Constructing Emotional Intelligence: Technologically Mediated Interdisciplinary Collaboration in Telematic Performance

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Abstract:

This study investigates the evolving landscape of telematic performance and immersive telepresence, emphasising their capacity to facilitate remote collaboration, creativity, and social interaction, irrespective of geographic and temporal limitations. Videoconferencing technology has transformed traditional practices and provided new avenues for artists to rehearse and perform in hybrid technologically mediated environments. The historical fascination with telematic and intermedial performance dates back to the early 1950s during the rise of telecommunications, gaining significant traction in the 1990s following the invention of the World Wide Web.

Focusing on telepresence, defined through Human-Computer Interaction (HCI), the research explores how technology can replicate face-to-face interactions and create an immersive sense of being in and connecting to another location. Additionally, the emphasis on creating engaging and authentic experiences for audiences in a shared, digitally enhanced environment offers valuable insights into the potential of telematic art. It explores the challenges faced by performers and creatives through the perspective of cognitive science.

The study employs empirical, practice-led and ethnographic methodologies, including interviews with leading practitioners and participation in various conferences and practical projects in order to analyse and understand the potentials and challenges associated with hybrid performance making.

A significant contribution of this research is the practice-led component, demonstrated through the performance of Exploding Plastic Inevitable 2.0 (EPI 2.0). The performance concept based on Andy Warhol's original intermedial installation of *Exploding Plastic Inevitable* in 1966 serves as a tangible case study and evidence of the practical implications of the theoretical concepts discussed. The insights gained

from these experiences inform the development of new frameworks and vocabularies that foster a new emotional intelligence within the telematic environment.

The findings offer crucial guidance for practitioners exploring telematic performance and telepresence. The practice-led approach further highlights how digitally mediated and interdisciplinary collaboration cultivates a new understanding of how emotional intelligence must adapt within the hybrid space.

Finally, the discoveries of ethical considerations offer recommendations for the creation of a more inclusive, sustainable, and secure telematic space. The thesis concludes with an outline of innovative conceptual frameworks designed to support creators and technologists in navigating the future of digital performance.

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Copyright Statement:

Ethics Statement:

This study was approved by the Bath Spa University Ethics Panel on 14.06.2022. Should you have any concerns regarding ethical matters relating to this study, please contact the Research Support Office at Bath Spa University (researchsupportoffice@bathspa.ac.uk).

All participants provided written informed consent prior to enrolment in the study and for any associated datasets to be utilised as presented within this thesis.

Data Statement:

Selected datasets created during this research are openly available online with links within this thesis. Other datasets have not been made publicly available as they contain information that could compromise the privacy of research participants.

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Chapter 1: Introduction

Because the essence of technology is nothing technological, essential reflection upon technology and decisive confrontation with it must happen in a realm that is, on the one hand, akin to the essence of technology and, on the other, fundamentally different from it. Such a realm is art. But certainly only if reflection on art, for its part, does not shut its eyes to the constellation of truth after which we are questioning (Heidegger, 1977, p. 4).

Heidegger's statement suggests that the essence of technology goes beyond just its physical or practical forms. Technology, at its core, possesses the potential to reshape cognitive processes, redefine modes of communication and establish a fresh paradigm for comprehending the world. Contemporary culture is no longer anchored to an original that exists in a specific time and place. Advances in technology enable culture to exist independently of the 'traditional associations of aura and authenticity that once linked aesthetics to heritage' (Delanty and Harris, 2021, p.90). Therefore, a profound reflection on technology must occur in a sphere that shares the characteristic of revealing and understanding how it has transformed the way we communicate, work and collaborate. In the telematic context, art can serve as the bridge between the human and the machine, bringing emotional consciousness into a virtual realm. Like technology, art offers a lens through which we can view the world uniquely (Waikar, 2021).

Art and technology have increasingly become intertwined, creating a hybrid form of communication that transcends traditional boundaries. This fusion has given rise to new forms of artistic expression and innovative ways of engaging audiences.

Digital art, virtual reality, augmented reality, and interactive installations are just a few examples of how technology has expanded the realm of art, enabling artists to communicate complex ideas and experiences in novel ways. Simultaneously, these technological advancements have transformed how audiences interact with art, enabling a more immersive and participatory experience in performance settings. Over time, the expression of Telematic Performance emerged as a more common term for technologically mediated performance, particularly in academic interdisciplinary settings (Mills, 2019, pp. 21-57).

Telematic performance challenges traditional notions of theatre and performance by breaking down geographical barriers and creating new opportunities for interaction and collaboration. In recent decades, mediated collaborations provoked a range of critical issues and inquiries. This thesis offers significant insights into the practices of telematic performance making and the conceptual frameworks of telepresence, derived from both empirical research and artistic practice. The findings interpret and explain emerging conventions and potential avenues for artistic expression within hybrid spaces, thereby contributing to the evolving discourse on the intersection of technology, performance, and creativity.

1.1: Focus and Original Contribution to Knowledge

Research suggests that limited comprehension exists within the academic domain regarding how telematic performance could introduce a range of new possibilities for reconceptualising shared spatial dynamics within a technologically mediated performance context (Gorman, 2020b). Participants, encompassing both performers and audiences engaging in technologically mediated spaces, face the challenge of fostering innovative cognitive frameworks whilst concurrently engaging in the

redefinition of emotions and sense memory. Traditionally defined, telematic performance constitutes a live performance genre that leverages high-speed networks to connect performers in disparate geographic locations in real time (Mills, 2019, p. 20). Felton-Dansky *et al.* (2023) further imply that the overarching objective of telematic performance lies in blurring the lines between physical and virtual spaces, engendering an emergent performance milieu that seamlessly intertwines liveness (the physical) and mediation (the technology). They debate that 'at the heart of theatrical and scholarly discussions is a focus on the future rather than the past', which they refer to as 'hybrid futures' (p. 1). Established researcher in the field, Elena Pérez, an Associate Professor in Drama and Theatre at the Department of Art and Media at the Norwegian University of Science and Technology (NTNU) implies that in contemporary discourses, telematic performance is often referred to as hybrid performance, telepresence, intermedial or technologically mediated performance (2014). The disquisition will explain and refer to these vocabularies in detail throughout to provide a tighter definition of their meanings for more clarity.

The proliferation of digital networking necessitated adaptability and refinement to align with technological advancements and the subsequent progress of new environments. Consequently, digital innovations have long substantially influenced the realms of creative music, theatre, dance and performance making. However, it is unclear if telematic performance could be a new and commercially viable form of live event, thus influencing the future of making new work. I argue that whilst telematic performance and new concepts of intermediality can undoubtedly lead to innovation and creativity, it can also result in works that are convoluted, confusing, or lacking in coherence. For example, art forms that have examined 'virtuality' in live performance settings inhabit a vast territory which potentially signposts new artistic concerns and

the need for new production strategies (Scott, 2021). Additionally, intermedial works may be inaccessible or difficult to understand for audiences unfamiliar with the different media forms being combined (Elleström, 2021, p.4). Hence, it is necessary to fully understand the technological medium's purpose, and its impact on space, performers, and audiences.

The challenge of redefining spatiality while considering the absence of physical connection and touch in virtually mediated capacities is one of the significant obstacles encountered in the technologically mediated space. Incorporating technology in performance yields profound implications for the dynamic between the performer and the audience, specifically regarding live performances' corporeality and experiential dimensions. The influence of prevalent issues such as connectivity, latency, and the lack of physical presence significantly affect interactions. These factors, including time delay (commonly referred to as 'lag') and the inability to engage in tactile interactions, play a critical role in shaping creative experiences and outcomes. However, the more discernible evolution of telematic performance over the past decades reflects a responsive adaptation to technological progress and the pervasive influence of social media on artistic and human experiential realms (Bay-Cheng *et al*., 2010). Nonetheless, it is imperative to approach a paradigm shift with a discerning perspective, one that contemplates the broader socio-political, environmental, and ethical ramifications intrinsic to the unfolding development.

The research is underpinned by an extensive examination of the theoretical framework articulated by eminent practitioners and theorists, which will be introduced and discussed throughout. Pioneering figures such as Roy Ascott, Paul Sermon, and Maurice Benayoun, among others, have laid foundational groundwork for telematic performance making that propelled subsequent developments. Other

noteworthy contributors will be discussed, like Station House Opera and, more recently, Chicks on Speed. They provide diverse examples whilst illustrating the realisation of telematic performance, which will be discussed in more detail. These examples further serve as evidence that the focal point of telematic performance invariably revolves around remote collaboration rather than technology per se. An initial concern for practitioners in the field involves how interdisciplinary hybrid performance settings serve as a challenging arena for performers and creatives, pushing them towards the innovation and development of groundbreaking performance concepts. Initially, such new intermedial concepts and my own experimentations instigated an inquiry into the role of emotional intelligence in the hybrid performance space. By overcoming the obvious obstacles such as connectivity and latency within digitally mediated environments, I suggest that a deeper understanding of emotional nuances could be vital towards navigating digital interactions more effectively. Exploring telematic performance with greater depth through a practice-led research approach initiated the following probing questions:

1. How can interdisciplinary hybrid performance settings challenge performers and creatives to develop innovative and sound performance concepts?
2. How can an understanding of emotional intelligence help overcome challenges in a digitally mediated environment?
3. How might telematic performance experimentation contribute to a new hybrid performance vocabulary and identify the issues in a technologically mediated immersive performance space?

