may never have dreamed possible” (Ibid., p16). These comments are reflected in the concept of the expanded narrative, wherein the active movement or participation of the audience is essential to the immersive experience.

This active relationship between artwork and audience is relevant to that between composition and listener, as supported by Mertens and Brandon LaBelle. While Mertens recognises that a listener has the freedom to experience a work as they choose, as “each moment may be the beginning or the end ... he will never miss anything by not listening” (Mertens, 1980, p90). LaBelle extends on this by noting that the location and positioning of an audience are of paramount importance to the experience, comparing Young and Zazeela’s *Dream House* (see chapter 2.3) with the experience of an artwork within a gallery, referring to the notion of cybernetic and behaviourist art forms,

Through the position of the viewer’s body in various places within a gallery space, the sculpture takes on dimension: as a material presence with weight, mass, and volume, set against the given space of the gallery that, in turn, informs the perceptual experience ... (LaBelle, 2010, p81).

In this way, *Dream House* (see chapter 2.3) can be compared to a sculpture placed within a gallery in order to encourage a conversation (or engagement beyond simply walking alongside it), for example, Morris’s 1964 exhibition of plywood forms at the *Green Gallery* in New York. As Jeremy Grimshaw notes,

Just as the *Dream House* represents the sublimation of Young's roles as composer and mystic, so it likewise embodies one of the most complete interpenetrations of music and sculpture, or more specifically, temporal and spatial art, in the history of Western culture. (Grimshaw, 2011, pp115 – 116)

Within this investigation, the expanded narrative is shown to contribute to the immersive experience through the use of space (see chapter 1), crossing disciplinary boundaries (see chapter 2), and audience engagement, and being present within both the visual and performing arts of the period, including the works of Young and Riley. Through the presence of an active space (for example, *Dream House*, see chapter 1.3), or a performative object (for example, the *Time Lag Accumulator*, see chapter 3.5), a piece transcends the intention of the composer or artist, and is completed by the presence of the audience. Jennie Gottschalk suggests that the experiential nature of experimental compositions present new realities along with those which are already known. Such music "has greater potential to resonate with the unique experience of each listener" if the composer resists placing their own meaning on it – a sentiment which is also true of art which actively seeks some form of engagement, and therefore experience, from its audience (Gottschalk, 2018, p5). In this way, the work "is completed only at the site of the unique psychology and physiology of the listener" (Ibid., p127).

While advances in technology as related to immersive arts are covered in more detail in chapter 4, it is relevant here to consider how technology enabled deeper relationships between audiences and artworks during the 1960s. The relationship between human

and technology is evident within Riley's *Time Lag Accumulator* (see chapter 3.5), a cross-disciplinary collaboration between composer and engineer, which itself allowed for new forms of engagement between audience and artwork.

While technology is not necessarily a prerequisite for the creation of an immersive experience, it certainly enables new forms of relationships to be facilitated between audience and an artwork. So too did artists and composers avail themselves of available technologies, adapting them for their own purpose, also developing their own, in order to progress their craft or experiment with new forms of creation or performance. In support of this hypothesis, one might wish to consider the *Dream House* without the presence of technology allowing for the continuous presence of its drones (see chapter 2.3.1), or the *Time Lag Accumulator* without the means of conveying sounds to other chambers within the work (see chapter 3.5). This practice of adopting (and creating new) technology in order to further develop creative practice extended beyond the 1960s and remains relevant today with the adoption of (and widespread availability of) technologies including virtual and augmented reality (see chapters 4 through 6).

Marshall McLuhan wrote about artists adopting technology ahead of wider cultural shifts in his text *Understanding Media*. Writing in 1964, McLuhan noted society's use of "[t]he new media and technologies by which we amplify and extend ourselves", restoring what he saw as detachment from one's tasks previously enabled by technology (using the example of a surgeon operating on a patient) (McLuhan in Harrison and Wood, 2003, p755). This concept of amplification and extension of the self remains relevant in

contemporary society, as can be seen in the widespread use of online representation and social media which is prevalent today. McLuhan defined the resultant "Age of Anxiety" as the "electric implosion" which "compels commitment and participation" (Ibid.). As a critique on such, McLuhan suggests this compulsion to participate exists "quite regardless of any 'point of view'", while also acknowledging the role of the artist in adopting the new and being located at the vanguard of wider cultural movements, in that,

[t]he artist picks up the message of cultural and technological challenge decades before its transforming impact occurs (Ibid., p755; p756)

This merging of technology and culture, and the move towards the audience as active participant, can be understood through the second order of cybernetics, which places the user *within* the system. By relating this to an artwork or performance, the audience is placed within an active role within an immersive experience, thus aligning with the concept of the expanded narrative discussed within this thesis. Further, behaviourism is described by Ascott as an inclusive term which draws the spectator into the participative act of creation, encouraging involvement on a physical, conceptual, and emotional level (Ascott, 1966-67, see chapter 3.2.1). This "feedback loop" between the artist, artwork and observer thus places the potential of the artistic experience as of more importance than the work itself (Ibid.).

Both concepts can be seen to apply to the three early works by Young and Riley which feature as case studies within this thesis – none perhaps more so than the *Time Lag Accumulator* (see chapter 3.5).

### 3.2.1 Cybernetics and behaviourist art

According to Lars Skyttner, cybernetics enables "living systems [to be] studied through analogy with physical systems" and was defined by Wiener in 1948 in the text *Cybernetics or Control and Communication in the Animal and the Machine* (Skyttner, 1996, p27). Furthermore, cybernetics involves the close interrelation of the concepts of control and communication, through which information is communicated among both the system and its environment (Ibid., p46). The first order of cybernetic theory states that the observer affects the system that it is observing in terms of an artwork or performance. This suggests that the work itself may vary according to the presence or absence of a passive audience. Skyttner defines this first order as a symbiosis or a relationship between mutually dependent components (Ibid.). The second order of cybernetics suggests a situation where the observer observes from *inside* the system, in a relationship which Skyttner describes as "add[ing] to system performance in a synergistic manner" (Ibid.) and which suggests the expanded narrative between audience and artwork through the presence of an active audience. According to Skyttner,

The distinction between [second] and first order cybernetics is based on the ... difference between interaction between observer and observed in an autonomous system (second order) and interaction among the variables of a controlled system (first order)." (Ibid., p58)<sup>48</sup>

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<sup>48</sup> Skyttner notes that the third order applies to a relationship "when seemingly redundant duplicate components exist in order to secure a continued system function" (Skyttner, 1996, p46).

The concept of cybernetics was embraced by artists including Sol LeWitt, through ideas of process and systems, and in 1968 the *Cybernetic Serendipity* exhibition was held in London at the Institute for Contemporary Arts (ICA). Curated by Jasia Reichardt, the exhibition “presented the work of over 130 ... composers, engineers, artists, mathematicians and poets” (Institute of Contemporary Arts, n.d. a) while the accompanying publication, edited by Reichardt, is separated into a number of distinct yet related sections, detailing some of those involved. Of these, the sections *the computer as music* and *Machines and environments* are of note. The former included *The Tychotech* by John Cohen,<sup>49</sup> which invited “players” to select a choice from which to play a game of chance with the aim of winning a prize, while the latter discusses the link between computers and sounds, noting that “[the] electric wave which ... goes from an instrument or a recording into [a] speaker ... can be specified ... as a system of numbers” (Reichardt, J., 1968, p47; Pierce, 1968, p18).<sup>50</sup> These sounds can then be controlled and manipulated by the computer user, leading to cross-disciplinary collaborations between programmers and engineers, as seen with Riley’s *Time Lag Accumulator* (see chapter 3.5). Composers involved with the exhibition included Cage, Hiller and Leonard Isaacson (Cybernetic Serendipity Archive, n.d.).

Ascott discusses the relationship between artist, artwork and audience in his text *Behaviourist Art and the Cybernetic Vision*, “in which the artwork exists in a perpetual state of transition where the effort to establish a final resolution must come from the

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<sup>49</sup> No date was given within the exhibition catalogue for the completion of this work.

<sup>50</sup> This essay was originally published in the *New Scientist*, issue 431 (1965).

observer” (Ascott, 1966-67, p98). Ascott theorised that the presence of the audience is crucial to the development of artworks, particularly interactive works, which should be responsive to the viewer, creating a two-way exchange between audience and artwork, rather than providing a single dominant message to be interpreted by the passive viewer. This relationship should be flexible, to allow several playful possibilities for the participant, where the growth and potential of the work is more important than having a final form and continues to be relevant today with regards to the behavioural nature of interactive environments. Crucial to our understanding of behaviourism, according to Ascott,

[b]ehaviourist art constitutes a retroactive process of human involvement, in which the artifact [*sic*] functions as both matrix and catalyst. As matrix, it is the substance between two sets of behaviours; it neither exists for itself nor by itself. As a catalyst, it triggers changes in the spectator’s total behaviour. (Ibid., p102)

This suggests that the artwork/performance should respond to its audience input in some way, as witnessed in Riley’s *Time Lag Accumulator* (see chapter 3.5), but it is through the multi-sensory engagement of an active audience that a full subjective experience is created.<sup>51</sup> However, an active audience alone does not automatically lead to an immersive experience – instead a conjunction between the remaining two

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<sup>51</sup> Audience interaction and engagement as an enduring theme highlighting the relevance of Roy Ascott’s concept of behaviourism beyond the 1960s is explored further in chapter 4.



elements of the expanded narrative, cross-disciplinary collaboration and the active space, should also be present.

According to Higgins, co-founder of Fluxus, the changing dynamic of the artist/audience relationship could best be described by referring to Kaprow's "[meditations] on the relationship of the spectator and the work", in which:

He put mirrors into things so the spectator could feel included in them. That wasn't enough, so he made enveloping collages which surrounded the spectator. These he called "environments". Finally, in the Spring of 1958, he began to include live people as part of the collage, and this he called a "happening".

(Higgins, 1978, p14)

In this way, both the *Dream House* and the *Time Lag Accumulator* (see chapters 2.3 and 3.5 respectively) share commonalities with other art styles of the period including Conceptual Art, in that they are both idea/experience driven; Fluxus, by incorporating everyday objects and chance; and happenings, by placing the audience in a performative role.

### 3.2.2 Fluxus and happenings

Formed in the 1960s, the Fluxus collective founded by George Maciunas was based in experimental music, particularly drawing from Cage's work. Individuals associated with the Fluxus movement included Ken Dewey, Joseph Beuys, Nam June Paik, Yoko Ono and Riley, and the group embraced media and art forms to create collaborative art works and performances, with an emphasis on simplicity, chance and humour, often

including spectator involvement. The role of curator as director, conductor, impresario and promoter lent itself to composers of the period – for example, Young who was instrumental in the curation of several events which took place in Ono's loft in Soho, invited his contemporaries to perform alongside themselves, and *A Collaboration*, curated by Riley (see chapter 1.3).

Kaprow's happenings involved the audience taking a performative role as participants within the work, and according to Packer and Jordan,

took place in staged environments, presented as collages of action, music, and found objects that the audience encountered in an order typically without linear development, and without the through line of traditional narrative." (Packer and Jordan, 2002, p28).

Packer and Jordan note that these happenings are "notoriously difficult to describe", with each being an "unique event shaped by the actions of the audience that participated in any given performance" (Packer and Jordan, 2002, p308). Passive watching was discouraged except where required as part of the work,<sup>52</sup> these performative works can therefore be seen as exemplifying the active space (see chapter 1) in such a way that audience participation is not only encouraged but expected.

Bishop states that in his early writing, Kaprow "position[ed] Happenings against conventional theatre", in that,

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<sup>52</sup> Although it is noted that works taking place in public arenas may have resulted in the passing (passive, as in unintentional) gaze of others not involved, who may then be interpreted as part of the environment.

they deliberately rejected plot, character, narrative structure and the audience/performer division in favour of lightly-scored events that injected the everyday with risk, excitement and fear. (Ibid.)

Bishop notes that initially, these works were performed in loft and gallery spaces, and later in outdoor areas “such as farms and university campuses”. (Bishop, 2012, p94). While Bishop acknowledges that “working directly in the city streets was far rarer”, such works did occur; for example, the *City Scale* happening (1963) – staged by the San Francisco Tape Music Center, in which the audience explored the city to experience a series of staged encounters – and *Helsinki Street Piece* (1963), which involved Riley, K. Dewey and Otto Donner and similarly took the form of performances throughout the city.

According to Higgins, “the Happening developed as an intermedium, an uncharted land that lies between collage, music and the theater”, adding that “[t]he concept itself is better understood by what it is not rather than what it is” (Higgins, 1978). Higgins notes the “parallels to the Happenings in music”, citing Cage and Philip Corner as examples of composers whose work “[falls] into the intermedium between music and sculpture” (Ibid.). This echoes the experimentalism and the search for new forms of music and performance which Cage and Young undertook (see introduction, section VI.i); also Riley, as evidenced by *Ear Piece* (1962, see chapter 1.2) and the *Time Lag Accumulator* (see chapter 3.5). As LaBelle notes,

[q]uestions of perception, as we’ve seen in Happenings and Fluxus, take on paramount importance in art production at this time ... Perception is ... situated in

the very space from which it arises ... "meaning" is found in the body's very movements and digressions ... (LaBelle, 2010, p77)

Immersive environmental installations were increasingly being created by artists including Anthony Martin and Elias Romero who created large-scale works which the audience could explore (such as Young and Zazeela's *Dream House* – see chapter 2.3) and interact with – rather than being passive spectators of – a work.<sup>53</sup> Kaprow coined the term *environment* in 1958 to describe how such works "entangled spectators in multi-sensory experiences – like being inside a work of art" (Kaprow et al. 1966). In this way, the role of the audience, as an integral part of the expanded narrative within the work is highlighted.

### 3.3 La Monte Young and Terry Riley's facilitation of an active audience

While this thesis recognises that Young and Riley are widely considered as Minimalist composers, the investigation moves away from the potential restrictions of considering the genre alone towards an awareness of their role in pioneering immersive multi-sensory artworks, which encouraged activity or responses from their audiences – using the case studies as examples. While Riley planned for input from the audience in the *Time Lag Accumulator* (see chapter 3.5), Young organized the presentation of *Dream House* (see chapter 2.3) together with Zazeela, whilst being interested in the perceptual experience of the audience and allowing for movement and repose. The term

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<sup>53</sup> According to Robin Oppenheimer, "As [the] beat movement transformed into psychedelia... Romero would use liquid projections and film to create an environment for poets, dancers and other performers" (Oppenheimer, 2009).

'Minimalism' is still useful, however, placing them historically and recognising their compositional legacy outside of this investigation.

In the three early works by Young and Riley which feature as case studies within this thesis (*A Collaboration*, *Dream House* and the *Time Lag Accumulator*, see chapters 1.3, 2.3, and 3.5 respectively), the traditional relationship between audience and artwork/performance is either challenged or reversed, with a degree of control over the experience being available to the audience. Both Young and Riley were "interested in the physiological and psychical effects of music", while "[f]or Young, the positioning and the spatial mobility of the listener are an integral part of the experience of the composition" (Mertens, 1980, p30; p36). As LaBelle notes regarding Young's work,

sustained tones, loud volumes, extended durations, harmonic frequencies all encompass an overarching sonic commitment that seeks to make sound an experiential event beyond the human limits of time and space ... (LaBelle, 2010, p71)

Similarly, Young's *Compositions 1960* were a series of instructions for the performer, some of which involve direct communication with the audience (for example #3 and #4, where the performer makes announcements on the duration and lighting of the piece), while others involve actions which will indirectly result in reactions from the audience (for example #2, where a fire is created in front of the audience, and #5, in which a butterfly is released into the auditorium). Yet others place the audience at the centre of the piece, with #6 requiring a reversal of the traditional audience/performer relationship, where performers are required to watch and listen to their audience in

what Edward Strickland terms the “desegregation of performers and audience that became a feature of Young’s performances” (Strickland, 1993, p135). The latter suggests no hierarchy between the performer and audience, subverting the traditional relationship between both – where the performer presents a work to be passively received by the audience.

Additionally, these scores together with those published in *Aspen, An Anthology of Chance Operations* and *Dream Sheet* (see chapter 1.2) allow for engagement with the audience in a more direct, intimate way. Through the act of individually holding, reading and experiencing these published works, the piece then becomes a physical, tactile version of a performance. Strickland notes that during the 1960s, “[m]inimalist music display[ed] an often ambivalent attitude to the music it aimed to overthrow, experimental or academic, as well as to emotional content”, with Young and Riley “not speak[ing] of either expressing or conveying to the audience emotions per se; they shared, rather, an aesthetic of ecstasy, release from self” (Strickland, 1993, p285). Strickland notes in particular, “Young’s desire to control the listener’s emotions by controlling [their] neurological system” (Ibid., p287). Of Young and Zazeela’s light and sound environments, he notes that,

[t]he effect is a unique and extraordinary transvaluation of perception ... [l]ike Young’s music, to which it serves as an almost uncanny complement, Zazeela’s work is predicated upon the extended duration necessary to experience the nuances which are its essence. (Ibid., p155)

Young's concept of the perceptual nature of his compositions draws parallels with Dyson's notion of 'the vibration' as a transformative concept between 'being and becoming' (see chapter 3.4.1), in that "[e]ach [of his] raga[s] has ... its own mood or rasa, a psychological state that it creates" which he describes as "special structures of vibrational patterns that are perceivable and performable" (Young in Smith and Walker Smith, 1995, p269).

Riley's *Ear Piece* (1962, see chapter 1.2), for example, featured a set of instructions for the audience to become the performers themselves, while his extended duration performances, such as *All Night Flight* (1967) took place overnight, and thus the audience would have needed to move to some extent during the performance to remain comfortable. In this way, parallels can be drawn with the continuous music event, *A Collaboration* (see chapter 1.3).

The 1968 *Magic Theatre* exhibition, which featured Riley's *Time Lag Accumulator* (see chapter 3.5), was specifically designed to invoke action and interaction from the audience through their presence and the act of making sounds. This work has parallels with the Cageian concept of any sound being understood as music, which can again be seen in both Young's *Compositions 1960* and Riley's *Ear Piece* (1962, see chapter 1.2). Art critic Mario Amaya noted that the Magic Theatre exhibition allowed "artists who [were] no longer satisfied with the ordinary, prosaic paths offered [to] them" to "work in new and experimental materials and systems", where, "a public, grown tired of the usual sculpture on a plinth and the picture in a frame, responds much more directly and spontaneously to this form of art" (Amaya, 1970, pp10-11).

As discussed in the introduction to this thesis, the term expanded narrative here applies to artworks and compositions which address the co-dependent relationship between:

**audience <> work <> environment**

This describes that most intangible element – the lived experience – which exists outside of the work itself. While the expanded narrative within the context of this investigation does not refer to existence of ‘a narrative’ as might be expected within a linguistic form, it considers how experience may be afforded by the siting (or construction) of a work, together with the presence (and action) of an audience.

As further discussed in the introduction to this thesis (see section I), the narrative – and its connection to world-building and the creation of a meaningful encounter with material, whether written, performed, visual or aural – can be further expanded to encompass the experience as understood within this investigation. In particular, the fictional narrative is akin to the case studies, and the creation of immersive, active works.

3.4 The immersive experience as facilitated by sensory stimuli

Certain conditions may enhance or limit the effect of the experience, not least the subjectivity of the one ‘experiencing’; for example, being receptive and having full control over the experience without interruption or distraction. Philosopher John Dewey’s book *Art as Experience* (which was originally published in 1934) refers to the continual everyday act of experiencing the world around us, with this in itself not constituting a formal ‘experience’ until the “material experienced has run its course” (for



example through a sporting event or other situations requiring a resolution, or end point) (Dewey, 1934, pp36-37).

As Dewey notes, neither the “sentimentalist and the day-dreamer”, nor the “man who is animated by lust for action” are able to fully experience a situation – both a balance between “doing and receiving” and an element of “decisive action” are required to relate to, and make sense of, reality – a statement which is here presented as equally applying to the realities of everyday life as well as to the alternate realities presented within the contemporary immersive works, thus drawing parallels with the forms of immersion which this thesis presents as being evident within the artworks and performances of the 1960s through participation in a given space of activity (Dewey, 1934, p46; p47). Through his discussion of the psychological aspects of the human experience, J. Dewey notes that each is “constituted by interaction between ‘subject’ and ‘object’” and “between a self and its world”, placing an active interaction as central to the experience itself; for example, in the viewing of a landscape from upside down making the colours more vibrant (Ibid., p256; p260).

In considering the presence of the immersive experience as facilitated by the expanded narrative, it is relevant to return to the experiential art works of the Light and Space Movement – the movement described as almost the obverse of the formal Minimalist movement in the introduction to this thesis (see section VI.iii.b). These “perceptually compelling” works were created by artists that included Irwin, James Turrell (whose *Roden Crater* (1974 - ) is discussed further in chapter 4.1.1), and Eric Orr (Schuld, 2011, p108). Dawna Schuld draws parallels of such work with phenomenology,

neurophenomenology, and the philosophies of Maurice Merleau-Ponty and Edmund Husserl, in that the movement prioritised the experience above all else, while also recognising the importance of the term 'minimal' to express this "phenomenal art", which "is reductive in so far as it lays bare our experiences for examination" (Ibid., p110).

Merleau-Ponty's *Phenomenology of Perception* was originally published in 1945 and presents the Ego as an "impartial spectator" (Merleau-Ponty, 1945b, p29) . This concept could be interpreted to be in direct opposition to the active audience as presented within our investigation, who by dint of their own opinions, previous experiences, and self, would be placed as a biased participant, and their understanding or reading of a work linked with what it represented for them (Ibid.).

Merleau-Ponty's philosophy emphasises corporeality and the body as part of our phenomenological experience, and of 'being-in-the-world'. This embodiment could be read as forming part of an immersive environment and opposing the idea of the rationalist, impartial 'Ego-observer' as an abstract and isolated individual who is looking at the world from a distance.

Further, Merleau-Ponty notes that, "[t]he perceptual 'something' is always in the middle of something else, it always forms part of a 'field'" (Ibid., p35). Additionally,

Perception is built up with states of consciousness as a house is built with bricks, and a mental chemistry is invoked which fuses these materials into a compact whole. (Ibid., p65)

In the context of this investigation, this would imply that the perception of the work itself is equally part of the space or situation in which it exists; for example, the active space of chapter 1, thus demonstrating the presence of an expanded narrative.

Through the use of space, lighting and other materials, artists such as Irwin created spaces in which the conditions would be such that the audience's perceptual experience was heightened or otherwise affected. According to Schuld,

Such work functions at the very threshold of thought: the periphery of experience knows as the conscious fringe, a staging area of exchange between conscious and unconscious processes. (Ibid., pp111-113)

Through the establishment of constructed spaces requiring a perceptual response (or action) from the audience, and some element of cross-disciplinary practice (art and optics; for example, or the use of electric and ambient light), these works can be seen as facilitating an immersive experience as defined through the concept of the expanded narrative.

While this investigation focuses on Young and Riley's use of immersive techniques in their early works, other composers have used sound and music to create an immersive experience for the audience, including Oliveros. Oliveros's concept of 'Deep Listening' (which is explored further in chapter 4) encourages the individual to pay closer attention to the sounds and the music that they listen to, and thus the practice speaks

to both the perception and the position of the audience.<sup>54</sup> As Jennie Gottschalk notes, through encouraging “aural engagement with one’s surroundings”, Deep Listening raises questions about “what we hear and how we hear it, how we digest or process or remark upon it” (Gottschalk, 2018, p107).

Process-based Minimalist music, while more associated with Riley than with Young, and its emphasis on repetition and techniques such as phase shifting, ensures that the whole is more than simply the notes or phrases used. This is not to say that these compositions do not convey drama or set a scene, but that it is more subjective and based on the experience of the work rather than on a title or sleeve notes. According to Mertens (writing of Reich, however the sentiment applies to other Minimalist composers, including Riley):

[t]he conventional idea of the musical work as a totality is no longer valid, since a repetitive work is essentially a process, a music whose function is not to represent something outside itself but only to refer to its own creation.

(Mertens, 1980, p89)

As it became less passive and more active during the 1960s, the growing awareness of the construction of an individual narrative environment by an audience assisted in the creation of the expanded narrative, clearly exemplified in the early works of Young and Riley, where constructed spaces allow the audience to more richly experience their performed compositions, installations or environments. This interdependent

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<sup>54</sup> Oliveros’s text *Deep Listening: A Composer’s Sound Practice* (2005) gives details of exercises and activities to encourage the reader’s deeper engagement with sound, including walking and interaction.

relationship between artwork and audience can equally apply to that between performance and listener within Minimalist music, which has been described as having the potential to alter the perception of time for its audience, akin to a “slowly unfolding, ecstatic” ritual, where a composition “changes almost imperceptibly over minutes or even hours” (Schwarz, 1996, p12; p9). K. Robert Schwartz draws particular reference to Zazeela’s “trance inducing light environments”, which “... aimed to ... suspend the passage of time” (Ibid., p38).

According to Mertens, “perception is an integral and creative part of the musical process since the listener no longer perceives a finished work but actively participates in its construction” (Mertens, 1980, p90). While Mertens was specifically reflecting on repetitive compositions, this sentiment equally applies to the early works of Young and Riley featured as case studies, particularly the *Time Lag Accumulator* (see chapter 3.5), which was part of the *Magic Theater* exhibition at the Nelson-Atkins Museum of Art, Kansas in May 1968. According to Ralph T. Coe, curator of the exhibition,

[t]here is evidence [at the time of the exhibition] that ... audiences are becoming again less visually restricted ... they are beginning to cross borders of materialism altogether in looking at art neither as illusion nor as object, but as a psychic entity, a sort of mental probe. (Coe, 1970, p14)

Young and Zazeela’s *Dream House* (see chapter 2.3) combines light and sound to create an immersive experience, which “invites a dynamic sense of location, and has caused ... [visitors] to navigate [the space] as an act of exploration” (Gottschalk, 2018,

p121). Similarly, the subjective experience of the audience within a physical space has been explored by artists towards the end of the twentieth century and into the twenty-first, including Max Neuhaus, Bruce Nauman, and Camille Normont. In *Untitled* (1996), Neuhaus incorporated “doorways as transitional spaces ... placing a different sound color in each of the arches” (Ibid., p112). The movement of audience members in both works calls to mind the *dérive* of the Situationist International, as established by Guy Debord in 1956. Gottschalk alludes to this when she states that,

Neuhaus overlays a static experience (sound in space) with a temporal experience (walking) and complicates the linearity of the walk. The braids of anticipation, experience, and memory are unravelled through the fixedness of these sounds in traversable space. (Ibid.)

Nauman’s *Live Taped Video Corridor* (1970) features video monitors located at the end of a narrow, ten-metre-long corridor formed using wallboard, requiring the audience to move through the space to view the work. As they walked along the corridor, video cameras filmed and relayed the audience’s movements on the monitors in real time – while Normont’s *Notes from the Undermind* (2001) took place within a padded cell. In this work, “[p]oles ring at different pitches until they are grasped by people in the space and muted”, with their resonance affected by the sounds made by the participants (Gottschalk, 2018, p110). In this way, “the participant is informed through both sight and sound that she is in some sort of bubble – a strange space where things operate differently” (Ibid., p111).

Further, Yayoi Kusama's *Infinity Rooms* (1965-present), and Marina Abramovic's *The Artist is Present* (2010) exemplify an active expanded relationship between audience and artwork. In the former, immersive installations use mirrors to create a perceptual experience giving the impression of an infinite constructed space, while in the latter performance the artist invites members of the public to take turns to sit across a table from her while she remains immobile.

In considering the subjects of audience engagement and the immersive experience, this investigation posits that three elements of the expanded narrative are required to be present: (1) an active space; (2) cross-disciplinary component; and (3) an active audience. J. Dewey considers the experiences made possible through the arts, both in the creation of and the engagement with multiple sensory stimuli (sight, sound touch, smell, taste), contributing to what we understand as an immersive experience.

According to J. Dewey,

The esthetic or undergoing phase of experience is receptive. It involves surrender ... When we are only passive to a scene, it overwhelms us ... We must summon energy and pitch it at a responsive key in order to *take* in (Dewey, 1934, p55).

Here, as well as incorporating cross-disciplinary collaboration, as with the art/composition of *Dream House* (see chapter 2.3) and the sound/technology of the *Time Lag Accumulator* (see chapter 3.5), the cross-disciplinary element also speaks to a multi-sensory dimension to the work, as in engaging multiple senses.

### 3.4.1 Aural

The creation of a whole environment in which to experience (or engage with) sound – also related to the active space as discussed in chapter 1 – has parallels with Droumeva’s concept of music-as-environment, which refers to a situation where the individual engages with a physical or virtual constructed space either devoid of intentional sound or where the audio has been deliberately chosen and employed (Droumeva, 2005). Within this, Droumeva argues that music can be used as an object of representation within the environment itself in that it has both a use and an exchange value (Ibid.).

Dyson notes how sound is of importance to the creation of an immersive environment. According to Dyson, “[s]ound surrounds”, adding that “[i]ts phenomenal characteristics – the fact that it is invisible, intangible, ephemeral, and vibrational – coordinate with the physiology of the ears, to create a perceptual experience profoundly different from the dominant sense of sight” (Dyson, 2009, p4). Dyson describes the ‘vibration’ as a particularly transformative concept, which “figuratively and literally, fluctuates between particle and wave, object and event, being and becoming” (Ibid., p10). She continues by adding that vibration exists in new media theory “often in the guise of flux, or noise” as a force which “dissolves the distinction between the body and technology, nature and culture and resolves the problem of representation and mediation” (Ibid., p11). Prioritising the effects of sound alone, Dyson notes the relevance of this concept to the



experimental works of Cage (in the movement away from vision and towards sound and listening),<sup>55</sup> in that it,

provides a metaphysical interval, a space where certain rhetorical maneuvers [sic] can take place, and a portal through which individuals can access the spiritual center of their "ownmost" being (Ibid.)

Dyson's recognition of the phenomenal characteristics of sound ties in with the work of Merleau-Ponty, whose writings on phenomenology focused on the individual's experience within the world. Merleau-Ponty's "being in the world" emphasised the body as being central to the world and experience, together with the experientialist notion of the encounter of the physical object as an important part of cognition which enhances the visual, thus enabling one to gain a sense and understanding of space through haptics and orientation (Merleau-Ponty, 1945b, p163). According to Merleau-Ponty, whose text *Phenomenology of Perception* was first published in 1945, we do not exist as abstract isolated individuals (with our own individual experience) but are always 'immersed' in the world as a form of global immersive environment.

### 3.4.2 Visual

The three case studies each demonstrate visual elements – notably within both *A Collaboration* (see chapter 1.3) and *Dream House* (see chapter 2.3), which are accompanied by magenta-coloured lighting installations, while the *Time Lag Accumulator* (see chapter 3.5) utilises lighting to allow the activity within the structure

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<sup>55</sup> Cage's experimentalism, and its relevance to this investigation is discussed in more detail in the introduction, section VI.i.

to be visible to those outside the installation. Further to the discussion of Frank H. Mahnke's colour theories in chapter 2.1.1.a, the topic is also relevant within consideration of the senses within this chapter. According to Mahnke, purple (which is also in a similar position in the colour wheel to the magenta used by Zazeela in her installations) "suggests the integrity of blue and the strength of red", where a host of interpretive possibilities are present,

[I]ighter and closer to red, it becomes sensual, seductive, and secretive; also sweet, cosmetic and intimate. Certain nuances may appear unsettling, degenerate, morbid, and narcotic. (Mahnke, 1996, p64)<sup>56</sup>

The use of light itself in art has been previously discussed as a feature of the Light and Space Movement (as introduced in section VI.iii.b). The importance of visual perception is described by Olga Belova as preceding "reflection and rationalisation", allowing one to "[grasp] "the actual present world in its wholeness and primordality" (Belova, 2006, p105).

Artists who have used methods to augment the visual experience of their work, and thereby create a more immersive experience, include Anthony McCall and Olafur Eliason, who have both used water vapour as a way of displaying, or enhancing, their work. McCall's *Line Describing a Cone* (1973) originally used dust particles to make the beams of his projections visible, and later incorporated fog machines; while Eliason's

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<sup>56</sup> Mahnke also notes that, within environments containing cool colours (such as purple), "[i]t is generally believed that ... [t]ime is underestimated", leading to the audience feeling comfortable to spend time within the space (Mahnke, 1996, p71).

*Yellow Fog* (1998) consists of coloured fluorescent light and fog machines which bathe the area surrounding the Verbund-Zentrale in Vienna (where it is on permanent display) in yellow mist for an hour each day.

### 3.4.3 Olfactory

While visual and aural senses have been discussed in this and the previous two chapters, olfactory engagement is worthy of consideration due to the presence of scent (through incense) in *A Collaboration* (see chapter 1.3), *Dream House* (see chapter 2.3), and in the researcher's own work *A-Wakening* (see chapter 5.4).

The use of scent to enhance the audience experience of an audiovisual work or performance follows on from examples from the early twentieth century. These include *An Orange Grove in California* (1923), *Behind the Great Wall* (1958, dir. Carlo Lizzani), and *The Scent of Mystery* (1960, dir. Jack Cardiff). The former, a work by Grace Moore, was performed at Irving Berlin's Music Box Revue in Broadway, involved the audience being sprayed with orange scent during the performance, while in the second and third examples, scents were released to accompany the documentary film using *AromoRama* and *Smell-o-Vision* respectively, the latter triggered by the soundtrack of the film.

Contemporary practitioners continue to combine scent with sound and visuals to create a holistic experience; for example, perfumer Carlos Huber's selection of scents for *Scent of Memory* (2016) to complement the Australian Art Quartet's performance of works by composers including Pyotr Ilyich Tchaikovsky and George Gurdjieff at the Yellow House, Sydney. Artistic director of the Australian Art Quartet, James Beck, noted that "scent

and music together are a [sic] intoxicating combination, potent and overpowering”, which “can trigger long-lost memories” and the “locked parts of our mind” (Sebag-Montefiore, 2016). Similarly, composer Mary Ellen Childs has paired the sounds of her own compositions with complementary scents in *Ear + Nose* (2015 – present). Over the last four years, Childs has performed this work at venues including the Minneapolis College of Art and Design and the Emily Harvey Foundation in Venice, in addition with a series of private ‘scent dinners’ at her home where scents are paired with her live or recorded compositions. Both *Scents of Memory* and *Ear + Nose*, involve the distribution of individual paper-based scents which the audience carries with them for the duration of the work. The use of portable scent can also be seen in *A-Wakening* (see chapter 5.4), in which a number of scent cubes were available to be selected and carried by the audience. While larger than the paper strips used by Huber and Childs, these cubes were small enough to be carried, and close enough to the body to perceive a scent, while within the environment.

While the cubes within *A-Wakening* (see chapter 5.4) were intended to augment the aural and visual stimuli within the environment, in contrast *The Art of Scents* (2012) and *Scents Constellation* (2018) both present sound and vision as being used to augment an olfactory experience. *The Art of Scents* exhibition was held at the Museum of Arts and Design in New York, developed by Diller Scofidio + Renfro in collaboration with curator Chandler Burr, and the design of the space encouraged visitors to physically interact with the room and use their noses as well as their eyes, by:

enter[ing] a seemingly empty white gallery punctuated by a series of twelve sculpted wall alcoves. They are invited to lean into the wall, triggering the release of a scented stream of air; in addition to scent, the organic wall surface pulses with sound and ghostly text projections. (Diller Scofidio + Renfro, n.d.)

In *Scent Constellation*, Daniel Sonabend composed music for the Jason Bruges Studios' installation of the same name at Le Grand Musée du Parfum in Paris to 'portray' the creation and experience of scent. According to Sonabend,

200 sounds were created to represent ... the palette of raw ingredients that a perfumer would use, from bergamot oil to synthetic musk and violet leaf. After the introduction of each component, the ingredients are mixed together to create 5 different perfume / music compositions ... (Sonabend, n.d.).