Emotional intelligence plays a pivotal role in traditional theatre and music performance settings, as it involves the ability to recognise, understand, and manage emotions—both in oneself and others. In short, performers usually draw on their emotional awareness to convey authentic feelings, therefore enhancing their performances and creating a deeper connection with the audience. 'Emotional intelligence refers to an individual's capacity to accurately perceive, comprehend, reason about, and regulate emotions and to utilise this information effectively to facilitate cognition and achieve objectives' (Killgore *et al.,* 2017, p. 1624). Individuals' cognitive and behavioural performance is therefore contingent upon their perception and processing of emotional information. Furthermore, the ability to conceptualise emotions and employ emotional information adaptively can significantly influence an individual's performance (*ibid*). Hence, it is imperative to acknowledge the inherent variability in personal experiences of emotional intelligence among individuals. In addition, emotional responsiveness and awareness foster effective collaboration among artists, allowing for a more cohesive and dynamic production. By tapping into their emotional intelligence, performers can not only deliver powerful narratives but also respond to the audience's energy, enriching the overall experience of the theatrical or musical piece. Working on telematic performance involves collaborating with individuals in different locations, each bringing their own emotions, experiences, and perspectives. Therefore, practice-led research was necessary to investigate theoretical explanations.

The primary practice-based output for this research submission is a project titled Exploding Plastic Inevitable 2.0 (EPI 2.0), an immersive multimedia installation with live performers located in Romania, Coventry, and Weston-super-Mare. The narrative revolves around Andy Warhol's original event *Exploding Plastic Inevitable* (EPI) in 1966 and focuses on the experimentation with videoconferencing software and the creation of an immersive experience for the audiences in a live and online space.

Warhol's original *Exploding Plastic Inevitable* was a significant event in the cultural landscape of the 1960s that transcended traditional boundaries of performance art, music, and visual arts. The original performance premiered at the Dom, a downtown Polish meeting hall in New York, in April 1966 (Lue, 2014). At its core, EPI was a multimedia experience that combined Warhol's avant-garde filmmaking, live music from The Velvet Underground, and immersive visual elements, creating an all-encompassing sensory experience for audience members (Lue, 2014).

One of the groundbreaking aspects of EPI was its use of technology and innovative staging. Warhol employed various media—such as film projections, live performances, and light shows—blurring the boundaries between artistic forms. Including cinematic projections alongside live music performances created a dynamic interplay, encouraging audiences to engage with the art in a more participatory and multisensory way.

In the context of performance and theatre research, the original EPI serves as a notable case study because of its radical rethinking of audience engagement. Unlike traditional theatre, where the audience is a passive observer, EPI invited viewers to participate actively in the experience. The performances often had an unpredictable, chaotic energy, reflecting the countercultural movements of the time and challenging societal norms. It highlighted the potential for performance as a space for exploration,

identity, and community, laying the groundwork for future immersive and interactive performances.

For the production of my project EPI 2.0, I took on the role of writer, director and choreographer, managing the rehearsal process, development as well as the research and creative exploration. The direction of the work is in partial response to some of my earlier telematic performance creations, which instigated my curiosity to do further research in the field. These were notably two major public performance projects, *Timelapse* (2015) in collaboration with the University of Nevada, Las Vegas, and *Digital Dancing* (2017), which I created with the former Relativity School in Los Angeles (links available in Appendix 2, p. 323).

Considering my involvement in developing EPI 2.0, I present the performance in this study as a practical case as a novel contribution to existing knowledge. In addition, the analysis of the work aids understanding of an artistic journey and highlights different approaches to telematic performance, consistent with my proposed definition of the form. Furthermore, I orchestrate an assessment of EPI 2.0 to grasp audience expectations regarding telematic performance, aiming to enhance the overall insights generated by the research. The findings were analysed and then compared with the field's established and newly developed performance principles.

The theory of emotional intelligence has shaped how I approached the narrative and thematic elements of the performance, allowing me to empathise with both my collaborators and the audience. Trying to understand an audience's emotional journey helped create moments that resonate deeply, making the experience more impactful. Therefore, a more profound comprehension of emotional intelligence informed not only the design of the performance but also the incorporation of interactive elements within a hybrid space that would engage viewers on an

emotional level. Integrating emotional intelligence into my practice has profoundly informed my choice of methodologies, notably the practice-led approach. Acknowledging and understanding the critical role of emotional complexities enabled me to cultivate more profound connections with participants and stakeholders, thereby fostering an environment characterised by collaboration and trust. Furthermore, focusing on emotional intelligence has helped me navigate complex social dynamics in technology-mediated environments. It means that the notion of emotional intelligence becomes even more intricate in an intermedial space, where interactions often blend various communication modes and cultural nuances. The layering of different mediums—like face-to-face communication alongside digital exchanges—can lead to misunderstandings or misinterpretations that are more challenging to navigate. The heightened complexity necessitates a delicate balance, as the emotional cues may vary significantly depending on the medium and the individuals involved. Consequently, effectively facilitating discussions and rehearsals, addressing the space's complexity, and setting up different projects required a heightened sense of such a multi-faceted environment. Moreover, incorporating emotional intelligence into practice-based research methodologies allowed for a more comprehensive and nuanced approach. It advocates for reflective practices that encompass not only the technical aspects of research design and execution but also the emotional and relational dimensions of participant and audience engagement. A more holistic perspective fostered richer insights and generated more impactful results. Ultimately, an emphasis on emotional intelligence has enriched my practice, enabling the design of the space, the choreography, the script, and the direction to evolve.

Traditionally, experimentation in telematic performance involves a thorough examination of how technology facilitates live performances distributed across different geographical locations. Technology has the ability to enable artists and audiences to interact in real time despite being physically apart. By dissecting its components, methodologies, and implications on the traditional understanding of digital performance art, we can appreciate the nuances and potential that telematic performance introduces to the realm of artistic intermedial collaborations. For further insight, the more recent works of Amy Abrahams, Clemence Debaig, Marina Hanganu and Tom Gorman on telepresence and remote intimacy provided foundational perspectives on the convergence of technology and live art. In these explorations of telematic art, researchers and artists delve into the intricate web between remote spaces, technology, and a constant quest to enhance how collaboration is possible via a distance. Telematic art aims to transcend traditional boundaries, merging the live with the online, the tangible with the virtual, and local presence with remote engagement. The goal is to create a unified event that cannot exist without the interplay of these distinct platforms. Pérez further articulates this ambition by stating that telematic performance 'aims at uniting two (or more) separate platforms into a unitary event, so interconnected that the one cannot take place without the other – the live and online, the physical and the virtual, the here and the remote' (2014). This vision challenges the conventional understanding of performance and space, suggesting a seamless integration that is essential for the realisation of telematic performance. However, the perspective on indispensability and integration is subject to debate. The assertion that one platform is reliant on another for telematic performance to occur presupposes a level of interdependence that might not apply universally across the spectrum of telematic art practices (Doe,

2023). Some initiatives may indeed focus on blending live and online elements in a
cohesive manner, while others may approach the concept with a degree of
modularity, allowing components to function independently of one another. This
variability underscores the need for a nuanced understanding of telematic art,
recognising that the extent of interconnection can vary based on the artistic
objectives and the context of the performance.

1.2: Definitions of Telematic Performance

To enhance understanding, it is beneficial to explore the concept of telematic
performance with greater depth. By dissecting its components, methodologies, and
implications on the traditional understanding of performance art, one can appreciate
the nuances and potential that telematic performance introduces to the realm of
artistic expression. The latter will help establish the idea and clarify its position
within the broader context of mediated performance. This section will also outline the
wider field in which telematic performance is situated within the realm of
intermediated performance. Roger Mills, a renowned artist and researcher in
networked performance and music collaboration, notes that the term telematics is
derived from the French word 'télématique', which describes the convergence of
telecommunications and information (2019, p.23). Telematic performance as an
artistic medium frequently employs technologies like videoconferencing to facilitate
performance collaborations across distant and transnational boundaries. In recent
decades, the swift advancement of technological designs has markedly enhanced the
efficacy of remote collaborations, obviating the necessity for physical co-presence.
Consequently, practitioners in telematic performance have experienced substantial
and continuous adaptation to technological advancements. The restrictions of the

COVID-19 pandemic further accelerated this trajectory, precipitating a rapid expansion of the digitally mediated performance space.

The principal objective of telematic performance resides in connecting performers situated in two or more remote locations within a multidimensional framework for interaction, approximating real-time dynamics (Müller, Schütt, and Ziegler, 2019, p. 393). The advent of instant connectivity and global instantaneous communication liberates performers from spatial constraints, allowing for a departure from the uni-dimensional broadcasting of music and theatrical performances (Hamilton *et al.,* 2011). This transformation is influenced by contemporary globalised structures of social interaction, notably the ubiquitous use of smartphones, which, according to Athique is 'replacing the norms of traditional social structures and interaction' (2015, p.137). A shift in societal communication norms has long had a discernible impact on performance creation and live collaborations. The newfound capacity for remote collaboration, unburdened by travel requirements, has profoundly altered the landscape of possibilities for creatives. Additionally, these technological advancements have facilitated the exploration of collaborators worldwide to rehearse in multiple locations simultaneously.

Early explorations in the field can be approximately traced back to the 1950s, with key practices evolving during the rise of Internet 2.0 technologies in the 1990s and early 2000s (Tanaka, 2024, pp. 1-4). One notable example that influenced the evolution of telematic performance is the British contemporary performance company, Station House Opera, renowned for its innovative and interdisciplinary works involving networking technologies. The company was founded in 1980 by Julian Maynard Smith and was initially based in a former fire station in London, which inspired its name (Station House Opera, 2020). Station House Opera is known for its

site-specific performances, multimedia installations, and participatory projects that explore various themes, including the relationship between individuals and their environment, the passage of time, and the nature of human experience. The company often combined live performance, video, sound, and technology to create immersive and thought-provoking works. They have collaborated with artists from different disciplines, including visual artists, musicians, and architects, to create unique and engaging experiences for audiences.

One performance, in particular, is worth mentioning here as an intermedial, telematic performance example: *At Home in Gaza and In London*, a pioneering theatre piece on 'survival tactics, creative impulses and coping mechanisms that sustain those living in Gaza, while at the same time celebrating a temporary release via the technological innovation of a working space, a playing space, without borders' (Holmes, 2018). The significance inherent in the performance lies in its demonstration of how technological mediation can overcome the constraints imposed by physical distance and difficult or even dangerous crossing of borders. However, the operational aspects still encountered substantial complexity, primarily attributable to challenges in shipping equipment to Gaza due to persistent violence and threats to life and protracted power outages lasting up to 20 hours. Consequently, the collaborative process unfolded at a deliberate pace, extending over a period of five years before culminating in live performances during June and July 2018, wherein the teams on both sides exhibited a profound connection to each other (Holmes, 2018).

The performance employed visual techniques aimed at perceptually amalgamating space. This was achieved by merging select video outputs onto a singular screen, a common stratagem employed by practitioners in the field. This particular use of

videoconferencing technologies creates the illusion of performers occupying the same physical space, notwithstanding their disparate locations. The innovative approach not only showcased Station House Opera's creativity but also managed to engage the audience in a more dynamic and interconnected narrative, making the performance more compelling and memorable. By blurring the lines between reality and digital representation, it could create a self-reflexive narrative that invites viewers to question the nature of presence and connectivity. They aimed to provide a visual spectacle, engage multiple senses, and foster a deeper emotional connection. It invites audiences to reflect on their role within the digital landscape.

Station House Opera further presented their works at numerous prestigious venues and festivals worldwide, including the Venice Biennale, the Edinburgh International Festival, and the Sydney Festival. Their performances have received critical acclaim for their conceptual depth, technical ingenuity, and ability to challenge traditional notions of theatre and art. Consequently, their approach to hybrid performance making inspired numerous organisations in recent years. Therefore, the blurring of lines between reality and digital representation serves as a critical mechanism to explore self-reflexivity in narrative forms. This approach compels viewers to engage with the inherent paradoxes of presence and connectivity, prompting them to reflect on how technology mediates human experiences and perceptions.

In general, telematic performance collaborations are renowned for complications in terms of planning and set-up. While exploring novel models of hybrid performance, I frequently encountered situations that underscored the challenges inherent in such endeavours. These challenges usually arise from the unpredictable nature of technology and are compounded by collaborators operating in disparate time zones

or regions with infrastructural limitations. To achieve a profound aesthetic and artistic conceptualisation that adds value to the performance, there is a necessity for casts, musicians, and creatives to develop a heightened awareness of the intricacies inherent in hybrid collaborations and projects. Müller, Schütt, and Ziegler asserted that:

> the analysis or creation of such performances can quickly descend into a house of mirrors wherein certain intensely interdependent dimensions come to the fore, while others are multiplied, seem hidden or are made invisible (2019, p. 393).

While Müller, Schütt, and Ziegler aptly highlight the intricate nature of analysing or creating hybrid performances, it is essential to acknowledge that the metaphorical notion of a 'house of mirrors' may be subject to interpretation. The assertion that specific visual dimensions become foregrounded while others are multiplied, hidden, or rendered invisible may be challenged because these outcomes are not universally applicable to all instances of hybrid performance. The complexity of telematic performances can vary, and the physical dynamics transmitted through technologies may exhibit a more nuanced interplay of dimensions, with some aspects potentially gaining prominence without necessarily leading to the complete concealment or multiplication of others. Therefore, while their characterisation captures certain challenges, it may not comprehensively encapsulate the diverse range of experiences within the realm of hybrid performances.

In general, telematic researchers usually have to grapple with the challenges of the common characteristics of the networked space: latency, audio-visual challenges,

media transparency, movement typology and the role of sound and image (Müller, Schütt and Ziegler, 2019). This is further illustrated in the figure below:
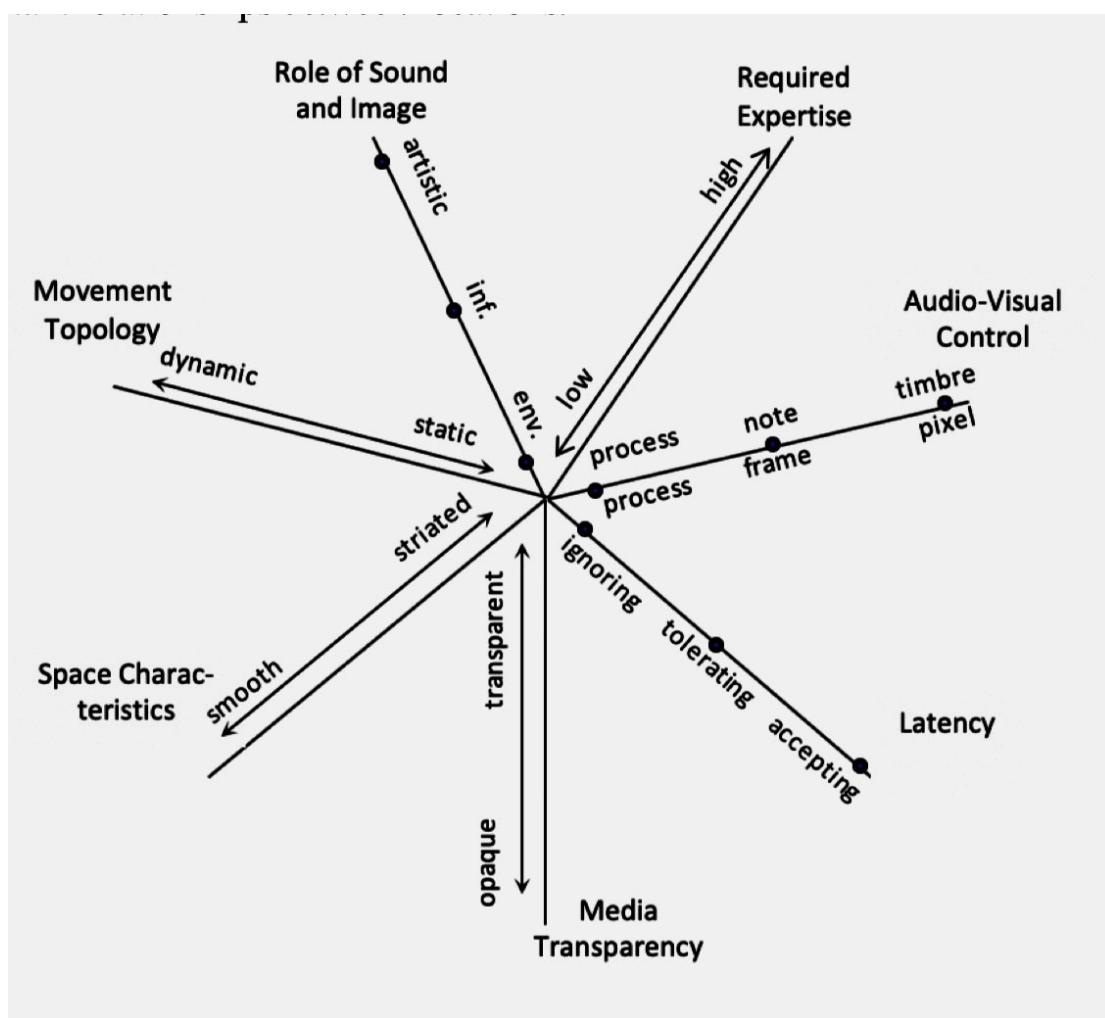
Figure 1: The Telematic Dimension Space (Müller, Schütt and Ziegler, 2019, p.394) Used under a Creative Commons Attribution 4.0 International License (CC BY 4.0)

The diagram presented above elucidates the intricacies inherent in the telematic space. As Figure 1 demonstrates the absence of physical presence not only constrains performers in their actions and interactions, but also accentuates challenges related to the directional focus that engages the audience. The need to engage with the performance through screens and speakers rather than direct human interaction

redefines the sensory experience of art, prioritising visual and auditory senses over others and thereby reshaping the perceptual engagement with the performance. As illustrated above, the asynchronous or non-linear timeframes often employed in telematic performances challenge traditional narrative structures, requiring audiences to engage in a more active interpretation and synthesis of the experience. The spatial dislocation between performers, or between performers and audiences, adds another layer of complexity, compelling audiences to mentally bridge these divides to form a cohesive understanding of the performance. Some aspects of telematic performance underscore the reliance on the audience's imagination and interpretative skills to complete the experience, making the audience an active participant in the creation of meaning.

Some critical examination of theories concerning Human-Computer Interaction (HCI), were useful to enhance comprehension of overcoming these obstacles. Whilst telematic performance challenges audiences by presenting a juxtaposition of the real and the virtual, it demands a cognitive reconciliation of these seemingly disparate worlds of HCI. The blend of live and digital elements can blur the lines between reality and simulation, pushing audiences to question the authenticity and immediacy of the performance (Fuchs, 2009). Questioning can deepen the engagement with the performance, encouraging a more reflective and critical reception but can also lead to a sense of detachment or disorientation as audiences navigate the complexities of blended realities. These challenges are not merely obstacles but are integral to the unique and potentially transformative experiences that telematic performances offer, inviting audiences to expand their understanding of art, technology, and the myriad ways in which they intersect (Lazzaro and Wawrzynek, 2001; Naugle and Crawford, 2014).

On another note, the propensity for excessive dependence on technology and increased HCI raises concerns about the potential erosion of authentic human connections, a phenomenon cautioned against by scholars like Sherry Turkle (2011), who highlight the potential consequences, including social isolation and a compromised sense of empathy. Turkle's work provides a critical lens through which to view the complexities of our relationship with technology. While recognising the benefits of digital connectivity, she urges us to consider the potential costs, particularly in terms of social isolation, the erosion of empathy, and the implications for our personal and societal wellbeing. Turkle's call to action is not to abandon technology but to use it more mindfully, ensuring that we preserve the depth and quality of our human connections.