Banes notes both the relevance and use of scents in the twentieth century for rituals, events and special occasions, and that the "beginnings of Western theatre in ancient Greek festivals ... were suffused with intense aromas of all kinds ... and the burning of incense and other materials in sacred fires" (Banes, 2007, p29). She notes that these festivals are "considered the prototype of the modern *Gesamtkunstwerk*", noting that olfactory elements in a theatrical work can both "evoke a mood or ambience" and "frame the performance as ritual" (Ibid., pp29-31).<sup>57</sup> As noted in chapters 1.3 and 2.3.1, both *A Collaboration* and *Dream House* are accompanied by the burning of incense within their respective venues. This inclusion of an olfactory element to add

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<sup>57</sup> An explanation of the Wagnerian concept of the *gesamtkunstwerk* and its relevance to this investigation is presented within the introduction to this thesis.

greater depth, or enhance the experience of a work, is brought up to date within the researcher's work, *A-Wakening* (2018), which is presented as part of the final case study within this thesis, through the presence of plastic cubes containing scent to be carried by the audience (see chapter 5.4).

#### 3.4.4 Tactile and Gustatory

Tactile elements did not feature within the case studies presented within this thesis – other than the act of opening the chambers within the *Time Lag Accumulator* (see chapter 3.5) or holding the scent cubes within *A-Wakening* (see chapter 5.4).

The gustatory sense is briefly touched upon in chapter 4, with the mention of the FOOD restaurant which opened in 1971, and was created Gordon Matta-Clark, Carol Goodden and Tina Girouard. However, this sense was similarly not engaged through any of the five case studies within this thesis, although other artists have incorporated gustatory elements, such as Jean Dupuy, whose work *Soup and Tart* was held at The Kitchen in New York in 1974. During Dupuy's event, food and drink was served to the audience interspersed by performances by artists and composers including Paik, Glass, McCall, Charlemagne Palestine, and Richard Serra.

This chapter shows that there is a clear link between cross-disciplinary collaboration and multi-sensory engagement, as evidenced within the three works by Young and Riley presented as case studies:

- Aural – through composition and sound
- Visual – through visual installations

- Olfactory – in the case of the scent present in both *A Collaboration* (see chapter 1.3) and *Dream House* (see chapter 2.3)
- Tactile and Gustatory – a tactile element can be noted to some extent through physical engagement in the case of the *Time Lag Accumulator* (see chapter 3.5) and to a lesser extent in the navigation of the *Dream House* (see chapter 2.3) – however the gustatory sense is not engaged through any of the case studies presented in this thesis

The aural, visual and olfactory senses are also engaged in *A-Wakening*, the first of the researcher's works, presented as the final case study in this thesis (see chapter 5.4)

As shown above, the *Time Lag Accumulator* demonstrated aural, visual and tactile qualities through its presentation as a physical installation. Similarly, concepts of audience engagement and immersion are evident within the wider *Magic Theater* exhibition, which showcased environments at the intersection of arts and technology requiring audience participation, including Riley's *Time Lag Accumulator*, Boyd Mefferd's *Strobe Lighted Floor* (1968), and Stephen Antonakos's *Walk-on Neon* (1968).

The *Time Lag Accumulator* is here presented as a case study to consider how an active audience facilitates an expanded narrative and allows for an immersive experience.

### 3.5 Case Study 3: *The Time Lag Accumulator* (1968)

The *Time Lag Accumulator* was initially a collaboration between Riley and Ron Steinhilber (later Stuart Hutchison) and was showcased as part of *The Magic Theater* exhibition curated by Coe, whose detailed insights into both the installation itself and

the intent behind the exhibition within the catalogue have proved invaluable, and form the basis of reference within this case study.

The installation work took the form of an “octagon with eight pairs of glass doors opening into chambers” in which people could occupy the space and make utterances which would be relayed/delayed to the other chambers (Coe, 1970, p190). Figure 6 shows the layout and set up of the installation.

*IMAGES REDACTED – AVAILABLE WITHIN THE PUBLISHED CATALOGUE FOR THE EXHIBITION*

*Figure 6: Layout and setup of the Time Lag Accumulator (1968) taken from the catalogue for the exhibition*

Coe describes the *Time Lag Accumulator* as being “14 feet 6 inches high and 15 feet in diameter”, with “[r]ecorders and amplifying equipment ... elevated overhead in a concealed area” (Ibid.). Additionally, “[e]ach of the eight outer chambers has a flashing strobe light in the ceiling and a microphone suspended in a black sock to pick up noise or utterance”, while “[t]he speakers are concealed above the outside door of every cubicle”, with the result that “[p]articipants inside the cubicles can only partially hear their own voices, while those outside hear what has been spoken seconds before”,



allowing for both passive spectatorship and active participation (Ibid., p193). The inclusion of lighting serves as a parallel to the use of both sound and light in *Dream House* (see chapter 2.3). As Coe notes,

[s]trobe lights ... and differing degrees of transparency within the octagon permitted outside spectators within range of the speakers to glimpse into the recording chambers, thus working transparency and sound into a simple concept. (Ibid.)

*The Magic Theater* featured works which combined sound, light and interactive elements. The exhibition was previewed at Automation House, New York, before its official opening at the Nelson-Atkins Museum of Art, after which it toured to locations including St Louis, Toledo, Seattle, and Montreal.

Riley's involvement with *The Magic Theater* seems to have begun as an experiment. As Coe notes, it was Riley's intention to "demonstrate the validity of intermedia concepts" through the "commissioning of one project to a "non-artist"" – in this case a composer (Ibid., p87). According to Coe, the *Time Lag Accumulator* "is closer in concept to [Riley's] musical concepts than might be supposed at first", in its "layering up of networks of sound", with "repeats cyclically planned through the use of tapes and mixers" (Ibid., p190).

The *Magic Theater* exhibition was developed with the intention of engaging the senses, encouraging participation and offering an immersive experience. Coe noted that 'magic theater' art existed in the mind of the viewer, thus requiring the presence of the

audience to create meaning – a sentiment paralleled later in Bourriaud’s relational aesthetics (see chapter 3.2). Coe’s vision for the exhibition likens the audience’s navigation around the works to a “voyage”, implying the “limitless seas and ports of call that begin and end at different points of each mental sailing” (Ibid., p168). According to Coe, the concept behind the exhibition was to bring together a collection of works which “personally involve[d] the viewer” through sensorial engagement, and it was the audience itself which made an exhibition “come alive”, by becoming “immersed in [its] mystery” (Ibid., pp14-15).

Riley’s vision for the installation was for a machine in which “live voices” would be repeated and delayed, thus “projecting the past into the present” (Ibid., p88). Within “a cluster of chambers” situated around a central chamber with concealed sound equipment,

[t]he participant would open doors, equally spaced around the outer edge of the structure, and pass through the outer chamber into the center and out by way of one of the other outer chambers. (Ibid., p102)

The relay system was set up so that the speaker(s) in one chamber were “never in simultaneous operation” with another chamber, and while “voices talking in one chamber could be heard faintly in the adjoining cubicle, the repeats are broken up, so they cannot be heard on the same delay-relay line.” (Ibid., p193). This had the result that,

[a] voice recorded in chamber number one is made available outside chambers two, four or eight. A whistle from chamber number three is heard immediately outside chambers number five or seven, depending on the mixer. (Ibid.)

In the description of the *Time Lag Accumulator*, Coe refers to the audience-centred dynamic of Riley's concerts, during which "the audience [are] allowed to recline on pillows and mats and move around according to their own feelings without the usual formal concert restrictions" (Ibid., p190). Coe described the intention for the area around the installation to be comfortable, containing cushions and chairs to encourage a relaxed atmosphere, although this wasn't possible at the Kansas exhibition due to space restrictions. This method of informal audience engagement references *Dream House* (see chapter 2.3), which allows visitors to move or rest within an informal environment at their leisure (as opposed to the fixed stage and seating present within a traditional concert venue); and evidences the move away from a passive audience viewing a performance towards an active relationship between audience and artwork within an intermedial space between installation and performance, thus demonstrating the expanded narrative.

The act of involving the audience within the work references Behaviourist art (see chapter 3.2.1), of which Ascott notes that,

[i]ts structure must be adaptive implicitly or physically, to accommodate the spectator's responses, in order that the creative evolution of form and idea may take place ... (Ascott, 1966-67, p102)

The *Time Lag Accumulator* is an example of how the location of audience members within specially constructed chambers (as an example of an active space – see chapter 1) with recording equipment, demonstrating how voices and sounds can form the basis of the installation (as an ‘active’ audience) and contribute to an immersive experience. The work itself can stand alone in an exhibition as a form of sculpture, but it is the presence and action of the participant which completes the installation and allows it to exist in its intended form.

Coe noted that the *Magic Theater* exhibition was “never meant to be the same experience twice” and that visitors gained from repeated visits to the exhibition, which afforded them the opportunity to “experienc[e] the same environments under differing conditions” (Coe, 1970, p157). Therefore, an important element of the audience experience of an event is that it can never be replicated exactly but exists only in the moment of its creation and performance.

Within the *Time Lag Accumulator*, the lighting, structure and the relay process in the work conspired to allow external spectators to hear and see everything that was happening within the chambers, while the participants had only an incomplete understanding of that which was happening within the installation. Coe noted that the “phrases or short sentences [were] sustained, making a collage of fragmentary or interrupted thought” (Ibid., p193), in which,

[a]t times words or utterances appear to be denouncing each other, creating echoes different from what was intended. The over-lag gradually built up sonic

textures heavier than the participants could have produced by themselves, amplified into extensions of the original voice waves. (Ibid.)

The installation seemed to be less effective with larger groups of participants, which caused it to seem to “go beserk, lose internal control, and freak out” (Ibid.). Loud noises also caused issues, as Coe explains,

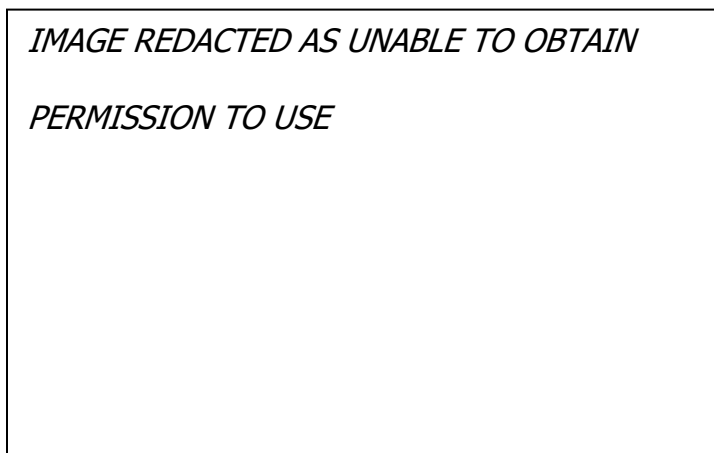
It was particularly sensitive to children and became afflicted with their boisterousness, creating an almost indecipherable sound web. Spectator-created noise seemed to run through a maze and re-emerged loud and clear but hollow, a derived voice image. (Ibid.)

George Ehrlich reviewed the exhibition in *Art Journal*. Despite his concerns that the concept of the works took precedence over the experience of them and that the works seemed “familiar”, he described it as a “major experience in the memory of many” (Ehrlich, 1969, p40). According to Ehrlich,

[i]ts very physical presence made it much more than a “happening”; and as a provocative, stimulating and challenging experience, it involved people in a variety of ways, not the least of which was the post-experience impact with its discussion and reflection upon the significance of the production. (Ibid.)

The *Time Lag Accumulator* is presented as both a historical and enduring example of intermedia in that it is situated in-between a sculpture, installation and interactive experience, which has been reinvented twice since its original installation. A second version modelled on the original was created in 2003 for the Festival of Lille (see figures

7 and 8). This version of the installation differed from its 1960s counterpart in both shape and its use of computer technology, while the basic principles of “time and space lags” remained the same, in that “each sound emitted in one of the rooms is recorded and then broadcast in the next room ... thus prompting continually renewed sonic material” (Biennial de Lyon, 2005). In 2019, a third version was exhibited at the Schauspielhaus Bochum theatre, Germany.<sup>58</sup>



*Figure 7: Time Lag Accumulator II at the 2005 Biennale de Lyon (Exterior)*

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<sup>58</sup> The *Time Lag Accumulator II* is now in the collection of the Museum of Contemporary Art in Lyon, France, and was most recently exhibited as part of the *Sounding New* exhibition at the same gallery.

*IMAGE REDACTED AS  
UNABLE TO OBTAIN  
PERMISSION TO USE*

*Figure 8: Time Lag Accumulator II at the 2005 Biennale de Lyon (Interior)*

### 3.6 Conclusion

In all three of the historic works by Young and Riley which feature as case studies within this thesis (*A Collaboration*, *Dream House* and *the Time Lag Accumulator*, see chapters 1.3, 2.3, and 3.5 respectively), Young and Riley's performances and artworks draw the audience into a constructed space, as separate from 'everyday' experience. LaBelle notes Young's interest in the relationship between sound and audience, which "strives for the actualization of the very perceptual moment of hearing as a phenomenon in its own right", presenting "a music as pure concept ... a sonic image to be completed within the listener's ear" (LaBelle, 2010, p71; p69). Furthermore, he suggests that Young's work "in featuring increased stasis and repetition, comes to 'stand' in space as a vibratory form in relation to a listener" (Ibid., p80). This has parallels with Dyson's concept of vibration (see chapter 3.4.1) and is recognised by

Mertens, who describes the composers' experimentation with "physiological effects ... so as to be able to calculate a measurable effect that could be made on the listener" (Mertens, 1980, pp89-90).

This investigation demonstrates that performances and artworks require three elements to be present in order to create an expanded narrative and facilitate an immersive experience (the active space, cross-disciplinary collaboration, and an active audience). Chapter 1 discussed the creation and organisation of spaces which lead to very specific and subjective experiences for their audiences, while chapter 2 presented works involving cross-disciplinary elements – either within or outside the arts – as intermedial works, which facilitate the multi-sensory engagement of their audiences. Further, this investigation acknowledges the role of the audience in committing to and participating in an artwork or performance as essential to its realisation and existence, and in turn for enabling an immersive experience through an expanded narrative. It also demonstrates the enduring use, relevance and need for new forms of engagement, immersion and participation – six decades on (at the time of writing) from the historical works which formed the origins of this investigation.

Placing the audience as central to the experience allowed for new affordances in artistic practice as enabled through new forms of technology. As Packer and Jordan note, the shifting role of the spectator "had profound implications for the evolution of interactive media art" in that its influence can be "felt in the changing role of the viewer in human-computer interaction" (Packer and Jordan, 2002, p28). Later, the embrace of the digital and computer technology would allow for



online and virtual forms of practice. The next chapter will consider how the move towards the digital at the end of the twentieth century led to new affordances in artistic practice, and in turn to the development of new forms of active spaces and immersive experiences. Beyond this, chapter 5 further considers how the presence and action of the audience remains of relevance to contemporary artists. In this latter chapter, two new works by the researcher are introduced, both of which engage the audience in different ways: the first, *A-Wakening* (2018) through physical presence and movement within a darkened space; the second, *The Lull* (2017) through the virtual presence of an avatar.

## CHAPTER 4:

### The Expanded Narrative in the Era of Digital Art and New Media

Building on the concept of the expanded narrative as being the sum of its parts (active space, cross-disciplinary collaboration, and active audience), this chapter considers how advances in technology towards the end of the twentieth century led to new affordances in interactive and immersive experiences through the creation of new forms of active space (such as virtual reality) and collaborations at the intersection of art, design, and technology.

Janet H. Murray notes the agency of the audience in occupying a performative role through the process of interacting with a work in her book *Hamlet on the Holodeck*. According to Murray,

The interactor is not the author of the digital narrative, although the interactor can experience one of the most exciting aspects of artistic creation – the thrill of exerting power over (enticing?) and plastic materials. This is not authorship but agency. (Murray, 2017, p397)

As with previous chapters, this chapter focuses on works which require the presence of an audience – while acknowledging the advances in technology which allowed for screen-based experiences to become both accessible, affordable, and pervasive within society, bringing art and entertainment to new audiences.

This investigation places audience experience as central to the expanded narrative (and thus immersion). In this way, our investigation returns to the concept of relational aesthetics, as discussed in chapter 3.2, where the encounter between audience and artwork is a work of art in itself. In this way, interactive (and thus immersive) art echoes the concept of art as an arena of exchange, with the artwork taking the form of an “ensemble of units to be re-activated by the beholder-manipulator”, who “take[s] up a position ... giving it life ... and taking part in the formulation of its meaning” (Bourriaud, 1998, p20; p59).<sup>59</sup> Nicolas Bourriaud notes that “[t]his kind of work ... derives from Minimal Art, whose phenomenological backdrop speculated on the presence of the viewer as an intrinsic part of the work” (Ibid., p59). While referring more to the artistic movement than the musical genre with which La Monte Young and Terry Riley were associated, this calls to mind the experiential nature of the early work of both composers which feature in this thesis.

Following the previous chapters, which focus on the 1960s, this chapter brings the three elements of the expanded narrative (active space, cross-disciplinary collaboration, and active audience) up to date, to examine how advances in technology and the “new individual and social modes of perception” associated with the newly digital world between the 1970s and 1990s furthered the immersive relationship between audience and artwork (Gsöllpointner et al., 2016, p8). Further, Pauline Oliveros is the focus of

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<sup>59</sup> One artist highlighted by both Bourriaud and the researcher is Dominique Gonzales-Foerster, whose relational work includes *Séance de Shadow II (bleu)* (1998) involved motion sensors affecting lights which could be experienced either solo or socially, and her TH.2058 exhibition at the Tate Modern’s Turbine Hall in 2008 featured bunk beds which could be occupied by visitors. Gonzales-Foerster’s work is further examined in chapter 5.

the fourth case study in this thesis, which highlights her role as both a composer and as a pioneer through utilising both physical and digital spaces in her work.

The requirement of a level of interaction and engagement from the viewer references Roy Ascott's notion of behaviourist artworks (see chapter 3.2.1, this concept is also discussed further within 4.3.1); however, this alone does not necessarily result in an immersive experience. Within this thesis, all three elements above should be present - in other words, a multidisciplinary work, inhabiting a organised environment, and allowing an audience to enter or activate the works.

This period has been selected both as chronologically succeeding the previous chapters and for its relevance to the genre of immersive artistic practice. The 1970s has been described by curator Jim Boulton as the "first truly digital decade", with technological advancements including the first programmable microchip and the first home video and arcade games; while the artistic potential of technology and science became more prevalent; for example, computer scientist Myron Krueger's reactive installations and responsive environment *Videoplace* (1974- ) (Boulton, 2014, p25). Two decades later, the 1990s were particularly crucial to the development of technologically augmented immersive art, with rapid advances in technology including the world wide web and virtual reality enabling art to be experienced outside of the gallery space – as well as created, co-produced and distributed by artists and audiences alike. In this way, a lineage is drawn between the experiences and installations of the 1960s, as described in previous chapters, to world-building and virtual reality of the 1990s and beyond.

While the focus of this chapter remains the central role of the audience, it is relevant to note that towards the end of the century, art was being increasingly used to explore social practice and to respond to political and economic uncertainty; for example, in the work of Francis Alÿs (for example, *Railings* (2004)) and the performances of Vanessa Beecroft (for example, *VB52.005.NT* (2005)) and Santiago Sierra (for example, *Group of Persons Facing a Wall* (2002)). Such works incorporated art, architecture, staging and performance, and while not necessarily requiring an audience to become part of – or complete – the work, the voyeuristic gaze of the viewer is utilised in such a way as to make a statement or to raise questions about the state of the world.

Although Young and Riley did not necessarily embrace digital and new media themselves during this period, both continued to produce work and collaborate with musicians and artists – for example, Young and Marian Zazeela's *Dream House* (see chapter 2.3) continued to be exhibited, and Riley's work with the Kronos quartet, which later resulted in *Sun Rings* (see chapter 5.1).<sup>60</sup>

Building on the diversity of active spaces discussed in chapter 1, through which Young and Riley's work was made available to audiences during the 1960s, beyond this period artists and composers continued to look to both intervene with existing physical locations and create new spaces in which to perform, record or exhibit.

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<sup>60</sup> *Dream House* has been exhibited at various locations, including the Mela Foundation in New York, where it has been exhibited since 1993.

## 4.1 Activated spaces: (re)construction and intervention

The active spaces of the latter part of the twentieth century can be grouped into two categories, which while distinct, share themes of construction, reconstruction, and intervention:

- Physical spaces, chosen and utilised for their material properties (see chapter 4.1.1)
- Fully digital, virtual spaces (see chapter 4.1.2)

The examination of these spaces concludes by presenting Oliveros as a case study (see chapter 4.1.3), highlighting her innovative use of audience engagement and her use of both physical and virtual spaces.

### 4.1.1 Activating and utilising physical spaces

While technology allowed for the gradual move towards the digital creation (and re-creation) of spaces for art and performance, physical spaces were being used and exploited by artists and composers that have included James Turrell and Oliveros (see chapter 4.1.3). In 1974, Turrell began working on *Roden Crater*, a large-scale work created within a volcano in the Painted Desert, Northern Arizona. The work “[r]epresent[s] the culmination of the artist’s lifelong research in the field of human visual and psychological perception” and is described as a “controlled environment for the experiencing and contemplation of light” (Roden Crater, 2021). Work on the project remains ongoing today, and Turrell is planning to open the space to both visitors and overnight guests – the latter of whom will be able to stay alongside the

crater and follow an exacting itinerary of waking early, swimming underwater, and climbing a staircase, before sitting or lying in a pool of water to fully experience one of the several spaces on the site. The bowl containing the water is “connected to a transducer that converts energy into sound”, with the result that,

anyone who submerges their head in the bath will hear the radio frequencies of space. Depending on the season and time of day, the water may buzz with solar energy, or the differing tones of Neptune, Jupiter or Uranus, or the white noise of the Milky Way. (Hylton, 2021)

Visitors would then descend to see the light filtering through the pool to project an image of the sky onto sand below. This added layer of engagement with the space by the visitor lends itself to the third of the aspects considered within this section – that of the active audience (see chapter 4.3, which continues the themes of chapter 3 within the lens of more contemporary, digital practice).

Other forms of spatial engagement included soundwalks. Akio Suzuki’s *Oto-date* (1996 - ) takes the form of two spray-painted ‘ears’ at specific locations within a city (it has been presented at locations including Brussels, Athens, Newcastle, and Toronto), which indicate the place and direction that a listener should stand to experience the aural environment of the location.<sup>61</sup> Both Suzuki and Turrell’s work allow for variables which

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<sup>61</sup> There are similarities between this piece and Max Neuhaus’s *Listen* (1966) in which the word ‘listen’ was stamped onto participants hands at specific locations. A later version of the work would involve participants placing postcards in locations chosen by themselves. Another soundwalk based on postcards, this time describing the experiences of residents of Copenhagen apartments, was Jacob Kreutzfeldt and Brandon LaBelle’s *Copenhagen Sonic Experience Map* (date unknown).

would affect the experience of the audience. In *Oto-date*, this would include “the specific sounds at the exact time of each listening session, and the orientation and hearing of the listener”, while in the case of *Roden Crater*, this would include the time of day, cloud cover, and the alignment of the planets (Gottschalk, 2016, p240).

In contrast to recorded work (which the listener understands to be an artificial presentation of reality), soundwalks frame the everyday as both the composition and performance, immersing the audience within the stage, music and action. James Saunders describes the “participants and listeners” as being confronted by “layered modes of listening”, complementing the way in which John Leveck Drever suggests “the customary focal point of a concert experience is exploded” (Saunders, 2009, p4; Drever, 2009, p176). In this way, the distinction between reality and performance (as unreality) is blurred, with no defined start, end, or perimeters.

The architecture and siting of venues could be exploited by composers to encourage deeper engagement between audience performance, as evidenced in the works of Phil Durrant, Stuart Dempster, and Max Neuhaus. During their 1998 tour, the Phil Durrant Quartet played quietest in the loudest venues to draw the listener closer – for example at the Fundbureau, Hamburg, when they played only while trains passed overhead. Dempster’s *Standing Waves* (1976) uses the acoustical properties of the Grand Chapel in Avignon to combine notes with their echoes. Later versions of the work (1978/87) were played within concert halls, incorporating multiple tape layers played through a multichannel sound system, which while not as reverberant as the original increases the amount of sound within the space. Similarly, Neuhaus’s *Three to One* (1992) and



*Untitled* (1996 – also see chapter 3.4) took the form of interconnected spaces, and “sound colour[s]”, which the visitor could explore both physically and sonically (Gottschalk, 2016, p111).

Artists working to engage their audiences within physical space include the filmmakers associated with the expanded cinema movement, who sought to break down the “barrier between artist and audience through participation”. Through constructed spaces and immersive installations, including David Hall’s *Progressive Recession* (1974 - which placed the viewer within a multi-screen interactive installation), and Grahame Weinbren’s *Frames* (1999 – an interactive installation involving suspended picture frames and projections), “[t]he Spectator (presence) becomes implicated in the unfolding (encounter) and becomes part of the development of the work”, thus “alter[ing] [the] field of authorship” (Curtis et al., 2011, p13; p169; p35). As Carolee Schneeman notes in the programme for the 1970 *International Underground Film Festival* at the National Film Theatre, London,

Audience participation in a visual environment changes perceptual levels to expressive, functional (self-timing); the visual environment scanned rather than focussed on; reaction replaces attention. (Schneeman *in* Curtis et al., p97)

In this way, Steina Vasulka’s *Allvision* (1976) took the form of a sculptural installation where “two video cameras mounted on a rotating turntable facing a mirrored square were employed to transform and disrupt the viewer’s perception of the surrounding gallery” (Curtis et al., p129).

Similarly, Camille Normont, Yayoi Kusama, and Kurt Hentschläger developed innovative and engaging spaces. Normont's *Notes from the Undermind* (2001 – also see chapter 3.4) took place within a padded cell, in which poles emit sounds of differing pitches which could be affected and silenced by the presence and action of those within the space. Kusama's *Mirror Room: Pumpkin* (1991), shown at the 1993 Venice Biennale, took the form of a room of black and yellow polka dots containing a box containing an optical illusion of an infinite landscape of pumpkins made of papier-mâché.<sup>62</sup> Hentschläger's *ZEE* (2008) is an installation which is also situated within a room-like space. Filled with fog, and augmented by ambient sounds and lighting, the participant is invited to either freely navigate the space or feel for – and follow – a guide rope around the edge of the installation.

Artists also used sensory engagement to immerse their audiences within their works. In Paul DeMarinis's *Rain Dance* (1998), participants held umbrellas under water streams, with the resultant drops creating pitches and vibrations, and highlighting the integral presence of the audience in the creation of sound. In this manner, an immersive experience is created through the haptic engagement of holding an object.

In all of these works the subjective experience of the audience is central to the work – with many also requiring interaction and movement. As Jennie Gottschalk notes (of Neuhaus's work, but the sentiment equally applies to the other sonic examples in this section,

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<sup>62</sup> Kusama's original series of Infinity Mirror rooms were developed between 1965 and 1973.

a static experience (sound in space) [overlays] a temporal experience (walking) and complicates the linearity of the walk. The braids of anticipation, experience, and memory are unravelled through the fixedness of these sounds in traversable space. (Gottschalk, 2016, p112)

Beyond continuing to create innovative physical spaces, from the 1980s, artists were looking to the potential of computers and the internet to realise their ideas. In turn, this led to digitally created virtual spaces.

#### 4.1.2 Towards technologically driven digital and virtual spaces]

New Media Art allowed artists to respond to the advance of information technology and digital culture, for example Christa Sommerer and Laurent Mignonneau's *A-Volve* (1994), an interactive real-time environment in which visitors interacted with virtual creatures in a water-filled glass pool.

Mark Tribe, founder of *Rhizome.org*,<sup>63</sup> and author Reena Jana describe 1994 as a "watershed year in the linked histories of media technology and digital culture" (Tribe and Jana, 2006, p6). In this year, the first commercial web browser (*Netscape Navigator*) was launched, meaning that technology previously only accessible to researchers was now available to artists and the wider public. The first exhibition of internet based *net.art* was held at the 1997 *DocumentaX* exhibition of contemporary art, Kassel, Germany.<sup>64</sup> Early pioneers of *net.art* included Vuk Ćosić, Alexei Shuglin and

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<sup>63</sup> The online resource for the New Media art community.

<sup>64</sup> Interest in the movement began earlier in the decade, the San Francisco Museum of Modern Art held the Bay Area Media exhibition in 1990 (including work by Bill Fontana and Lynn Hershman), and in 1995, The Whitney Museum of American Art was the first museum to acquire a work of *net.art* (Douglas Davis's

Olia Lialina, while others came from a computing background, such as John Klima. The movement was inexpensive and accessible to anyone with a computer, modem and internet connection (either at home or in a public space such as a library).<sup>65</sup> As Tribe and Jana note,

New Media artists saw the internet much as their predecessors saw the portable video camera: as an accessible artistic tool that enabled them to explore the changing relationship between technology and culture. (Ibid., p9)

While internet-based art works raise issues of uniqueness, ownership, and reproducibility, they also enable new forms of production, not just reproduction. Similarly, virtual reality can both be used for creation and recreation (for example, of a building, person, or object – as with photography, painting, and other more traditional artistic forms).

The emergence of interactive digital artworks brought with it new problems. Such works were medium-specific and time-based (as with the happenings and the experiences of the 1960s), raising issues of how to display, curate and archive them. Unlike paintings and sculpture, these works required audience engagement to reveal their content, and flexible and responsive methods of presentation were often required. This led to new spaces being founded in which to develop and exhibit interactive digital

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*The world's first collaborative sentence* (1994). Beyond the 2000s, net.art and digital art remained of relevance, as exemplified by the inclusion of the genre in the 2000 Whitney biennial, and the Bitstreams exhibition at the Whitney Museum in 2001.

<sup>65</sup> This accessibility and affordability links to the adoption and success of creative virtual mediums such as *Second Life* and *Minecraft*, and to my own practice in which I use tools and software which is either ubiquitous – such as mobile phones – or free to use or download.

content (see chapter 4.2), echoing the new active spaces which were being explored by Young and Riley during the 1960s (see chapter 1.2).

The movement from interactivity within physical spaces to those digitally created (and/or enhanced) and held within a computer marks a shift from the audience being present in the same location as a work to what Edwina Bartlem terms “spaces within spaces”, and towards virtual environments, where through technology the space of the spectator is extended beyond a screen to a digitally constructed work (Bartlem, 2005). According to Bartlem, “immersive artworks re-shape our understandings of art spectatorship from a distanced and passive exercise to an active and often intimate endeavour, that is both playful and performative in nature”; and suggests that digital art (in particular) has the potential to expand the space of the body and imagination – a statement which is similarly true of virtual environments such as the *Second Life* platform, through which a sense of embodied presence is created via both the ability to control an avatar as an extension of oneself, together with the option to adjust settings in order to view the environment from the point of view of that avatar (Ibid.). Bartlem views the user/audience of such works as both “performers and active participants” who “create both the content and the meaning of the work as they interact”, noting that digital art has the potential to expand the space of the body and imagination (Ibid.).

Intuitive interfaces encourage and welcome the exploration and action of the audience, where the experience is shaped by the collaboration between audience and artwork (see chapter 4.3). Frank Popper notes that artistic influences on such technologically

driven art include Futurism's fusion of art and science, Dadaism's move away from traditional aesthetics, and Constructivism's combination of the material and spatial properties of objects, leading to a legacy of spectator participation and interactivity through the incorporation of computers and sensors.

While the term 'virtual reality' was coined by Jaron Lanier in 1989,<sup>66</sup> early forms of virtual spaces were presented within small cinema attractions between the 1970s and 1990s, such as the Omnimax (since renamed as IMAX dome) theatres, which showed films projected onto the curved ceiling of the venue.

In 1988, Scott Fisher of the University of Southern California and Elisabeth Wenzel of the National Aeronautics and Space Administration (NASA) developed the Virtual Interface Environment Workstation (VIEW), comprising "a multisensory, interactive display environment" which enabled the user to "virtually explore a 360-degree synthesized or remotely sensed environment and ... viscerally interact with its components" (Fisher et al., 1988). Developed at NASA, VIEW was a user-controlled head-mounted, stereoscopic display system, predating the virtual recreation of the real for research and commercial applications (such as flight simulators) in the 1990s, providing a liminal space bridging the real and the unreal.<sup>67</sup> This in turn led to both the adoption of virtual reality by artists and audience, and the bespoke and artistic creation of new and online spaces allowing for creation and exploration – echoing the adoption

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<sup>66</sup> As noted in Steur (2006).

<sup>67</sup> Similarly, ARPANET, a precursor to the internet was funded by the U.S. Department of Defense to develop virtual spaces.

of post-war technology by composers and artists, as discussed within the introduction to this thesis.

The 1990s and 2000s saw a move towards software and hardware which enabled new forms of immersion, including the *CAVE Automatic Visual Environment* – a room-sized immersive display. To access and engage with virtual worlds, audiences were required to navigate the space using headsets or controllers – creating a distance between the audience and artwork. While some composers and artists utilised existing commercial platforms such as *Second Life*, as embraced by Oliveros (see 4.1.3), others pushed technology in new directions to inform their own practice and develop innovative methods and scenarios to engage and immerse their audience, such as Char Davies (see chapter 1.4), who developed her own software to realise her visions.<sup>68</sup>

Davies uses virtual reality as a means to juxtapose the natural with the artificial experience, arguing the case of art as psychological experience. Of *Osmose* (1995) (see chapter 1.4), Oliver Grau notes that, “[i]n virtual reality, the interface is key to the media artwork and defines the character of interaction and perception” (Grau, 2003, p198). This leads to the effect of “embodied presence” which, “in the course of the “immersion”, results in an emotional state of being that is heightened still further by the music” (Ibid.). He also notes that,

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<sup>68</sup> In 1985, Davies joined the 3D software company Softimage, which later became a subsidiary of Microsoft in the 1990s, before being sold to Avid Technology, and then Autodesk.

The more intensely a participant is involved, interactively and emotionally, in a virtual reality, the less the computer-generated world appears as a construction. Rather it is construed as a personal experience. (Ibid., p200)

Her work suggests that by enabling an 'immersant' to inhabit an alternative, computer-generated, unreal space, psychological effects can include experiencing changing sensations of time. The 'immersant' is required to experience the virtual space as if it were an actual physical space, with engagement encouraged through familiar bodily functions to create a sense of embodiment within the constructed space, avoiding potential issues with detachment. Of further relevance to this investigation is the Dutch composer Michel van der Aa, whose work *Eight* (2019) took the form of a mixed reality "fusion of musical theatre, [virtual reality] and visual art" and was commissioned by the Holland Festival, Festival International d'Art Lyrique d'Aix-en-Provence, Château La Coste, Beijing Music Festival, KunstFestSpiele Herrenhausen, and Helsinki Festival (van der Aa, n.d.).

While artists such as Davies are primarily known for creating digital and virtual works, Oliveros, a contemporary of Young and Riley whose deep listening practices were introduced in chapter 4.1.1, is here presented as a pioneer of both physical and virtual spaces in the development and performance of her works.

#### 4.1.3 Case Study 4: Pauline Oliveros

Oliveros was one of the first directors of the San Francisco Tape Music Center and later served as Composer in Residence for the organisation which still provides facilities and



equipment for the artistic community in the area.<sup>69</sup> The listening experience (for both performer and audience) and the use of venue were central concepts in Oliveros' work, which included Deep Listening and *Sonic Meditations*; for example, *Crow Two*, where the audience was invited to participate in a guided meditation.<sup>70</sup> Of her Deep Listening Band, Oliveros noted that they "performed in caves, cisterns, cathedrals, concert halls, and a great variety of adapted spaces including cyberspaces", and emphasised the importance of 'listening' to each space before rehearsals, to "[bring] about new possibilities and feelings" (Oliveros, 2007). In this way, Oliveros worked within the Dan Harpole Cistern in Fort Worden, Washington, in 1989 to record her album *Deep Listening* together with her Deep Listening band, which formed the previous year (this concept is explored further in 4.1.3).<sup>71</sup> The space allowed for a 45 second reverb, which enabled the sounds played to enter into what Tim Rutherford-Johnson describes as a "sonic dialogue" with the space, in which the architecture responds to the music (Rutherford-Johnson, 2017, p228). In this way, "overlooked *spaces* are reclaimed as *places*, a move that resists the increasing anonymization of public space and restores narrative and meaning to a site" (Ibid.).

Similarly, the digital enabled Oliveros to experiment as a composer, in that,

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<sup>69</sup> Now known as the Center for Contemporary Music at Mill's College. Riley's performances at the San Francisco Tape Music Center include: a concert in November 1964, during which he premiered *In C* and *Coule* (Keyboard Study no 1) alongside *Music for the Gift*, *Shoeshine*, and *In A $\flat$  or is it B $\flat$* , and *Tread on the Trail* in April 1965.

<sup>70</sup> This piece was performed as part of the SUNYAB Evening for New Music concerts in June 1974, according to Levine Packer's *This Life of Sounds*, where it is named *Crow*.

<sup>71</sup> Both Oliveros's work and this particular space would go on to inspire composer Jherek Bischoff, who recorded his 2016 *Cistern* album in the space for its acoustic properties.

[a] virtual space may sound like the inside of a teacup, a cathedral, or a closet. More than one space may be perceived simultaneously – several sounds may be perceived in separate spaces – a single sound could seem to be sounding from a space inside some other space and endless other creative configurations. (Oliveros, 2007)

Oliveros's collaboration with groups including the Avatar Orchestra Metaverse and the Telematic Circle, an "interest group that use[d] and develop[ed] applications for telepresent music performances" and "support[ed] the creation of new art that specifically address[ed] broadband transmission systems as a ... medium" became possible through both advances in technology and networked communications (Oliveros, n.d.). Developed as a "collective of composers, musicians and media artists", the Avatar Orchestra Metaverse,

meet[s] in the online 3D environment Second Life to investigate and expose new possibilities for developing audiovisual works that challenge conventional practices of perceiving, creating, performing and listening to music (Avatar Orchestra Metaverse, 2013).

The Avatar Orchestra Metaverse was formed in 2007, and its central concept of listening, "invit[ed] subtle yet powerful connections made audible within a rich and wildly varying audiovisual world", where,

'instruments' are created within the Second Life environment, making it possible for each performer in the Orchestra to trigger sounds independent from one another and to play together in real time. (Avatar Orchestra Metaverse, 2013)

At the time of their first concerts in March/April 2007, the Avatar Orchestra Metaverse comprised members from Switzerland, Italy, Germany, Sweden, the USA and Canada, and Oliveros became a member during the same year using her avatar, named Free Noyes.<sup>72</sup>

The premiere of the *Second Life* based *The Heart of Tones* (2008) created by Oliveros, and performed by the Avatar Orchestra Metaverse took place simultaneously at the Open Space Voice+++ festival in Victoria, British Columbia on 10<sup>th</sup> May 2008, and 'in-world'. In the work,

a tone is minutely explored in the smallest possible increments within a half tone above and below a prescribed pitch, through subtle timbre variations and spatial movements by performers on virtual and physical instruments ... (Avatar Orchestra Metaverse, 2008)

Oliveros developed a virtual instrument in collaboration with fellow member Andreas Müller for the avatars of the Avatar Orchestra Metaverse to wear, which "include[d] individual controls for volume, duration, frequency and colour spectrum", together with

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<sup>72</sup> While the exact circumstances of the collaboration remain uncertain, a blog post, dated 18<sup>th</sup> September 2007 and written by another member of the Avatar Orchestra Metaverse, the *Second Life* avatar Wirxli Flimflam, notes that they gave Oliveros an 'in-world' tour of Odyssey Island and a demonstration of virtual performance methods, following which they note their hope that "Pauline/Free takes up our offer to join the Orchestra and maybe even compose a new piece for the ensemble" (WirxliFlimflam, 2007).

customised avatar animations “designed to provide subtle variations [sic] and evolutions in the perception of the received sound” as determined by the musicians (Ibid.).

The resultant beats, timbre shifts and audio illusions create rhythms, transformations and textures that are precisely mirrored in visual colour spectrum shifts on activated capes worn by the avatar performers. (Ibid.)

The focus of the piece for the audience is to listen to the “acoustic beat frequencies” and the “overtones that result from playing tones ... that are very ... close together in frequency” (Ibid.). A recreation of the 1999 work of the same name, this work would later be performed by the Avatar Orchestra Metaverse in June 2017 in both *Second Life* and at the McGill University in Montreal as part of a tribute to Oliveros who passed away in 2016.

Oliveros was involved with two further works with the Avatar Orchestra Metaverse: a networked collaboration with Stelarc titled *Rotating Brains / Beating Heart* (2010), which simultaneously took place at RMIT Creative Media in *Second Life*, and at Brunel University, London, where a virtual “ring of rotating semi-transparent brains and a beating heart [float] in the virtual space” are navigated by avatars which trigger the “emission of sounds and particles of light” while Stelarc’s avatar and its clones “perform[ed] a choreography of prompted and scripted avatar movements [mimicking] limb movements of Real Life Stelarc muscle stimulations” (Avatar Orchestra Metaverse, 2010); and *Vancouver Calling* (2012), a ‘call and response’ composed for the Canadian

New Music Forum 2012, where participants within the physical venue and online followed cues originating in *Second Life*.<sup>73</sup>

Oliveros's work continues to influence contemporary composers today. Mikhail Karikis is a musician turned artist who was commissioned by the TATE and Birmingham City University to develop *Ferocious Love* (2020), "reflecting on young people's perspectives on an uncertain future, in the face of environmental adversity" (Karikis, n.d.). This work references Oliveros's use of space and was partly filmed inside the Williamson Tunnels in Liverpool. In the exhibition of the work at TATE Liverpool in 2020, the sounds of turbulent weather resonated around the gallery space as part of a choral composition created in collaboration with the Liverpool Socialist Singers.

Oliveros's work relates closely to the concept of the expanded narrative primarily in that her work places the audience in a central role. She also utilised material properties of physical space and embraced the potential of the virtual for performance and collaboration.

Building on the discussion of interdisciplinary collaboration and intermedia presented in chapter 2, from the 1970s onwards artists and composers continued to collaborate with specialists from other disciplines, particularly when incorporating technology to engage

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<sup>73</sup> Stelarc is a performance artist whose work focuses on extending the capability of the human body. His works include *Third Hand* (1980), where a mechanism with a rudimentary sense of touch is attached to the artist and activated by electrical activity produced by muscles, and *¼ Scale Ear* (2003) where replicas of the artist's ear was grown using living cells as a precursor to the *Ear on Arm* project to construct a full-sized ear to transmit what it 'hears'. This use of *Second Life* as an artistic and a performative space tie in with the researcher's own practice, specifically within the second of the two new works created through this investigation and discussed in chapter 5, *The Lull*.

their audiences – leading to new forms of creation, collaboration, and curation, such as telepresence, networked collectives, and virtual environments.

#### 4.2 Communication, collaboration, and curation in the digital age

From 1981, collaborators no longer needed to be in the same location, with the development of telepresence (initially intended to enable remote space exploration). Such technology enabled telematic or networked immersion to be developed, as with Oliveros' *Second Life*-based works (see chapter 4.1.3), as well as those by composers as diverse as Eric Whitacre and Maryanne Amacher (see chapter 5) – where remotely distant users or audiences can interact with each other or participate in the creation of a work.

The 1990s “explosion of creativity and critical thought” of New Media art became a worldwide movement which “facilitated the formation of communities without regard for geography” from its inception, distributed through mailing lists and the internet and reflecting the “increasingly global nature of the art world” marked by international biennials (Tribe and Jana, 2006, p25; p10). Collaboration increasingly involved networked collectives, for example Knowbiotic Research's *Dialogue with the Knowbiotic South* (DWTKS) (1994-1997) which used data from research stations to “create [an interactive] changing abstract representation of Antarctica”, allowing the user “to ‘immerse’ himself into each knowbot” (Grau, 2003, p213; Archive of Digital Art, n.d. b).

Affordable and accessible computing equipment enabled easier access to (and interaction with) the arts, while audiences became both contributors and creators

themselves.<sup>74</sup> This is evidenced through works such as Jonah Brucker-Cohen and Katherine Moriwaki's *Umbrella.net* (2004), which utilised the visual metaphor of an umbrella as "an individual action spurred by an environmental effect that is part of a collective social network" (Coin Operated, 2010). It is also relevant to note that individuals acting alone could now create a multidisciplinary or technologically augmented work, which in turn could be curated remotely into an online-based exhibition; for example, those discussed within the context of speculative spaces within the conclusion to this thesis (see chapter 6.2).

The development of technologically-driven audio visual (and further into the twenty-first century, multi-sensory) immersive art works contributed to new forms of experiences which echoed the concept of Richard Wagner's *gesamtkunstwerk*, or the total work of art (as presented in the introduction to this thesis). Such works "seek to recapture a lost harmony with the natural world through the medium of virtual simulacra" and include Davies and Ascott (Wilson Smith, 2007, p186). Of *Osmose*, Matthew Wilson Smith notes that through placing the 'immersant' *within* the work, to interact with lines of code taking the shape of natural forms, Davies' work aims to reaffirm the relationship with the real rather than demonstrating control over it. Ascott's *Aspects of Gaia: Digital Pathways Across the Whole Earth* (1989) takes the form of a split installation, with an upper level allowing for audience interaction and manipulation of projected images, and a more immersive lower level taking the form of a narrow space along which the

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<sup>74</sup> This was also employed for economic effect in 1999, with the founding of Linden Labs in San Francisco. With the aim of creating virtual experiences, the organisation enabled users to develop and sell virtual items on their online marketplace.

participant travels, lying down, along a track. Wilson Smith highlights Ascott's use of images, which were submitted by worldwide contributors,

Aspects of Gaia combines the interactivity of networked communication with the immersive effects of VR. For Ascott, this fusion heralds a new age in aesthetic history, one that produces an interactive global synthesis of art and artists.

(Ibid., p165)

The creation of digital art often required collaboration between an artist and specialists in technology and engineering (as with Riley's development of the *Time Lag Accumulator*, see chapter 3.5). Composers engaging technology to inform their practice include John Luther Adams, whose *The Place Where You Go To Listen* (2006- ) is a site specific sound and light installation at the Museum of the North at the University of Alaska. The source material for the work is raw "pink noise" drawn from live data of "seismic and geomagnetic activity ... as well as ... the passage of the sun and moon and the amount of over-head cloud cover" (Rutherford-Johnson, 2017, p228; pp227-228).

The work of Jeffrey Shaw is described by Randall Packer and Ken Jordan as "3-D landscapes with a theatricality that entices the spectator to actively explore them" (Packer and Jordan, 2002, pxxv). Shaw himself described the computer both as a window through which digitally mediated works can be viewed through a user interface, and also as a camera, where the user controls what is focused on and how items are seen (see chapter 1.4). In these works, he collaborated with software developers and



technologists for several of his works, many of which ranged from interactive augmented reality installations to immersive virtual spaces: *Virtual Sculpture* (1981) was co-authored by Shaw and Theo Botschuijver with software by Larry Abel as an “augmented reality installation” in which the viewer could adjust the position of a monitor on top of which was mounted a mirror and lens to “discover various simple computer-generated virtual objects floating in different locations in the real space in front of them” (Jeffrey Shaw Compendium, n.d. c); *Inventer La Terre* (1986)<sup>75</sup> built on this by enabling the viewer to see (and have some control over) “a large virtual image projected out into the museum space”, and listen to pre-recorded sounds by looking through an aperture in a column containing a monitor, lens and mirror, with speakers attached (Jeffrey Shaw Compendium, n.d. d); and *Extended Virtual Environment (or EVE)* (1993)<sup>76</sup> located two movable projectors within an inflatable dome which projected stereo images, which were viewed in 3D by the viewer wearing a head-mounted device that also included a spatial tracking device to control the movement of the projectors (Jeffrey Shaw Compendium, n.d. e).

These new forms of technologically augmented artistic practice “collapse[d] boundaries between disciplines – art, science, technology, and design”, and “originated in various fields, including research-and-development labs and academia” (Paul, 2015, p22). As a result, new forms of exhibition venue and research groups were founded. In 1974, the

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<sup>75</sup> This work was co-authored by Shaw and Walter Maioli, with software by Abel, and hardware by Charly Jungbauer, Pathe, and Tat van Vark.

<sup>76</sup> This work was created by Shaw, with software by Ralph Kondziella, Gideon May, and Detlev Schwabe, and hardware by André Bernhardt, Ralph Gruber, and Armin Steinke.

Special Interest Group on Computer Graphics and Interactive Techniques (SIGGRAPH) was formed within the Association for Computing Machinery (ACM) as,

an international community of researchers, artists, developers, filmmakers, scientists, and business professionals who share an interest in computer graphics and interactive techniques. (ACM SIGGRAPH, 2021)

This group remains in existence today. Similarly, the first *Ars Electronica* festival took place in 1979, and again continues today in recognition of the far-reaching effects of arts and technology.

The International Symposium on Electronic Art (ISEA) was initiated in 1988, “in order to support the founding and maintenance of an international network of organisations and individuals active in the field of the electronic arts” (ISEA International, 2021). The following year, the ZKM Center for Art and Media was founded,<sup>77</sup> followed by the International Academy of Digital Arts and Sciences (IADAS, New York), Eyebeam (New York), Rhizome (Berlin), the Foundation Daniel Langlois (Montreal) in the 1990s. In 2000, Beryl Graham set up the New Media Curating Resource (CRUMB).

In 1991, the Banff Center for the Performing Arts “let artists develop and open up virtual reality technology actively” – one example of work created through this opportunity was *Placeholder: Landscape and Narrative in a Virtual Environment* (1992) produced by the Center and the Interval Research Corporation and directed by Brenda Laurel and Rachel Strickland (Grau, 2003, p174). This work is an example of the

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<sup>77</sup> In 1999, the *net condition* exhibition was held at ZKM.

audience occupying a performative role, as in a theatrical scene, exemplifying Murray's claim that "[v]irtual reality technologies can offer a new kind of costuming and pageantry" (Murray, 2017, p140). Within a virtual playground,

the participants are doubly costumed, since they are wearing actual helmets and body sensors that allow them to enter the virtual animal bodies that make up the smart costumes within the imaginary world. (Ibid., p140)

In this way, the project "explored a new paradigm for multi-person narrative action in virtual environments" and consisted of a virtual landscape that included three-dimensional video elements and spatialized sound which could be navigated using head-mounted displays (Tau Zero, n.d.). This sense of theatricality centring on the performative role of the audience echoes the role of the audience in both *Dream House* (see chapter 2.3) and the *Time Lag Accumulator* (see chapter 3.5), Zazeela's set and costume design for her work with Young, and the continuing tradition of immersive theatre (such as Punchdrunk – see chapter 5.2).

These new spaces for developing and exhibiting technologically-driven art (together with the internet) both fostered new forms of creation, curation and engagement, and potentially engaged a wider audience who would not traditionally visit galleries. In this way, parallels are drawn between Young's loft concerts (see chapter 1.2) and composers and musical collectives embracing the virtual as a method of collaboration and experimentation, such as Oliveros and the Avatar Orchestra Metaverse (see chapter 4.1.3).

Advances in computing equipment together with the crossover between art and technology enabled new methods of audience engagement and immersion which built on the understanding of cybernetics and behaviourism as established during the 1960s (see chapter 3.2.1) with continued relevance today.

Writing in 2015, David M. Berry and Michael Dieter reflected on the movement towards the computational mediation of daily life and its effect on sociality.

As the computational increasingly penetrates life in profound ways, it does so with a new intensity in terms of a complex repertoire of user-orientated logics drawing from an interdisciplinary archive of aesthetic, human-computer, psychological, sociological, phenomenological and design research. (Berry and Dieter, 2015, p1)

Reading this in 2022, from a contemporary perspective, these words have a particular resonance at a time when many sectors (the arts, culture, heritage, education) turned towards the digital to remain accessible and relevant to their audiences, and when technology allowed more people than ever before to work remotely from their homes.

#### 4.3 Audience experience and [re]presentation

Building on the marriage between composition and audience engagement as evidenced by earlier immersive installations such as *Dream House* (see chapter 2.3), composers Dean Suzuki and Phill Niblock produced work which recognised the central role of the audience/participant. Suzuki's *Pyramid* installations were designed to be activated (and thus completed) by the participant. *Pyramid: Humanity Excavates Sound* (2001),

installed at the Mattress Factory, Pittsburgh, took the form of “676 sheets of glassine paper, geometrically stacked in a pyramid form” with an “ear-shaped stone” at its centre, as a reminder to listen (Gottschalk, 2016, p22). Participants contributed to the work by walking over the paper and listening to the resultant sounds, while others contributed to its displacement and destruction – raising additional questions regarding unmaking as a form of audience participation.

Niblock’s work, by contrast, was intended to be completed in the mind of the listener. Together with Young and Éliane Radigue, Niblock was interested in concepts of sonic immersion, and temporal experience. In *The Movement of People Working* (2003), comprised of recorded footage of manual labour set against a sequence of his compositions, there was no intended relationship between the audio and visuals outside of that constructed by the audience. Niblock intended for this work to be heard “in multiple dimensions”, using a quad system to fill the space with sound. As Rutherford-Johnson notes,

In this fluid environment, the listener makes her own experience, choosing how to track any images, how to associate them with the sound, how to inhabit the space that is filled with this sound, and how to engage with the beats it produces. (Rutherford-Johnson, 2017, p114)

In this manner, Niblock “direct[s] attention to the listening experience itself”, in a manner which recalls Oliveros’s Deep Listening methods (Ibid., p113) (see chapter 4.1.3). Niblock’s prioritisation of the role of the listener in the experience of his work

links in with the relevance of the active audience within the immersive relationship between audience and artwork which this investigation highlights. Additionally, his use of space and the architecture of sound ties in with the concept of the active space as contributing directly to this relationship.

David Tudor and David Behrman are further examples of composers exploring the relationship between audience and performance. Tudor's *Rainforest IV* (1973) – as with previous versions of *Rainforest* – encourages participation from both musicians and audience. A form of sound sculpture, objects including wooden planks and bedsprings were available for sound production, and the audience was free to navigate the space – drawing parallels with *HPSCHD* (see chapter 3.1). Similarly, the audience contributed to the creation of the resultant work in Behrman's *In Thin Air* (1997) by using foot pedals and controllers to interact with a “three-part canon” from which the sounding results were fed into a live visualisation.<sup>78</sup> As Gottschalk notes, Behrman was,

interested in situations that offer agency to the other participants in a musical work and to at least partially flatten the hierarchies and structures that art music seems to carry as baggage. (Gottschalk, 2016, p212)

Further to the introduction of Ascott in chapter 3, together with his theories on behaviourist and cybernetic art, it is relevant once again to return to him in this chapter.

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<sup>78</sup> Behrman's work was developed in collaboration with George Lewis.

#### 4.3.1 Behaviourism in the digital age

In 1994, Ascott founded the Centre for Advanced Inquiry in the Interactive Arts (CAiiA) at the University of Wales, the first research centre in interactive art – taking in artists using different methods of art and technology for interactivity. From here, the *Consciousness Reframed: Art and Consciousness in the Post-Biological Era* international research conference was launched, with Ascott convening the event in 1997, 1998, 2000 and 2003. Ascott later founded CAiiA-STAR as part of the Science Technology and Art Research (STAR) department at the University of Plymouth, which in 2003 became the Planetary Collegium, an international platform for research in the arts, science and technology.<sup>79</sup> As noted on its home page,

the Planetary Collegium is concerned with the advancement of emergent forms of art and architecture, in the context of telematic, interactive and technoetic media, and their integration with science, technology, and consciousness research. (University of Plymouth, n.d. a)

While writing in the 1960s, Ascott notes that historically, artists have set conditions for their work, for example, by setting boundaries between themselves and their work against the spectator (as in a game, with the audience unable to form strategies of their own). He observes that such 'behaviourist' artworks allow for a situation, "in which the artwork exists in a perpetual state of transition where the effort to establish a

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<sup>79</sup> Notable alumni from PhD programmes supervised by Ascott include Davies, Sommerer and Mignonneau, Nechvatal, Brian Eno, and Professor Dew Harrison, who initially supervised this investigation.

final resolution must come from the observer" (Ascott, 1966-67, p98). This relationship, which is constantly in play, allows the artist to set the context and for the experience to be entirely dependent on audience involvement. Ascott observed that contemporary artworks allowed a situation which is constantly in play, with the artist setting the context, and the experience is dependent on the involvement of the audience – in particular, telematic art, which "draws on the heritage of diverse currents in experimental art after World War II" (including cybernetic art, video art and happenings),<sup>80</sup> and "challenges the traditional relationship between active viewing subjects and passive art objects by creating interactive, behavioural contexts for remote aesthetic encounters" (Ascott, 2003, p54; p1). In this way, Ascott identifies a link between the participatory nature of happenings (see chapter 3.2.2) and the "performative elements of interactive art" (Ibid., p28). This is also recognised from the perspective of relational aesthetics by Nicolas Bourriaud (see chapter 3.2), who notes that "[s]pectator "participation", theorised by Fluxus happenings and performances, has become a constant feature of artistic practice" (Bourriaud, 2002, p25). Such relationships and the resultant experiences are ephemeral, fleeting, and a subjective moment in time for the audience.

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<sup>80</sup> The adoption of technology originally intended for military or scientific use by artists echoes the use of post-war materials and technology being adopted by artists and composers in the 1960s (see introduction to this thesis).



While computing technology is increasingly important within the creation, distribution and engagement with art works, the audience remains not only central but crucial for its existence and experience. To this end, as Ascott notes,

Computer networking ... responds to our deep psychological desire for transcendence, the spiritual – the wish to be out of body, out of mind, to exceed the limitations of time and space, a kind of biotechnological theology. (Ascott, 2003, p223)

While technologically-driven – and easier and cheaper to construct, exhibit and share – these new forms of art remained subjective, with those immersed in the work bringing their own experiences to the work. This echoes Jacques Rancière's comments on the creation of meaning, in which the spectator links their view and understanding of a situation to their own memories and understanding of it (see chapter 3).

As noted in chapter 3.1, the problem of finding an accurate term to describe the audience-turned-participant when considering work from the 1960s remains an issue in the digital age of technologically-driven immersion. While Davies uses the term 'immersant', the Antenna Theater in California, founded in 1980 to create "events, objects, and ideas [to] foster active collaboration with [their] audience and the world", describe their audience – taking on the role of an actor (as the active audience, as defined by this investigation) as an "audient" (Antenna Theater, n.d.).<sup>81</sup>

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<sup>81</sup> It is interesting to note that Punchdrunk, a UK-based theatre company founded in 2000 which also specialises in immersive productions (see chapter 5.2), refers solely to an 'audience'.

### 4.3.2 The audience within the virtual space

The placing of the audience as central to the expanded narrative and thus to the immersive artistic experience has arguably become the most important aspect of the triad that also includes the use or construction of an active space and collaboration across disciplines. The latter part of the twentieth century heralded a move towards artists being more conscious of the involvement of the audience, such as the *Aspen Movie Map* (1978), developed by the Massachusetts Institute of Technology (MIT) – a hypermedia system which offered users a virtual tour of Aspen, Colorado,<sup>82</sup> and *Carla's Island* (1982-3) by Nelson L. Max, which enabled audience real-time modification of environmental parameters including the colour of the sky and the position of the sun. The same was true for those composers and artists who sought to involve their audiences in the physical (and virtual) experience of their work, such as Oliveros, Turrell, and Shaw. In this manner, the audience undertakes a performative role in participating in the construction (or the completion) of the work. Of *Virtual Sculpture* and *Inventer La Terre*, Shaw noted that,

underlying each of these works was the principle of the viewer's embodied engagement as a necessary precondition for a synaesthetic conjunction of perception and experience. (Gsöllpointner, K. et al., 2016, p82)

While screen-based interactive new media artworks respond to audience input requiring the use of a mouse or keyboard to activate them – such as Sommerer and

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<sup>82</sup> This system predated Google's Streetview by almost 30 years.

Mignonneau's *Interactive Plant Growing* (1992), an interactive computer installation considering the growth and modification of virtual organisms (which would be exhibited at the ACM SIGGRAPH art show the following year), other works presented physically within an exhibition space employed sensors. In this manner, Joachim Sauter and Dirk Luesebrink's interactive installation, *Zerseher* (1991), responded to the eye movements of the viewer.

The adoption of technology contributes to the creation of an expanded narrative where the audience is involved in creating their own experience of a work. The digitally constructed virtual space builds on this, allowing for new affordances for composers and artists who embrace these spaces to construct new experiences and performances for their audiences, enabling new forms of interactivity, where according to Elizabeth K. Menon, the action is shaped by the collaboration between the artwork and user, leading to the potential of different experiences with each encounter (Menon, 2007).

The audience is thus able to experience a hybrid space between the physical and the virtual by means of computer peripherals such as a mouse or keyboard, sensors, or in the case of the virtual environment *Second Life*, through an avatar (as in the work of Oliveros, see 4.1.3). These virtual spaces allow the creator to organise and manage the location and staging of a work.

Menon refers to this theatricality when she compares the emotional and cognitive engagement which is formed between the audience and theatrical work to the relationship between audience and computer-based work. She uses the term *techno-aesthetics* to describe how technology has transformed the experience of the audience

(Ibid., p161). According to Menon, this space of computer or internet-based installations “can be understood as extending from the illusionistic space created on the computer screen to the space where the viewer sits”, thus allowing the “viewer/user” to be in control of their experience by making choices, participating with others, and in some cases adding their own content to the work (Ibid., p156). This relationship between a work and its audience has similarities with Frances Dyson’s concepts of the “perceptual experience” of listening, where the sound combines with the ear to create an experience, and of the vibration as a state of flux which erases the formal boundaries between passive “being” and active “becoming” (see chapter 3.4.1).

The digital ‘experience’ by virtue of the digitally held constructed space differs from the full bodied, present experience of a physically held space in that different methods of engagement are required (for example, apparatus to control directional movement rather than motion and screens or head mounted displays instead of eyes). Within virtual reality environments such as *Second Life*, the audience and performers embody avatars as virtual versions of their physical selves. While customisation of the appearance, together with choices over movement and action, allows for a sense of control over the avatar, distance remains through the use of computer peripherals (mouse, keyboard, screen) required to access the space.

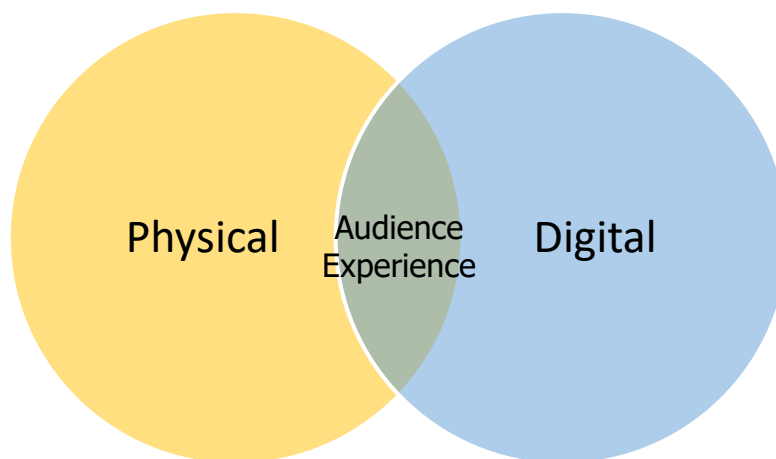
*Second Life* was originally developed for commercial purposes but has been adopted by virtual artists such as Bryn Oh and Rose Borchovski to create immersive and interactive installations (for example, Oh’s *The Rabbicorn* (2010 – current) and Borchovski’s *Echoes in the Garden* (2013)). Within *Second Life*, real life can be emulated (including virtual

representations of Beaufort Castle in Scotland, the Natural History Museum of Vienna, and the University of Delaware), simulated (through the presence of beach and woodland spaces, for example), and challenged (avatars can fly, unassuming objects can become methods of transportation, and buildings can appear to levitate). In virtual space (as with physical installations) artificial scenarios are constructed which create an audiovisual experience for the audience as avatar.

While the teleological aim of controlling all senses is not yet in place in *Second Life* to truly replicate that which exists in the physical within the virtual, technology now exists which promises to bridge this divide – for example, the *FeelReal* hand-held device (developed in 2015), which claims to simulate “hundreds of smells” to “accurately simulate the atmosphere of games and movies” (Feelreal, n.d.). Similarly, devices are being developed to allow users to *taste* virtual food or at least experience the sensation thereof, such as the synthesiser created by Nimesha Ranasinghe at the University of Singapore in 2013, through which “[s]ignals that reproduce the four well-known major taste components – salt, sweet, sour, bitter – are transmitted through a silver electrode touching the tip of the tongue”, and his more recent experiments in creating “electrode-embedded chopsticks” which give the impression of eating “creamy, salty mashed potatoes”, or drinking lemonade when given a vessel of plain water (Parry, 2018; Matchar, 2018). While the olfactory, tactile and gustatory senses are in the early stages of being created/recreated within the digital, they have not yet formed part of a holistic avatar experience. This issue could be potentially addressed through the use of

sensor apparatus or haptic response related navigation, leading to the overcoming of disembodiness in favour of a richer experience.

For this investigation, the audience experience is situated as enabling a link between the physical and the digital, as represented by a Venn diagram where the physical and the digital exist independently (see figure 9). Virtual works exist somewhere between both realms, allowing for experimentation and alternative forms of practice. The interface (for example a browser/keyboard/mouse used to access *Second Life*) therefore acts as a portal, allowing the audience to explore a constructed, digital space.



*Figure 9: Venn diagram representing the audience experience as linking the physical and digital*

While not specifically concerned with sound or composition, Patrick Lichy acknowledges the development of such computer held environments as opening a potential for creative practice. In his article *The Translation of Art in Virtual Worlds* (2009), he refers to the “permeability of the boundary between worlds” within environments such as

*Second Life* (Lichty, 2009). According to Lichty, there are three forms of visual art which are possible to display within virtual environments, which can also be applied to audio compositions or recordings:

1. Imported content from the physical into the virtual (for example, photographs displayed as an online gallery, or imported sound files)
2. Work which exists simultaneously in both physical and virtual worlds (for example, Yoko Ono's *Imagine Peace Tower*, which exists both in Kollafjörður Bay near Reykjavík, Iceland (2007), and in *Second Life* (from 2009) and performances taking place in both spaces such as Oliveros's *Vancouver Calling* (2012) (see chapter 4.1.3))
3. Works which are created entirely digitally 'in-world' (for example, the *Second Life* based installations of Oh and Borchovski and Robbie Dingo's *Hyper-Instruments* (2006))

Lichty uses the term "remediated, or synthetic, performance", to describe the creation or recreation of performance-based works within an online space (Ibid.).

Live theatre and art had incorporated audience involvement for some time, for example improvisation (responding to suggestions from the audience), happenings (see chapter 3.2.2), and the *FOOD* restaurant which opened in 1971, created Gordon Matta-Clark, Carol Goodden and Tina Girouard). As Murray notes, the attraction of this lay "in inviting the audience onto the stage, into the realm of illusion", to what she describes as "holodeck experiences without the machinery", which blur the boundary between artwork and audience (Murray, 2017, p50).

Towards the end of the twentieth century, advances in technology further enabled the creation of immersive experiences to be completed by the presence of the audience, such as *Divina Commedia: Praxis for Death* (1991), which was created by Masayuki Towata and Yasuaki Matsumoto as a “completely bodily immersive installation”, inspired by float tanks and near-death experiences, in which,

visitors would don specially designed suits and, while floating inside a 30cm deep pool of edible gel ... experience a choreographed sequence of flashing lights, generated from an array of computer-controlled [strobe lights] hung directly above. (Tribe and Jana, 2006, p13)

#### 4.3.3 New methods of immersion

While referring to screen-based work, Menon compares Human and Computer Interaction (HCI) to the six theatrical elements of Aristotle's Poetics, “where each successive element is shaped by that which precedes it”: Action, Character, Thought, Language (through semiotics), Melody (or pattern of senses) and Spectacle (Menon, 2007, p158). This investigation posits that these six elements equally apply to immersive artworks, which also enable an emotional as well as a cognitive engagement to be formed between the audience and a work. Similarly, while Menon notes that the script and staging for a theatrical work remains the same in each performance, the relationship between the work and the audience can differ in each instance (or session) (Ibid.). For a screen-based work, this could include variances in the technical specification of the participant’s computer equipment, connection speeds at different times of day, and familiarisation with the hardware and software required for the work;



while for a physical work this could include the time of day, light levels and the presence of others (drawing parallels with the variations possible within the work of Turrell in particular (see chapter 4.1.1).

Digitally augmented space presents (and often represents) navigatable spaces, accessible through graphical user interfaces (GUIs – such as the Aspen Movie Map, see 4.3.2) or headsets, which allow for navigation within what Murray terms “*dreamscapes*”, in which interactivity and immersion “reinforce one another” (Murray, 2017, p97; p114). Using a phrase which links closely to the concept of the active audience within this investigation, Murray terms this phenomenon the “*Active Creation of Belief*”, and notes,

When we are immersed in a consistent environment we are motivated to initiate actions that lead to the feeling of agency, which in turn deepens our sense of immersion. (Ibid., p114)

Further, virtual reality has the potential to increase the intensity of the immersive experience through sensory immersion:

- Visual data is “typically delivered through a wide-angle stereoscopic display”, and generated by a computer using references from the user’s position and gaze (through eye tracking, for example) (Laurel, 2013, p64)
- Spatialised audio is then generated from the same data
- Haptics and interaction can be enabled through linked gloves, controllers (for example)

However, Murray also suggests that this relationship between audience and artwork can have its problems, and that by entering “the enchanted world” as ourselves rather than as avatars, we “risk draining it of its delicious otherness” (Ibid., p127). By challenging the traditional relationship between audience and artwork, and entering into the world represented by the artwork, we have the potential to lose sight of the boundaries between the real and virtual. This parallels Michael Fried’s criticism of the theatrical nature of Minimalist artworks such as those by Robert Morris (chapter 1.1.1), where visitors were required to engage with the works as if they were scenery. The performative nature of the audience and the experiential potential of art as noted in the 1960s in developing and expanded narrative, through which an immersive experience is facilitated, is therefore equally relevant at the end of the twentieth century.<sup>83</sup>

Murray identifies a difference between immersive environments such as fairground rides (as narrative, and following a set order/direction, potentially engaging other senses, such as olfaction) and installations, and digital freely navigable spaces (as non-narrative with the potential to be explored according to the visitors own will (Murray, 2017).

However, she notes that “[p]articipation in [such] an immersive environment has to be carefully structured and constrained,” for example by framing the experience as a *visit* and encouraging active exploration and discovery (Ibid., p132).

In understanding such immersion, it is also useful to consider the similarity with games (and computer games in particular). Works with an open/unfinished quality are

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<sup>83</sup> Other barriers to immersion can include the presence of other participants, if occupying the space individually – an issue which could be mitigated by requiring all to act together.

“dependent on interaction” with their audience, paralleling the freely navigable spaces within open world computer games, which include elements of player choice, the embodiment of a character in a spatial location, which is further made believable with assets, objectives and other characters.