Consequently, I posit an inquiry into the transformative aspects of 'new' emotional intelligence development and its potential influence on fostering more efficacious collaborative practices within hybrid settings. Whilst concepts of virtual interaction instigate critical debates on the importance of physical contact and the issues that come with it (replacing physical touch, for example), blending physical and virtual spaces can open new artistic possibilities. The absence of direct physical interaction frequently necessitates the utilisation of the term 'telepresence' in hybrid art forms, a theme extensively discussed in this research. For example, the impediment posed by the inability to engage in tactile interactions has spurred researchers such as Clemence Debaig, to devise new haptic technologies to introduce stimuli to the concept she terms 'virtual touch'. This pursuit is driven by the aspiration to facilitate what she refers to as 'remote intimacy' (2020). Haptic technology, which simulates the sense of touch, aims to enable more immersive and realistic interactions with digital environments, thus potentially enhancing user experiences. Upon further

examination, it became increasingly clear that the true essence of telematic performance has been somewhat concealed within its distinct nature. I argue that the focal point of telematic performance should pivot towards facilitating human interaction and connection rather than maintaining a primary focus on the technological aspects. The recalibration emphasises the intrinsic value of human connectivity within the telematic domain, underscoring the importance of interpersonal engagement over technological prowess. As a result, my focus remains unwavering on audio-visual immersion, with the aim of examining the notion of 'liveness' within the hybrid space.

Substantial practice-led efforts examined through the lens of ceaseless empirical research helped to highlight technology's crucial role whilst determining the prospective intersection of theatre, dance, and music. The escalating prominence and consequential significance of digital tools within live performances, exemplified by the integration of conferencing tools, sophisticated audio networks, and interfaces, confirm their enduring pertinence. The emerging hybrid trend indicates a potential shift towards a 'new artistic norm' in a world contending with challenges imposed by pandemics and political turmoil (Boddington *et al.*, 2021b). Consequently, the definition of telematic performance will continuously evolve with socio-political changes and evolutionary processes of the world.

1.3: Telematic Performance in Context

(Note: Please also refer to Appendix 7, p. 338 for a comprehensive overview of the history and evolution of technology relevant to telematic performance)

As a rapidly evolving genre, telematic performance has dynamically adjusted in tandem with technological progress. It represents an aspiration to amalgamate the

emotional and expressive dimensions of live performance with technology's

structured and detached attributes. As explained in the preceding section, the term

conveys an aspiration for substantial connections, encompassing the fusion of art and

science, computation and curation, and integrating subjective experience with

objective precision. Telematic performance is also closely related to the term

immersive telepresence. Immersive telepresence in telematic performance refers to

the integration of live performance with digital technology that allows artists and

audiences to interact in real-time, regardless of their physical locations (Lee, 2004, p.

28). Immersive telepresence creates a spatial and sensory experience where

performers can collaborate and share a stage in virtual environments, using video,

audio, and interactive elements to enhance the connection and feeling of 'being there'

(Gorman, Syrja, & Kanninen, 2019, p. 25). By leveraging telecommunication

technologies, immersive telepresence in telematic performance fosters a unique form

of artistic expression that transcends traditional boundaries and creates a global

stage for creativity. While initially challenging to envisage the convergence of art and

the digital domain, a closer examination reveals parallels with seemingly incongruous

pairings that, upon scrutiny, exhibit discernible resonances.

Connectivity has undergone rapid advancements in recent decades, marked by

notable progress in accessibility and speed. Innovations such as smartphones, apps,

3G, 4G, 5G, Wi-Fi, and Broadband have significantly evolved (*Broadcasting*, 2020). The

proliferation of interactive gaming, virtual reality (VR) technologies, and virtual

spaces like Second Life have established popular outlets for individuals seeking an

immersive escape from reality, enabling them to engage with potentially 'dangerous

spaces' without physical risk (Fuchs, 2009). The amalgamation of the 'real' and the

'virtual' into a cohesive entity constitutes a significant objective for artists and

creators involved in digital spaces, such as telematic art. Therefore, experiences within the realm of telematic art exhibit considerable variability in both scope and quality. The fascination with connecting remote performance spaces via technology to create art has researchers divided over when the phenomenon started. The historical developments listed below include some of the more significant examples that have impacted our understanding of the conventions and possibilities of telematic art and, subsequently, the impact on natural interaction, such as verbal communication, body language, and emotion. Historically, such curious trials on digital artistic connectivity began before sophisticated networks were available to the general public. In order to fully understand the emergence of telematic performance, it is helpful to study some very early examples of artistic explorations in performance and art. As an early example in music, composer John Cage created a piece called *Imaginary Landscape No. 4 for Twelve Radios* in 1951, using interconnected radio transistors (Lazzaro & Wawrzynek, 2001). Interestingly, this pioneering piece in the field was utterly obsolete of any personal taste and memory (psychology) compared to the 'traditions of the art'. Although notated conventionally using a five-line staff, the piece is entirely based on chance operations, like tossing a coin. Cage deliberately used unpredictability to void the performance of any control to 'leap out of reach of one's grasp of oneself' (Nicholls, 2002, p. 108). Cage described the experiment unequivocally as follows: 'The sounds enter the time-space centred within themselves, unimpeded by service to any abstraction, their 360 degrees of circumference free for an infinite play of interpretation' (Cage, 1961). Cage deliberately looked at eliminating any emotion, and using analogue radios as instruments reinforced the 'performer' to disconnect artistically and non-objectively.

Within the visual arts, telematic performances, also called 'networked performances in earlier times, were documented in examples of interactive 'video happenings' by Alan Kaprow in 1969 (Naugle & Crawford, 2014, p. 27). This resulted in various subsequent attempts to connect performers and musicians via telephone, hypertext and later satellite, all with the desire to overcome oceans and geography to appear and perform together in the same live image (p. 27).

Pérez further confirms that '[Telematic performance practice] aims at uniting two (or more) separate platforms into a unitary event, so interconnected that the one cannot take place without the other – the live and online, the physical and the virtual, the here and the remote' (2014 a, p.3). While the contextualisation of telematic performance, as presented by Pérez, underscores the intention of amalgamating distinct platforms into a singular event, it may be challenged on the basis that the notion of indispensability between these platforms might not universally apply to all instances of telematic performance. The assertion that one platform cannot occur without the other assumes a high degree of interdependence, potentially overlooking variations in the nature and objectives of telematic performances. Some instances may prioritise the seamless integration of live and online, physical and virtual and near and remote components, while others might adopt a more modular or independent approach. Therefore, a nuanced consideration of the diversity within telematic performance practices is warranted, acknowledging that the degree of interconnection may vary based on artistic intentions and contextual factors.

For example, Alan Kaprow's work used video to aid the audience in 'experiencing' rather than passively observing a creative project. He used live video performances to evoke a creative response from his audiences rather than an emotional one. For example, he recorded a 'video happening' called *Tag* on the Aspen Highlands ski lift

for his project titled The Technological Revolution. Using five video cameras and monitors, he recorded people riding the ski lift and again as they watched themselves riding the ski lift on the monitors in an attempt to merge art and life (Twemlow, 2009).

Like Cage, the redefinition of a new reality involving technology created a new modernistic style of 'un-art' like Kaprow's own published title *Art which can't be Art.* For example, Kaprow's piece Hello in 1969 used five television cameras and 27 monitors, connecting participants from four remote locations over a closed-circuit television network. Kaprow directed participants from a studio control room, giving instructions on interacting with simple dialogues, including phrases such as 'Hello, I see you' when a picture appeared. Those pictures would suddenly switch to another location, allowing Kaprow to critique the disruptive manner by which technology mediates interaction (Ascott, 2003).

These early artists undoubtedly contributed to the question of how artistic values can be defined in an interconnected world, whether reflected in traditional art, performance art or 'un-art', and using unpredictability and chance operations as the drive to challenge the conventions of traditional performance practice. The 1960s were particularly significant in integrating art and technology (Cook, 2015).

In another illustrative instance, within the domain of networked music, The League of Automatic Music Composers pioneered the utilisation of the initial microcomputer network band, subsequently recognised as The Hub. This ensemble, one of the inaugural laptop orchestras, significantly influenced subsequent works in networked performance during the 1970s and 1980s. Notably, the compositions grappled with latency challenges by intentionally incorporating the unpredictable responses inherent in computer systems as integral to artistic expression. Compared to Cage's

ethos, the resulting music could be characterised more as 'un-art,' acknowledging the inevitability of clashes and basing compositions entirely on chance. Tim Perkis, a band member and co-founder, reflected on the experimental approach, stating, 'Instead of attempting to eliminate the imperfect human performer, we sought to leverage electronic tools to augment the social dimension of music-making' (Perkis, 1989). Whilst Perkis' statement encapsulates a commitment to embracing imperfections and leveraging electronic tools to enhance the social dimension of music making, it may be subject to challenge because the efficacy of this approach may vary based on individual artistic intentions, contexts, and genres. Though valued in specific experimental and avant-garde contexts, the notion of imperfection in human performance may not align universally with all musical styles or objectives. Some genres and performances may prioritise precision and flawless execution, and the intentional introduction of imperfections might need to align with the intended aesthetic or artistic goals. Therefore, the assertion that electronic tools should be uniformly employed to augment the social aspect may be debated, as different musical contexts necessitate diverse approaches to balance technological augmentation and the preservation of specific artistic ideals.

The 20th-century avant-garde movements in visual arts, music and filmmaking undoubtedly leveraged early telematic experiments. Some of these early works were notably completely void of emotions; a deliberate emphasis on abolishing social connection was central to the works' aesthetics. According to Cook, the artistic concept of 'avant-garde is often misunderstood and merely applied to anything experimental' (2015, p.3). Nonetheless, the cultural shifts were closely aligned with the fast growth of technological advancements. However, the happiness and understanding expected to follow two world wars did not materialise (Meakin, 1999).