Games, whether played individually or with others, require a similar level of engagement as immersive works, from navigating a space to learning rules and developing tactics to enhance the experience. Of games, Ernest Adams defines three kinds of immersion as (1) “tactical” (or the moment-by-moment experience of the work); (2) “strategic” (involving a more cerebral involvement); and (3) “narrative” (implying a story-telling aspect to the work) (Adams, 2004). These three styles of immersion can be seen to apply equally to a user’s involvement with an artwork. Similarly, Staffan Björk and Jussi Holopainen divide immersion in games into four categories: (1) “sensory-motoric”; (2) “cognitive”; (3) “emotional” (echoing Adam’s concepts); and (4) “spatial”; which occurs when a player feels the simulated world is perceptually convincing – that he or she is really “there” and that a simulated world looks and feels “real” (Bjork and Holopainen, 2004). This latter definition has a parallel within art, “total-immersion”, which was characterised by Joseph Nechvatal as a feeling of entering into another world (Nechvatal, 2001). Ascott alludes to this final definition in his discussion of internet-based artworks,

It is *within* the net that any human creative answer must be found. In other words, it’s a matter of total immersion in this cobweb of light. This honeycomb of

illuminated colour. It is from the complexity of interactions within the Net, that the new "art" can begin to emerge. (Ascott, 2003, p274)

In 1997, the *Serious Games* exhibition was held at the Barbican (curated by Graham and Carol Brown). Presented "not [as] ... a show about technology, [but] a show about interaction", the exhibition showcased works including Davies' *Osmose* (Graham, 1997, p6). In the catalogue, Graham noted that "interactivity can ... offer much to an audience; most obviously the chance to engage physically as well as mentally with an artwork", placing the body (as the audience) as central to the experience, to be immersed through presence, action, and interaction (Ibid., p7).

While the forms of participation with (and engagement of) an active audience discussed within this section thus far resided within physical spaces, the advancement towards digital forms of practice brought new methods of enabling audience involvement. Frank Popper recognises this when he describes technologically-driven art as being intrinsically about involving the audience in the process of creation and making a conscious move from participation to interaction (Popper, 1993, p8).

#### 4.4 Theoretical Assessments of the Period

The Avant-Garde was aimed at an ambitious overcoming of the distinction between Art and 'life' (in terms of the social, the political, and the everyday) by working against the modernist isolation of art in the gallery and the museum. As one of the modes of this overcoming, and as a reworking of Wagner's idea of *gesamtkunstwerk*, one legacy of the Avant-Garde has been the invitation to become interactively involved with a work –

as with electronic (and thus digitally mediated art), and building on the concept of the active audience as established within chapter 3.

Peter Bürger's *Theory of the Avant-Garde* was written in the 1970s and deals with the historical avant-garde of the 1920s and 1930s and its attempts to reconnect art and 'life'. In this book, Bürger draws a link between the genre and political engagement through socially engaged practice. The audience (or the spectator) is placed in an active role of recipient and conduit of the message or meaning of the work, viewing it through the lens of their own subjective experience. As Bürger notes,

To the extent that individual motifs in the avant-gardiste work are largely autonomous, the political motif also can have a direct effect: the spectator can confront it with life as he experiences it. (Bürger, 1984, p91)

Hal Foster's 1994 essay *What's Neo about the Neo-Avant-Garde* departs from Bürger's text by defining the Neo-Avant-Garde as an institutional critique whereby the artist questions the legitimacy of the art institution through investigative research (for example, into the sources of their funding and political connections). Beyond this, John Roberts notes the continuing relevance of the avant-garde to contemporary practice. In his introduction to *Revolutionary Time and the Avant-Garde*, Roberts notes the historic shift from traditional forms of "artisticness and authorship" to more "transmaterial" and cognitive forms, and notes the link between movements such as Fluxus to the concept of the neo avant-garde. In this way "the space of the avant-garde has ... been expanded as a set of reflections on its core programme" to include a range of "post-

object art, participatory art, pedagogic art, and relational and post-relational practice since the mid-1990s ..." (Roberts, 2015, Location 486). Similarly, Roberts acknowledges the move away from traditional art spaces (such as galleries and salesrooms) towards the wider world, and an expanded notion of authorship (from professional to non-artistic practice, incorporating both collective and participatory methods), in part owing to the introduction and use of newer technological forms (Ibid.).

Boris Groys observes that the internet allows for the realization of "the avant-garde impulse", with art (as data) being placed in the context of reality (Groys, 2016, p174). Although referring to its reproducibility, Groys' posits that by its very nature (of, for example, a digital image being merely a visualisation of data): "digitalization turns visual arts into performing arts" in the same way that sheet music needs to be performed in order to be experienced (Ibid., p143).<sup>84</sup> He also recognises that the experience of the digital work is dependent on the software and manner with which it is viewed, which can be seen to have parallels with Menon's observation that the relationship between performance and audience differs each time (Menon, 2007); and requires what Groys' terms as an "act of interpretation" (of its form) from the viewer (Groys, 2016, p143).

The resultant individual and unique experiences/performances are thus reminiscent of the audience-centric events and happenings of the 1960s (see chapter 3). According to

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<sup>84</sup> Calling to mind René Magritte's *The Treachery of Images* (1929), where a painting of a pipe is used to demonstrate that the image merely represents the original.

Groys, “[these] digitalized images do not exist unless we as users give them a certain ‘here and now’”, echoing the postulation in chapter 3 that works requiring the presence or action of an audience cease to fully exist without one (Ibid., p144). Giving “digital data its presence” brings contemporary relevance to René Descartes’ “cogito, ergo sum” – often translated as ‘I think therefore I am’; an updated version might perhaps state that ‘I interact, therefore I exist’ (Ibid.; Descartes, 1850). Groys further notes that our actions in the digital realm, whether on our own computers or behind our own doors, are fully visible to a ‘universal spectator’, leaving traces of the movements and interactions of our virtual counterparts (Groys, 2016, p145).

This concept is of particular relevance in the increasingly online world we inhabit in the twenty-first century, where digital content both enables access to content unavailable in the physical world – whether archival material, that which is geographically distant, or inaccessible as a result of the lockdowns associated with the COVID-19 pandemic and leaves a virtual trace of our movements and interactions that leaves us open to digital surveillance and targeted advertisements (a topic which is discussed further in chapter 6).

#### 4.5 Conclusion

In this chapter, the key elements of the expanded narrative – active space, cross-disciplinary collaboration, and active audience – are considered alongside the changing technological advancement in the last quarter of the twentieth century. Works such as those presented in this chapter illustrate an ability for the audience to cross a threshold or become part of experiential artworks – occupying a participative, performative role.

In this way, a lineage is drawn from the first half of this thesis concerning the historical existence of the expanded narrative towards new forms of relationship between audience and artwork made possible by digital technologies.

Technology has enabled more immersive spaces to be created and innovative methods of constructing audience experiences through digitally mediated participation. It also led to the merging of audio and vision within popular culture and to the development of roles such as VJs (video jockeys) performing at algoraves and similar events (such as those including work by Antonio Roberts and Michael Lightborne), and live-programming environments such as the *WWW Toolkit*.

Beyond the 2000s, artists and composers have continued to build upon and reinvent the techniques established within this chapter to develop active and immersive spaces for their audiences to engage with their work. From the creation of surround sound audio works to large screen projections, or synthesised scents to haptic feedback and motion sensing, it was therefore inevitable that more innovative and more complex works would be created through technological advancement. Technology companies also began to set up interdisciplinary teams of specialists to develop innovative works and projects, contributing to closing the gap between art and science, such as Google's Creative Lab, which in 2010 worked with Chris Milk to develop *The Wilderness Downtown* – an interactive film created with data and images relating to the individual user set to the soundtrack of *We Used to Wait* by Arcade Fire.



Yuk Hui notes that the phrase “art and technology” is now synonymous with art using digital technology, while also acknowledging both the possibilities opened up by using technology for artistic purposes (Hui, 2021) and the resultant ability for art to reach wider audiences. These sentiments are borne out by the examples of art using technology to further the kinds of immersion presented in this chapter.

The next chapter considers how both the expanded narrative and Young and Riley’s early works remain of relevance to composers and artists working today. Further, two new works created by the researcher, *A-Wakening* and *The Lull*, are presented as the final case study in this thesis (see chapter 5.4), exploring how the three elements of the expanded narrative – active space, cross-disciplinary collaboration, and active audience – remain of relevance within contemporary artistic practice.

## CHAPTER 5:

### Contemporary Non-traditional Performance Spaces and Cross-Disciplinary Practice

This chapter builds on the discussion of the three elements of the expanded narrative - active space (see chapter 1), cross-disciplinary collaboration (see chapter 2), and the active audience (see chapter 3), and the move towards technologically augmented immersive artworks and virtual forms of active space as discussed within ch4). It begins with a return to the work of La Monte Young and Terry Riley, recognising the longevity of two of the case studies (*Dream House* and *the Time Lag Accumulator* – see chapters 2.3 and 3.5 respectively) amongst some of their more recent work, before considering how the expanded narrative – and thus an immersive relationship between audience and artwork – can be understood within the work of contemporary artists and composers.

The researcher's own work *A-Wakening* is presented as the final case study within this thesis (see chapter 5.4) in order to explore both the relevance of the expanded narrative evident in the work of Young and Riley through creative practice; and further explore this within a technologically augmented virtual space *The Lull*, inspired by the work of Pauline Oliveros (see chapter 5.4.4).

It should be noted that while the previous chapter covers the period from the 1970s to the 2000s with regards to the advent and influence of digital practice, this chapter does not automatically pick up at the end of this period. The overlapping date periods serve not only to emphasise the continued presence of the expanded narrative within

contemporary practice, but also to reinforce the relevance of Young and Riley's work today.

From the survey of venues presented in chapter 1, we can see that the use of non-traditional performance spaces during the 1960s offered a range of opportunities and challenges for composers to create new works, which were further developed through collaborations with other artists and disciplines (see chapter 2) to a form of expanded narrative that continues today. As previously stated, this chapter places audience presence and interaction as central to the immersive experience while also considering how their actions enable the audience or participant to co-collaborate in the production or meaning of the work. The expanded narrative is here presented as the relationship between an active audience, artwork, and the location in which it is sited, as arising from the use of an active space (encompassing Young and Riley's use of non-traditional performance spaces) and cross-disciplinary collaborations. Within this consideration of contemporary practice, advances in technology are presented as enabling the continued development of new forms of non-traditional performance space, such as through the use of virtual worlds (see chapter 4.1.2), while composers continue to collaborate with artistic and scientific disciplines to present engaging works.

This investigation recognises the potential of the space itself to be opened up for the audience to undertake a performative role, as with the *Time Lag Accumulator* (see chapter 3.5), and ultimately to be combined with new technology (such as virtual environments) to create new forms of performative spaces.

### 5.1 The expanded narrative in Young and Riley's post 1960s practice

As noted in the introduction, Riley described the 1970s as the time that the public had caught up with Minimalism (Riley in Smith and Walker Smith, 1995, p232). While the Minimalist style became a more acceptable part of the musical mainstream (as indicated by the more recent performances in concert halls and music venues, such as the benefit concert for Young and Marian Zazeela at the Barbican, London in 1997, and Riley's commission *Jade Palace* (1990), commissioned by Carnegie Hall for their Centennial celebrations), Riley continued to innovate through cross-disciplinary collaboration as seen in the commission by the National Aeronautics and Space Administration (NASA) to celebrate the 25<sup>th</sup> anniversary of the Voyager 1 space probe. The resultant work, *Sun Rings*, comprises ten "musical atmospheres" incorporating recordings of sounds from space, performed by the Kronos Quartet, set against a backdrop of visuals created by Willie Williams using the NASA archives as source material. It was first performed in the Hancher Auditorium at the University of Iowa in October 2002 and has since been performed "50 times in 11 countries and 18 states" (Kronos Quartet, n.d.; Kronos Quartet, 2019).

Both *Dream House* (see chapter 2.3) and the *Time Lag Accumulator* (see chapter 3.5) have continued to be presented in gallery spaces since their first appearance in 1969 and 1968 respectively, albeit discontinuously. *Dream House* has been on show since 1993 at the Mela Foundation, New York, with differing combinations of lighting and sound works. The most recent representation of *Dream House* at Church Street (at the time of writing) has run from November 2018 as a collaboration between both Young

and Zazeela and the artist and musician Jung Hee Choi, who has studied and performed with them since 1999. Riley's *Time Lag Accumulator* (see chapter 3.5) has been reinvented twice since its original form in the *Magic Theater* exhibition: the *Time Lag Accumulator II* (2003 – which was developed for the Festival of Lille, and more recently formed part of the *Sounding New* exhibition at the Musée d'art Contemporain de Lyon, France, between March and July 2019) and the *Time Lag Accumulator III* (2019 – which was exhibited at the Schauspielhaus Bochum theatre, Germany).

The presence of Young and Riley's work within present-day culture evidences the continued relevance of both composers while other contemporary composers now use non-traditional performance spaces and technological advances, and collaborate with specialists from other disciplines. This demonstrates that the methods used by both Young and Riley remain in use today. By looking outside of the genre of Minimalism, it is possible to present a sample of the range of these recent works, for example theatrical and performative spaces.

## 5.2 Collaborations between composers and artists

Immersive theatre surrounds the audience within a spectacle, breaking the fourth wall traditionally present between performers and audiences, and drawing parallels with the immersion present within both *Dream House* and the *Time Lag Accumulator* (see chapters 2.3 and 3.5 respectively) where the audience is placed within the artwork/performance space, resulting in the audience taking a more participatory and collaborative role (see chapter 3.2). By removing the stage or other barriers, audiences can interact with their surroundings by navigating a space rather than remaining still

(as traditional for appreciating musical and theatrical performances). This theatricality links with Zazeela's design of the costumes and staging for her performances with Young (see chapter 2.1.1.a) and to identifying similarities between the act of putting on a costume to become a character to that of stepping into a digitally mediated avatar (see chapter 4.1.2).

Contemporary composers and artists who can be seen as exemplifying the themes within this investigation include Ari Benjamin Myers and Dominique Gonzales-Foerster, and the Punchdrunk theatre company. As a composer and artist, Myers has collaborated with Gonzalez-Foerster since 2007 with their audience-based work often being inspired by films or music. In *T.451* (2012), "the audience was guided" around Stockholm, "stopping to see a number of re-enacted scenes" inspired by Ray Bradbury's *Fahrenheit 451* (1953), and the film of the same name directed by François Truffaut (1966), which were "individually placed in various architectural environments, public spaces and places of infrastructure" (Lind, 2020, p134). During the performance,

[c]horeography, live music, readings and performative elements took place throughout the day, permitting the audience to encounter public sites as if they were taken from Truffaut's film. (Ibid.)

Punchdrunk's *Tunnel 228* (2009) transported the audience to a futuristic world within the tunnels beneath Waterloo Station, London, which were brought to life in a performance inspired by Fritz Lang's *Metropolis* (1927). With a soundtrack composed by Stephen Dobbie, the work comprised scenes and works created by 23 artists including Olympia Scarry and Petroc Sesti.

The action of moving between staged scenarios within both *T.451* and *Tunnel 228* calls to mind the free navigation available to audiences within *Dream House* and the *Time Lag Accumulator* (see chapters 2.3 and 3.5 respectively). Within the above examples of immersive theatre, the staging and location present a narrative element to these works, which then requires an active audience to facilitate a deeper engagement with the subject matter. These examples also demonstrate that composers continue to perform their works in non-traditional performative spaces, as Young and Riley did previously.

### 5.3 Composers using non-traditional performance spaces

While chapter 4 presented the virtual as a contemporary form of active performance space as embraced by artists and composers, including Oliveros, today, composers also continue to perform their work (or give permission for their work to be performed) in physical artistic spaces and to engage with existing architectural elements to construct active performative spaces, such as Robert Curgenvén's *Climata* (2016), which utilised the architecture of the *Skyspace* installations created by James Turrell, and the *Colourscape* installations of the Eye Music Trust.

Curgenvén describes a *Skyspace* as "an architectural light installation", which comprises "a specifically proportioned chamber with a round, oval or square aperture in the ceiling open to the sky and outside world", and *Climata* was developed in consultation with both Turrell and the owners of fifteen *Skyspaces* across nine countries in the United Kingdom Europe and Australia (Curgenvén, n.d.). His recording process engages with architecture of these installations by using the aperture itself "as an audible filter [and] resonant instrument" to allow the listener to "hear the interaction of

the *Skyspace's* interior and exterior spaces”, while “making the air in these spaces audible” (Ibid.). Curgenvin performed the work within the *Skyspace* at the National Gallery of Australia in August 2015. Sasha Griffin states in her review of the installation that if,

Turrell employs light to shape space, Curgenvin is interested in exploring the manner in which the auditory can manipulate our perception of space and our perception of the shape of time. (Griffin, 2015)

Also taking advantage of the resonant qualities of pre-existing architecture, Reich’s *Different Trains* was staged by Metal and the Liverpool Biennale, accompanied by a silent film of the same name by Bill Morrison. For this performance, speakers were placed to the front and rear of the standing audience, immersing them in the composition which echoed against the hard surfaces of the station, while the work was punctuated at times by the sound and vibration of actual trains passing through the station. In the same year, a continuous programme of Reich’s works was performed by the Multi-Story Orchestra at the Bold Tendencies Multi-Storey Car Park in Peckham, London, UK, showcasing further the adoption of non-traditional performance spaces – as discussed previously in the work of Young and Riley in chapter 1, and further explored through the digital in chapter 4.

In contrast, the UK-based Eye Music Trust, established by composers Lawrence Casserley and Simon Desorgher, has constructed their own performative space. *Colourscapes* are immersive colourful physical structures containing both light and



sound, “originally created by artist Peter Jones in the early 70s”, where music is composed to fill the space (Eye Music Trust, n.d. b). *Symphony of the Senses* was installed at the Mac Birmingham in May 2018 as part of a touring exhibition. The installation is described as “[an] amazing walk-in labyrinth of intense colour and light which opens up in every direction”, in which,

[t]he colours radiate as [the visitor] make[s] [their] way through 25 interlinked chambers including a large silver dome filled with musicians and dancers [where] fragrances are released synchronised with the music ... (Mac Birmingham, n.d.)

The use of sound to fill the architecture of these three spaces calls to mind the environmental sound and light installation, *Dream House* (see chapter 2.3).

While composers and organisations such as Curgenvin and the Eye Music Trust continue to explore the possibilities offered by non-traditional performative spaces, others make use of technology to create innovative works and enhance the audience experience.

### 5.3.1 The use of technology to enhance audience experience

Further to the discussion of technologically augmented spaces and experiences towards the end of the twentieth century in chapter 4, it is relevant here to consider how such advances fuelled the experimentation and innovation of composers into the twenty-first century, including Young and Riley. As Robert Raines notes,

[i]n the 1950s and 1960s, the tape recorder, electronic music, and television all fueled [sic] the fires of change, but the transformation really took off at the end of the 20th century with the advent of the Internet. (Raines, 2015)

While the adoption of novel technologies should not be considered solely as a recent phenomenon, “after all, [historic composers such as] Beethoven used the pianoforte and the metronome, both of which were cutting-edge inventions of the time” (Ibid.), technological advances have not only enabled new forms of composition but also new ways of presenting performances, such as those by John Cage, Maryanne Amacher and Eric Whitacre.

As presented in the introduction to this thesis, Cage is shown to have led the way in the creation of experimental performance styles at the start of the period explored in this thesis, through works such as *Theatre Piece* and *4'33"* (both 1952). Cage's *Lecture on the Weather* (1975) incorporated both taped recordings of thunder and rain by Amacher and projected imagery by Luis Frangella. Amacher herself adapted technology within her own compositional practice, including the “telematic installation series” *City-Links* (1967-1980), in which “[r]eel-to-reel recordings and 15 kilocycle telelinks converge” to create a form of long distance music (Cimini, 2017). In the 1970s, Amacher utilised “a synthesiser and compositional tool”, the *Triadex Muse* created by Marvin Minsky, “which utilise[d] principles of artificial intelligence” to develop music, “based on sounds organically generated by the ear” (Institute of Contemporary Arts, 2019). In this way,

[t]hroughout her work, Amacher prefigured the ways in which technology – particularly telecommunications and machine learning – impact on perception, embodiment, and the human experience of space. (Ibid.)

Amacher's experiments with telematic sound have modern counterparts in the work of Oliveros (see chapter 4.1.3) and Whitacre (see chapter 5.3.2).

Taking the use of technology further, composers including Lind have incorporated interactive elements within non-traditional performance spaces to allow an active audience to become performers. Lind's *Lines* (2016) showcases musical instruments which can be played within a gallery by individuals or groups. Using sensors and computer programming linked to coloured lines, Lind aims to "explore new forms of musical interaction, new artistic expressions and to provide unique and inspiring musical experiences" (Cycling '74, 2016).

While the active audience became collaborators within physical spaces, advances in technology allowed individual users or participants to collaborate with computer-based works or other participants located elsewhere. This use of computer programmed systems has parallels with Riley's later versions of *The Time Lag Accumulator (II and III* – see chapter 3.5).

### 5.3.2 Active audiences as collaborators within the computer-based performative space

Participants in Whitacre's "Virtual Choir" recorded and uploaded their contributions, which were then "synchronised and combined into one single performance" (Whitacre, 2019). Whitacre's real-time performance of the work at *TED2013*, at the Long Beach

Performing Arts Centre, Los Angeles, involved performers from twenty-eight countries streamed live through Skype, joining 100 choristers on stage.<sup>85</sup> Composers have also looked towards gaming and portable handheld devices, enabling a wider audience to engage with their work; for example, an iPhone-based game based on Reich's *Clapping Music* encourages users to "[t]ap in time with the constantly shifting pattern, and progress through all of the variations" to "improve their rhythm" (London Sinfonietta, n.d.). These two examples demonstrate immersiveness through the participant's concentration in the moment-by-moment experience of the work rather than what else may be surrounding them at the time, and through action and engagement with a screen or device effectively becoming part of the work themselves.

The movement from interactivity within physical spaces (for example, *Lines*) to those digitally created and held within a computer (for example, *Clapping Music*), marks a shift from the audience being present in the same location as a work to what Edwina Bartlem terms "spaces within spaces", and towards virtual environments. Additionally, intuitive interfaces encourage and welcome the exploration and action of the audience.

While this chapter focuses mostly on the methods of contemporary composers to engage their audiences further with their work, it is relevant to consider how some of the visual artists referenced within this thesis have continued to engage and immerse their audiences during the twenty-first century. Turrell and Robert Irwin, known for their association with the Light and Space movement, which exemplifies the expanded

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<sup>85</sup> TED is a non-profit organisation which presents short talks on a range of topics. It originally began in 1984 as a conference incorporating technology, engineering, and design subjects.

narrative through its embrace of architectural spaces in order to examine the experiential relationship between viewer and artwork, continue to create spaces which place the audience at the centre of the work. Turrell's *Light Reignfall* (2011), which was acquired by the Los Angeles County Museum of Art (LACMA) in 2016, is a "time-based light work from the Gasworks series ... of Perceptual Cells" (Kim, 2016). As Christine Y. Kim, Associate Curator at LACMA, notes, the installation takes the form of a "spherical chamber", inside which a single participant lays on a bed while wearing headphones in order to experience enhanced perception in a manner similar to meditation (Ibid.). According to Kim,

[i]nside, a program of saturated light ... envelops the viewer. The intense experience reveals the multidimensional power of light and the complex, malleable seeing instrument that is the human eye. (Ibid.)

Irwin's *untitled (dawn to dusk)* (2016) is a large-scale artwork located at the Chinati Foundation in Marfa, Texas. Occupying a former army hospital site, the work is situated on the footprint of the original building's C-shaped structure enclosing a courtyard garden and is described as "fus[ing] indoors and outdoors, art and architecture, the past and the present, nature and the man-made" (The Chinati Foundation, n.d.). In this work,

The building is formally divided in half, with one side dark, the other light. Inside, transparent scrim walls are stretched taut from floor to ceiling in black or white respectively, bisecting each long wing and capturing the always-changing natural light. (Ibid.)

Building on the discussion of the technologically augmented immersive space as discussed in chapter 4, the researcher took the definition of the expanded narrative as examined in this thesis to build on the work of Young and Riley presented as case studies, to develop a new work, *A-Wakening*, in collaboration with composer Chris Foster. Within this immersive installation the three elements of the expanded narrative were addressed as follows:

- Active space – through the organisation and augmentation of an existing space
- Cross-Disciplinary collaboration – through partnership between artist and composer
- Active audience – through their movement and action

#### 5.4 Case study 5: *A-Wakening* (2018)

The process of making creative work was significant within this investigation both to understand how these three elements work together to ensure a more meaningful encounter with artworks and to underline their relevance within contemporary artistic practice by reflecting the move towards digital, interactive, and performative media at the end of the twentieth century.

*A-Wakening* is included within this thesis as an example of a work through which the three interrelated aspects of the expanded narrative – active space, cross-disciplinary collaboration, and active audience (see chapters 1 through 3) – were explored through practice. Further, the use of technology to augment the experience of the viewer-turned-participant is considered through the recreation of the work in the virtual

environment *Second Life*, referencing the use of the platform by artists and composers including Oliveros (see chapter 4.1.3).

*A-Wakening* evokes a liminal, dreamlike space at the cusp of waking – where the space between the real and the unreal allows for imaginative thought, with the name also arising from the researcher’s initial impressions of the audio element which gave rise to the suggestion of sunrise.

The original concept for the work developed through a process through which the researcher created a series of artistic responses to works by Young and Riley which she listened to during the first few weeks of the investigation (Young’s *Well-Tuned Piano* (1964 - ) and *Second Dream of the High Tension Line Stepdown Transformer from the Four Dreams of China* (1962), Riley’s *A Rainbow in Curved Air* (1969) and *Poppy Nogood and the Phantom Band* (1979)) (see figure 10). Firstly, a series of pastel sketches were created using colours and shapes that were considered to best represent these works. Following this, one sketch was selected as a basis to create small, prototype installations using clear geometric forms, and the effect of different forms and intensities of light on the surrounding space was noted. Finally, an animation was created using Adobe After Effects to demonstrate how the coloured elements of the initial pastel sketch could work together as a projection.



Figure 10: Some of the original creative responses which formed the basis of *A-Wakening*

This process enabled the researcher to develop a methodology by which to approach the creation of *A-Wakening*, through which both the compositional and the visuals would develop in response to, and complement, one another. Further *A-Wakening* allowed for the exploration of how the expanded narrative could occur through the construction of a multi-sensory space, which in turn augmented the listener's experience.

*A-Wakening* was developed in collaboration with Foster, whose practice focuses on the place of indeterminacy and the exploration of musical works which are left open to chance and interpretation as a means of opening collaborative interactions with performers.<sup>86</sup> The installation was exhibited for four hours on 19 January 2018, and as

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<sup>86</sup> Foster's research into this area includes the recent investigation into how indeterminate procedures in musical composition share creative synergies with choreographic processes, undertaken in collaboration with the dancer/choreographer Jo Breslin and dancers from De Montfort University (2017/18). His



such formed an event which existed “in the moment”, formed in the overlap between location/time/artwork/audience, with each individual experience being unique.<sup>87</sup> The duration of the piece was chosen to reference the four artists responsible for *A Collaboration* (see chapter 1.3) as the performance which formed the basis and direction of this investigation.

Consideration was given both to creating an immersive experience through the presence of the three elements contributing to an expanded narrative – an active space (see chapter 1), cross-disciplinary collaboration (see chapter 2), and an active audience (see chapter 3); and also to what Brandon LaBelle terms the “extended conversation” between the “presence of a viewer or listener, and object or sound, and the spatial situation” (LaBelle, 2010, p81). The primary consideration was whether the listening experience could be enhanced through more than the single sense of hearing and the need to move around to find different sounds. This emulates the work of Young and Zazeela, where Zazeela’s lighting installations are intended to advance listening (see chapter 2.1.1.a).

The venue (the Arena Theatre, Wolverhampton) was chosen for its black box theatre space, both to allow for the organisation and creation of an active space and as a

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interest in this work was in exploring an approach where extended sounds articulate a varied indeterminate texture and a melodic soundscape is created by a phased musical structure, and through collaboration with a visual artist constructing a space where an active audience could enhance and alter their experience of his composition.

<sup>87</sup> The notion of an ‘event’ also references Allan Kaprow’s happenings (see chapter 3.2.2).

means of identifying a wholly different audience than would traditionally attend a gallery exhibition or a concert hall performance.

#### 5.4.1. Active Space

Within a darkened space, eight speakers were evenly distributed in a circle around the room to enable octophonic playback. This had the effect of creating what Foster describes as “an immersive soundscape that surrounds the listener as they explore the space”, allowing the audience to experience different combinations of sounds with each step (Foster in email conversation, 17 November 2017). The eight speakers used referenced both the notes shared by Renée Levine-Packer for the Buffalo performance of *A Collaboration* (see chapter 1.3), where a similar set up was considered, and also the eight chambers of Riley’s *Time Lag Accumulator* (see chapter 3.5).

Projected animated shapes complementing the soundtrack punctuated the darkness, while portable, handheld scent boxes (see chapter 5.4.3) were used to enhance the listening experience. Both the visual and scent elements were intended to augment the audience’s experience of the sound composition, as part of the expanded narrative.

The position of the speakers, together with visual and scent element and the direction that the audience entered the space, is shown in Figure 11, where ‘projection’ indicates the position of the projected visuals. These speakers created a directional presentation of the sound, allowing for the movement of the audience and their altered perceptions as they changed positions within the space.

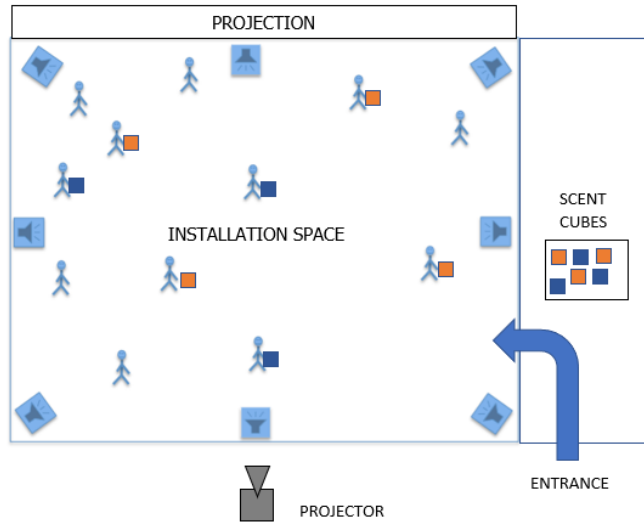


Figure 11: Diagram showing the placement of audio, visual and scent within A-Wakening

A fog machine enabled the projector light to appear as a laser beam, with the moving particles of the visuals giving the impression of their being attached by strings to the beam and adding a sense of greater depth to the darkness of the space (see figure 12).



Figure 12: Composite of Images from A-Wakening

The audio and visual elements of the work developed through collaboration between the two parties, with the researcher taking ultimate responsibility for the choices.<sup>88</sup> In referencing the work of Young and Riley, appropriate processes were selected, including repetition and phasing (Foster in conversation, 24 October 2019).

#### 5.4.2. Collaboration: as an artist working with a composer

In contrast to the three works by Young and Riley presented as case studies within this thesis (*A Collaboration*, *Dream House* and the *Time Lag Accumulator* – see chapters 1.3, 2.3 and 3.5 respectively), where the works originated from their respective composers and then incorporated visual and structural elements, *A-Wakening* developed from a visual arts standpoint through collaboration with a composer.

Foster's composition "is derived from a series of piano overtones arranged in pairs of differing length and set against each other" which "move slowly in and out of phase" as the "duration of each pair differs" (Ibid.):

The result is a varied pattern of short melodic figures that never repeat exactly and constantly surprise. An underlying pulse occurs in the lower notes producing a slow alternation – rather like breathing or the motions of a clock. (Ibid.)

A series of pastel sketches were made in response to Foster's preliminary composition – to inform these sketches, notes were made during the first playback of the composition to induce spontaneous images and thoughts. Next, colours were selected to

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<sup>88</sup> The researcher was responsible for conceptualising the work and for designing the projected visuals, while Foster contributed the sound and speaker set up. The two then developed the work together from the early concepts and sketches.

complement the timbre of the composition, together with shapes which visually suggested the pitch and repetition of the musical notes (see figure 13).



*Figure 13: Initial colour selection and sketch for the early stages of development of A-Wakening*

As with the original artistic responses which formed the basis of the methodology for *A-Wakening*, pastel sticks were chosen for immediacy, spontaneity and tactility, and black paper as a canvas as a visual analogue for the musical notes played against a background of silence. Foster's composition developed through conversation about the development of the final animation, created using Adobe After Effects (a still from which can be seen in figure 14). This animation, and thus the final projection, developed from the original pastel sketches made at the beginning of the artistic process in that colours and shapes ebbed and flowed into vision, suggesting the space between dreaming and waking. A log of these developments is recorded in a notebook and an online blog (Mills, 2017a). Animating these images provided a fluid and natural

movement between images, reflecting the multi-layered and complex audio elements as they blended into one another.



*Figure 14: Still image of the A-Wakening projection*

Audience engagement was facilitated through their active role both in navigating the space and through the choosing of (and carrying) a coloured plastic cube containing scent.<sup>89</sup> To contextualise the use of scent within this work, perfumes are described in musical terms as having three notes, which combine to create an olfactory composition – the top note (or the first impression), middle notes or more mellow aromas, and the base notes which linger.

#### 5.4.3. Active Audience

To encourage free thought and participation, no guidance or introduction was provided prior to the audience entering the space – the entrance to which took the form of a

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<sup>89</sup> Free navigation within both *A-Wakening* and *The Lull* (see chapter 5.4.4) was intended to evoke audience movement within both *Dream House* and the *Time Lag Accumulator*.

door and short corridor, which concluded with a table from which the audience was directed to select a scent cube, before entering the installation through a curtain. The choice of using plastic cubes containing scent was made to promote the concept of an active audience, with a choice to select an object at will connecting them with the work. Small red and blue cubes held two different scents, as hand-held objects to carry around within the space. The scents chosen were vanilla and heather/bracken and were chosen to evoke a spontaneous reaction from the audience.<sup>90</sup> This olfactory engagement was intended as a reference to *A Collaboration* (see chapter 1.3), where the scent of incense is recorded as permeating the performance space (Levine Packer, 2010, p93). From the reference material available from the original performance, there is no indication of its purpose; however, it may have been used to encourage a relaxed atmosphere within the venue, which ties in with the intention of *A-Wakening* to create a peaceful, alternate reality.<sup>91</sup> Rather than replicating this use of incense, which while traditionally used creates a contemplative environment (for example, for meditation and church ceremonies), this was felt to be too loaded with preconceived associations for the audience to construct their own expanded narrative, contemporary methods of augmenting the space with scent were considered. The researcher felt that a single scent pervading the space would have taken away the audience's agency in constructing their own expanded narrative, so individual scent cubes were made

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<sup>90</sup> Although the name of the scent was irrelevant to the experiment and was not made known to the audience – only that an aroma had been chosen for its potential ability to augment the listener's experience.

<sup>91</sup> This was substantiated by the feedback received, where respondents described the installation as being relaxing, peaceful and trance-like.

available to be chosen – just as the visitor was free to undertake their own personal journey around the space, they were also free to participate to the extent that they felt comfortable with. If they chose not to engage with the scent, their experience would be just as valuable as another’s who may have selected a scent with which they felt a connection. Figure 15 shows the scent cubes at the entrance to the installation.



*Figure 15: Scent cubes at the entrance to A-Wakening*

This invitation to the audience to step inside the work, to explore, experience, and become part of it, references Lucy Bullivant’s ‘porous’ nature of interactive installations (see chapter 1.1), where the involvement of the audience completes the work. Inviting the audience to pick up and carry a cube enabled a subjective, personal connection with the work, with most people choosing to carry one cube around the space, although they could have picked up as many as they liked.



Parallels are also drawn with Jeffrey Shaw's notion of the viewer as discoverer, where the subjective meaning of the work is revealed through the audience's relationship and engagement with it, and with Bartlem's concept of the audience as active participant (see chapters 1.4 and 4.1.2 respectively).

Building on chapter 4, in which the virtual environment *Second Life* was introduced as a contemporary space for creation and performance embraced by artists and composers, including Oliveros, the researcher made the decision to recreate (or reimagine) a virtual version of this work. The resulting work, *The Lull*, formed part of a three-month project in *Second Life*, and was made possible by the Linden Endowment for the Arts (LEA) Core Sim Grant Scheme. While *A-Wakening* was set in non-traditional physical venue – that of a black box theatre space open to the audience, *The Lull* references this investigation positioning of the virtual as a contemporary non-traditional performance space.

#### 5.4.4 *The Lull* (2017): Reimagining within the digital space

*The Lull* arose from the concept of a quiet, soothing, space – a paused moment in time for an active audience.<sup>92</sup> In contrast to *A-Wakening's* constructed, immersive, dream-like physical space, *The Lull* was accessed through an avatar in place of the audience's physical presence within a commercial virtual environment, *Second Life*, as embraced by Oliveros (see chapter 4.1.3). While many of the aspects of the original work (audio,

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<sup>92</sup> While the completion date of this work was prior to that of *A-Wakening*, both works were developed at the same time – with the logistics of performing the physical version resulting in the later exhibition date.

shapes, colours, fog) were recreated as far as practically possible, other elements were not possible within the virtual space (for example, the use of scent).

#### i. Adapting Foster's soundscape

File restrictions within *Second Life* meant that the soundscape from *A-Wakening* could not be imported in its entirety, so the decision was made to create a ten-second clip of the audio file which could be looped within the environment. The decision was made to use a single sound source within the build (rather than the eight in the original), as initial experiments to include multiple sound sources of the same sound clip resulted in the impression of a wall of sound, without the nuance and subtlety of the original, where different sound experiences were possible from different locations within the space.

As there was no way to control how the sound could be experienced by the visitor, who may be using speakers, headphones, or even muted audio, this single sound source was placed at the centre of the work to allow for a degree of variation in the sound levels, appearing louder close to the centre of the area and quieter towards the edges of the space.<sup>93</sup> When set to be transparent, at avatar chest height, and phantom, an avatar would not be aware of the presence, or location, of the element.<sup>94</sup>

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<sup>93</sup> This is in direct contrast to *A-Wakening*, where the audio would be louder towards the edge of the constructed space (where the speakers were placed).

<sup>94</sup> Phantom is a property variable which enables an object to not act as a solid, that is the avatar can move through the object.

## ii. Adapting the visuals from *A-Wakening*

While it was possible to import still images and video into *Second Life*, it was not possible to create a projection in the same way as within the physical space.

Additionally, while it was the researcher's intention to recreate the imagery from the animation within the *Second Life* editor, which allowed the creation and editing of simple shapes, direct replication was not possible due to the limitations of the shapes which could be created within the editor. Consequently, the researcher made the decision to change to more simplistic representations. Code was added to make the objects semi-transparent and phantom to allow them to appear and disappear with the presence of an avatar.

The effect of fog was created by using multiple transparent, phantom elements with particle effect coding added to them. The fog could then continuously rise from the base of the build. To complete the suggestion of a projection, objects were created, textured and linked, then suspended above the space and angled towards the shapes. A white, semi-transparent, phantom cone was then added to emulate the light emanating from the 'projector' and falling across the space.

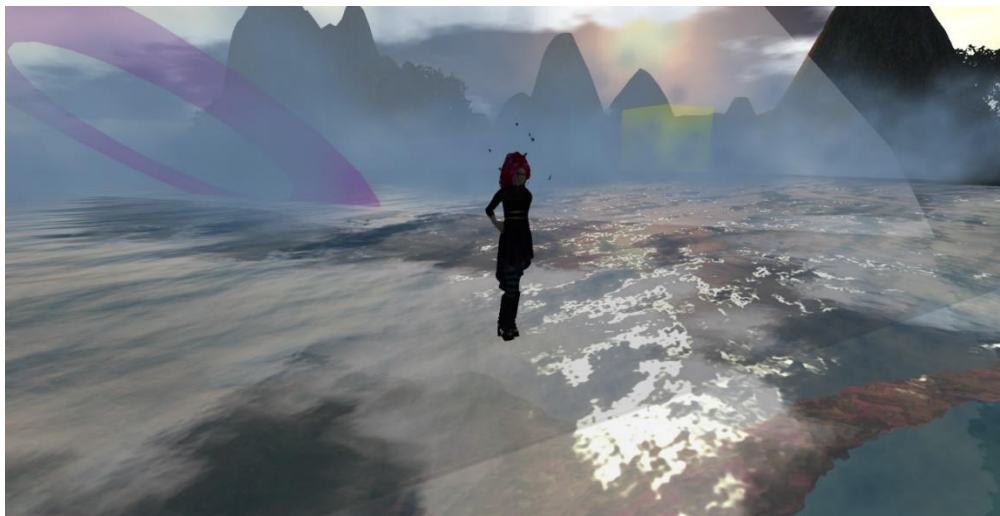
## iii. Audience and engagement

While works in *Second Life* cannot attract a passing audience in the same way as those within a gallery or concert venue might, potential audiences were targeted by email and through blogs (both the researcher's own and that of the Linden Endowment for the Arts) (Mills, 2017b; Linden Endowment for the Arts, 2017).

Within *The Lull*, and in contrast to *A-Wakening*, the single sound source meant that the visuals dominated over Foster's composition. To compensate for the lack of rich sound in the virtual installation, the visitor (through their avatar) was able to explore a whole land build, incorporating:

- a) A gallery space displaying the imported original sketches from *A-Wakening* together with new works created for the build
- b) A studio space displaying initial experiments with particle effects, material properties and behaviours

Figure 16 shows *The Lull* as part of the wider virtual installation, with the trees and hills in the background used to separate the different sections of the build, and to give the flat landscape some definition and character, creating a more varied environment for the visitor to explore.



*Figure 16: Still from The Lull*

Whilst the principle aims of *The Lull* were to echo *A-Wakening's* use of the active space and collaboration, the active role of the audience was also facilitated, albeit indirectly, through an avatar controlled through mouse and/or keyboard.

*The Lull* reflects the use of the virtual as a contemporary form of non-traditional artistic and performance space (see chapter 4.1.2) and its potential for new forms of practice, both for visual artists, musicians and composers. *Second Life* offers visitors the experience of defying gravity (in that they can fly) and a novel sense of embodiment in a body outside their own, through an avatar. Through this platform, the researcher explored the possibilities (and limitations) of transposing a digitally supported physical work into the virtual environment to reference Oliveros's *Second Life* version of *The Heart of Tones* (see chapter 4.1.3).

#### iv. Reflections on *A-Wakening* and *The Lull*

Both *A-Wakening* and *The Lull* were developed in collaboration with Foster, with one work performed in a constructed physical space while the other existed in a virtual space, and set out to compare the creative process required to (re)develop works in both forms. *A-Wakening* and *The Lull* are both intentionally located in spaces which, in keeping with the previous case studies, allow for active audience involvement. Within the former, it was intended that the audience felt immersed and enveloped within a multi-sensory constructed space in which the audio, visuals and scent combined to evoke a dream-like environment, while the latter was intended to recreate the original without the scents, but with the other affordances of a virtual environment, allowing

the audience to 'walk' or 'fly' through the fog and projected shapes within a contrived, and impossible digital environment.<sup>95</sup>

Both works investigated the three elements necessary for an expanded narrative (active space, cross-disciplinary collaboration, and active audience – see chapters 1–3) in the following ways:

1. Two non-traditional performance spaces were identified (a black box theatre and an online virtual environment) and within these, active spaces were constructed
2. Through collaboration with a composer, the researcher's elevated her own practice through the incorporation of audio
3. The construction of spaces in which visitors felt comfortable spending time, and actively navigating the space

The move from physical space to virtual space replicates the shifts undertaken by the Minimalist composers in their embrace of technology and experiential works/performances, as evidenced in the work of Oliveros (see chapters 4.1.3); while the development of *The Lull* proposes that new technology chases the physical multi-sensory environmental works which have their roots in 1960s multidisciplinary practice.

Both works bring the two discrete areas of music composition and visual art together, influenced by Young and Riley's use of space and collaboration within their early work, particularly through the creation of multi-sensory environments, which allowed for

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<sup>95</sup> As highlighted by the 'projector' which hung in space and the transparent 'floor' which revealed an 'ocean' underneath.

freedom of movement and open exploration. In *A-Wakening*, this involved walking around the black box space to experience the different combinations of sounds occurring as they moved through areas (or standing still), while by contrast within *The Lull*, movement could be achieved through 'walking', 'running' or 'flying' through the space (or again, staying still). Neither work prescribed a route through the works, only an entrance, so the duration, direction and manner of movement through both was left to the audience to determine (as in *A Collaboration* and *Dream House* – see chapters 1.3 and 2.3 respectively).

## 5.5 Conclusion

The shift from physical spaces to virtual worlds, as enabled through advances in technology, allows for a new form of artistic and performance space which opens up situations for co-creation and collaboration, facilitated *with* instead of *for* the audience. While technology now allows for computer programmed activities such as sensor triggers and experimental performance on virtual platforms, they are not yet fully equipped for sound – and the composer or content creator does not have full control over how the sound is received by the audience.

Audiovisual collaborations are here seen to contribute to an expanded narrative, engaging the audience through the use of multiple sensory stimuli (see chapter 3.4). This begs the question that within the three featured works by Young and Riley as case studies in chapters 1 through 3, are the visuals necessary to augment listening to the compositions in some way? In some cases, this would be true – for example the dark environments of *A Collaboration* and *Dream House* (see chapters 1.3 and 2.3

respectively), where the spaces are bathed in purple light – the former adding the scent of incense – would contribute to a relaxed atmosphere, and the audience would be more receptive to the sounds and the experiences presented. By contrast, the *Time Lag Accumulator* (see chapter 3.5), with its solid construction, glass panels and lights, would ensure that the participants and audience would be very aware of the work and of the implications of their involvement, even if they were unable to hear all of the sounds being recorded and played back. These three works present very different forms of immersion: the former two rely on an almost transcendent, meditative experience, while the latter requires concentration on the moment-by-moment experience of the installation.

In conclusion, visuals and other stimuli are frequently used to enhance the listening experience (as with the *Time Lag Accumulator*, where the constructed object encloses and enables the sound activity to take place – see chapter 3.5); however it is still possible for sound and vision to be of equal importance with no obvious hierarchy (as in the partnership between Zazeela and Young – see chapter 2.1.1.a), where the visuals are intended to complement rather than augment.

The contemporary relevance of both composers using non-traditional spaces and collaborations taking place between composers and artists suggests that artistic installations became holistic narratives in constructed spaces in a similar manner to theatrical performances with audiences rather than visitors.



## CHAPTER 6:

### Conclusion

This investigation crosses multidisciplinary fields to provide a historical overview of La Monte Young and Terry Riley's early works in the 1960s, and how they relate to the concept of the expanded narrative, which in turn contributes to the creation of an immersive experience. While this thesis does not offer a complete survey of all Minimalist works during the 1960s, nor of all works within the period which could retrospectively be considered immersive, it examines how the concept of the expanded narrative leads to the creation of an immersive experience, and through this lens, how the early work of Young and Riley is linked to (and should be considered part of) the lineage of contemporary immersive artistic practice.

The final chapter in this thesis concludes this investigation by presenting the findings from all five previous chapters to this point, while also considering the future of speculative spaces further into the twenty-first century. To this end, the virtual is presented as a new form of active space for art and performance, with its extension and relevance for other sectors, such as education and heritage.

By moving beyond traditional forms of performance, three of Young and Riley's works first performed during the 1960s (*A Collaboration*, *Dream House*, and the *Time Lag Accumulator* – see chapters 1.3, 2.3 and 3.5 respectively) are positioned within the context of the changing role of the spectator during the 1960s from passive viewer to active participant – a relationship which places the audience as central within the

constructed space of the performance or artwork. Riley's vision of the creation of a new form of concert performance and Young's interest in perception are presented as evidence of this shift towards the creation of an audience-centric multi-sensory experience, leading to consideration of the audience as collaborator (for example in Riley's *Time Lag Accumulator*, see chapter 3.5).

The parallels between the relationship of artwork, audience and that of composition and listener are situated within Brandon LaBelle's concept of the location and positioning of an audience being of paramount importance to their experience.

Young and Riley's place within the genre of immersive creative practice is considered through contemporary examples of composers' use of non-traditional performance spaces and cross-disciplinary collaboration, before presenting the virtual world as a modern performative space.

Within this concluding chapter, consideration is also given to speculative spaces, where the researcher expresses her own opinions on contemporary responses of the arts and culture sectors to diverse audiences and adverse global phenomenon. These spaces act as a critical tool through which to evaluate the opportunities and threats of the recent increased shift to online cultural engagement, largely due to the COVID-19 pandemic. This aspect of the investigation has emerged from the investigation as a whole and its extension into considering the development and role of digitally augmented artistic practice.

## 6.1 Findings

The term expanded narrative is here proposed in order to demonstrate how artists and composers from the 1960s onward, particularly Young and Riley, brought in audiences to connect with new, experimental work, widening the audience experience by constructing a conducive space in which to listen to, or experience, the performance.

These constructed active spaces were in direct opposition to formal, traditional concert halls with forward facing fixed seats and a stage for the performers.

The three factors of active space, collaboration, and active audience are thus seen as together forming an expanded narrative, with contemporary immersive properties:

- A constructed or organised space set up in order to facilitate optimal engagement with a work, including measures employed to augment listening or participation (see chapter 1)
- Cross-disciplinary collaboration, both within the arts and beyond in order to create new and engaging works (see chapter 2)
- The presence and/or engagement of an active audience as essential to the completion of a work (see chapter 3)

The central research question, “to what extent do the early works of Young and Riley inform current immersive visual artistic practice?” is addressed through the suggestion that many contemporary works owe a debt either directly or indirectly to the early works of both composers, particularly with regards to the use of an active space (see chapter 1), cross-disciplinary collaboration (see chapter 2), and an active audience (see

chapter 3). Where relevant, each chapter also references contemporary practice identified as being relevant to each of these themes.

To answer the core research question, two sub-questions were posed to focus on the discussion guiding chapters 1 through 5:

- 1) how did the range of media and performance spaces used by Young and Riley during the 1960s enable new audiences to engage with their work?
- 2) what immersive affordances did collaboration with those from other disciplines bring to the performance space?

#### 6.1.1. Active Space

The first sub-question: 'how did the range of media and performance spaces used by Young and Riley during the 1960s enable new audiences to engage with their work?' formed the basis of the first chapter, and was developed through the analysis of several of the performance spaces used by both composers during the period, revealing that more often than not, galleries and educational institutions were hosting their performances – including the San Francisco Tape Music Center, the Albright-Knox Art Gallery, the Filmmakers' Cinematheque and Philadelphia College of Art – leading to the conclusion that the audience was now able to engage with their music in a closer and more informal manner than previously possible within the traditional concert hall. This suggests that artistic installations became holistic narratives in constructed spaces in a similar manner to theatrical performances with audiences rather than visitors.

Additionally, both composers were exploring the presentation of their work in a range of

mediums, including the printed periodical *Aspen* and Young's book *Anthology of Chance Operations*.

This chapter presented the active space as integral to the development of an immersive experience through the presence of an expanded narrative and further argued that the themes and methods employed by Minimalist composers and artists, in particular perception and experience, remain in use by contemporary artists and composers.

#### 6.1.2. Cross-Disciplinary Collaboration

The second sub-question: 'what immersive affordances did collaboration with those from other disciplines bring to the performance space?' formed the basis of the second chapter of the thesis, which addressed both composers' collaborations with specialists from other disciplines during the 1960s.

This chapter presented cross-disciplinary collaboration – both within the arts and beyond – as integral to the development of an immersive experience through the presence of an expanded narrative. The investigation found that through collaboration with artists and other scientific disciplines both composers were able to create new forms of work, allowing for new forms of perceptual experience (for example, *Dream House* – see chapter 2.3). These new cross-disciplinary collaborations led to the consideration of how to engage and solicit participation from an active audience (for example the *Time Lag Accumulator* – see chapter 3.5), leading to the subject of the third chapter in this thesis – the active audience.

Such multidisciplinary works can also be described as intermedial in that they bridge multiple forms of traditional media to make something which is more than its individual parts.

### 6.1.3. Active Audience

An analysis of the development of an active audience informed the third chapter where the third element of the expanded narrative was considered, concluding that the analysis of how the combination of active space, cross-disciplinary collaboration and active audience led to a co-dependent and immersive relationship between audience artwork/performance and environment. The expanded narrative thus describes the experience which exists outside of the work itself, such as the *Time Lag Accumulator* (see chapter 3.5), where the audience actively participated in the art works themselves, and which continues to be of contemporary relevance with its third incarnation being exhibited in Germany in 2019. This immersive relationship between artwork and audience is considered to apply equally to that of the musical performance and listener, referring to Frances Dyson's concept of the 'vibration' as fluctuating between "being and becoming" (Dyson, 2009, p10).

This investigation acknowledged the role of the audience in committing to and participating in an artwork or performance as essential to its realisation and existence, and in turn for enabling an immersive experience through an expanded narrative. It also demonstrated the enduring use, relevance, and need for new forms of engagement, immersion, and participation.

#### 6.1.4. The expanded narrative in the era of digital art and new media

As established within this thesis, the use of a non-traditional performance space, together with collaboration across disciplines and the move towards consideration of audience experience during the 1960s, led to the creation of engaging, multiple media works, which encouraged audience participation and in so doing provided an immersive experience.

The fourth chapter builds on the key elements of the expanded narrative – active space, cross-disciplinary collaboration, and active audience were examined, in addition to changing technological advancement in the last quarter of the twentieth century to consider how digital technology allowed for both new forms of immersive practice, and new spaces in which to create, perform, collaborate and experience. By including discussion of the virtual world as a contemporary example of a non-traditional space and showcasing Pauline Oliveros's work across both physical and virtual spaces – technology is shown to further create a sense of virtual immersion which bridges the divide between the real and the unreal by extending the perception of space behind the screen for the viewer.

Works such as those presented in this chapter illustrated the audience's potential to cross a threshold or become part of experiential artworks – occupying a participative, performative role – both within digitally augmented physical experiences and wholly digitally experiences. In this way, a lineage is drawn from the first half of this thesis concerning the historical existence of the expanded narrative towards the new forms of relationship between audience and artwork made possible by digital technologies.

#### 6.1.5. Contemporary Non-traditional Performance Spaces and Cross-Disciplinary Practice

The fifth chapter proposed that the work of Young and Riley be considered of relevance to contemporary immersive artistic practice by considering the work of contemporary composers and sound artists whose work resonates with the three historical case studies by Young and Riley in respect of their use of non-traditional performance spaces, cross-disciplinary collaboration, and the engagement with their audience.

The shift from physical spaces to virtual worlds as presented through chapter 4 enabled through advances in technology allowed for a new form of artistic and performance space, which opens up situations for co-creation and collaboration, facilitated *with* instead of *for* the audience. Within this framework of active space, cross-disciplinary collaboration and active audience, two new works, *A-Wakening* and *The Lull*, were presented to further demonstrate how technology has advanced the development of the expanded narrative between the audience, work, and environment (see chapter 5.4). As the final case study in this investigation, these works bring together the elements as linked to the early works of Young and Riley in the first three chapters, together with the use of digitally augmented virtual spaces as embraced by Oliveros in chapter 4.

The contemporary relevance of both composers using non-traditional spaces and collaborations taking place between composers and artists suggested that artistic installations became holistic narratives in constructed spaces in a similar manner to theatrical performances with audiences rather than visitors.



## 6.2 Speculative spaces: reaching new and distant audiences

At the point of the original submission of this thesis (in December 2019), nobody could have predicted what the next year (or two) would have in store. Global pandemics, lock downs and social distancing have made the contents of this investigation even more relevant. While it was no longer possible to have the physically engaging experiences of chapters 1-3, the digitally augmented technology alluded to in chapter 4 has received something of a resurgence, perhaps becoming even more essential than before. Workplace chats and social gatherings were replaced with telematic connections – hugs and visits to friends’ houses being reduced to pixels on a screen. Games were played over skype, Christmas parties took place through shared screens, and online workspaces like *Zoom* and *Microsoft Teams* replaced work-based collaboration. While commuting and traffic jams were replaced with masks and handwashing, at first, solace from the enforced online world was sought in self-navigated, physical environmental experiences. In the UK at least, springtime brought walks in the park, with the scent of plants, the sound of birds, and the feeling of warm sunlight on the skin.

In November 2020, Innovate UK published a blog post reflecting on the *BEYOND* conference (on creative research and business innovation, November – December 2020) and on the cultural impact of COVID-19. In the same month, the International Council of Museums suggested that 6.1 percent of museums had closed globally as a result of the pandemic (Ings, 2021). Innovate UK’s post noted that the timing of the pandemic occurred at a peak time for immersive, virtual technologies which allowed for

hybrid experiences, and thus the potential for innovation in the creation of engaging, yet safe, performances. The *BEYOND* conference itself examined how audience experience has been affected by the pandemic and the creative responses that aim to address the widening gap between culture and audiences, recognising that screens have become our windows on the outside world. A poll of attendees considered the impact of lockdown on audience engagement and found that while audiences were missing being part of a collective experience, a defining cultural outcome of the pandemic is the widening use of digital technology for the distribution of live content (Beyond Conference, 2021b).

At this point, while it would feel natural to separate this section into three subsections which reflect the three elements of the expanded narrative (active space, cross-disciplinary collaboration, and active audience), it is both testament to the continued relevance of immersive technologies, and a fitting conclusion, that these now merge into the single concept of speculative spaces. In a twist of fate, our once communal, social experiences are replaced by shared yet disparate spaces – online gaming in place of arcades, social media in place of clubs and societies, and video conferencing technology used for conversation and collaboration. As the obverse to the “architectures of the post-anthropocene” as described by Liam Young, where significant contemporary spaces (such as warehouses, ports and data centres) are now devoid of inhabitants, our digital selves now go where our physical bodies cannot (Young, 2019). In this way, we have become part of a global Matrix, our cells and atoms becoming bytes and pixels, allowing us to exist beyond our geographical and physical limitations

to participate in the arts, culture and other experiences which have led on from these innovations (see chapter 6.2.1).<sup>96</sup>

Here, contemporary applications of the expanded narrative as speculative space are considered, each showing how space, technology and interaction combine to engage and immerse audiences of increasing relevance and necessity within our new, socially distant world. Virtual Reality content such as games, software and social spaces are now readily accessible to domestic audiences using *Valve Index*, *HTC Vive*, *Oculus Rift*, *Windows Mixed Reality*, and other headsets, through online marketplaces such as *Steam*. Similarly, *Zwift* is an online cycling and running program which allows users to pair their equipment with the software to train and race against others within a virtual world.

New forms of experiential art and performative spaces have developed, leading to new interactions between humans and technology, such as Universal Everything's *Future You* (2019), which uses motion capture to enable digital forms to respond to the movements of individual audience members. This work was commissioned by the Barbican for the entrance of their *AI: More than Human* exhibition, which is currently being toured globally. Utilising physical materials and spaces, Rafael Lozano-Hemmer's *Speaking Willow* (2020) is a tree-shaped sound sculpture in the courtyard of the Planet Word Museum in Washington, D.C., which incorporates data cables, lights, and

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<sup>96</sup> *The Matrix* franchise of films (1999-2021, dir. The Wachowskis, Lana Wachowski) present an alternate future reality where mankind is imprisoned in a virtual reality created by self-aware machines.

speakers which when triggered by the presence of an audience play excerpts of recorded speech.

In August 2021, the Falko Alexander Gallery in Cologne both recreated its gallery, and created exclusively virtually accessible content using the 3D modelling software, *SketchUp*. This enabled the venue to both extend the reach of its physical exhibitions and provide a temporary archive of its digital versions. Worldwide, galleries responded to the pandemic by providing online content: Art Basel created online viewing rooms, while the *Frieze* art fair was held virtually in 2020, and the Lisson Gallery collaborated with Augment to provide digital content that could be placed in the viewers own home using augmented technology.

While prior to COVID-19, heritage attractions and educational institutions such as Blarney Castle, the United States Holocaust Memorial Museum, and North Carolina State University, had extended their physical footprint into virtual space using *Second Life* in order to reach a wider audience and showcase how the space was being used to enhance their activities; still others responded to the pandemic by allowing virtual visitors to explore their exhibits, including The Peale in Baltimore, whose digital representation replicates the original building and hosts exhibitions, tours and events.<sup>97</sup>

Augmented Reality (AR) was used to create innovative application (or app) based experiences, including those for The National Trust, firstly to reveal to visitors the potential damage of climate change to its properties (2019) and to encourage more families to visit

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<sup>97</sup> In this way, such venues can extend their reach beyond their immediate environs, allowing visitors to access material from anywhere within the world.

sites (such as *The Playful Garden* (2020) in which a 3D version of Brodie Castle's famous rabbit sculpture, *Brodie*, was brought to life). While both these examples require audiences to be physically present within the venues, a similar use of technology bridges analogue and digital worlds by allowing the user to view and interact with historic artefacts within their own home. The BBC *Civilisations AR* app (2018) was developed as a pilot companion to the series of the same name, and was a collaboration between BBC Arts, BBC R&D, Nexus Studios and UK museums and galleries.

While a virtual visit cannot replicate a physical one – there is much to be said for actually visiting a tangible space and immersing oneself in the sounds, scents and material properties of a castle, gallery or museum – a virtual, online visit has its own benefits: for one it is cheaper and safer, and for another it can take place at a convenient time and from the comfort of our own homes.

Access issues created by the COVID-19 pandemic naturally led to further overlap between technology and heritage. At the time of writing, the Natural History Museum (NHM) in London has fourteen opportunities for visitors to engage with their exhibits from home – including a virtual tour of the *Fantastic Beasts* exhibition, an interactive exploration into the life of a blue whale, and interactive talks with scientists.

As this section shows, this research, and the continued relevance of both the expanded narrative and immersive relationship between audience and artwork, is both significant and timely – especially if the impact of new variants and social distancing on cultural and heritage venues is likely to remain relevant for some time to come.

By bridging analogue physical and digital worlds, access issues created by the pandemic can potentially be addressed, specifically through the use of AR and VR (using mobile phone-based apps, which are relatively cheap, easy to access and use, or headsets which are equally becoming more affordable). In this way, through the creation and the enhancement of existing, digital provision, cultural and heritage venues would be able to remain open and viable throughout the crisis, while also providing the public with access to methods of understanding and engaging with venues and sites which they may be unable to visit in person. Through experiencing art works, museum collections and information on areas of historical interest virtually, the decline in visitor numbers (and potentially revenue) for museums and art galleries could be addressed potentially by extending a lifeline to those which have been forced to close or drastically alter their provision as a result of measures brought in to limit the effects of the pandemic.

By continuing to place the audience at the centre of the work yet changing where and when that work takes place, consciousness and engagement replaces the physical and keyboard and mouse interactions take the place of bodily engagement, leading to a new era of immersive possibilities.

#### 6.2.1 The growth of immersive online platforms and the gamification of arts and culture

Digital technology can be used to create a perception of virtual immersion by extending the space of the spectator beyond the screen, leading to a state where the action is shaped by the collaboration between audience and artwork (see chapter 4.2). For virtual work, the audience is required to navigate the space through an avatar using a

keyboard and/or mouse – creating a distance between the audience and artwork. As observed by Jeffrey Shaw (see chapter 4.3.2), it is in this space between the actual and virtual where the potential for artistic experimentation lies – bridging the liminal space between the real and unreal. Expectations and use of such technology are now far removed from its original use to representations of the real for military training and architectural development purposes (see chapter 4.1.2).

From the creation of surround sound audio works to large screen projections, and synthesised scents to haptic feedback and motion sensing, it is therefore inevitable that more innovative and more complex works can be created as a result of technological advancement, bringing Richard Wagner's *gesamtkunstwerk*, or total work of art, into the digital age (see chapter 4.3.3) and acknowledging what Roy Ascott terms the *Gesamtdatenwerk* (or 'total data work') (Ascott, 2003).<sup>98</sup>

Matthew Wilson Smith offers three ways in which cyberspace provides an ironic realisation of the *gesamtkunstwerk*: firstly, that as "an entirely digital landscape" – instead of unifying the arts, all aspects are "equivalent and interchangeable"; secondly, as "increasingly immersive artificial world" – technology replaces the "organic totality"; and thirdly, as a "universality without totality" – it is no longer communal but "decentered and unpredictable" (Wilson Smith, 2007, p169). However, he notes the similarities of virtual spaces, in particular MMORPGs, or "massively multiplayer online

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<sup>98</sup> While it is noted that philosophers such as Theodor W. Adorno had derisively described 20th century technological developments of multimedia (such as television) as a form of modern total work of art; also, that industrial/post-industrial culture such as mass-reproduction and commerce were unfavourably thought of by Wagner - the concept of mass-reproduction is here shown as a way of enabling a wider audience to experience the work.

role-playing games” such as *Legend of Mir* and *Lineage* to the *gesamtkunstwerk*, where, “[s]uch cyber-theatres allow players to take the form of virtual characters, or “avatars”, in a wholly constructed yet organically unified world” (Ibid., p176).

The use of single-user, portable technology (such as laptops and phones) has built on the developments made in the 1960s to move artistic experiences away from the art gallery and further enabled more personal experiences to be created and shared, available to any with an internet connection.<sup>99</sup> In this regard, artists continued to explore the relationship between audience and artwork while replacing physical presence and the use of touch to establish a cognitive sense of reality with computer-mediated graphical user interfaces (GUIs), as noted by Smith (2007).

The means of communication and interaction as opened up by cyberspace and digital technology enable new forms of creation and participation, as recognised by Tim Rutherford-Johnson when he notes that the internet allowed for wider engagement beyond passive listening or observation:

[i]n the era of globalization, art has become more like music; that is, it has become increasingly time-based, as opposed to object-based, and it has more

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<sup>99</sup> In 1989, handheld portable gaming became possible through the Nintendo Game Boy, and games which incorporated single user virtual spaces *SimCity* (1989) and *Populous* (1998) were launched – followed by *The Sims* (2000) which allowed users to build and control a digital environment. These single user spaces can be compared to later, more social virtual environments such as *Minecraft* and *Second Life*, where users can control and create within the space, while also having the opportunity to collaborate with others.



and more come to use people (performers and viewers/participants) as a medium. (Rutherford-Johnson, 2017, p170; p122)

The growth in the development and adoption of online platforms – both for culture, and for work – can also be seen in the use of web-communication tools including *Microsoft Teams* and *Zoom* for meetings, collaboration, and events. The need to create ever more immersive (and thus productive) integration and engagement of remote participants is exemplified by the recreation of *Facebook* as *Meta* in 2021 – incorporating a range of VR and AR technologies to enable connection and exploration for immersive learning, innovation, connection, and exploration within the metaverse.

The growth of online platforms has enabled global access to methods of engaging with or creating material; for example, films (from *Youtube* and *Vimeo* to *Netflix* and *Amazon*), art (from creating an artist portfolio using one of the many web creation tools available, to online content from the *Tate* and the *Royal Academy*), and music (from *Soundcloud* to *Spotify* and *Amazon Music*). As Geert Lovink noted in his essay *Notes on the Platform Condition*, the very presence of online platforms create marketplaces of supply and demand, which allow for the potential to advertise material, influence activity and trade information. Similarly, it has allowed for online and remote learning for pupils and students of all ages in response to the growing requirement for social distancing and lockdowns in response to the current global pandemic.

As the obverse to this almost utopian viewpoint of an online digital society, and to provide balance, it is relevant to consider that while there are many positive aspects to

digitally augmented online experiences (for example, travelling through time and space to other locations and historical periods, and reducing emissions related to travel for work and leisure), not all outcomes of our increasingly online society are positive. While access to mobile digital technologies has the potential to enrich and enhance everyday life, it also redefines concepts of privacy and personal identity by also subjecting users to control and surveillance – including cookies tracing movement across the internet and the collection of personal details (for example the Cambridge Analytica scandal in the 2010s, in which millions of Facebook customers had their data collected and used without their consent (Confessore, 2018)). Such technology (and the companies behind them) operate on a system which places value on our interactions and activity, using this data to personalise advertisements and to populate the material content of the services. Additionally, attention to (and obsession for) screen-based technologies – such as social media, email, games, and streaming services – has the potential to overstrain and exploit our perceptive capacities, thus affecting well-being through issues such as sleep disorders. In this way, while making communication and interaction possible, such technology arguably alienates us from human interaction; for example, the ‘troll’ or ‘keyboard warrior’ hiding behind anonymity to share misinformation or hateful material. It is therefore necessary to educate and arm ourselves with the skills and technology necessary to both keep our information secure and to have the safest experiences online.<sup>100</sup> Critical theorists who have

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<sup>100</sup> On 25 January 2022, the Royal Institution of Great Britain hosted an online lecture by philosopher David J. Chalmers entitled Reality+: from the Matrix to the Metaverse which considered (amongst other topics) the utopian and dystopian potential of virtual reality, further evidencing the continued scholarly and cultural relevance of this investigation. Additionally, on 2 February 2022, the Cornwall Museums

published on the side-effects of our increased use of (and reliance on) digital technology, and forms of resistance to the surveillance and breach of personal space, include Shoshana Zuboff and Jonathan Crary, whose texts *The Age of Surveillance Capitalism* (2019) and *24/7* (2014) respectively, consider the divisions, inequalities and dangers of technology and capitalism during the first two decades of the twenty-first century.

Replacing face-to-face communication with an embodied virtual (and remote) online presence requires the use and movement of an avatar within a 3D environment – such as that presented by *Second Life* (see chapter 4.1.2), and *Gather.Town*, the web-conferencing software launched in May 2020, which through its top-down view of a virtual room, navigated using the arrow keys, calls to mind action-adventure games such as *The Legend of Zelda* (1986– ).

Further to the discussion of games and immersion in chapter 4.3.3, exploration and interaction within these virtual spaces draw parallels with open world games such as Ubisoft's *Assassin's Creed* series of games (2007– ). The gameplay in early instalments (for example *Unity* (2014) and *Syndicate* (2015)) places the player at the centre of the narrative as an "initiate" in a fictional organisation accessing the memories of the protagonists they then control throughout the game (Carsillo, R., 2015). The camera angle shows a third person viewpoint from an angle behind the character. However,

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Partnership's Museums Immersive Network hosted an online event entitled Sustainable Solutions and Creative Communities which also included consideration of experiences in VR. Similarly, the increased relevance of internet-based team meetings and similar have led to observations in society of 'Zoom Fatigue', as a derivation of screen fatigue.

connection between the player and the character is ensured through free movement, making tactical decisions on gameplay and the ability to have exercise some control over the choice of clothing and weapons.

The concept of world building through open world computer-based spaces and games is shown through the success of game-like virtual environments such as *Second Life* and *Minecraft*, which continue to be active spaces for audiences and creatives (see chapter 5), the former being described as “the largest-ever virtual world filled entirely by the creations of its users” (Linden Lab, 2017).<sup>101</sup> Both spaces have been embraced by artists. Blockworks is a global studio of creatives working within *Minecraft* while *Second Life* is home to large numbers of galleries, exhibits and performances.<sup>102</sup> Other online user created spaces include *Roblox* (2006-date), through which users can create their own games and experienced to be accessed by others.