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For example, Kaprow's *Happenings*, a forum for creative expression, 'reveal much about the wide cultural developments experienced during the 20th century, as well as the changing nature of art practice itself' (Beaven, 2025). In addition to *Happenings*, Dadaism, Surrealism, Performance Art, Fluxus and Pop Art influenced the direction of telematic art, as Cook described 'through their links to the *Gesamtkunstwerk* and audience interaction' (2015, p.6). I found that the fascination of how the sending and receiving of communication had an invasive impact on thinking processes between participants appears to have played a significant role as Telematic Art progressed. British artist Roy Ascott believed that it 'paved the way the individual user of networks is always potentially involved in a global net, and the world is always potentially in a state of interaction with the individual' (2003, p. 232). It is pertinent to acknowledge that Telematic Art, Happenings, and Performance Art can be regarded as foundational elements that foreshadow contemporary social media platforms. Social media, broadly defined as platforms facilitating user-generated content creation and sharing to foster social networking participation, has its conceptual roots traced back to the mid-1960s, notably within the Fluxus genre (Malloy, 2016). Fluxus, characterised as an international and interdisciplinary artistic collaboration spanning various creative disciplines and media, is often termed Intermedia and draws significant influence from composer Cage. In the amalgamation of intermedia, communication, and philosophy, the dynamic interaction between the audience and artists redistributes authorship among all participants involved in bringing a score or event to life (Braun & Gentes, 2005). Exploring the historical context, particularly the 1960s, led to an encounter with the works of Warhol, subsequently serving as the foundational inspiration for my performance project, Exploding Plastic Inevitable 2.0.

American artist, film producer and director Warhol was, and still is, renowned not only for his contribution to the visual arts but also for his influence on the genre of Pop Art; however, the impact of the Fluxus movement is notable when he gave up painting to focus on filmmaking in 1965. Warhol is believed to be the original instigator of social media and was recently acclaimed as The Original Instagrammer (Whitney, 2015). Curiously, Warhol predicted that in the future' everyone would be famous for 15 minutes' (Papacharissi & Gibson, 2011, p.75), an infamous by-product of current social media influencers. Warhol was well known for extensively using his Polaroid camera, documenting almost everything happening in his daily life. He also extensively used video cameras to record everything, from himself at work to his visitors at his infamous celebrity parties at The Factory in New York. Furthermore, he left video cameras on for 24 hours to capture what critics classed as shameless self-promotion, feeding the needs of a narcissistic world of celebrities and consumerism in an attempt to show the world things as they were.

When he created the multiscreen multimedia environment *Exploding Plastic Inevitable* in 1966, it became one of his most remarkable works. The ambitious and complex set-up at his bolthole The Factory included pre-recorded and live performances from the band The Velvet Underground featuring the singer Nico. Photo and video projections of everyday life, such as scrambled eggs and random happenings, were transported to giant screens with Warhol-directed lighting effects, floating giant silver helium balloons and performers giving out real amphetamine injections, which created a one-of-a-kind immersive intermedial experience (Gelinas, 2021). The show later toured various parts of the USA and augmented Warhol's association with counterculture. While Warhol is not directly affiliated with telematic performance, the original 1966 multimedia installation *Exploding Plastic Inevitable*

pioneered the incorporation of the digital medium within theatrical performance

contexts. The ramifications of these initial events became foundational for the

practitioners whose works are explored in subsequent sections of this chapter.

Exploding Plastic Inevitable, consequently, served as a catalyst, providing a fitting

stimulus for the practical investigation element of this thesis.

1.4: Early Findings: From Telematic Project Timelapse to the Works of Punchdrunk

This section provides an analysis of how my initial telematic project, *Timelapse*,

launched in 2015, served as a catalyst for my exploration of emotional intelligence

within the context of technologically mediated performances.

Timelapse was a telematic, practice-based research initiative undertaken by the

Higher Education Performing Arts Department at Weston College and the University

of Nevada, Las Vegas (UNLV). The project was leveraged through newly developed

supercomputers known as Ultra Grid, which facilitated advanced digital connectivity

and enhanced screenings through state-of-the-art technology characterised by

reduced latency and improved clarity of connections. Despite a geographical

separation of 5,000 miles and an eight-hour time difference, faculty members and

students from both institutions were able to engage in an online collaborative

process, culminating in a synchronised performance broadcast live online in April

2015 (Lane, 2015).

The practice-based research associated with this initiative spanned nearly two

years, yielding numerous benefits, including an enriched educational experience for

students, the establishment of international partnerships, the development of a more

globalisation-oriented curriculum, and the generation of pioneering insights into the

potential of 21st-century theatrical practice. My contributions to the project encompassed the roles of co-director, choreographer, and scriptwriter.

Timelapse has provided valuable insights into emotional intelligence within hybrid performance settings by fostering an innovative environment where human interaction at a distance and technology intersect. The collaboration not only highlighted the potential of digital media in performance but also created an avenue for students to engage emotionally and intellectually across a significant geographic divide.

Throughout the process, participants were encouraged to develop their emotional intelligence by navigating the challenges and opportunities presented in a digital collaborative space. The synchronous performance in April 2015 served as a focal point for this exploration, as students had to communicate their intentions, feelings, and artistic interpretations in real-time while being physically separated by 5,000 miles. This experience taught them to attune to their own emotions and those of their peers, enhancing their capacity for empathy and active listening—key components of emotional intelligence (Lane, 2015). Moreover, the use of advanced technology and the sophisticated features of the Ultra Grid, such as the clearer connections and ultra low latency, undoubtedly made it easier for performers to engage with one another emotionally. This enhanced communication allowed students to respond to subtle emotional cues and dynamics during the performance, enriching the collaborative experience and deepening their understanding of how emotions can be expressed and perceived, even from a distance. Towards the end of the project, it became clear that participants had developed a bond similar to that of any 'live' cast despite the challenges of navigating the absence of physical touch.

Another significant finding from the project was the impact of shared cultural narratives on emotional intelligence. By integrating diverse perspectives and backgrounds from both institutions, students were able to explore emotional themes that resonated within the thematic concept of time and space. This cross-cultural dialogue encouraged them to reflect on their emotional responses and question their preconceived notions, further fostering emotional growth. At first glance, the project appeared to be primarily focused on the role of technology in enhancing education; however, as the investigation progressed, it became clear that technology served more as a means to facilitate action rather than being the centre of attention. Over more than a year and a half of thorough exploration, it revealed that the social, artistic, and educational benefits of utilising communication technologies were far more significant than the mere novelty of the technology itself.

The insights derived from project *Timelapse* illuminated various ways in which technology can enhance the educational experience in undergraduate performing arts by fostering collaboration between institutions, integrating teaching, learning, assessment, and feedback across two countries, and enriching the student experience while pushing the boundaries of traditional theatre practice. A noteworthy outcome of this project was the exploration of how digital mediums can overcome physical distance and time differences, leading to the emergence of a novel form of theatre, which we then referred to as parallel digital performance, which we found was later more aptly referred to as telepresence by the likes of Tom Gorman, for example.

Initially, the qualitative data from the project played a key role in uncovering essential pedagogical insights that shed light on the potential advantages and challenges posed by technology-enhanced learning. Furthermore, the findings highlighted the importance of digital technology in theatre disciplines, paving the way

for a deeper examination of its impact on the content and emotional connections created in performances. The integration of technology, combined with the concept of emotional intelligence enriches the educational landscape, fostering deeper engagement and empathy among students and audiences alike. *Timelapse* was less focused on audience immersion but meant to demonstrate a new way of devising work without borders.

Shortly after the project, I became interested in research on Punchdrunk and its innovative use of interactivity. As I delved into the concepts of immersive theatre, I began to explore how audience engagement could transcend traditional boundaries, particularly for the concept of telematic performance. Punchdrunk's approach highlighted the dynamic relationship between the performers and the audience, showcasing how interactivity could enhance the storytelling experience (Biggin, 2017). I wanted to incorporate similar principles in my future creations of telematic works. Experimenting with different modes of interactivity could allow the audience to influence the flow of a performance. It led me to consider how technology and multimedia could facilitate a more immersive experience, mirroring the techniques I observed in Punchdrunk's work, such as *The Drowned Man*, for example.

Punchdrunk's production *The Drowned Man* immersed audiences in a haunting, atmospheric production, inspired by the gothic Hollywood of Nathanael West's novel *The Day of the Locust*, loosely based on Georg Büchner's *Woyzeck* (Lue, 2014). Set in a derelict film studio, viewers explored interconnected narratives of love, loss, and ambition, navigating a dreamlike world where physicality and emotion intertwine in a unique theatrical experience. The immersive experience in *The Drowned Man* allowed audiences to become active participants, wandering through the desolate film studio. Audiences were enabled to uncover layered narratives while exploring

the haunting environment of the show, allowing them to connect intimately with the characters' struggles and emotions. The physical space transformed into a living tableau, where the boundaries between performer and spectator blurred, allowing each individual to experience the story in a personal and impactful way.

The study of such notable productions ultimately guided me toward a concept for EPI 2.0, where I could apply these insights on interactivity and audience engagement within a broader context. I wanted to offer a platform for exploring the potential of interactive experiences in new and exciting ways, allowing for a deeper connection between performance and audience. My background in creating telematic performance and further analysis of interactivity through the lens of immersive theatre provided a solid foundation for a better understanding, enabling me to push the boundaries of what performance can be in the digital age.

In summary, the collaboration on *Timelapse* as well as studying works by Punchdrunk have influenced the notion of further investigation into the concept of emotional intelligence in hybrid performance settings. It demonstrated how technology can bridge emotional connections, enhance empathetic understanding, and facilitate culturally diverse interactions. These insights contributed to a richer understanding of the role and importance of emotional intelligence in 21st-century theatre practices and education, paving the way for future explorations in hybrid performance environments.