The movement towards innovative online spaces developed in response to the COVID-19 pandemic and the need for telematic yet engaging experiences suggests a move towards gamification within culture – drawing parallels between the ways that computer games and screen-based experiences engage (and arguably immerse) the audience and the manner of engaging with the former (though a keyboard/controller and screen) lead subconsciously to a learned manner of using such techniques to navigate and

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<sup>101</sup> In 2017, Linden Labs launched Sansar (a space for user created 3D content and interactive social experiences) for PC and VR, however in 2020, the company sold it in order to concentrate once again on *Second Life*.

<sup>102</sup> As at 09/05/21, there were 311 Music-based destinations (including live musicians, musical genres, DJ venues, and cabaret) listed in the *Second Life* ‘Destination Guide’ and 204 Art-based destinations (comprising galleries, exhibits and installations, photo studios, and performances).

activate the latter.<sup>103</sup> This play-based interaction can be seen to have similarities with Ascott's concept of behaviourist art works which require game-like participation from an audience, and the navigation of Shaw's *Narrative Landscape* (1985) and *Legible City* (1989), which utilise a joystick and bicycle respectively (see chapter 1.4). Composers and musicians who have embraced technology in the creation of engaging and immersive digital experiences include apps featuring the work of Björk, Steve Reich and Radiohead. Both Björk's *Biophilia* (2011) and Universal Everything's *Polyfauna* (2014 – created with Radiohead) allow the audience to explore immersive, audiovisual, digital environments, while *Steve Reich's Clapping Music app* (2015 – see chapter 5.3.2) allows users to perform this work for themselves.<sup>104</sup>

### 6.3 Contribution to Knowledge

This investigation crosses multidisciplinary fields to interpret the praxis of Young and Riley's early work during the 1960s – from the year that Young moved to New York and completed his *Compositions 1960* to the year of the first exhibition of Young and Marian Zazeela's immersive sound and light installation *Dream House* (see chapter 2.3) – to present both composers of what we now consider immersive artistic practice. Young and Riley have been selected firstly as contemporaries and collaborators but primarily

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<sup>103</sup> The concept of gamification has been linked with culture by other academics, for example Rilla Khaled, in her text 'Gamification and Culture' in *The Gameful World: Approaches, Issues, Applications* (Walz, S.P., Deterding, S. eds. 2015); Sebastian Deterding et al. in the paper *From game design elements to gamefulness: defining "gamification"* (2011); and Chantzi Athanasia Eleftheria et al. in the paper *An innovative augmented reality educational platform using Gamification to enhance lifelong learning and cultural education* (2013).

<sup>104</sup> *Biophilia* was a collaboration between Björk, Scott Snibbe, and M/M Paris; *Polyfauna* was a collaboration between Radiohead, Nigel Godrich, Stanley Donwood and Universal Everything; *Steve Reich's Clapping Music app* was developed by the London Sinfonietta together with Touchpress and Queen Mary University of London.

for their innovative and engaging early works, which borrow much from the experimental, performative, and participative arts of the period, and which subvert the roles of audience and performer. This is an area of current academic relevance, as demonstrated by the conference *Minimalism: Location, Aspect, Moment*, held in Winchester in October 2016, which explored both the art and music of the genre.<sup>105</sup> Additionally, the contemporary relevance of the digitally augmented active space, and the wider concept of the expanded narrative between audience and artwork is evidenced by in the 2022 themes of both the *International Electronic Visualisation & the Arts* (EVA) Conference in London (including 'Digital Art Histories' and 'Music, Performing arts, and Technologies') and the *Extended Senses and Embodying Technology Symposium* (including 'Real to Virtual: Immersion and the Metaverse').

The thesis will inform those pursuing 'inworld' creative practice, as evidenced by the use of Sansar by both artists (including established *Second Life* artist Bryn Oh - see chapter 4.3.2, whose *A Night at the Ballet* spans the divide between both virtual environments by bringing her characters from her original *Second Life* works into the new Sansar space) and musicians (for example, the *Call of the Wild Experience* hosts live music events and weekly radio shows, held in collaboration with the electronic music label Monstercat).<sup>106</sup> While *Dream House* (see chapter 2.3) is today recognised as an immersive audiovisual environment, the other two early works by Young and Riley

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<sup>105</sup> The researcher attended this conference at an early stage of her investigation, so did not present.

<sup>106</sup> A social virtual reality platform developed by Linden Lab and launched in 2017, the company who previously developed *Second Life*, it can be accessed both using a computer and virtual reality headsets such as the Oculus Rift.

presented as case studies within this thesis (*A Collaboration* and the *Time Lag Accumulator*, see chapters 2.3 and 3.5 respectively) are not, and this investigation seeks to bring these into wider dialogue on the subject of immersive creative practice.

This research is significant and timely, both in terms of the developments and availability of virtual and augmented technologies to creators and the public alike and with the impacts of lockdowns and social distancing on cultural and heritage venues likely to remain present for some time to come.<sup>107</sup> It is proposed that through the creation and the enhancement of existing digital provision, these venues will be able to remain open and viable throughout the crisis, while also providing the public with access to methods of understanding and engaging with venues and sites which they may be unable to visit in person.

#### 6.4 Potential impact of this research

The thesis establishes the need for a potential cultural shift in thinking to include Young and Riley within the lineage of contemporary immersive artistic practice, brought about by the reconsideration of original works by these two early Minimalist composers. Research findings to date have been disseminated within and beyond academia through conference presentations (see introduction, section VII, including to *Sounding Out the Space: An International Conference on the Spatiality of Sound*, held at the Dublin School of Creative Arts in November 2017, which was attended by professional composers and artists), and an online journal article (*Musicology Research*, Autumn

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<sup>107</sup> In April 2022 (at the time of writing), England has now removed all restrictions related to the world-wide COVID-19 pandemic and its variants.

2018), and in the public domain through the exhibition of the two new works which form the fifth case study within this thesis, *A-Wakening* (Arena Theatre, Wolverhampton, January 2018) and *The Lull*.<sup>108</sup>

This research could potentially lead to the consideration of innovation in visitor experience in traditional spaces like museums, galleries or heritage attractions through digital and immersive technologies (VR, AR and MR), and the application of such as new forms of audience engagement outside of traditional spaces, with a particular emphasis on trends and/or changes in audience behaviour due to the disruptions of the last year and the economic impact of the COVID-19 pandemic on the creative industries.

#### 6.5 Further Research and Practice

This study of the early immersive work of Young and Riley within the context of the changing role of the audience during the 1960s establishes a wider and interdisciplinary field upon which further scholarly and practical research may expand.

The development of mixed reality environments, building on the composers' awareness of new technologies for facilitating an immersive encounter for their audiences (for example, by Riley and Oliveros) would allow for a comparative study between the contemporary relevance of the expanded narrative and immersive theatre, such as that performed by Punchdrunk. Furthermore, the increased adoption of digital technology during the pandemic also has the potential to be incorporated into aspects of everyday

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<sup>108</sup> Located at <http://maps.secondlife.com/secondlife/LEA9/32/29/21>, however the URL is no longer active as the installation/exhibition was temporary for three months (last accessed December 2017).



life.<sup>109</sup> Both the profit-driven entertainment industry and contemporary work processes absorb and instrumentalise the experimental elements of the artistic legacy of the expanded narrative through the creation of active (immersive) spaces, and active audience participation and collaboration. This in turn may lead to an exploration of how current technology can further encourage engagement and participation, and consideration of how more engaging works can be created and augmented using the senses (particularly scent and touch through haptic feedback such as Ultraleap), post-COVID, to encourage audiences to reconnect with the arts and culture.

This discussion on speculative and online spaces opens a further opportunity for research into an extended version of the active space, including what it means to be active in the virtual space, the extent to which such exhibits and works are reaching their target audience, and whether these audiences are responding to (and engaging with) such content. It also raises questions about how contemporary work (and thus artwork) is defined, and the changing power relationships and requisite technologies involved in the production of such work – as considered by Maurizio Lazzarato in his text *Immaterial Labour* as an “ideological product” created through specifically collective (or collaborative) networks at an intersection between “human power, knowledge, and action” (Lazzarato, n.d.).

Further questions and areas for post-doctoral research could include whether the complexity of individual audience experiences within the expanded narrative could be

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<sup>109</sup> As further evidenced by the development of Royal Mail stamps with added Quick Response (QR) codes, which will initially link to animations of Shaun the Sheep developed by Aardman, with the intention of using future codes to allow recipients to view videos and greetings.

read as a reaction to (or a compensation for) a kind of monotonicity and reductive character of the musical artworks of Minimalism, and whether the intensification of the expanded narrative in turn responded to the reaction of the public in order to demonstrate its active role. Additionally, the researcher would seek opportunity to explore in more depth the experiential qualities prevalent within the Light and Space Movement (and other experimental works of the period as discussed within this thesis) within her own practice and ways in which to incorporate the digital in the creation, production, and experience of, such works. This could include further connections between the movement and the Wagnerian *gesamtkunstwerk*. This would both further an existing interest in aspects of light, colour, and space, and allow for a relevant practical extension of the themes within this investigation – that just as immersion and engagement remains relevant in 2022, so too should we remain willing to experience and connect to the simple beauty of light and colour, and a sense of wonder, in a period which is increasingly chaotic and uncertain.

## BIBLIOGRAPHY

### Images from printed sources

Coe, R. T. (1970) *The Magic Theater*. USA: Sosland Press, pp191-192.

### Images from websites

La Biennale de Lyon (2005) *The Time Lag Accumulator II* (interior and exterior). Available at: <http://2005.labiennaledelyon.com/anql/artistes/riley.htm> (Accessed 9 December 2019).

Mela Foundation (n.d.) *Dream House*. Available at: <http://www.melafoundation.org/> (Accessed 30 June 2019).

Archive material sourced from venues and collections

Deborah Shapiro, New York University

- Newsletters from the Collection relating to the School of Continuing Education

Gabrielle Carlo, Albright-Knox Art Gallery, Buffalo, New York

- Photographs, concert and performance schedules, programmes and programme notes, correspondence, advertisements, press releases, newspaper clippings.

Heather Smedburg, University of California at San Diego, California

- Correspondence

Invisible City Archives [Online]

- Newspaper clippings, photographs, advertisements

Jennifer Neal, Brooklyn Museum, New York

- Newspaper clippings, catalogue extracts

John Bewley, Deborah Chiarella, State University of New York at Buffalo

- Access to archive audio recordings, advertisements, newspaper clippings, technical notes, programmes and programme notes, press releases, documentation, including:

LaMonteYoung&MarianZazeelaTerryRileyJonHassell: A Collaboration (1969) *Evenings for New Music* [Flyer]. Performed at State University of New York at Buffalo 3 May 1969.

LaMonteYoung&MarianZazeelaTerryRileyJonHassell: A Collaboration (1969) *Evenings for New Music* [Programme]. Performed at State University of New York at Buffalo 3 May 1969.

LaMonteYoung&MarianZazeelaTerryRileyJonHassell: A Collaboration (1969) *Evenings for New Music* [Programme notes]. Performed at State University of New York at Buffalo 3 May 1969.

LaMonteYoung&MarianZazeelaTerryRileyJonHassell: A Collaboration (1969) *Evenings for New Music* [Sketch]. Performed at State University of New York at Buffalo 3 May 1969.

JStor [Online]

- Reviews

Louie Fleck, Brooklyn Academy of Music, New York

- Advertisements

Marilyn Carbonell, Noriko Ebersole, Nelson Atkins Museum of Art, Kansas City, Missouri

- Photographs

Rob Hudson, Carnegie Hall, New York

- Newspaper clippings, programmes, photographs, advertisements

## Books and Journals

- Admiss, D. (2014) 'Sound + Vision', in Connon, N., Bodman, C., Admiss, D. (eds.) *Digital Revolution*. London: Barbican. pp. 148-149.
- Alperson, P. (2004) 'Creativity in Art', in Levinson, J. (ed.) *The Oxford Handbook of Aesthetics*. UK: Oxford University Press.
- Amaya, M. (1970) 'Foreword', in Coe, R. T. *The Magic Theater*. USA: Sosland Press.
- Ascott, R. (2003) *Telematic Embrace: Visionary Theories of Art, Technology, and Consciousness*. California: University of California Press.
- Ascott, R. (1966-1967) 'Behaviourist Art and the Cybernetic Vision', in Packer, R and Jordan, K. (eds.) (2002) *Multimedia: From Wagner to Virtual Worlds*. New York, Norton, pp. 95-103.
- Attebery, B. (1991) 'Fantasy and the Narrative Transaction', *Narrative Studies* 25(1), pp. 28-41. Available at: <https://www-jstor-org.ezproxy.wlv.ac.uk/stable/42945882?seq=2> (Accessed: 30 March 2022).
- Banes, S. (2007) 'Olfactory Performances', in Banes, S., Lepecki, A. *The Senses in Performance*. London: Routledge. pp. 29-37.
- Barrett, M.S. (2010) 'Musical narratives: A study of a young child's identity work in and through music-making', *Psychology of Music*. 39(4), pp. 403-423. Available at: <https://journals.sagepub.com/doi/abs/10.1177/0305735610373054> (Accessed 30 March 2022).
- Bartlem, E. (2005) 'Reshaping Spectatorship: Immersive and Distributed Aesthetics', *The Fibreculture Journal* 7. Available at: <http://seven.fibreculturejournal.org/fcj-045-reshaping-spectatorship-immersive-and-distributed-aesthetics/> (Accessed 14 September 2016]).
- BeatBooks (n.d.) *ASPEN No. 9 - Dreamweapon (Psychedelic Issue)*. Available at: <https://www.beatbooks.com/pages/books/35195/aspenno9dreamweapon-psychedelic-issue/?soldItem=true> (Accessed 23 May 2019).
- Beck, J., Bishop, R. (2020) *Technocrats of the Imagination: Art, Technology, and the Military-Industrial Avant-Garde*. USA: Duke University Press.
- Beirens, M. (2013) 'European Minimalism and the Modernist Problem', in Potter, K., Gann, K., ap Siôn, P. (eds.) *The Ashgate Research Companion to Minimalist and Postminimalist Music*. UK: Ashgate Publishing, pp. 61-85.
- Belova, O. (2006) 'The Event of Seeing: A Phenomenological Perspective on Visual Sense-Making', *Culture and Organization*, 12(2), pp. 93-107.
- Benjamin, W. (2008) *The Work of Art in the Age of Mechanical Reproduction*. Translated from the German by J.A. Underwood. UK: Penguin Books.

- Bernard, J.W. (2013) 'Minimalism and Pop: Influence, Reaction Consequences', in Potter, K., Gann, K., ap Siôn, P. (eds.) *The Ashgate Research Companion to Minimalist and Postminimalist Music*. UK: Ashgate Publishing, pp. 337-355.
- Bernstein, D.W. (2008) *The San Francisco Tape Music Center: 1960s Counter Culture and the Avant-Garde*. Berkeley: University of California Press.
- Berry, D.M., Dieter, M. (eds.) (2015) *Postdigital Aesthetics: Art, Computation and Design*. UK: Palgrave Macmillan.
- Bertram, U. (2005) 'What is Intermedia?', in Breder, H., Busse, K. (eds.) *Intermedia: Enacting the Liminal*. Germany: Dortmunder Schriften zur Kunst.
- Bishop, C. (2012) *Artificial Hells: Participatory Art and the Politics of Spectatorship*. London/NY: Verso.
- Bishop, C. (2006) 'Introduction: Viewers as Producers', in Bishop, C. (ed.) *Participation*. London: Whitechapel Gallery Ventures Limited.
- Bishop, C. (2005) *Installation Art: A Critical History*. USA: The University of Michigan.
- Bishop, C. (2004) 'Antagonism and Relational Aesthetics', *October*, 110 (Fall), pp. 51-79.
- Bjork, S., Holopainen, J. (2004) *Patterns in Game Design*. USA: Charles River Media.
- Boulton, J. (2014) 'From Love Letters to Angry Birds, the emotional journey of computer creativity', in *Digital Revolution*. UK: Barbican International Enterprises.
- Bourriaud, N. (2002) *Relational Aesthetics*. Translated from the French by S. Pleasance and F. Woods. Dijon: Presses du réel.
- Braunstein, P., Doyle, M. W. (eds.) (2002) *Imagine nation: The American counterculture of the 1960s and '70s*. New York: Routledge.
- Broadhurst, S. (2019) 'László Moholy-Nagy's Theatre of Totality: a precursor to digital performance', *Theatre and Performance Design*, 5(1-2), pp. 22-42.
- Bullivant, L. (2007a) 'Alice in Technoland', *Architecture Design, Special edition on 4DSocial: Interactive Design Environments*, 77(4), pp. 32-43.
- Bullivant, L. (2007b) 'Playing with Art', *Architecture Design, Special edition on 4DSocial: Interactive Design Environments*, 77(4), pp. 32-43.
- Bürger, P. (1984) *Theory of the Avant-Garde*. Translated from the German by M. Shaw. Minneapolis: University of Minnesota Press. Available at: [https://monoskop.org/images/d/d0/Buerger\\_Peter\\_The\\_Theory\\_of\\_the\\_Avant-Garde.pdf](https://monoskop.org/images/d/d0/Buerger_Peter_The_Theory_of_the_Avant-Garde.pdf) (Accessed: 20 February 2022).
- Butterfield, J. (1996) *The Art of Light and Space*. New York: Abbeville.

- Chapman, D.A. (2013) *Collaboration, Presence, and Community: The Philip Glass Ensemble in Downtown New York, 1966-1976*. St. Louis, Missouri: Washington University in St. Louis.
- Cimini, A. (2017) 'Telematic Tape: Notes on Maryanne Amacher's City-Links (1967–1980)', *Twentieth-Century Music: Special Issue (Tape)*, 14(1), pp. 93-108.
- Clark, R. (2011) *Phenomenal: California Light, Space, Surface*. Berkeley: University of California Press.
- Coe, R. T. (1970) *The Magic Theater*. USA: Sosland Press.
- Coe, R.T. (1966) *Sound, Light, Silence: Art That Performs*. USA: Nelson Atkins Gallery.
- Cole, R. (2012) 'Fun, Yes, but Music?' Steve Reich and the San Francisco Bay Area's Cultural Nexus, 1962-65', *Journal of the Society for American Music*. 6(3), pp. 315-348.
- Crary, J. (2014) *24/7: Late Capitalism and the Ends of Sleep*. London: Verso Books.
- Cresswell, J.W. (2009) *Research design: qualitative, quantitative, and mixed method approaches*. Los Angeles: SAGE.
- Curtis, D., Rees, A.L., White, D., Ball, S. (eds.) (2011) *Expanded Cinema: Art, Performance and Film*. UK: Tate Publishing.
- Davies, C. (1997) 'Changing Space: Virtual Reality as an Arena of Embodied Being', in Packer, R and Jordan, K. (ed.) *Multimedia: From Wagner to Virtual Worlds*. New York, Norton. pp. 293-300
- Descartes, R. (1850) *Discourse on Method*. Translated from the French by J. Veitch. Available at: [https://www.google.co.uk/books/edition/Discourse on the Method of Rightly Condu/ZqKDkQYxF-cC?hl=en&gbpv=1&printsec=frontcover](https://www.google.co.uk/books/edition/Discourse+on+the+Method+of+Rightly+Condu/ZqKDkQYxF-cC?hl=en&gbpv=1&printsec=frontcover) (Accessed: 16 August 2022).
- Dewey, J. (1934) *Art as Experience*. Reprint. New York: Penguin Group, 2005.
- Drever, J.L. (2009) 'Soundwalking: Aural Excursions into the Everyday', in Saunders, J. (ed.) *The Ashgate Research Companion to Experimental Music*. UK: Taylor & Francis Group. Available at: <http://ebookcentral.proquest.com/lib/wol/detail.action?docID=4799947> (Accessed: 5 April 2022).
- Duchamp, M. (1975) 'The Creative Act', in Sanouillet, M., Peterson, E. (eds.) *The Essential Writings of Marcel Duchamp*. London: Thames and Hudson Ltd.
- Duckworth, W. (1999) *Talking Music: Conversations with John Cage, Philip Glass, Laurie Anderson, and Five Generations of American Experimental Composers*. New York: Da Capo Press.
- Duckworth, W., Fleming, R. (1996) *Sound and Light: La Monte Young Marian Zazeela*. USA: University Associated Press.



- Dyson, F. (2009) *Sounding New Media*. Berkeley; University of California Press.
- Ehrlich, G. (1969) "'The Magic Theatre" Exhibition: An Appraisal', *Art Journal*. 29(1), pp. 40-44.
- Fabozzi, P.F. (2002) *Artists, Critics, Context: Writings in and around American Art since 1945*. New Jersey: Prentice Hall.
- Fageol, K. (2016) 'How to Hang a Song on a Wall: Experiencing Björk's Black Lake Installation', *Digressions: Amsterdam Journal of Critical Theory, Cultural Analysis, and Creative Writing*. 1(2), pp. 31-44.
- Feldman, M.E. (2015) *Another Minimalism: Art After California Light and Space*. Edinburgh: Fruitmarket Gallery.
- Findlay, J.F. (1990) 'Religion and Politics in the Sixties: The Churches and the Civil Rights Act of 1964', *Journal of American History*. 77(1), pp. 66-92.
- Fink, R. (2013) 'Going with the Flow: minimalism as cultural practice in the USA since 1945', in Potter, K., Gann, K., and Ap Sion, P. (eds.) *The Ashgate Research Companion to Minimalist and Postminimalist Music*. England and USA: Ashgate.
- Fink, R. (2005) *Repeating ourselves: American Minimalist Music as Cultural Practice*. USA: University of California Press.
- Foster, H. (1994) 'What's Neo about the Neo-Avant-Garde?', *October*. Vol.70, pp. 5-32. Available at: [https://monoskop.org/images/1/1f/Foster\\_Hal\\_1994\\_Whats\\_Neo\\_about\\_the\\_Neo-Avant-Garde.pdf](https://monoskop.org/images/1/1f/Foster_Hal_1994_Whats_Neo_about_the_Neo-Avant-Garde.pdf) (Accessed: 30 March 2022).
- Frank, P. (2005) 'The Arts in Fusion: Intermedia Yesterday and Today', in Breder, H., Busse, K. (eds.) *Intermedia: Enacting the Liminal*. Germany: Dortmunder Schriften zur Kunst.
- Fried, M. (1967) 'Art and Objecthood', *Artforum*. 5(10), pp. 12-23.
- Friedman, K. (2005) 'Intermedia: Four Histories, Three Directions, Two Futures', in Breder, H., Busse, K. (eds.) *Intermedia: Enacting the Liminal*. Germany: Dortmunder Schriften zur Kunst.
- Gann, K. (2013) 'A Technically Definable Stream of Postminimalism, Its Characteristics and Its Meaning', in Potter, K., Gann, K., ap Siôn, P. (eds.) *The Ashgate Research Companion to Minimalist and Postminimalist Music*. UK: Ashgate Publishing, pp. 39-60.
- Gann, K., Potter, K. and Ap Sion, P. (2013) 'Introduction: experimental, minimalist, postminimalist? Origins, definitions, communities', in Potter, K., Gann, K., ap Siôn, P. (eds.) *The Ashgate Research Companion to Minimalist and Postminimalist Music*. UK: Ashgate Publishing, pp. 1-16.
- Gibbs, T. (2007) *The Fundamentals of Sonic Art and Sound Design*. Switzerland: Ava Publishing.

- Glover, R. (2013) 'Minimalism, Teaching and Electronic Music', in Potter, K., Gann, K., ap Siôn, P. (eds.) *The Ashgate Research Companion to Minimalist and Postminimalist Music*. UK: Ashgate Publishing, pp. 161-180.
- Gluck, R.J. (2012) 'Electric Circus, Electric Ear and the Intermedia Center in Late-1960s New York', *Leonardo*. 45(1), pp. 50-56.
- Goldberg, D. (2017) *In Search of the Lost Chord: 1967 and the Hippie Idea*. New York: Akashic Books.
- Gosse, V. (1995) 'Consensus and Contradiction in Textbook Treatments of the Sixties', *Journal of American History*. 82(2), pp. 658-669.
- Gottschalk, J. (2016) *Experimental Music Since 1970*. USA: Bloomsbury Academic.
- Graham, B. (1997) *Serious Games*. UK: Barbican.
- Grau, O. (2003) *Virtual Art: From Illusion to Immersion*. USA: Massachusetts Institute of Technology.
- Grimshaw, J. (2011) *Draw a Straight Line and Follow It: The Music and Mysticism of La Monte Young*. New York: Oxford University Press.
- Grimshaw, J. (2005) 'Music of a "More Exalted Sphere": The Sonic Cosmology of La Monte Young', *Dialogue: A Journal of Mormon Thought*. 38(1), pp. 13-47.
- Groys, B. (2016) *In the Flow*. Available at: [https://www.amazon.co.uk/Kindle-eBooks-books/b/?ie=UTF8&node=341689031&ref=topnav\\_storetab\\_kindlebooks\\_store](https://www.amazon.co.uk/Kindle-eBooks-books/b/?ie=UTF8&node=341689031&ref=topnav_storetab_kindlebooks_store) (Accessed 15 February 2022).
- Groys, B. (2009) 'Comrades of Time', *e-flux Journal*. 11. Available at: <https://www.e-flux.com/journal/11/61345/comrades-of-time/> (Accessed 7 November 2021).
- Gsöllpointner, K., Schnell, R., Schuler, R.K. (eds.) (2016) *Digital Synesthesia*. Germany: De Gruyter.
- Harle, J. (2013) 'Performing Minimalist Music', in Potter, K., Gann, K., ap Siôn, P. (eds.) *The Ashgate Research Companion to Minimalist and Postminimalist Music*. UK: Ashgate Publishing, pp. 381-384.
- Harrison, C., Wood, P. (2003) *Art in Theory: 1900-2000 An Anthology of Changing Ideas*. Rev edn. Malden: Blackwell Publishing
- Henri, A. (1974) *Environments and Happenings*. London: Thames and Hudson.  
Available at:  
[https://monoskop.org/images/d/d7/Henri\\_Adrian\\_Total\\_Art\\_Environments\\_Happenings\\_and\\_Performance\\_1974.pdf](https://monoskop.org/images/d/d7/Henri_Adrian_Total_Art_Environments_Happenings_and_Performance_1974.pdf) (Accessed: 30 March 2022).
- Higgins, D. (1978) *A Dialectic of Centuries: Notes Towards a Theory of the New Arts*. USA: Printed Editions.

Hiller, C. (2019) 'Vision in Motion —> Information Landscapes From Stage Props and Camouflage Techniques to Democratic Apparatus and Cybernetic Networks', *Bauhaus Imaginista Journal*. 4. Available at: <https://www.bauhaus-imaginista.org/articles/4250/vision-in-motion-information-landscapes> (Accessed 24 March 2022).

Hui, Y. (2021) *Art and Cosmotechnics*. Available at: [https://www.amazon.co.uk/Kindle-eBooks-books/b/?ie=UTF8&node=341689031&ref=topnav\\_storetab\\_kindlebooks\\_store](https://www.amazon.co.uk/Kindle-eBooks-books/b/?ie=UTF8&node=341689031&ref=topnav_storetab_kindlebooks_store) (Accessed 13 February 2022).

Husarik, S. (1983) 'John Cage and LeJaren Hiller: HPSCHD, 1969', *American Music*. 1(2), pp. 1-21.

Ilfield, E.I. (2012) 'Contemporary Art and Cybernetics: Waves of Cybernetic Discourse within Conceptual, Video and New Media Art', *Leonardo*. 45(1), pp. 57-63.

Joseph, B.W. (2003) *Robert Rauschenberg: 4*. USA: MIT Press.

Kahn, D. (2001) *Noise Water Meat: A History of Sound in the Arts*. Massachusetts: MIT Press.

Kaprow, A; Lebel, J.J., Gutai, B.K. (1966) *Assemblage, Environments and Happenings*. New York: H. N. Abrams.

Kholeif, O. (2016) 'Electronic Superhighway: Towards a Possible Future for Art and the Internet', in Kholeif, O., Butler, E., McCormack, S. *Electronic Superhighway: From Experiments in Art and Technology to Art After the Internet*. UK: Whitechapel Gallery.

Kings Place (2014) *Minimalism Unwrapped*. UK: Kings Place.

Kostelanetz, R. (1970) *The Theatre of Mixed Means: an Introduction to Happenings, Kinetic Environments and Other Mixed-Means Performances*. London: Sir Isaac Pitman and Sons Ltd.

Krauss, R.E. (1979) 'Sculpture in the Expanded Field', *October*. 8, pp. 31-44. Available at: [https://monoskop.org/images/b/bf/Krauss\\_Rosalind\\_1979\\_Sculpture\\_in\\_the\\_Expanded\\_Field.pdf](https://monoskop.org/images/b/bf/Krauss_Rosalind_1979_Sculpture_in_the_Expanded_Field.pdf) (Accessed 21 February 2022).

Krueger, T. (2008) 'This is Not Entertainment: Experiencing the Dream House', *Architectural Design*. 78(3), pp. 12-15.

LaBelle, B., Martinho, C. (eds.) (2014) *Sight of Sound: Of Architecture and the Ear*, vol 2. Berlin: Errant Bodies.

LaBelle, B. (2010) *Background Noise: Perspectives on Sound Art*. New York: Continuum.

Laurel, B. (2014) *Computers as Theatre*. 2<sup>nd</sup> rev. edn. USA: Pearson Education, inc.

- Lazzerato, M. (n.d.) *Immaterial Labor*. Translated from the Italian by P. Colilli and E. Emory. Available at: <http://www.e-flux.com/wp-content/uploads/2013/05/2.-Maurizio-Lazzarato-Immaterial-Labor.pdf> (Accessed 2 January 2022).
- Lepecki, A., Banes, S. (2007) 'Introduction: The performance of the senses', in Banes, S., Lepecki, A. *The Senses in Performance*. London: Routledge.
- Levine Packer, R. (2010) *This Life of Sounds: Evenings for New Music in Buffalo*. New York: Oxford University Press.
- LeWitt, S. (1967) 'Paragraphs on Conceptual Art', in Fabozzi, P.F. (ed.) (2002) *Artists, Critics, Context: Readings in and Around American Art Since 1945*. New Jersey: Pearson Education, Inc., pp. 180-184.
- Licht, A. (2007) *Sound Art: Beyond Music, Between Categories*. New York: Rizzoli International Publications.
- Lichty, P. (2009) 'The Translation of Art in Virtual Worlds', *Leonardo Electronic Almanac*. 16. Available at: [http://leoalmanac.org/journal/Vol\\_16/lea\\_v16\\_n04-05/DA\\_lichty.pdf](http://leoalmanac.org/journal/Vol_16/lea_v16_n04-05/DA_lichty.pdf) (Accessed 29 March 2019).
- Lind, M. (2020) 'Displacements and Sites: Notes on a Curatorial Method', in Buckey, B., Conomos, J. *A Companion to Curation*. USA: John Wiley & Sons, Inc.
- Lippard, L. (2001) *Six Years: The Dematerialization of the Art Object*. California: University of California Press.
- Lovink, G. (2021) 'Notes on the Platform Condition', *Making and Breaking*. 2. Available at: [https://makingandbreaking.org/wp-content/uploads/2021/02/Geert\\_Lovink\\_Notes\\_on\\_the\\_Platform\\_Condition-Making\\_and\\_Breaking-1.pdf](https://makingandbreaking.org/wp-content/uploads/2021/02/Geert_Lovink_Notes_on_the_Platform_Condition-Making_and_Breaking-1.pdf) (Accessed 2 January 2022).
- Mahnke F.H. (1996) *Color, Environment, and Human Response: An Interdisciplinary Understanding of Color and Its Use as a Beneficial Element in the Design of the Architectural Environment*. New York: Wiley.
- Maizels, M. (2020) *In and Out of Phase: An Episodic History of Art and Music in the 1960s*. USA: University of Michigan Press.
- Martin, J. (2015) 'A Brief History of Experiments in Art and Technology', *IEEE Potentials*. 34(6), pp. 13-19.
- Marzona, D. (2004) *Minimal Art*. Köln: Taschen.
- Mason, S.V. (2005) *The San Francisco Mime Troupe Reader*. Ann Arbor: University of Michigan Press.
- Matthews, B., See, Z.S., Day, J. (2020) 'Crisis and extended realities: remote presence in the time of COVID-19', *Media International Australia*, 178(1), pp. 198-209.

McClary, S. (2000) 'The Impromptu That Trod on a Loaf: or How Music Tells Stories', in McQuillan, M. (ed). *The Narrative Reader*. UK: Routledge.

McDowell, A. (2015) 'The Evolution of World Building as a New Design Practice', in Gerber, D.J., and Ibanez, M. (eds.) *Paradigms in Computing: Making, Machines, and Models for Design Agency in Architecture*. USA: eVolo.

McLuhan, M. (1964) 'Introduction' and 'Challenge and Collapse: The Nemesis of Creativity' from *Understanding Media*, in Harrison, C., Wood, P. (2003) *Art in Theory 1900-2000; An Anthology of Changing Ideas*. Rev. edn. Malden: Blackwell Publishing.

Menon, E.K. (2007) 'Virtual Realities, Techno-aesthetics and Metafiction of Digital Culture', in Sutton, D., Brind, S., McKenzie, R. (eds.) *The State of the Real: Aesthetics in the Digital Age*. UK, I.B. Taurus & Co. Ltd. pp. 140-150.

Merleau-Ponty, M. (1945a) *Phenomenology of Perception*. Reprint. UK: Routledge, 2013.

Merleau-Ponty, M. (1945b) *Phenomenology of Perception*. 2<sup>nd</sup> rev. edn. Translated from the French by C. Smith. UK: Taylor & Francis Group, 2002. Available at: <https://ebookcentral.proquest.com/lib/wol/detail.action?docID=237354> (Accessed 14/04/22).

Mertens, W. (1980) *American Minimalist Music: La Monte Young, Terry Riley, Steve Reich, Philip Glass*. Reprint. Translated from the Belgian by J. Hautekeit. London: Kahn and Averill, 2007.

Metz, C. (1991) *Film Language: A Semiotics of the Cinema*. Chicago: University of Chicago Press.

Meyer, J. (ed.) (2010) *Minimalism*. Reprint. New York; London: Phaidon, 2014.

Meyer, J. (2001) *Minimalism: Art and Polemics in the Sixties*. Reprint. New Haven: Yale University Press, 2004.

Mills, J. (2018) 'Engagement and Immersion: The extent to which an expanded narrative is present within American Minimalist Music during the 1960s and 1970s', *Geography, Music, Space. Musicology Research*. 5. Available at: <https://www.musichealthandwellbeing.co.uk/publications/engagement-and-immersion-expanded-narrative-and-presence-in-minimalist-music-1960s-1970s> (Accessed 5 April 2022).<sup>110</sup>

Morgan, J., Wood, C. (2007) *The World as a Stage*. London: Tate.

Moriarty, M. (2020) 'Interspecific Interactions: Interaction Modes Between Sound and Movement in Collaborative Performance', in Earnshaw, R., Liggett, S., Excell, P.,

---

<sup>110</sup> This journal is now renamed Journal of Music Health and Wellbeing.

- Thalmann, D. (eds.) *Technology, Design and the Arts - Opportunities and Challenges*. Switzerland: Springer.
- Murray, J.H. (2017) *Hamlet on the Holodeck: The Future of Narrative in Cyberspace*. New York: The Free Press.
- Natalia, K. (2020) 'New Exhibition Practices and the Role of Museums in a Pandemic', *Philosophy Study*. 10(12), pp. 874-877. Available at: <https://www.davidpublisher.com/Public/uploads/Contribute/5feac6fd957c8.pdf> (Accessed 5 April 2022).
- Nattiez, J. (1990) *Music and Discourse: Toward a Semiology of Music*. Translated from the French by C. Abbate. USA: Princeton University Press.
- Nechvatal, J. (2001) 'Towards an Immersive Intelligence', *Leonardo*. 34(5), pp. 417–422.
- Nisbet, J. (2014) *Ecologies, environments, energy systems in art of the 1960s and 1970s*. Cambridge: MIT Press.
- Nyman, M. (1999) *Experimental Music: Cage and Beyond*. Cambridge: Cambridge University Press.
- Nyman, M. (1968) 'Minimal Music', *The Spectator*. 221(7320), pp. 22-23. Available at: <http://archive.spectator.co.uk/article/11th-october-1968/22/minimal-music> (Accessed 22 December 2016).
- Oliveros, P. (2010) *Sounding the Margins: Collected Writings 1992-2009*. USA: Deep Listening Publications.
- Oliveros, P. (2006) 'Improvising with Spaces', *The Journal of the Acoustical Society of America*. 119(5).
- Oliveros, P. (2005) *Deep Listening*. USA: iUniverse.
- O'Mahony, M. (2014) 'Our Digital Future', in *Digital Revolution*. UK: Barbican International Enterprises.
- Ox, J. (2001) 'Intersenses/Intermedia: A Theoretical Perspective', *Leonardo*. 34(1), pp. 47-48.
- Packer, R. and Jordan, K. (eds.) (2002) *Multimedia: From Wagner to Virtual Worlds*. New York, Norton.
- Paul, C. (2015) *Digital Art*. UK: Thames and Hudson Ltd.
- Pelinski, R. (1980) 'Upon Hearing a Performance of the Well-Tuned Piano', *Parachute: Contemporary Art*. 9, pp. 4-12.
- Piekut, B. (2011) *Experimentalism Otherwise: The New York Avant-Garde and Its Limits*. California: University of California Press

- Pierce, J.R. (1968) 'Computers and Music', in Reichardt, J. (ed.) *Cybernetic Serendipity: The computer and the arts*. London; New York: Studio International, pp. 18-19.
- Pierpaoli, P. (2011) 'Civil Rights Movement', in Tucker, C.S. (ed.) *The Encyclopedia of the Vietnam War: A Political, Social, and Military History*. USA: ABC-CLIO. Pp. 210-212.
- Popper, F. (1993) *Art of the Electronic Age*. London: Thames and Hudson.
- Potter, K. (2013) 'Mapping Early Minimalism', in Potter, K., Gann, K., ap Siôn, P. (eds.) *The Ashgate Research Companion to Minimalist and Postminimalist Music*. UK: Ashgate Publishing, pp. 19-37.
- Potter, K. (2000) *Four musical minimalists: La Monte Young, Terry Riley, Steve Reich, Philip Glass*. Cambridge: Cambridge University Press.
- Rancière, J. (2009) *The Emancipated Spectator*. London: Verso.
- Reich, S. (2002) *Writings on Music: 1965-2000*. New York: Oxford University Press.
- Reichardt, J. (ed.) (1968) *Cybernetic Serendipity: The computer and the arts*. London; New York: Studio International.
- Rich, A. (1969) 'Old Hat Wears Well', *New York*. 6 April, pp. 50.
- Riley, R.R. (2008) 'Liquid to Light: The Evolution of the Projected Image Light Show in San Francisco', in Bernstein, D. W. (ed). *The San Francisco Tape Music Center: 1960s counterculture and the avant-garde*. California: Berkeley, pp. 21.
- Rivenc, R. (2016) *Made in Los Angeles - Materials, Processes, and the Birth of West Coast Minimalism*. USA: Yale University Press.
- Roberts, J. (2015) *Revolutionary Time and the Avant-Garde*. Available at: [https://www.amazon.co.uk/Kindle-eBooks-books/b/?ie=UTF8&node=341689031&ref=topnav\\_storetab\\_kindlebooks\\_store](https://www.amazon.co.uk/Kindle-eBooks-books/b/?ie=UTF8&node=341689031&ref=topnav_storetab_kindlebooks_store) (Accessed 11 February 2022).
- Rockwell, J. (1981) 'New Music in America', *Journal of American Culture*. 4(4), pp. 132-138.
- Rodnitzky, J. L. (2008) 'The sixties between the microgrooves: Using folk and protest music to understand American history, 1963–1973', *Popular Music and Society*. 23(4), pp105-122.
- Rose, B. (1965) 'ABC Art', *Art in America*. October-November, pp. 58-69.
- Rutherford-Johnson, T. (2017) *Music After the Fall: Modern Composition and Culture Since 1989*. USA: University of California Press.
- Ryan, D (2009) "We have Eyes as well as Ears ...': Experimental Music and the Visual Arts', in Saunders, J. (ed.) *The Ashgate Research Companion to Experimental Music*. UK: Taylor & Francis Group. Available at:

<http://ebookcentral.proquest.com/lib/wol/detail.action?docID=4799947> (Accessed: 30 March 2022).

Sanouillet, M., Peterson, E. (eds.) (1973) *Salt Seller: The Writings of Marcel Duchamp (Marchand du Sel)*. New York: Oxford University Press.

Saunders, J. (ed.) (2009) *The Ashgate Research Companion to Experimental Music*. UK: Taylor & Francis Group. Available at: <http://ebookcentral.proquest.com/lib/wol/detail.action?docID=4799947> (Accessed: 30 March 2022).

Schuld, D. (2011) 'Practically Nothing: Light, Space, and the Pragmatics of Phenomenology', in Clark, R. (ed.) *Phenomenal: California Light, Space, Surface*. USA: University of California Press.

Schwartz, K.R. (1996) *Minimalists*. New York: Phaidon Press Ltd.

Sedgman, K. (2018) *The Reasonable Audience: Theatre Etiquette, Behaviour Policing, and the Live Performance Experience*. Switzerland: Springer Nature Switzerland AG.

Sensate Journal (n.d.) *S.M.S.*. Available at: <http://sms.sensatejournal.com/> (Accessed 23 May 2019).

Shaw, J. (1992) 'Modalities of Interactivity and Virtuality', in Packer, R and Jordan, K. (eds.) (2002) *Multimedia: From Wagner to Virtual Worlds*. New York, Norton, pp. 132-137.

Skyttner, L. (1996) *General Systems Theory: An Introduction*. UK: Macmillan Press Ltd.

Smith, G., Walker Smith, N. (1995) *New Voices: American Composers Talk About Their Music*. Oregon: Amadeus Press.

Smyth, M. (2007) 'Designing for Embodied Interaction: experiencing artefacts with and through the body', in Sutton, D., Brind, S., McKenzie, R. (eds.) *The State of the Real: Aesthetics in the Digital Age*. UK, I.B. Taurus & Co. Ltd. Pp. 140-150.

Steuer, J. (2006) 'Defining Virtual Reality: Dimensions Determining Telepresence', *Journal of Communication*, Volume 42, Issue 4, December 1992, pp. 73–93.

Strickland, E., (1993) *Minimalism: Origins*. Bloomington: Indiana University Press.

Taylor, A. I. (2017) Patricia A. McKillip and the Art of Fantasy World-Building. USA: McFarland. Available at: [https://books.google.co.uk/books?hl=en&lr=&id=DYowDwAAQBAJ&oi=fnd&pg=PP1&q=worldbuilding+digital+art&ots=OY2bxCvucO&sig=L74PqfvAUMYjMOB9p8nMNo75WrI&redir\\_esc=y#v=onepage&q=worldbuilding%20digital%20art&f=false](https://books.google.co.uk/books?hl=en&lr=&id=DYowDwAAQBAJ&oi=fnd&pg=PP1&q=worldbuilding+digital+art&ots=OY2bxCvucO&sig=L74PqfvAUMYjMOB9p8nMNo75WrI&redir_esc=y#v=onepage&q=worldbuilding%20digital%20art&f=false) (Accessed: 30 March 2022).

Thiboutot, C., Martinez, A., Jager, D. (1999) 'Gaston Bachelard and Phenomenology: Outline of a Theory of the Imagination', *Journal of Phenomenological Psychology*. 30(1), pp. 1-17.



- Tribe, M., Jana, R. (2006) *New Media Art*. Germany: Taschen.
- Ubu (n.d.) *Aspen no.9: The Psychedelic Issue*. Available at: <http://www.ubu.com/aspen/aspen9/index.html> (Accessed 21 June 2018).
- Unknown (1970) 'Event Listings', *Continuing Education: Newsletter for the School of Continuing Education*. 5(1), page unknown.
- Valjakka, M. (2021) 'From Material Ephemerality to Immaterial Permanency', *NUART Journal*. 3(1). pp. 120-133. Available at: [https://helda.helsinki.fi/bitstream/handle/10138/332173/NJ5\\_18\\_Valjakka.pdf?sequence=1](https://helda.helsinki.fi/bitstream/handle/10138/332173/NJ5_18_Valjakka.pdf?sequence=1) (Accessed 2 January 2022).
- Wagner, R. (1993) *The Art-Work of the Future, and Other Works*. USA: University of Nebraska Press.
- Walmsley, B., Franks, A. (2011) 'The Audience Experience: Changing roles and relationships', in Walmsley, b. (ed.) *Key Issues in the Arts and Entertainment Industry*. Oxford: Goodfellows Publishers Ltd., pp. 1-16.
- Walz, S.P., Deterding, S. (2015) *The Gameful World: Approaches, Issues, Applications*. Massachusetts: MIT Press.
- Warburton, D. (1988) 'A Working Terminology for Minimal Music', *Intégral*. 2, pp. 135-159.
- Warhol, A., Hackett, P. (1980) *POPism: The Warhol '60s*. New York: Harcourt Brace Jovanovich. Available at: [https://monoskop.org/images/5/56/Warhol\\_Andy\\_Hackett\\_Pat\\_POPism\\_The\\_Warhol\\_60s\\_1980.pdf](https://monoskop.org/images/5/56/Warhol_Andy_Hackett_Pat_POPism_The_Warhol_60s_1980.pdf) (Accessed 11 April 2022).
- Warren, J. (2017) *Creating Worlds: How to Make Immersive Theatre*. UK: Nick Hern Books Ltd.
- Wilson Smith, M. (2007) *The Total Work of Art: From Bayreuth to Cyberspace*. UK: Routledge.
- Young, L.M. (ed.) (2019) *Machine Landscapes: Architectures of the Post Anthropocene*. USA: Wiley.
- Young, L.M., MacLow, J. (1963) *An Anthology of Chance Operations*. Bronx, N.Y: L. Young & J. Mac Low. Available at: [https://monoskop.org/images/0/06/Young\\_La\\_Monte\\_Mac\\_Law\\_Jackson\\_eds\\_An\\_Anthology\\_of\\_Chance\\_Operations.pdf](https://monoskop.org/images/0/06/Young_La_Monte_Mac_Law_Jackson_eds_An_Anthology_of_Chance_Operations.pdf) (Accessed 21 June 2018).
- Zuboff, S. (2019) *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*. UK: Profile Books.

## Conference Papers in Digital Repositories

ap Siôn, P., and Evans, T. (2007) 'Parallel Symmetries? Exploring Relationships between Minimalist Music and Multimedia Forms', *the First International Conference on Music and Minimalism*, Bangor, Wales, 31 August – 2 September 2007. Available at: <http://minimalismsociety.org/wp-content/uploads/2016/01/ap-Sion-and-Evans.pdf> (Accessed 7 December 2019).

Ascott, R. (2002) 'Interactive Art', *Interactive Learning in Museums of Art*, London, England, 17-18 May 2002. Available at: [http://media.vam.ac.uk/media/documents/legacy\\_documents/file\\_upload/5766\\_file.pdf](http://media.vam.ac.uk/media/documents/legacy_documents/file_upload/5766_file.pdf) (Accessed 14 December 2016).

Breuleux, Y., de Conink, B., and Therrien, S. (2019) 'The World Building Framework for Immersive Storytelling Projects', *14th European Architecture Envisioning Conference*, Available at: <https://doi.org/10.1051/shsconf/20196400003> (Accessed 27 February 2022).

Deterding, S., Dixon, D., Khaled, R., Nacke, L. (2011) 'From game design elements to gamefulness: defining "gamification"', *15th International Academic MindTrek Conference: Envisioning Future Media Environments*, September 2011. Available at: <https://doi.org/10.1145/2181037.2181040> (Accessed 6 February 2022).

Droumeva, M., (2005) 'Understanding Immersive Audio: A Historical and Socio-Cultural Exploration of Auditory Displays', *ICAD 05-eleventh Meeting of the International Conference on Auditory Display*, Limerick, Ireland, July 6-9 2005. Available at: <http://www.icad.org/Proceedings/2005/Droumeva2005.pdf> (Accessed 13 August 2019).

Eleftheria, C.A., Charikleia, P., Iason, C.G., Athanasios, T., Dimitrios, T. (2013) 'An innovative augmented reality educational platform using Gamification to enhance lifelong learning and cultural education'. IISA 2013, Piraeus, Greece, 10-12 July 2013. Available at: <https://ieeexplore.ieee.org/abstract/document/6623724/authors> (Accessed 6 February 2022).

Fisher, S.S., Wenzel, E.M., Coler, C., McGreevy, M.W. (1988) 'Virtual Interface Environment Workstations', *Proceedings of the Human Factors Society Annual Meeting*, 32(2), pp. 91-95. Available at: <https://journals.sagepub.com/doi/abs/10.1177/154193128803200219> (Accessed 16 September 2021).

Mitchell, B. (2010) 'The Immersive Artistic Experience and the Exploitation of Space', *CAT Conference*, London, England, 2 February. Available at: [http://www.bcs.org/upload/pdf/ewic\\_ca10\\_s3paper2.pdf](http://www.bcs.org/upload/pdf/ewic_ca10_s3paper2.pdf) (Accessed 31 January 2018).

Oliveros, P. (2007) 'Improvising with Spaces', *The 13th International Conference on Auditory Display*. Montreal, Quebec, 26-29 June, pp. 68-72. Available at: [https://www.researchgate.net/publication/228485532\\_Improvising\\_with\\_spaces](https://www.researchgate.net/publication/228485532_Improvising_with_spaces) (Accessed 26 June 2019).

Rogala, M. (2005) 'Towards a Theory of Interactive Art Experience', *ISIMD 2005: 3<sup>rd</sup> International Symposium of Interactive Media Design*. Yeditepe University, 5-7 January. Available at: [https://www.academia.edu/549566/TOWARDS\\_A\\_THEORY\\_OF\\_INTERACTIVE\\_ART\\_EXPERIENCE](https://www.academia.edu/549566/TOWARDS_A_THEORY_OF_INTERACTIVE_ART_EXPERIENCE) (Accessed 12 July 2018).

Society for Minimalist Music (2016) 'CFP', *Minimalism: Location Aspect Moment*. Available at: <http://minimalismsociety.org/cfp-minimalism-location-aspect-moment> (Accessed 19 December 2019).

Wenzel, E.M., Fisher, S.S., Stone, P.K., Foster, S.H. (1990) 'A System for Three-Dimensional Acoustic Visualization in a Virtual Environment Workstation', *the 1<sup>st</sup> IEEE conference on Visualisation*. San Francisco, USA, 23-26 October. Available at: [https://www.researchgate.net/publication/220943410\\_A\\_System\\_for\\_Three-Dimensional\\_Acoustic\\_Visualization\\_in\\_a\\_Virtual\\_Environment\\_Workstation](https://www.researchgate.net/publication/220943410_A_System_for_Three-Dimensional_Acoustic_Visualization_in_a_Virtual_Environment_Workstation) (Accessed 16 September 2021).

## Newspapers

Belam, M. (2016) 'Watch Steve Reich's Different Trains performed by the LCO at Edge Hill station, Liverpool', *The Guardian*, 30 September. Available at: <https://www.theguardian.com/music/2016/sep/30/watch-steve-reichs-different-trains-performed-by-the-lco-at-edge-hill-station-liverpool> (Accessed 8 December 2019).

Confessore, N.(2018) 'Cambridge Analytica and Facebook: The Scandal and the Fallout So Far', *The New York Times*, 4 April. Available at: <https://www.nytimes.com/2018/04/04/us/politics/cambridge-analytica-scandal-fallout.html> (Accessed 12 April 2022).

Dingfelder, S. (2019) 'A giant, whispering 'tree' is coming to downtown D.C', *Washington Post*, 13 March. Available at: [https://www.lozano-hemmer.com/texts/bibliography/articles\\_speaking\\_willow/washingtonpost\\_13march2019.pdf](https://www.lozano-hemmer.com/texts/bibliography/articles_speaking_willow/washingtonpost_13march2019.pdf) (Accessed 28 November 2021).

Fairman, R. (2015) 'Words Without Music', by Philip Glass', *Financial Times*, 13 May. Available at <https://www.ft.com/content/d4b882c6-d6fd-11e4-97c3-00144feab7de> (Accessed 20 December 2016).

Gardner, L. (2009) 'Tunnel 228', *The Guardian*, 12 May. Available at: <https://www.theguardian.com/stage/2009/may/12/theatre-review-tunnel-228> (Accessed 18 November 2019).

Horton, H. (2019) 'National Trust to use 'augmented reality' headsets to show how climate change will destroy their properties unless climate change is addressed', *Telegraph*, 25 October. Available at: <https://www.telegraph.co.uk/news/2019/10/25/national-trust-use-augmented-reality-headsets-show-climate-change/> (Accessed 27 November 2021).

Kiss, J., Needham, A. (2011) 'Björk's Biophilia app: a techie and a music fan write', *The Guardian*, 20 July. Available at: <https://www.theguardian.com/music/musicblog/2011/jul/20/bjork-biophilia-app> (Accessed 18 August 2017).

Knauss, C. (2022) 'Facebook appeal over Cambridge Analytica data rejected by Australian court as 'divorced from reality'. *The Guardian*, 7 February. Available at: <https://www.theguardian.com/technology/2022/feb/07/facebook-appeal-over-cambridge-analytica-data-rejected-by-australian-court-as-divorced-from-reality> (Accessed 27 March 2018).

O'Brien, K. (2016) 'Steve Reich at 80: Still Plugged In, Still Plugging Away', *New York Times*, 2 February. Available at: <https://www.nytimes.com/2016/10/02/arts/music/steve-reich-at-80-still-plugged-in-still-plugging-away.html> (Accessed 27 March 2018).

- Osborne, H. and Parkinson, H.J. (2018) 'Cambridge Analytica scandal: the biggest revelations so far', *The Guardian*. 22 March. Available at: <https://www.theguardian.com/uk-news/2018/mar/22/cambridge-analytica-scandal-the-biggest-revelations-so-far> (Accessed 12 April 2022).
- Puttnam, T. (1969a) 'Another Evening of Continuous Music Set at UB in May', *Buffalo Courier Express*. 9 March, p. 26.
- Puttnam, T. (1969b) 'Young's Drone Music is Too Loud for Some', *Buffalo Courier Express*. 4 May, p.11.
- Rockwell, J. (1994) 'A Parisian Landmark Heard in a New Light', *The New York Times*, 18 June. Available at: <https://www.nytimes.com/1994/06/18/arts/a-parisian-landmark-heard-in-a-new-light.html> (Accessed 12 October 2019).
- Rothstein, E. (1993) 'Review/Music; La Monte Young Band Explores Sonic Space', *New York Times*, 12 January. Available at: <https://www.nytimes.com/1993/01/12/arts/review-music-la-monte-young-band-explores-sonic-space.html> (Accessed 8 February 2018).
- Schoenberg, H.C. (1969) 'Music: Loud Last Word', *The New York Times*, 7 May, page unknown.
- Sebag-Montefiore, C. (2016) 'Scent of Memory: smell and classical music prove an intoxicating combination', *The Guardian*, 11 November. Available at: <https://www.theguardian.com/music/2016/nov/11/scent-of-memory-smell-and-classical-music-prove-an-intoxicating-combination> (Accessed 21 November 2019).
- Service, T., (2015) 'Steve Reich's Clapping Music app: in pursuit of rhythmic perfection', *The Guardian*, 13 July. Available at: <https://www.theguardian.com/music/tomserviceblog/2015/jul/13/clapping-music-app-steve-reich-touchpress-london-sinfonietta> (Accessed 18 August 2017).
- Still, J. (2019) 'Laurie Anderson: 'It's a great time to be creating new realities'', *The Guardian*, 13 June. Available at: <https://www.theguardian.com/culture/2019/jun/13/laurie-anderson-new-realities-to-the-moon-manchester-international-festival> (Accessed 19 December 2019).
- The Guardian (2007) *What was the summer of love?* Available at <https://www.theguardian.com/travel/2007/may/27/escape> (Accessed 23 June 2019).
- Trotter, H. (1969) 'Creative Associates Offer Mod Thrust at the Curious', *Buffalo Evening News*, 5 May, page unknown.
- Warhurst, M. (2014) 'Immersive art: Have audiences earned their place in the show?', *The Guardian*, 30 July. Available at: [www.theguardian.com/lifeandstyle/2014/jul/30/immersive-art-do-audiences-deserve-it](http://www.theguardian.com/lifeandstyle/2014/jul/30/immersive-art-do-audiences-deserve-it) (Accessed 5 October 2016).

Wilson, M. (1997) 'La Monte Young/Marian Zazeela Benefit Concert', *Independent*, 3 November. Available at: <https://www.independent.co.uk/life-style/music-review-of-minimal-significance-1291866.html> (Accessed 4 November 2019).

Village Voice (1965) 'Filmmakers' Cinematheque: Advertisement for relocation of premises', *The Village Voice*, 2 December. Available at: <https://news.google.com/newspapers?nid=KEtq3P1Vf8oC&dat=19651202&printsec=frontpage&hl=en> (Accessed 26 March 2018).

## Website resources

Abe Books (n.d.) *LY 1961 Compositions 1961*. Available at: <https://www.abebooks.co.uk/LY-1961-Compositions-Monte-Young-1963/30529615916/bd> (Accessed 25 February 2022).

ACM SIGGRAPH (2021) *About*. Available at: <https://www.siggraph.org/about/> (Accessed 7 May 2021).

Adams, E. (2004) *Postmodernism and the Three Types of Immersion*. Available at: [http://designersnotebook.com/Columns/063\\_Postmodernism/063\\_postmodernism.htm](http://designersnotebook.com/Columns/063_Postmodernism/063_postmodernism.htm) (Accessed 23 March 2012).

American Composers Forum (2018) *Stop and Smell the Music: ACF Board Chair Mary Ellen Childs Pairs Sound and Scent*. Available at: <https://composersforum.org/stop-and-smell-the-music-acf-board-chair-mary-ellen-childs-pairs-sound-and-scent/> (Accessed 21 November 2019).

Anderson, L. (2019) *About*. Available at: <http://www.laurieanderson.com/about/> (Accessed 19 December 2019).

Antenna Theater (n.d.) *Antenna Theater*. Available at: <https://antenna-theater.org/> (Accessed 30 October 2021).

Antonakos, S. (n.d.) *Stephen Antonakos*. Available at: <https://www.artforum.com/print/reviews/201207/stephen-antonakos-32009> (Accessed 24 March 2022).

Archive of Digital Art (n.d. a) *A-Volve*. Available at <https://www.digitalartarchive.at/database/general/work/a-volve.html> (Accessed 7 May 2021).

Archive of Digital Art (n.d. b) *Dialogue with the Knowbotic South (DWTKS)*. Available at: <https://www.digitalartarchive.at/database/general/work/dialogue-with-the-knowbotic-south-dwtks.html> (Accessed 8 May 2021).

Arco (n.d.) *About*. Available at: <https://www.arcoarcoarco.com/about> (Accessed 10 October 2019).

Asher, L. (2011) *Occupy Wall Street: How the People's Mic Works*. Available at: <https://litkicks.com/peoplesmic/> (Accessed 2 April 2022).

Assassins Creed Symphony (n.d.) *Assassins Creed Symphony*. Available at: <https://assassinscreedsymphony.com/> (Accessed 6 December 2019).

Avatar Orchestra Metaverse (2017) *Still Listening: For Pauline Oliveros AOM performs Heart of Tones*. Available at: <http://avatarorchestra.blogspot.com/> (Accessed 4 October 2018).

Avatar Orchestra Metaverse (2013) *About AOM*. Available at: <http://avatarorchestra.blogspot.com/p/about-aom.html> (Accessed 4 October 2018).

Avatar Orchestra Metaverse (2012) *Vancouver Calling - AOM and Pauline Oliveros*. Available at: <http://avatarorchestra.blogspot.com/2012/01/vancouver-calling-aom-and-pauline.html?m=1> (Accessed 24 November 2019).

Avatar Orchestra Metaverse (2010) *Rotating Brains / Beating Heart - Collaboration with Stelarc*. Available at: [http://avatarorchestra.blogspot.com/2010/09/rotating-brains-beating-heart\\_04.html](http://avatarorchestra.blogspot.com/2010/09/rotating-brains-beating-heart_04.html) (Accessed 24 November 2019).

Avatar Orchestra Metaverse (2008) *Avatar Orchestra: Live May 10, 2008: Mixed Reality and Audio Stream*. Available at: <http://avatarorchestra.blogspot.com/2008/04/avatar-orchestra-performs-may-10-2008.html> (Accessed 24 November 2019).

Avatar Orchestra Metaverse (2007) *AOM Blog Started*. Available at: <http://avatarorchestra.blogspot.com/2007/04/aom-blog-started.html> (Accessed 24 November 2019).

Barbican (1997) *Serious Games*. Available at: <https://www.barbican.org.uk/whats-on/1997/event/serious-games-art-interaction-technology> (Accessed 8 May 2021).

Barrett, K. (2014) *Moholy-Nagy's pioneering multi-sensory art*. Available at: <https://www.apollo-magazine.com/moholy-nagys-pioneering-multi-sensory-art/> (Accessed 24 March 2022).

Baumgardner, J. (2016) *A Very Different Kind of Immersive Art Installation*. Available at: <https://www.nytimes.com/2016/02/04/t-magazine/art/teamlab-living-digital-space-future-parks-pace-gallery-california.html> (Accessed 5 October 2016).

BBC (2022) *Stamps join the digital world with barcodes*. Available at: <https://www.bbc.co.uk/news/uk-60213179> (Accessed 6 February 2022).

BBC (2016a) *A minimal guide to minimalism*. Available at: <http://www.bbc.co.uk/music/articles/9147162a-f36f-41df-a67a-9952d41c161e> (Accessed 31 January 2017).

BBC (2016a) *Philip Glass' Heroes Symphony in Pictures*. Available at: <http://www.bbc.co.uk/programmes/articles/fb1n799zLC8gDSDzg4BTj/philip-glass-heroes-symphony-in-pictures> (Accessed 18 August 2017).

BBC (2016b) *Proms at ... Bold Tendencies Multi-Storey Car Park, Peckham*. Available at: <https://www.bbc.co.uk/events/e2pj5v> (Accessed 3 April 2022).

BBC (n.d.) *Civilisations AR*. Available at: <https://www.bbc.co.uk/taster/pilots/civilisations-ar> (Accessed 27 November 2021).

Behance (n.d.) *Speculative Spaces: In-development designs for immersive environments*. Available at: <https://www.behance.net/gallery/68261435/Speculative-spaces> (Accessed 27 November 2021).



- Bell, L. (n.d.) *The Art of Larry Bell*. Available at: <https://larrybell.com/> (Accessed 26 March 2022).
- Beyond Conference (2021a) *Beyond 20201*. Available at: <https://beyondconference.org/> (Accessed 28 November 2021).
- Beyond Conference (2021b) *Shows From the Small Screen: Latest Research Considers 'Audiences at a Time of Pandemic'*. Available at: <https://beyondconference.org/news/2020/latest-research-audiences-pandemic/> (Accessed 28 November 2021).
- Biennial de Lyon (2005) *Terry Riley*. Available at: <http://2005.labiennaledelyon.com/angl/artistes/riley.htm> (Accessed 15 June 2018).
- Black Mountain College Museum and Arts Center (no date) *Black Mountain College*. Available at: <http://www.blackmountaincollege.org/history/> (Accessed 22 May 2019).
- Bors, S. (n.d) *Sensory Geographies: A Conversation with Kurt Hentschläger*. Available at: <https://anti-utopias.com/editorial/sensory-geographies-a-conversation-with-kurt-hentschlager/> (Accessed 23 March 2016).
- Bryars, G. (n.d.) *Gavin Bryars Home*. Available at: <https://gavinbryars.com/> (Accessed 4 February 2022).
- Burgoyne, P. (2016) *Glastonbury to stage spectacular Chris Levine light show in honour of David Bowie*. Available at: <https://www.creativereview.co.uk/glastonbury-to-stage-stunning-chris-levine-light-show-in-honour-of-david-bowie/> (Accessed 22 December 2016).
- Campbell, B. (2009) *West to East: The Migration of American New Music*. Available at: <https://www.sfcv.org/articles/feature/west-east-migration-american-new-music> (Accessed 24 January 2022).
- Campbell-Dollaghan, K. (2013) *A Projector and A Fog Machine Create Startling Virtual Spaces*. Available at: <https://www.fastcompany.com/1672060/a-projector-and-a-fog-machine-create-startling-virtual-spaces> (Accessed 13 September 2018).
- Carey, S. (2020) *Virtual Heritage, Lockdown and Opportunities: A View from Enfield Council*. Available at: <https://historicengland.org.uk/whats-new/debate/recent/impact-of-covid-on-heritage/virtual-heritage-lockdown-and-opportunities/> (Accessed 28 November 2021).
- Carsillo, R. (2015) *Assassin's Creed Syndicate Review*. Available at: <https://web.archive.org/web/20151031074141/http://www.egmnow.com/articles/reviews/assassins-creed-syndicate-review/> (Accessed 10 August 2022).
- Christenson, A. (2015) *Kindred Spirits: a Digital, Immersive, Spectacular, Interactive experience*. Available at: <https://circuit.tate.org.uk/2015/02/kindred-spirits-a-digital-immersive-spectacular-interactive-experience/> (Accessed 20 July 2019).

- Coin Operated (2010) *Umbrella.net*. Available at: <http://www.coin-operated.com/2010/05/04/umbrella-net-2004> (Accessed 22 August 2021).
- Continuous Drift (n.d.) *Continuous Drift*. Available at: <http://continuousdrift.com/> (Accessed 4 October 2018).
- Curgenvén, R. (n.d.) *Climata by Robert Curgenvén*. Available at: <https://robertcurgenvén.bandcamp.com/album/climata> (Accessed 18 November 2019).
- Cybernetic Serendipity Archive (n.d.) *Cybernetic Serendipity*. Available at: <http://cyberneticserendipity.net/> (Accessed 12 July 2018).
- Cycling '74 (2016) *LINES – Interactive Sound Art Exhibition*. Available at: <https://cycling74.com/projects/lines-interactive-sound-art-exhibition/> (Accessed 12 October 2019).
- Dale Air (n.d.) *Dale Air: Aromas by Design*. Available at: <http://www.daleair.com/> (Accessed 19 September 2017).
- Daley, J. (2017) *Art Installation Recreates the Smell of Cities Around the World*. Available at: <https://www.smithsonianmag.com/smart-news/art-installation-recreates-smell-cities-around-world-180963696/> (Accessed 3 March 2018).
- Dalò, R. P., Pitozzi, E. (n.d.) *Electro Scene: Questions for Kurt Hentschläger*. Available at: [http://kurthentschläger.com/portfolio/cluster/pdf/ElectroScene\\_QuestionsKH.pdf](http://kurthentschläger.com/portfolio/cluster/pdf/ElectroScene_QuestionsKH.pdf) (Accessed 15 December 2016).
- Dia (n.d. a) *La Monte Young and Marian Zazeela: Sound and Light Environment / Marian Zazeela: Sculptures from Still Light*. Available at <https://www.diaart.org/program/exhibitions-projects/la-monte-young-and-marian-zazeela-sound-and-light-environmentmarian-zazeela-sculptures-from-still-light-exhibition> (Accessed 16 June 2019).
- Dia (n.d. b) *Larry Bell: Standing Walls I, 1968/2017*. Available at: <https://www.diaart.org/collection/collection/bell-larry-standing-walls-i-19682017-2017-031/page/36/on-view/html> (Accessed 26 March 2022).
- Dia (n.d. c) *Robert Smithson, Spiral Jetty*. Available at: <https://www.diaart.org/visit/visit-our-locations-sites/robert-smithson-spiral-jetty> (Accessed 1 March 2022).
- Dia (n.d. d) *Robert Irwin: Rendering of West Garden for Dia:Beacon, 2001*. Available at: <https://diaart.org/collection/collection/irwin-robert-rendering-of-west-garden-for-diabeacon-2001-2003-527> (Accessed 1 March 2022).
- Diller Scofidio + Renfro (n.d.) *The Art of Scent 1889 – 2012*. Available at: <https://dsrny.com/project/art-of-scent> (Accessed 21 November 2019).

Dingo, R. (2006) *Composing with Hyper-Instruments(#1)*. Available at: <http://digitaldouble.blogspot.com/2006/06/composing-with-hyper-instruments1.html> (Accessed 9 December 2019).

Documenta 12 (n.d.) *Documenta X*. Available at: [https://www.documenta12.de/archiv/dx/english/frm\\_home.htm](https://www.documenta12.de/archiv/dx/english/frm_home.htm) (Accessed 8 May 2021).

Ebbinghaus, P.F. (2015) *Composer Austin Wintory about scoring Assassin's Creed Syndicate*. Available at: <https://behindtheaudio.com/2015/12/composer-austin-wintory-about-scoring-assassins-creed-syndicate/> (Accessed 9 October 2019).

E-Flux (2012) *Tensta konsthall: Dominique Gonzalez-Foerster & Ari Benjamin Meyers*. Available at: <https://www.e-flux.com/announcements/34147/tensta-konsthall-dominique-gonzalez-foerster-ari-benjamin-meyers/> (Accessed 10 October 2019).

Eliasson, O. (2020) *Wunderkammer*. Available at: <https://olafureliasson.net/press/wunderkammer> (Accessed 2 December 2021).

Engine Creative (n.d.) *Augmented reality tourism experience developed for the cultural heritage sector*. Available at: <https://www.enginecreative.co.uk/blog/family-friendly-augmented-reality-tourism-experience-developed-for-the-cultural-heritage-sector/> (Accessed 27 November 2021).

Experiments with Google (2010) *The Wilderness Downtown*. Available at: <https://experiments.withgoogle.com/the-wilderness-downtown> (Accessed 16 September 2021).

Eye Music Trust (n.d. a) *Colourscape at Midland Arts Centre, Birmingham*. Available at: <http://www.eyemusic.org.uk/whatsonevents/events/event1.html> (Accessed 13 September 2018).

Eye Music Trust (n.d. b) *Colourscape*. Available at: <http://www.eyemusic.org.uk/colourscape/colourscape/aboutcolourscape.html> (Accessed 6 December 2019).

Eye Music Trust (n.d. c) *Colourscape*. Available at: [http://www.eyemusic.org.uk/colourscape/colourscape\\_info.html](http://www.eyemusic.org.uk/colourscape/colourscape_info.html) (Accessed 27 March 2022).

Feelreal (n.d.) *Feelreal Sensory Mask*. Available at: <https://feelreal.com/> (Accessed 11 November 2019).

Ferrari, M. (2020) *The Contribution of Mixed Reality to Cultural Heritage during the pandemic*. Available at: <https://arvrjourney.com/the-contribution-of-mixed-reality-to-cultural-heritage-during-the-pandemic-7a14dd7249a6> (Accessed 2 December 2021).

Gather (n.d.) *A better way to....*. Available at: <https://www.gather.town/> (Accessed 18 December 2021).

Glass, P. (n.d.) *Biography*. Available at: <http://philipglass.com/biography/> (Accessed 14 September 2016).

Gonzalez-Franco, M., Pack, T.C. (2018) *Avatar Embodiment. Towards a Standardized Questionnaire*. Available at: [https://www.researchgate.net/publication/325925820\\_Avatar\\_Embodiment\\_Towards\\_a\\_Standardized\\_Questionnaire](https://www.researchgate.net/publication/325925820_Avatar_Embodiment_Towards_a_Standardized_Questionnaire) (Accessed 22 November 2019).