1.5: Aims and Objectives

This research investigates the prospects and hurdles associated with employing telematic performance. The practical exploration aspired to become a means to allow the redefinition of conventional understandings of emotional intelligence, communal

spaces, and immersive artistic expression in mediated artistic collaborations. It endeavours to delineate and scrutinise the historical and sociocultural foundations, extant scholarly works, and theoretical frameworks pertinent to telematic performance and its participants (performers, creators and audiences). By doing so, it seeks to foster a novel understanding of the extensive possibilities for an immersive and hybrid Metaverse, thereby enriching scholarly discourse and conceptual frameworks in such emergent domains of artistic expression. My research further advances the knowledge of the burgeoning intersection between traditional theatrical practices and digital technologies, thereby fostering a better understanding of providing a global platform for collaborative performance collaborations among commercial practitioners and scholars. Moreover, it seeks to ascertain the feasibility of networked performance concepts for broader audience engagement. In doing so, it explains the complexities surrounding the cultivation of emotional intelligence among performers—dancers, musicians, and actors—amidst the constraints posed by physical remoteness, spatial limitations, and the impact of latency on artistic expression. By emphasising the exploration of emotional connectivity, the study extends existing scholarship within cognitive performance studies. Additionally, it critically examines the impediments inherent in virtual immersive technologies, aiming to identify avenues for innovation and development that could potentially enrich the landscape of the burgeoning digital realm in a fast-evolving field.

In my pursuit to identify the overarching objectives of the study, several vital methodologies and strategies were employed. Firstly, the research involves meticulous observation and dissemination of existing arts-based research and educational initiatives, aligning with aims to elucidate the multifaceted dimensions of telematic performance. The practical element of the research is supported by an

exhaustive review of literature encompassing telematic art, historical developments, traditional rehearsal and creative practices, and insights from cognitive and social sciences. The aforementioned components established a robust foundation of theoretical knowledge. Furthermore, my investigation thoroughly examines both existing and emerging technologies pertinent to networked performance, enabling a comprehensive understanding of the technological landscape. Engaging in scholarly discourse through participation in conferences, active contributions to ongoing projects and seminar involvement, fostered a collaborative exchange of ideas with fellow researchers (links and materials available at appendices 2 and 3, pp. 323-324). In addition, qualitative research methodologies, including fieldwork and interviews, were employed to validate and enhance the efficacy of theoretical frameworks in informing practice, thereby aligning with the objectives of exploring emotional intelligence and evaluating technological advancements. Through integrating these multifaceted approaches, this study provides a nuanced insight into telematic performance collaborations and contributes significantly to knowledge of the evolving discourse in an interdisciplinary field.

Furthermore, the delineation of aims and objectives outlined above prompts the emergence of pertinent inquiries, aligning with both practical and theoretical dimensions of the study as summarised in the research questions in section 1.1.

1.6: Structure of the Thesis

The structural framework of this thesis encompasses a comprehensive exploration of pertinent themes and inquiries within the domain of telematic performance. Commencing with the introduction, the thesis offers a detailed exposition of my motivations and scholarly interests, accompanied by a conceptual elucidation of

telematic performance. The introductory section delineates the research questions, aims, and objectives, thereby identifying the gaps within existing scholarship and positioning the present inquiry as a novel contribution to the field. Moreover, an examination of historical antecedents tracing the context and evolution underpinning telematic performance collaborations is provided.

Chapter 2 delves into a nuanced analysis of the opportunities and challenges inherent in contemporary practices and literature within telematic performance. Drawing upon a diverse array of scholarly publications and artistic examples, this section critically evaluates the works of key practitioners and researchers while also expounding upon the intricacies of navigating hybrid performance spaces. Notably, the emergence of emotional connections in telematic performance is scrutinised, presenting a novel dimension to the discourse on emotional intelligence within this domain. Additionally, the chapter explores the evolution of Zoom theatre through active participation, thereby illuminating further possibilities and complexities intrinsic to the field.

Chapter 3 conventionally examines methodological approaches in alignment with established theoretical frameworks, providing a rigorous analytical foundation for subsequent inquiries.

Chapter 4 embarks upon a practical exploration through the immersive multimedia telematic performance entitled Exploding Plastic Inevitable 2.0. The chapter evaluates and analyses the findings from the rehearsal process to performances to investigate the potential of novel intermedial performance concepts.

Chapter 5 delves into examining a potential new vocabulary by introducing new terms that evolved through the practical exploration in Chapter 4. Furthermore, ethical considerations, including but not limited to issues surrounding disability, data

protection, and environmental sustainability, are comprehensively examined within this section.

Chapter 6 delves into a final conclusion concerning hypothetical and tangible paradigms of telematic collaborations whilst elucidating potential trajectories for future developments within the field.

In concluding the thesis, a synthesis of theoretical and practical implications and acknowledgement of the study's limitations are presented. These conclusions further offer recommendations for future research avenues, contributing to the ongoing discourse and advancement of scholarship within the domain of telematic performance.

2. Opportunities and Challenges in Telematic Performance

Engaging with extant literature and artistic works has proven instrumental in establishing the theoretical underpinnings of the study. This chapter is structured into distinct sections that delve into intermediality, spatial dynamics, and the adaptation of emotional intelligence within hybrid environments. Examining recent examples from Zoom Theatre to immersive art installations and collaborative online performance creations yields preliminary conclusions illuminating evident gaps and constraints within the field. The exploration initiates a discourse ripe for discussion, with the aim to substantiate an original contribution to new knowledge that may reshape approaches to future works within the domain. Furthermore, the research presents deeper insights into how existing practices have set up the development of the original creation of EPI 2.0. It serves as a rich foundation for substantiating and refining the research questions concerning the transformative potential of technologically mediated immersive creation on traditional creative performance practices.

2.1: Intermediality in Telematic Performance

Telematic performances are frequently likened to multimedia experiences, often discussed in academic literature under the rubric of 'intermediality' within the realm of performance making. Reviewing the concept of intermediality within the domain of telematic performance draws on critical academic contributions to understand its implications, challenges, and transformative potential in the arts. The term 'intermediality' refers to the interconnectedness among various contemporary communication media, a concept thoroughly articulated by Klaus Bruhn Jensen

(2017). Jensen, who is a researcher at the University of Copenhagen for Digital Information and Communication, posits that these media platforms do not operate in isolation. They are intricately linked, directly and indirectly supporting one another to disseminate information and convey ideas.

This interconnectedness is particularly evident in creative media, where intermediality signifies the convergence of disparate art forms—literature, film, music, theatre, and digital media—into cohesive expressions of artistic vision. Specialist researcher in intermedial, memory-themed and music-driven theatre and performance, Jem Kelly, expands on this definition by highlighting that intermediality in artworks involves integrating techniques, themes, or aesthetics typically associated with one medium but manifested in another (2019, p.2). Blending media is not merely a superficial combination but a profound synthesis that can potentially lead to new and innovative creations, suggesting that intermediality can be a transformative force in the arts. However, the concept is not without its challenges. Technological limitations, such as lag or restricted space due to camera lenses, can significantly constrain artistic creation and collaboration in intermedial rehearsal and performance settings. These challenges necessitate a critical examination of intermediality's assumptions and implications, as explored through a wide breadth of examples and the practice-based research approach within my project EPI 2.0. One approach involved questioning the extent to which intermediality represents a transformative force breaking down boundaries between media forms. For instance, whilst intermediality acknowledges the convergence of different art forms, it may overlook the preservation of distinct disciplinary boundaries and the unique qualities inherent in each medium. One particular obstacle I encountered was the sometimes random, improvisational and experimental approaches that sometimes define the

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existing works, such as some explorations created in Performing Arts Departments of Universities (e.g. Goldsmiths' *Dancing in the Metaverse*, Greenwich's *Remote Intimacy*, Royal Central School of Speech and Drama's *Virtual Performance Lab*). These examples challenge and inform the evolutionary process to transform the experience for all performers, creators, and audiences. Artistic creations like the aforementioned inspired me to scrutinise the artistic integrity of intermediality in telematic performance from both a positive and a more challenging standpoint through the practice-led research approach within EPI 2.0. Whilst intermediality promises to break down the barriers between distinct art forms and media, it also raises questions about preserving artistic integrity, coherence, and the genuine innovation of artistic expressions. For example, I wanted to challenge intermediality's effectiveness in fostering genuine innovation and creativity, as synthesising different media forms may only sometimes result in novel or meaningful artistic expressions. During the analysis of different works, I identified that some materials demonstrate a considerable level of contradiction. Examples of a contradictive intermedial performance art are the works by the artist collective Blast Theory (2024). Their works often intertwine live theatre, mobile technology, and audience interaction, exploring themes of intimacy, surveillance, and the nature of communication. Audience members are frequently invited to use their smartphones to interact with the performance in real-time, receiving messages and instructions that guide their experience. Their performances intend to create a sense of connection and intimacy between the audience and performers, blurring the lines between spectatorship and participation. However, the reliance on technology may create a contradictory experience: while participants engage in a shared moment, they are simultaneously

subject to the isolating effects of their devices, often more focused on their screens than on their surroundings and fellow attendees (Dwivedi *et al.*, 2022).

Such tension highlights the duality that technologically mediated environments can provide. Technology can foster connection, yet it can also lead to disconnection and distraction. The intention to create an immersive, communal experience clashes with the reality of individuals isolating themselves within their devices, presenting a complex critique of how technology mediates social interaction. Through this contradiction, the performance invites reflection on the implications of our increasingly digitized lives in both enhancing and undermining genuine human connection.

Furthermore, I discussed the potential critiques of intermediality with Johannes Birringer during an online interview in 2020. Birringer identified intermediality as 'problematic for its capacity to convey meaningful political messages in a realm devoid of physical touch'. This particular critique underscores the inherent limitations of augmented and technologically mediated environments in more complex settings where the meaning and interpretation of the work's message are the dominant aim. However, the effectiveness of intermediality in political discourse may depend on how it is harnessed rather than its intrinsic qualities.

Despite these criticisms, Birringer investigated how performers adapt to novel forms of intimacy and closeness facilitated by technological mediation, suggesting a nuanced view of intermediality's potential. In contrast, his essay 'Bodies of Colour/Media Skins' scrutinises how performers adapt to novel forms of intimacy and closeness facilitated by technological mediation (Chatzichristodoulou and Zerihan, 2012, p. 3). The ability of performers to adapt within a mediated environment suggests the need for a nuanced view of the potential of hybrid spaces.