Gormley, A. (n.d.) *Blind Light, 2007*. Available at: <http://www.antonygormley.com/projects/item-view/id/241> (Accessed 18 August 2017).

Griffin, S. (2015) *Robert Curgenvin: Climata in Skyspace at the National Gallery of Australia*. Available at: <https://www.smh.com.au/entertainment/art-and-design/robert-curgenvin-climata-in-skyspace-at-the-national-gallery-of-australia-20150806-gismtw.html> (Accessed 26 September 2018).

Hauser and Wirth (2020) *Larry Bell: Still Standing*. Available at: <https://www.hauserwirth.com/ursula/27401-larry-bell-still-standing/> (Accessed 26 March 2022).

Hazlitt, G. (2006) *The Sound of Second Life with Robbie Dingo*. Available at: <http://www.justvirtual.com/2006/10/22/the-sound-of-second-life-with-robbie-dingo/> (Accessed 9 December 2019).

Hentschläger, K. (2014) *Press Review & Essays ZEE and FEED*. Available at: [http://www.kurthentschlagel.com/portfolio/zee/pdf/KH-Press\\_Review-ZEE-FEED.pdf](http://www.kurthentschlagel.com/portfolio/zee/pdf/KH-Press_Review-ZEE-FEED.pdf) (Accessed 4 October 2018).

Hentschläger, K. (2008a) *ZEE*. Available at: <http://www.kurthentschlagel.com/portfolio/zee/zee.html> (Accessed 4 October 2018).

Hentschläger, K. (2008b) *ZEE: Immersive Audiovisual Environment*. Available at: [http://www.kurthentschlagel.com/portfolio/zee/pdf/ZEE\\_text.pdf](http://www.kurthentschlagel.com/portfolio/zee/pdf/ZEE_text.pdf) (Accessed 4 October 2018).

Higgins, D. (1965) *Synesthesia and Intersenses: Intermedia*. Available at: <http://www.artesonoro.net/artesonoroglobal/intermedia.html> (Accessed 31 January 2018).

Home, S. (n.d.) *The Assault on Culture Chapter 9 (pages 50-55): The Origins of Fluxus and the Movement in its 'Heroic' Period*. Available at: <https://www.stewarthomesociety.org/ass/fluxone.htm> (Accessed 21 June 2018).

Hultén, K.G. (1968) *The Machine as Seen at the End of the Mechanical Age*. Available at: [https://www.moma.org/documents/moma\\_catalogue\\_2776\\_300292931.pdf](https://www.moma.org/documents/moma_catalogue_2776_300292931.pdf) (Accessed 21 June 2018).

Hylton, W.S. (2021) *The Light Fantastic*. Available at <https://www.smithsonianmag.com/arts-culture/james-turrell-visionary-artwork-arizona-desert-180977452/> (Accessed 16th September 2021).

- i-DAT (2020) *Planetary Collegium*. Available at: <https://i-dat.org/planetary-collegium/> (Accessed 8 September 2021).
- Ings, S. (2021) *How the pandemic is revolutionising art galleries and museums*. Available at: <https://www.newscientist.com/article/mg24933202-100-how-the-pandemic-is-revolutionising-art-galleries-and-museums/> (Accessed 28 November 2021).
- Institute of Contemporary Arts (2019) *Maryanne Amacher: GLIA*. Available at: <https://www.ica.art/live/maryanne-amacher-glia> (Accessed 6 December 2019).
- Institute of Contemporary Arts (n.d.) *Cybernetic Serendipity: A Documentation*. Available at: <https://archive.ica.art/whats-on/cybernetic-serendipity-documentation> (Accessed 22 May 2019).
- International Society for Improvised Music (2007) *ISIM Second Annual Conference December 14-16, 2007*. Available at: <http://www.improvisedmusic.org/programs/ISIM.2007.Program.pdf> (Accessed 4 October 2018).
- Intertextuality (n.d.) *Divina Commedia*. Available at: <http://towata-matsumoto.net/works/divinacommedia.html> (Accessed 5 September 2021).
- Inventing Interactive (2010) *Aspen Movie Map*. Available at: <http://www.inventinginteractive.com/2010/03/18/aspen-movie-map/> (Accessed 6 May 2021).
- Invisible City (n.d.) *1967: Terry Riley at PCA*. Available at: <http://invisiblecity.uarts.edu/terry-riley-at-pca> (Accessed 1 April 2022).
- Invisible Forces (n.d. a) *Chorus*. Available at: <https://www.invisible-forces.com/projects/chorus/> (Accessed 10 October 2019).
- Invisible Forces (n.d. b) *About*. Available at: <https://www.invisible-forces.com/about/> (Accessed 10 October 2019).
- Isaza, M. (2016) *MEAN TIME: A Collaborative Sound Art Project*. Available at: <http://sonicfield.org/2016/09/mean-time-a-collaborative-sound-art-project/> (Accessed 7 October 2019).
- ISEA International (2021) *History*. Available at: <http://www.isea-web.org/about/history/> (Accessed 7 May 2021).
- Jeffrey Shaw Compendium (n.d. a) *Narrative Landscape*. Available at: <https://www.jeffreyshawcompendium.com/portfolio/narrative-landscape/> (Accessed 22 November 2019).
- Jeffrey Shaw Compendium (n.d. b) *Going to the Heart of the Center of the Garden of Delights*. Available at: <https://www.jeffreyshawcompendium.com/portfolio/going-to-heart-of-the-center-of-the-garden-of-delights/> (Accessed 22 November 2019).

Jeffrey Shaw Compendium (n.d. c) *Virtual Sculpture*. Available at: <https://www.jeffreyshawcompendium.com/portfolio/sculpture/> (Accessed 8 May 2021).

Jeffrey Shaw Compendium (n.d. d) *Inventer La Terre*. Available at: <https://www.jeffreyshawcompendium.com/portfolio/inventer-la-terre/> (Accessed 8 May 2021).

Jeffrey Shaw Compendium (n.d. e) *Extended Virtual Environment*. Available at: <https://www.jeffreyshawcompendium.com/platform/eve/> (Accessed 8 May 2021).

Jellyfishmoon (2018) *The Project*. Available at: <http://jellyfishmoon.co.uk/audio-sonic-vision/> (Accessed 4 October 2018).

Jenkins, J. (n.d.) *A Step-by-Step Guide to Immersive World Building*. Available at: <https://jerryjenkins.com/worldbuilding/> (Accessed 27 February 2022).

John Cage Trust (n.d. a) *Lecture on the Weather*. Available at: [https://johncage.org/pp/John-Cage-Work-Detail.cfm?work\\_ID=109](https://johncage.org/pp/John-Cage-Work-Detail.cfm?work_ID=109) (Accessed 22 November 2019).

John Cage Trust (n.d. b) *Theatre Piece (1952)*. Available at: [https://johncage.org/pp/John-Cage-Work-Detail.cfm?work\\_ID=313](https://johncage.org/pp/John-Cage-Work-Detail.cfm?work_ID=313) (Accessed 24 January 2022).

John Cage Trust (n.d. c) *4'33"*. Available at: [https://johncage.org/pp/John-Cage-Work-Detail.cfm?work\\_ID=17](https://johncage.org/pp/John-Cage-Work-Detail.cfm?work_ID=17) (Accessed 24 January 2022).

John Cage Trust (n.d. d) *4'33" App for iPhone*. Available at: [https://www.johncage.org/4\\_33.html](https://www.johncage.org/4_33.html) (Accessed 24 January 2022).

John Cage Trust (n.d. e) *Variations V*. Available at: [https://johncage.org/pp/John-Cage-Work-Detail.cfm?work\\_ID=237](https://johncage.org/pp/John-Cage-Work-Detail.cfm?work_ID=237) (Accessed 13 March 2022).

Karikis, M. (n.d.) *Ferocious Love*. Available at: <http://www.mikhailkarikis.com/2020/07/22/ferocious-love/> (Accessed 12 August 2021).

Kernodle, T. L. (n.d.) *Civil Rights Movement*. Available at: <http://www.oxfordmusiconline.com.ezproxy.wlv.ac.uk/subscriber/article/grove/music/A2228003> (Accessed 1 February 2017).

Kim, C.Y. (2016) *New Acquisition: James Turrell's Light Reignfall*. Available at: <https://unframed.lacma.org/2016/05/30/new-acquisition-james-turrells-light-reignfall> (Accessed 9 April 2022).

Kronos Quartet (2019) *Nonesuch to release Kronos' new album Terry Riley: Sun Rings on August 30*. Available at: <https://kronosquartet.org/nonesuch-to-release-kronos-quartets-new-album-terry-riley-sun-rings-on-augu/> (Accessed 6 December 2019).

Kronos Quartet (n.d.) *Sun Rings*. Available at: [https://kronosquartet.org/projects/detail/sun\\_rings/1](https://kronosquartet.org/projects/detail/sun_rings/1) (Accessed 10 October 2019).

Kunst Universität Linz (n.d.) *Interactive Plant Growing*. Available at: <http://www.interface.ufg.ac.at/christa-laurent/WORKS/CONCEPTS/PlantsConcept.html> (Accessed 7 May 2021).

LA Phil (n.d.) *Fluxus: Fluxconcert - La Monte Young*. Available at: <https://www.laphil.com/events/performances/533/2018-11-17/fluxus-fluxconcert-la-monte-young> (Accessed 21 July 2019).

Levine Packer, R. (n.d.) *Author*. Available at: <https://reneelevinepacker.com/author/> (Accessed 27 March 2022).

Lind, A. (n.d.) *Sounds Like Lind*. Available at: <http://www.soundslikelind.se/> (Accessed 7 October 2019).

Linden Endowment for the Arts (2017) *LEA9 - The Lull by Starla Metaller*. Available at: [http://lindenarts.blogspot.com/2017/12/lea9-lull-by-starla-metaller\\_5.html](http://lindenarts.blogspot.com/2017/12/lea9-lull-by-starla-metaller_5.html) (Accessed 7 December 2019).

Linden Endowment for the Arts (n.d.) *About the LEA*. Available at: <http://www.lea-sl.org/about> (Accessed 12 July 2019).

Linden Lab (2017) *The Metaverse's Next Chapter: Sansar Opens to the Public in Creator Beta*. Available at: <https://www.lindenlab.com/releases/sansar-creator-beta-opens> (Accessed 3 April 2022).

London Sinfonietta (n.d.) *Steve Reich's Clapping Music app*. Available at: <https://londonsinfonietta.org.uk/clapping-music-app> (Accessed 6 December 2019).

Lozano-Hemmer, R. (n.d. a) *Artist Biography*. Available at: <https://www.lozano-hemmer.com/bio.php> (Accessed 28 November 2021).

Lozano-Hemmer, R. (n.d. b) *Speaking Willow*. Available at: [https://www.lozano-hemmer.com/speaking\\_willow.php](https://www.lozano-hemmer.com/speaking_willow.php) (Accessed 28 November 2021).

Luck, N. (n.d.) *About*. Available at: <http://www.neilluck.com/about/about.html> (Accessed 10 October 2019).

Lund University (n.d.) *Intermedia studies: The Aesthetics of Popular Live Culture*. Available at: <https://www.lunduniversity.lu.se/lubas/i-uoh-lu-IMSB26> (Accessed 8 March 2022).

Lux Online (n.d.) *Progressive Recession*. Available at: [https://luxonline.org.uk/artists/david\\_hall/progressive\\_recession.html](https://luxonline.org.uk/artists/david_hall/progressive_recession.html) (Accessed 30 October 2021).

Mac Birmingham (n.d.) *Colourscape*. Available at: <https://macbirmingham.co.uk/event/colourscape> (Accessed 6 December 2019).

Macmillan, I. (n.d.) *Gesamtkunstwerk*. Available at: <https://www.oxfordartonline.com/groveart/view/10.1093/gao/9781884446054.001.0001/oao-9781884446054-e-7000031798> (Accessed 22 May 2019).

Manchester International Festival (2019) *To The Moon*. Available at: <https://mif.co.uk/to-the-moon> (Accessed 19 December 2019).

Mast Books (n.d.) *Pavilion (Experiments in Art and Technology)* Billy Klüver, Julie Martin, Barbara Rose (eds.). Available at: <https://mastbooks.com/products/pavilion-experiments-in-art-and-technology> (Accessed 13 March 2022).

Matchar, E. (2018) *Using Electric Currents to Fool Ourselves Into Tasting Something We're Not*. Available at: <https://www.smithsonianmag.com/innovation/using-electric-currents-to-fool-ourselves-into-tasting-something-were-not-180970005/> (Accessed 11 November 2019).

Matsakis, L. (2020) *Zoom Not Cutting It For You? Try Exploring a Virtual World*. Available at: <https://www.wired.com/story/zoom-not-cutting-it-virtual-world-online-town/> (Accessed 2 January 2022).

Mattress Factory (n.d.) *Pyramid: Humanity Excavates Sound*. Available at: <https://mattress.org/works/pyramid-humanity-excavates-sound/> (Accessed 17 August 2021).

Mela Foundation (2018) *Dream House Sound and Light Environment*. Available at: [http://www.melafoundation.org/LY\\_MZ\\_JHC\\_DHNov2018.html](http://www.melafoundation.org/LY_MZ_JHC_DHNov2018.html) (Accessed 4 November 2019).

Mela Foundation (2016) *Dream House Press*. Available at: <http://www.melafoundation.org/DHpressFY17.html> (Accessed 15 December 2016).

Mela Foundation (2005) *Dream House Opens for the 2005-2006 Season – Our Thirteenth Year!*. Available at: <http://www.melafoundation.org/DHpressFY06.htm> (Accessed 24 May 2018).

Mela Foundation (n.d. a) *La Monte Young*. Available at: <http://www.melafoundation.org/ly1para8.htm> (Accessed 29 June 2019).

Mela Foundation (n.d. b) *Marian Zazeela*. Available at: <http://www.melafoundation.org/narrabio.htm> (Accessed 29 June 2019).

Mela Foundation (n.d. c) *La Monte Young*. Available at: <http://www.melafoundation.org/lmyresum.htm#exp> (Accessed 21 July 2019).

Mela Foundation (n.d. d) *Notes on The Theatre of Eternal Music and The Tortoise, His Dreams and Journeys*. Available at: <http://www.melafoundation.org/theatre.pdf> (Accessed 6 December 2019).

Meta (n.d.) *Connection is evolving and so are we*. Available at: <https://about.facebook.com/meta/> (Accessed 18 December 2021).

Metal (2016) *Different Trains*. Available at: <http://www.metalculture.com/projects/different-trains/> (Accessed 18 December 2021).



Mills, J. (2017a) *Towards 'A-Wakening' (part 2)*. Available at: <http://www.jomills.co.uk/blog/towards-a-wakening-part-2> (Accessed 27 October 2019).

Mills, J. (2017b) *The Lull (day 65)*. Available at: <http://www.jomills.co.uk/blog/the-lull-day-65> (Accessed 7 December 2019).

Moholy-Nagy Foundation (n.d.) *Chronology*. Available at: <https://moholy-nagy.org/chronology/> (Accessed 24 March 2022).

Museum of Arts and Design (2012) *The Art of Scent 1889-2012: Teachers Resource Packet*. Available at: <https://madmuseum.org/sites/default/files/programs/The%20Art%20of%20Scent%20RP.pdf> (Accessed 21 November 2019).

Museum of Contemporary Art in Australia (2017) *Pippilotti Rist: Sip My Ocean*. Available at: <https://www.mca.com.au/stories-and-ideas/pipilotti-rist-sip-my-ocean-curatorial-essay/> (Accessed 12 October 2019).

Museum of Contemporary Art in Lyon (2019) *Sounding New: œuvres sonores de la collection*. Available at: [http://www.mac-lyon.com/static/mac/contenu/fichiers/fiches\\_expo/2019/aide-visite-sounding-new.pdf](http://www.mac-lyon.com/static/mac/contenu/fichiers/fiches_expo/2019/aide-visite-sounding-new.pdf) (Accessed 30 June 2019).

Museum of Contemporary Art in Lyon (2010) *Terry Riley*. Available at: <http://www.mac-lyon.com/mac/sections/fr/artistes/riley/> (Accessed 18 August 2017).

Museum of Modern Art (n.d. a) *Media and Performance Art*. Available at [https://www.moma.org/learn/moma\\_learning/themes/media-and-performance-art/participation-and-audience-involvement/](https://www.moma.org/learn/moma_learning/themes/media-and-performance-art/participation-and-audience-involvement/) (Accessed 2 July 2019).

Museum of Modern Art (n.d. b) *Vanessa Beecroft*. Available at <https://www.moma.org/artists/8261> (Accessed 29 October 2021]).

Museum of Modern Art (n.d. c) Allan Kaprow's 18 Happenings in 6 Parts, Reuben Gallery, New York, October 1959. Available at: <https://www.moma.org/collection/works/associatedworks/173008> (Accessed 25 February 2022).

Natural History Museum (n.d.) *Virtual Museum: 14 ways to explore from home*. Available at: <https://www.nhm.ac.uk/visit/virtual-museum.html> (Accessed 27 November 2021).

New Music Network (2011) *Vancouver Calling – Pauline Oliveros Score*. Available at: <https://www.newmusicnetwork.ca/forum/forum-2012/vancouver-calling-pauline-oliveros-score/?> (Accessed 24 November 2019).

New Music USA (n.d.) *Mela Foundation*. Available at: <https://www.newmusicusa.org/profile/mela-foundation/> (Accessed 18 November 2019).

New School, The (n.d.) *Home page*. Available at: <https://www.newschool.edu/> (Accessed 25 February 2022).

New World Notes (2009) *Yoko Ono Commissions Recreation Of Her "Peace Tower" Memorial To John Lennon In Second Life*. Available at: <https://nwn.blogs.com/nwn/2009/10/yoko-ono-in-sl.html> (Accessed 1 November 2019).

Oliveros, P. (n.d.) *The Telematic Circle*. Available at: <https://paulineoliveros.us/telematic-circle.html> (Accessed 24 November 2019).

Oppenheimer, R. (2009) *Maximal Art: The Origins and Aesthetics of West Coast Light Shows*. Available at: <https://rhizome.org/editorial/2009/apr/15/maximal-art-the-origins-and-aesthetics-of-west-coa/> (Accessed 31 January 2017).

Oriscus (2010) *Making Music Objects in SL*. Available at: <http://primcutter.com/blog/2010/08/making-music-objects-in-sl/> (Accessed 9 December 2019).

Our Documents (n.d.) *Transcript of Civil Rights Act (1964)*. Available at: <https://www.ourdocuments.gov/doc.php?flash=true&doc=97&page=transcript> (Accessed 23 June 2019).

Parry, W. (2018) *'Digital smell' technology could let us transmit odors in online chats*. Available at: <https://www.nbcnews.com/mach/science/digital-smell-technology-could-let-us-transmit-odors-online-chats-ncna940121> (Accessed 11 November 2019).

Perlson, H. (2017) *How Music Becomes Magic in an Art Gallery: A Q&A with Artist and Composer Ari Benjamin Meyers*. Available at: <https://news.artnet.com/art-world/ari-benjamin-meyers-interview-1015985> (Accessed 3 October 2019).

Potter, K. (n.d.) *Minimalism*. Available at: <http://www.oxfordmusiconline.com/subscriber/article/grove/music/40603?q=minimalism&search=quick&pos=1&start=1#firsthit> (Accessed 15 December 2016).

Punchdrunk (2009) *Tunnel 228*. Available at: <https://www.punchdrunk.org.uk/project/tunnel-228/> (Accessed 18 November 2019).

Raines, R. (2015) *Technology and the evolving portrait of the composer*. Available at: <https://blog.oup.com/2015/08/technology-composer-electronic-music-internet/> (Accessed 22 November 2019).

Recorded Fields (n.d.) *Climata*. Available at: <http://www.recordedfields.net/installations/climata/> (Accessed 4 October 2018).

Riley, T. (n.d.) *The Bio*. Available at: <http://terryriley.net/biography.htm> (Accessed 6 December 2016).

Robert Rauschenberg Foundation (n.d.) *Broadcast 1959*. Available at: <https://www.rauschenbergfoundation.org/art/artwork/broadcast> (Accessed 13 March 2022).

Roberts, A. (n.d.) *Tag Archives: VJ*. Available at: <https://www.hellocatfood.com/tag/vj/> (Accessed 30 October 2021).

Rockwell, J. (1994) *A Parisian Landmark Heard in a New Light*. Available at: <https://www.nytimes.com/1994/06/18/arts/a-parisian-landmark-heard-in-a-new-light.html> (Accessed 6 December 2019).

Roden Crater (n.d.) *About*. Available at: <https://rodencrater.com/about/> (Accessed 19 October 2021).

Rogers, S. (2020) *COVID-19 is Accelerating the Art World's Adoption of Technology*. Available at: <https://www.forbes.com/sites/solrogers/2020/04/27/covid-19-is-accelerating-the-art-worlds-adoption-of-technology/> (Accessed 28 November 2021).

Sauter, J. (n.d.) *Zerseher*. Available at: <http://www.joachimsauter.com/en/work/zerseher.html> (Accessed 7 May 2021).

Sean Kelly Gallery (n.d.) *Anthony McCall: Face to Face*. Available at: <https://www.skny.com/exhibitions/anthony-mccall3> (Accessed 4 October 2018).

Sketchup (n.d.) *Sketchup: Where great ideas get to work*. Available at: <https://www.sketchup.com/> (Accessed 28 November 2021).

Snibbe, S. (n.d.) *Björk: Biophilia*. Available at: <https://www.snibbe.com/biophilia> (Accessed 2 January 2022).

Sonabend, D. (n.d.) *Scent Constellation*. Available at: <http://danielsonabend.co.uk/art> (Accessed 21 November 2019).

South Bank Centre (n.d.) *Pipilotti Rist: Eyeball Massage*. Available at: <https://southbankcentre.co.uk/venues/hayward-gallery/past-exhibitions/pipilotti-rist-eyeball-massage> (Accessed 4 October 2018).

Stein, S. (2010) *Cindy Keefer on Jordan Belson, Cosmic Cinema, and the San Francisco Museum of Art*. Available at: <https://openspace.sfmoma.org/2010/10/jordan-belson/> (Accessed 24 March 2022).

Stelarc (n.d. a) *Third Hand*. Available at: <http://stelarc.org/?catID=20265> (Accessed 9 December 2019).

Stelarc (n.d. b) *Ear on Arm*. Available at: <http://stelarc.org/?catID=20242> (Accessed 9 December 2019).

Studio International (n.d.) *Cybernetic Serendipity: The Computer and the Arts*. Available at: <https://archive.studiointernational.com/SICS1968/StudioInternationalCyberneticSerendipity-1968.html#p=2> (Accessed 10 April 2022).

Tate (2021) *From Here to Infinity*. Available at: <https://www.tate.org.uk/tate-etc/issue-51-spring-2021/yayoi-kusama-infinity-mirror-rooms-from-here-to-infinity> (Accessed 1 September 2021).

Tate (2016) *Hyundai Commission: Philippe Parreno: Anywhen*. Available at: <https://www.tate.org.uk/whats-on/tate-modern/exhibition/hyundai-commission/philippe-parreno-anywhen> (Accessed 21 January 2017).

Tate (2012) *Eight major works by Anthony McCall from Seminal Solid Light Film series donated to New Art Trust by Kramlich Collection and the artist*. Available at: <http://www.tate.org.uk/about/press-office/press-releases/eight-major-works-anthony-mccall-seminal-solid-light-film-series> (Accessed 18 August 2017).

Tate (n.d. a) *Fluxus*. Available at: <http://www.tate.org.uk/learn/online-resources/glossary/f/fluxus> (Accessed 20 April 2016).

Tate (n.d. b) *Minimalism*. Available at: <https://www.tate.org.uk/art/art-terms/m/minimalism> (Accessed 20 March 2019).

Tate (n.d. c) *Environments*. Available at: <https://www.tate.org.uk/art/art-terms/e/environments> (Accessed 22 May 2019).

Tate (n.d. d) *Performance Art: The Happening*. Available at: <https://www.tate.org.uk/art/art-terms/h/happening/happening> (Accessed 22 May 2019).

Tate (n.d. e) *Experiments in Art and Technology (E.A.T.)*. Available at: <https://www.tate.org.uk/art/art-terms/e/experiments-art-and-technology-eat> (Accessed 29 June 2019).

Tate (n.d. f) *Sound Art*. Available at: <https://www.tate.org.uk/art/art-terms/s/sound-art> (Accessed 7 October 2019).

Tate (n.d. g) *Gary Webb: Sound of the Blue Light*. Available at: <https://www.tate.org.uk/art/artworks/webb-sound-of-the-blue-light-t07947> (Accessed 12 October 2019).

Tate (n.d. h) *Francis Alys*. Available at: <https://www.tate.org.uk/art/artists/francis-allys-4427> (Accessed 29 October 2021).

Tate (n.d. i) *Santiago Sierra*. Available at: <https://www.tate.org.uk/art/artists/santiago-sierra-6878> (Accessed 29 October 2021).

Tate (n.d. j) *Mikhail Karikis: Ferocious Love*. Available at: <https://www.tate.org.uk/whats-on/tate-liverpool/exhibition/mikhail-karikis-ferocious-love/mikhail-karikis-ferocious-love> (Accessed 16 September 2021).

Tau Zero (n.d.) *Placeholder Virtual Reality Project*. Available at: [http://tauzero.com/Brenda\\_Laurel/Placeholder/Placeholder.html](http://tauzero.com/Brenda_Laurel/Placeholder/Placeholder.html) (Accessed 1 September 2021).

TED (n.d.) *About: Our Organisation*. Available at: <https://www.ted.com/about/our-organization> (Accessed 10 October 2019).

The Art Newsletter (2021) *Immersive, interactive and a great way to display NFTs: Falko Alexander Gallery's expansive VR exhibition*. Available at: <https://www.theartnewspaper.com/2021/08/20/immersive-interactive-and-a-great-way-to-display-nfts-falko-alexander-gallery-s-expansive-vr-exhibition> (Accessed 28 November 2021).

The Chinati Foundation (n.d.) *Robert Irwin: untitled (dawn to dusk), 2016*. Available at: <https://chinati.org/collection/robert-irwin/> (Accessed 9 April 2022).

The Pauline Oliveros Trust (2017) *Pauline Oliveros: About*. Available at: <http://paulineoliveros.us/about.html> (Accessed 7 July 2018).

The Peale Center (n.d.) *The Virtual Peale*. Available at: <https://www.thepealecenter.org/virtualpeale/> (Accessed 27 November 2021).

The Portsmouth Sinfonia (n.d.) *Welcome to the official website of the Portsmouth Sinfonia*. Available at: <https://www.portsmouthsinfonia.com/> (Accessed 4 February 2022).

The Sound Architect (2016) *Assassin's Creed: Syndicate Interview with Audio Director, Lydia Andrew*. Available at: <https://www.thesoundarchitect.co.uk/lydiaandrew/> (Accessed 9 October 2019).

The University of Edinburgh (n.d.) *BA Intermedia Art*. Available at: <https://www.ed.ac.uk/studying/undergraduate/2022/degrees/index.php?action=programme&code=W900> (Accessed 8 March 2022).

Third Space Network (n.d.) *Notes on Roy Ascott's concept of the gesamtdatenwerk*. Available at: <https://thirdspacenetwerk.com/notes-on-roy-ascotts-concept-of-the-gesamtdatenwerk/> (Accessed 12 April 2022).

Turrell, J. (n.d. a) *Tycho White (1967)*. Available at: <https://jamesturrell.com/work/tycho-white/> (Accessed 26 March 2022).

Turrell, J. (n.d. b) *Skyspaces*. Available at: <https://jamesturrell.com/work/type/skyspace/> (Accessed 1 March 2022).

Ultraleap (n.d. a) *Grasp the true potential of XR*. Available at: <https://www.ultraleap.com/> (Accessed 2 December 2021).

Ultraleap (n.d.b) *The Unreal Garden: Multiplayer Mixed Reality*. Available at: <https://www.ultraleap.com/company/news/case-study/unreal-garden/> (Accessed 3 April 2022).

Universal Everything (n.d. a) *Radiohead Polyfauna an audio-visual environment for iOS/Android Worldwide*. Available at: <https://www.universaleverything.com/projects/polyfauna> (Accessed 2 January 2022).

Universal Everything (n.d. b) *Future You: Motion-capture artwork reflecting your future self*. Available at: <https://www.universaleverything.com/projects/future-you> (Accessed 27 November 2021).

University of Alaska Fairbanks (n.d.) *Listening to the Earth*. Available at: <https://uaf.edu/centennial/uaf100/ideas/the-place.php> (Accessed 31 July 2022).

University of Plymouth (n.d. a) *Planetary Collegium*. Available at: <https://www.plymouth.ac.uk/research/planetary-collegium> (Accessed 8 September 2021).

University of Plymouth (n.d. b) *Professor Roy Ascott*. Available at: <https://www.plymouth.ac.uk/staff/roy-ascott> (Accessed 8 September 2021).

van der Aa, M. (n.d.) *Eight*. Available at: <https://www.vanderaa.net/work/eight/> (Accessed 31 July 2022).

Vasulka.org (n.d.) *Allvision*. Available at: [http://www.vasulka.org/Steina/Steina\\_AllVision/AllVision.html](http://www.vasulka.org/Steina/Steina_AllVision/AllVision.html) (Accessed 25 October 2021).

VVV (n.d.) *VVV: A Multipurpose Toolkit*. Available at: <https://vvv.org/> (Accessed 6 November 2021).

Weingartner, S. (2014) *Simone Forti*. Available at: <https://www.frieze.com/article/simone-forti> (Accessed 13 March 2022).

Whitacre, E. (2019) *Eric Whitacre's Virtual Choir*. Available at: <https://ericwhitacre.com/the-virtual-choir> (Accessed 9 October 2019).

Wilson, A. (2015) *States of Mind: Ann Veronica Janssens' yellowbluepink*. Available at: <https://www.creativereview.co.uk/states-of-mind-ann-veronica-janssens-yellowbluepink/> (Accessed 18 August 2017).

Wirxliflimflam (2007) *Pauline Oliveros in Second Life!* Available at: <http://wirxliflimflam.blogspot.com/2007/09/pauline-oliveros-in-second-life.html> (Accessed 24 November 2019).

Wood, B. (n.d.) *Subterranean sounds: how an empty water tank shaped Jherek Bischoff's album 'Cistern'*. Available at <https://thespaces.com/subterranean-sounds-how-an-empty-water-tank-shaped-jherek-bischoffs-album-cistern/> (Accessed 19 August 2021).

Woods, K.J. (2012) *Temporal Experience Stasis, Immersion, and Stillness in the Drone Music of Eliane Radigue*. Available at: [https://www.researchgate.net/publication/351812058\\_Temporal\\_Experience\\_Stasis\\_Immersion\\_and\\_Stillness\\_in\\_the\\_Drone\\_Music\\_of\\_Eliane\\_Radigue](https://www.researchgate.net/publication/351812058_Temporal_Experience_Stasis_Immersion_and_Stillness_in_the_Drone_Music_of_Eliane_Radigue) (Accessed 30 October 2021).

York Art Gallery (2018) *When All is Quiet: Kaiser Chiefs in Conversation with York Art Gallery*. Available at: <https://www.yorkartgallery.org.uk/exhibition/when-all-is-quiet/> (Accessed 7 October 2019).

Young, L., Zazeela, M. (2000) *Notes on The Theatre of Eternal Music and The Tortoise, His Dreams and Journeys*. Available at: <http://www.melafoundation.org/theatre.pdf> (Accessed 19 June 2018).

Zalman, S. (n.d. k) *In Focus: Eat, Live, Work*. Available at: <https://www.tate.org.uk/research/publications/in-focus/walls-paper/slive-work> (Accessed 30 October 2021).

Zwift (n.d.) *Get Zwifting*. Available at: <https://www.zwift.com/uk/get-zwifting> (Accessed 28 November 2021).

## APPENDICES



APPENDIX A: Email correspondence with Renée Levine Packer

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APPENDIX B: Table of performances showing performance ensemble and/or collaborators

The following table provides supporting information for chapter 2, showing performances during the 1960s where Young and Riley performed alongside and collaborated with others.

<b>Year</b>	<b>Composer</b>	<b>Piece</b>	<b>Ensemble/Collaborators</b>
1961	Riley	<i>Concerto for Two Pianists and Tape Recorders</i>	Riley, Young
1962	Riley	<i>The Gift</i> (film)	Chet Baker and band
1962	Riley	<i>Helsinki Street Piece</i>	Ken Dewey, Otto Donner
1963	Young	<i>17 XII 63 the Fire is a Mirror</i>	The Theatre of Eternal Music
1964	Young	<i>Prelude for a (to a?) Tortoise</i>	Young, (Terry Jennings?), Zazeela, John Cale, Tony Conrad
1964	Young	<i>The Tortoise Droning Selected Pitches from The Holy Numbers for the Two Black Tigers, The Green Tiger and The Hermit</i>	Young, Jennings, Zazeela, Cale, Conrad
1964	Young	<i>The Tortoise Recalling the Drone of the Holy Numbers as They were Revealed in The Dreams of The Whirlwind and the Obsidian Gong and Illuminated by The Sawmill, The Green Sawtooth Ocelot and the High-Tension Line Stepdown Transformer</i>	Young, Jennings, Zazeela, Cale, Conrad
1964	Young	<i>The Tortoise Droning Selected Pitches from The Holy Numbers for the Two Black Tigers, The Green Tiger and The Hermit</i>	Young, Jennings, Zazeela, Cale, Conrad
1965	Young	<i>The Tortoise</i>	Young, Jennings, Zazeela, Cale, Conrad
1965	Riley	<i>Sames</i>	Ken Dewey Action Theater

<b>Year</b>	<b>Composer</b>	<b>Piece</b>	<b>Ensemble/Collaborators</b>
1967	Riley	<i>Kundalini Dervish</i>	Laurence Singer, Riley, Edward Burnham, Jan Williams, Yuji Takahashi, Jon Hassell
1967?	Riley	<i>In C</i>	Riley and Bo Anders Persson
1967 -	Young	<i>Light and sound environments</i>	Young, Zazeela
1968	Riley	<i>Time Lag Accumulator</i>	Ron Steinhilber (later Stuart Hutchison)
1968	Riley	'Environment' for Intermedia '68	Robert Whitman
1968	Young	<i>Music and Light Box</i>	Young, Zazeela
1969	Riley/Young	<i>LaMonteYoung&amp;MarianZazeela TerryRileyJonHassell: A Collaboration</i>	Young, Riley, Zazeela, Hassell
1969	Young	<i>4 III 69 from Map of 49's Dream of the Two Systems of Eleven Sets of Galactic Intervals</i>	Young, Zazeela
1969	Young	<i>4 III 69 from Map of 49's Dream of the Two Systems of Eleven Sets of Galactic Intervals</i>	Young, Zazeela
1969	Young	<i>Dream House</i>	Young, Zazeela
1970	Young	<i>12 I 64 first twelve Sunday Morning Blues</i>	Young, Zazeela, Angus MacLise, Conrad, Cale
1970	Young	<i>20 x 63 day of the autumn feast Sunday Morning Blues</i>	Young, Zazeela, Angus MacLise, Conrad, Cale
1970	Young	<i>23 I 70 7:35 - 8:40PM Houston from Map of 49's Dream The Two Systems of Eleven Sets of Galactic Intervals</i>	Young, Zazeela

<b>Year</b>	<b>Composer</b>	<b>Piece</b>	<b>Ensemble/Collaborators</b>
1970	Young	<i>Sound and Light concert</i>	Young, Zazeela
1970	Young/Riley	<i>American Artists in India</i>	Young, Riley, Zazeela, David Tudor, Robert Whitman et al

APPENDIX C: Email correspondence with Chris Foster

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