This demonstrates that ongoing experimentation in the domain yields the necessity to document how the evolution of human activity influenced by technology needed further explanation of how this would affect emotional responses. Birringer's works extensively engaged various set-ups across genres in networked performance, encompassing wearable technology and virtual reality (VR). What was exciting and relevant to my work was how Birringer's investigation delved into the potential differentiation in human behaviour when confronted with visceral experiences instead of digital interfaces. The inquiry prompts reflections on how performers adapt when immersed in 'computational technologies.' Birringer introduces 'the concept of sensitised intimacy to describe the emergent form of closeness facilitated by such technologies' (Chatzichristodoulou and Zerihan, 2012, p.143). The term suggests a heightened sensory engagement or awareness that arises from the interaction between performers and computational interfaces. Birringer's analysis implies a shift in how individuals experience intimacy and connection within intermedial environments, highlighting the transformative impact of digital interfaces on human behaviour and interpersonal dynamics.

In exploring the confluence of the 'real' and digital spheres, Birringer's work engages deeply with philosophical reflections, notably aligning his art with scientific concepts of integrating digital code within the biological. For example, he used manipulation of clothing as a transition between performers and technology, utilising the sensory engagement with garments as a medium for self-expression and emotional conveyance (2020). This juxtaposition underscores the distinct sensory experiences and modes of expression encountered in both the digital and material realms, a topic that is very relevant in intermedial settings. Our discussion further confirmed that technology's role should merely be a facilitator of connection in

artistic practices rather than the centrepiece. Birringer highlighted the fact that

intermedial productions often elicit new emotions through technological interfaces.

For example, by combining sensory elements and facilitating real-time interaction,

intermedial works can enhance feelings such as nostalgia, joy, or tension, ultimately

transforming the way we connect with content and each other through technology.

This perspective enriches the discourse on emotional resonance within intermedial

spaces, challenging conventional social and performative norms.

   A noteworthy example is Birringer's involvement in the *Adapt* performance

(Bromberg, 2010), a collaboration across five US university dance departments. The

project, characterised by its improvisational nature and emphasis on meaningful

connections between physical and virtual spaces, showcases the complex

orchestration required for real-time, inter-location collaboration. Notably, a moment

captured at 01:55 minutes in Bromberg's recording vividly illustrates the blurred

boundaries between the 'real' and 'virtual', as performers intertwine hands,

symbolising the interconnectivity at the heart of such collaborations:

Figure 2: *Adapt* (Bromberg, 2010). The hand in the forefront is in 'real' space trying to interlink with the hand in the digital space (Screen shot taken at 01:55).

The genuine and authentic rapport established among performers stands in stark contrast to previous conceptions of 'un-art,' as delineated in the introductory section. The aim to amalgamate the realms of the 'real' and the 'virtual' to facilitate the ontological transition is a recurring motif observed in early intermedial explorations, a phenomenon I encountered first hand during the development of *Timelapse* in 2015. The following provides a visual representation exemplifying the creative evolution of

my early experimental works:

Figure 3: *Timelapse* (2015) The picture shows a blend taken from two screens, one located in Weston-super-Mare, and one in Las Vegas. Photograph by author.

As depicted above, virtual touch is a topic of considerable debate within hybrid environments, which consistently ignites debate within intermedial environments. Matthew Causey (2016) expands upon this discourse by suggesting that a culture saturated with media and digital technologies reshapes the fundamental nature of performance. Therefore, Causey contends that performers operating within hybrid spaces must consciously cultivate a new digital identity: 'seeing oneself as no longer just human, but in a position as posthuman, becoming machine and thinking digitally' (p.440). The statement implies the necessity of complete assimilation of humans and machines. Although this idea has potential significance in telematic research, I argue that from an artistic perspective, this should not be the only goal. The investigation of intermediality is crucial within hybrid performance making, particularly when exploring the structure and function of performance. However, some of these ontological positions may be unsustainable and possibly inaccurate, as they create

binary distinctions among media delivery systems. The concept is challenged in what Causey describes as a postdigital state. He implies that 'intermedial theatre, like multimedia before and transmedia briefly after, is a thing of the past' (p.428). This statement prompted contemplation regarding the future creative challenges and the requisite provocations that creators and performers must surmount to ensure the continued resilience and advancement of the field. In order to comprehensively assess the capacity to foster genuine relationships between performers and audiences in mediated networked performance, it is essential to consider the influence of the 'digital self' within the context of online social profiling, as it offers insight into how our perceptions of others are shaped and how we respond to these interactions. Before the widespread adoption of social media platforms around 2006, the 'digital self' concept was not as prevalent or complex as it is today. Reflecting on early intermedial, telematic art, it is evident that initial engagements with technology in theatrical settings primarily focused on exploring the novelty of multi-spatiality and remote collaboration, with emotions often playing a secondary role in scholarly discourse. However, with technological advancements and the evolution of digital platforms, particularly in the post-2015 era, the 'digital self' has emerged as an integral aspect of contemporary life.

Adapting to increasingly sophisticated technologies and learning to navigate emotional interactions mediated through these platforms can be likened to learning to walk again. Despite the inherent challenges, technological advancements also offer opportunities to enhance our communicative abilities (Asenbaum, 2021, p.20). Asenbaum's assertion underscores the transformative impact of technology on human relationships, highlighting the imperative for individuals to adapt and reconfigure their interactions within the digital landscape.Therefore, it was necessary

to examine emerging new works focussing on telepresence and immersive practices, unveiling new ideas for crafting hybrid performances.

2.2: Definitions of Space and Presence in Hybrid Environments

Analysing a broad spectrum of existing artworks in this domain has been invaluable for exploring the dynamic interplay between space and presence within telematic performance environments. A thorough investigation, enriched by my previous works *Timelapse* and *Digital Dancing*, ignited a passion for creating the immersive performance concept of EPI 2.0. Delving into cutting-edge theories on how technology reshapes our sensory perception in hybrid spaces, aims to bridge the scholarly gap in understanding these impacts. The challenges posed by digital media can significantly disrupt the flow of performances, reducing opportunities for tactile engagement. It raises an essential facet within research questions 1 and 2: What aspects of perception are most engaging for people, and how do these elements influence cognitive functions and the creation of art?

Understanding how performers can navigate the nuances of technologically mediated spaces necessitates re-evaluating traditional performance techniques. Andy Lavender's work, encountered at a telepresence conference in Bucharest in 2019, has been pivotal in highlighting the obstacles and possibilities within the sphere of telepresence (link to full symposium available in Appendix 2, p. 323). Lavender describes the hybrid space as a fusion of 'actual/virtual, 2D/3D, co-present/distributed performance environments' (2019). In a realm where technology facilitates interaction among physically distant participants, demands a mastery of theatrical and on-camera performance techniques. Lavender emphasises the uncertainty in identifying methods suited to these complex environments, suggesting

that the digital age, especially post-COVID-19, calls for a new understanding of intimacy in performances.

Lavender's interviews with actors uncover a dual consciousness engendered by an emphasis on on-camera presence, mirroring the experiences of being enthralled by the virtual dimension. This consciousness does not diminish the significance of interpersonal connections for a cohesive performance. Lavender champions a more profound intimacy with technology, advocating for actors to regard cameras and microphones as collaborators in performance, adept at capturing and expressing emotion intimately:

> They were treating the lens and the microphone as another performer and as something even more personal, like perhaps treating the microphone as the ear of the lover or the lens as a completely benign, all-seeing friend and teacher, an ability to unfold and open up to the gaze of the lens or the ear of the microphone, knowing that it would catch everything, and being unafraid of showing it (Lavender, 2019).

This approach suggests that performers can blend seamlessly into their environment by treating technology not as a distraction but as an integral part of the narrative, similar to how film actors incorporate technological elements into their performances. The challenge for telematic performers lies in maintaining this connection in live settings without the benefit of retakes or edits. Drawing inspiration from Lavender's scholarly contributions, particularly his exploration of the nuances in camera work between traditional theatrical spaces and telematic environments, proved to be profoundly insightful.

My academic journey led me to discover the work of Tom Gorman. Initially, I sought out Gorman for an interview to gain deeper insights into his pioneering work. However, as our discussions evolved, spanning numerous conversations, Gorman transitioned from being merely a subject of my research to a co-creative force and collaborator on the project EPI 2.0. This partnership not only enriched the project but also significantly deepened my understanding and appreciation of the complexities and possibilities within telematic performance art. Gorman's pioneering work in the field of telematic performance and immersive telepresence significantly influences contemporary research within the realm of performing arts and education. As both, a Professor at Coventry University and an accomplished actor and director, Gorman has been instrumental in exploring the integration of technology within actor training, rehearsal, and performance processes. His innovative approach towards creating collaborative technologically mediated spaces demonstrates the potential to enrich performance practices despite physical barriers. He uses a common approach in telematic performance making, where the actors are grouped together in two separate live spaces, which are mirrored in design. A same-level camera angle set in front of the screen helps to merge the two sides into one, providing the illusion of one combined realm. The concept aims to make it about the 'togetherness' of the people, rather than making the technology the focus. The image below is a screenshot from Gorman's production *Godot Online,* taken from a live rehearsal shortly taken before the first Covid-19 lockdown in March 2020. Unfortunately for Gorman and the teams in Finland, the production could not be finished as universities had to close. He instead showed some of the raw rehearsal footage filmed with phones and conducted Zoom interviews with the participants that he later released as a documentary on YouTube.
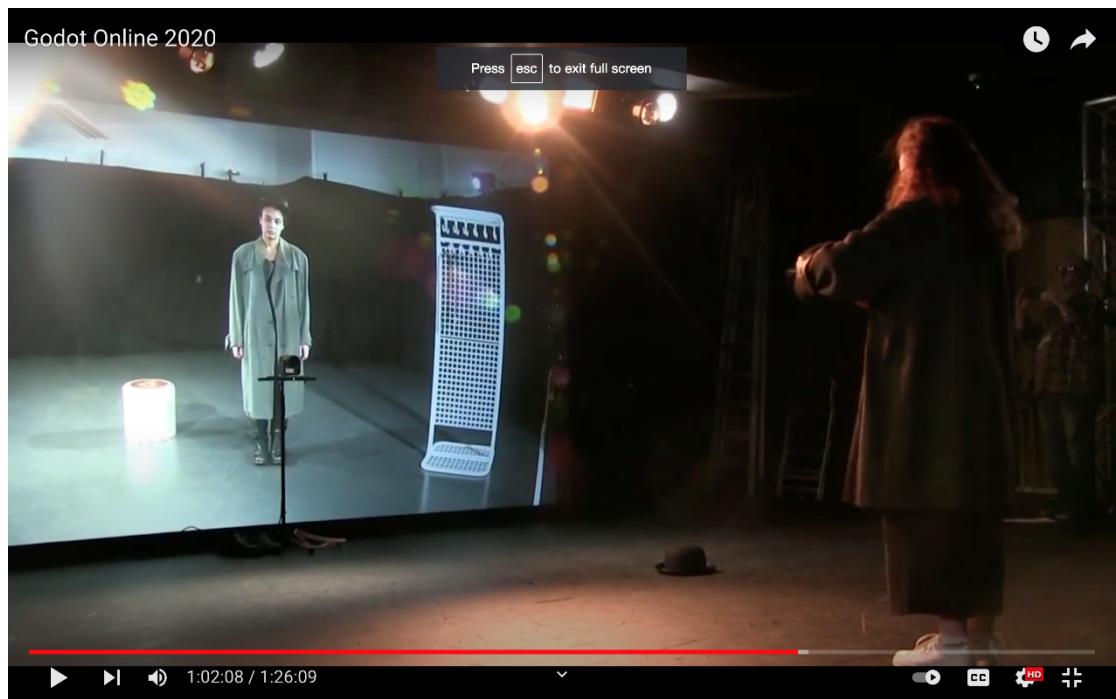
Figure 4: *Godot Online* (Gorman, 2020a) Screenshots from YouTube Recording (First one taken at 01:02:08the second one at 56:51). Coventry University, courtesy of Tom Gorman.

The subsequent pictures above comprehensively demonstrate an exemplary

telematic performance set-up optimally constructed for such spaces. Characterised by

its triangular stage configuration, this layout is meticulously designed to ensure that performers remain within the camera's visual field. Concurrently, the audience is arranged in a V formation around the stage, fostering heightened immersion within the space. The arrangement exemplifies an effective strategy for telematic performances, facilitating the adaptation of conventional performance paradigms. Unequivocally, it enables a more regimented process and allows for a more conventional approach to acting and directing by establishing a definite spatial and structured performance environment. Such an environment is instrumental in fostering a focused engagement, facilitating a seamless and natural connection among performers. My production of *Timelapse* with UNLV in 2015, was pivotal in enhancing my understanding of perception within collaborative digital environments. The staging approach adopted mirrored that utilised by Gorman, emphasising interaction 'across the screen'. The piece aimed to bridge connections with individuals approximately 5,000 miles away, presenting a unique challenge distinct from conventional, physically proximate interactions. Notably, the project illuminated the difficulty in translating nuances of movement, gestures, and facial expressions across the digital divide. During a visit to Las Vegas, in the creative phase of the project, I gained invaluable insights. Taking the position of an observer on the opposite end of the camera lens allowed for a critical examination of the UK space from a markedly different perspective. This experiential learning opportunity was instrumental in catalysing a deeper exploration into telepresence. It prompted a rigorous inquiry into the intricate dynamics of space, time, and interpersonal connectivity facilitated by technological advancements to overcome geographical constraints. The photographic documentation of a live performance underlines the spatial similarities with what

could be considered a traditional set-up for a telematic performance space, thereby

contributing to the body of knowledge in the field.

Figure 5: *Timelapse* (2015). Photograph by author.

In synthesising various perspectives on telematic space, it becomes evident that this

domain is a confluence of theatrical and cinematic elements, often embracing

immersive or promenade approaches to direction. A critical aspect to consider in

these hybrid performance settings is the camera's proximity, which, when positioned

near the performer's face, allows for capturing intimate moments with remarkable

precision. This necessitates a nuanced approach to gestures and facial expressions,

contrasting sharply with the grandiose physical and vocal projection required in

traditional proscenium theatrical spaces to engage audiences seated at a distance.

The intermedial nature of these spaces further broadens audience participation,

extending it to live, online, or blended environments, thus highlighting the intricate

aesthetics of hybrid spaces where technology's role risks overshadowing the intended narrative of the performance (Pérez, 2014b).

The historical analysis of telematic performance underscores the dynamic interplay among time, audience, and space, identifying it as a pivotal theme. Within this discourse, Peter Petralia's contributions stand out for integrating cognitive science principles to delve into headspace and perceptual space concepts within his artistic projects. Petralia's engagement with telematic performance began in 1996 with *Epidog*, marking a significant foray into exploring performance within technologically mediated spaces. Despite the initial excitement surrounding the potential to connect individuals across diverse locations via videoconferencing technology, Petralia soon confronted the challenges posed by technical limitations, including transmission glitches and latency issues. Over the subsequent decade, Petralia's experiments such as *Proto-Type* reflected a refined approach to performance, drawing upon his drama and theatre education background. His work increasingly focused on the nexus of perception, movement, and cognitive reasoning, advocating for a holistic understanding of the body and mind's interconnectedness. He critically assessed philosophical stances, prioritising the body over the brain and embarking on performance projects to probe sensory perception and cognition.

During immersive online collaborations called *Whisper* (2007-2008), Petralia harnessed sound effects to craft immersive narrative experiences, engaging audiences through auditory perception. His examination of visual perception and pixels provides intriguing insights into the confluence of technology and performance, though it occasionally strays from empirical evidence. His observations on performers' responses to pixelated images in telematic art underscore the complex interaction between live and virtual elements. Despite some discrepancies, Petralia's

creative and theoretical contributions offer valuable perspectives on manifesting

emotional intelligence within digitally mediated spaces.

Petralia's observations on the behaviour of performers in response to pixelated

images in telematic art highlight the complex interplay between live and virtual

elements. Despite some discrepancies, his creative and theoretical contributions

provide valuable perspectives on the expression of emotional intelligence in digitally

mediated spaces.

Petralia's argument draws further on Gallagher and Zahavi's original theories that

individuals engaged in performance consistently perceive relationships between

objects and people similarly, regardless of the spatial context—physical, virtual, or

hybrid. They outline three spatial perspectives: allocentric (geographically oriented),

egocentric (from a personal viewpoint), and propriocentric (related to bodily

awareness) (Gallagher and Zahawi, 2013, pp. 141-144). However, Petralia posits that

physical perception of space alone may not fully account for our interactions with

entities across various realities, suggesting that spatial perception spans a spectrum

from the tangible to the imagined. Petralia further suggests that the mind continually

engages in 'imaging,' and the body does not act independently to situate itself in

space, whether consciously or unconsciously He implies that spatial perception is not

solely physical or imaginary; perhaps spatiality exists along a spectrum ranging from

predominantly physical (tangible) to predominantly imagined (Petralia, 2010, p.98).

Petralia contends that the absence of a shared physical space in telematic

environments does not negate the need for physical engagement to activate our

senses. Conceptual screen sharing enables emotional and spatial information

transmission across distances, with sensory input primarily limited to audio-visual

stimuli. However, we intuitively interpret signals from our collaborators.

Observations from Zoom webinars revealed that focusing on panellists' physical reactions can sometimes distract from verbal communication. Reactions in online discussions can seem more prominent, potentially due to the camera's influence or its redefinition of visual stimuli. Confining within a narrow frame and viewing one's own image can disrupt perceptual clarity and hinder cognitive processes. The experience of observing another space online often ignites curiosity about the tactile sensation of physical presence, illustrating the nuanced interplay of perception in telematic spaces. Dutch artist and researcher Annie Abrahams intensively explored these spaces further, particularly during the pandemic. She investigated online relationships for over a decade through telematic experiments such as the Being Human projects, which were staged mainly between 1997 and 2007. Abraham's work was described by Chatzichristodoulou (no date) as 'poignantly relevant today, within the hyper-mediated, hyper-saturated, super-networked environment that has become, for many of us Western subjects, a 'natural daily habitat'. In comparison to the artists mentioned previously in this chapter, Abrahams' approach is fundamental and simplistic in set-up and nature, based on the banality of real life and intimate encounters. Her upbringing in a frame of stringent social norms and a doctorate in biology ostensibly formed a substructure for her art (Chatzichristodoulou, no date).

Her enquiries challenged the failures of mediated communications and often science itself. The projects were rarely rehearsed and were based on accidental interaction, with a focus on humans. Abrahams firmly believed that intimacy can be achieved in a technologically mediated space. 'I want to stress that mediated intimacy, that is, an intimacy that occurs through the use of machines is not the same as the intimacy that we experience in our flesh lives. It is neither a lesser nor a more potent experience; it is just different' (Chatzichristodoulou, no date).

Through Abrahams' experiences, she found that people might be more open to behaviours online they would typically not display in a public environment (2021). Abrahams used her study of art to break free from the restrictions that her career in science implemented on her life. Her initial artworks were paintings that did not relate to scientific methodologies. She discovered complexity theory in the early 1990s when she turned her interest to performance work. A deep desire to question how people can live in a world they do not understand resulted in her first experiments with technology and human interaction, thus merging her scientific knowledge with her creative works (Abrahams *et al.,* 2020).

The role of the audience, although seemingly involved in some of the processes, was to act as mere observers for Abrahams to test how much could be shared in these mediated artistic environments. Her performance installation, *The Big Kiss*, staged over three hours on October 10th, 2008, at the OTO in Brooklyn, New York, saw her attempt at machine-mediated kissing to create a sense of pleasure whilst constructing an image. The questions that stimulated her research are copied below from her website, which is very relevant to the core question of this thesis and maybe one of the most significant pieces to demonstrate the need to establish an understanding of what and how emotional connection could be evoked through networked performance installations:
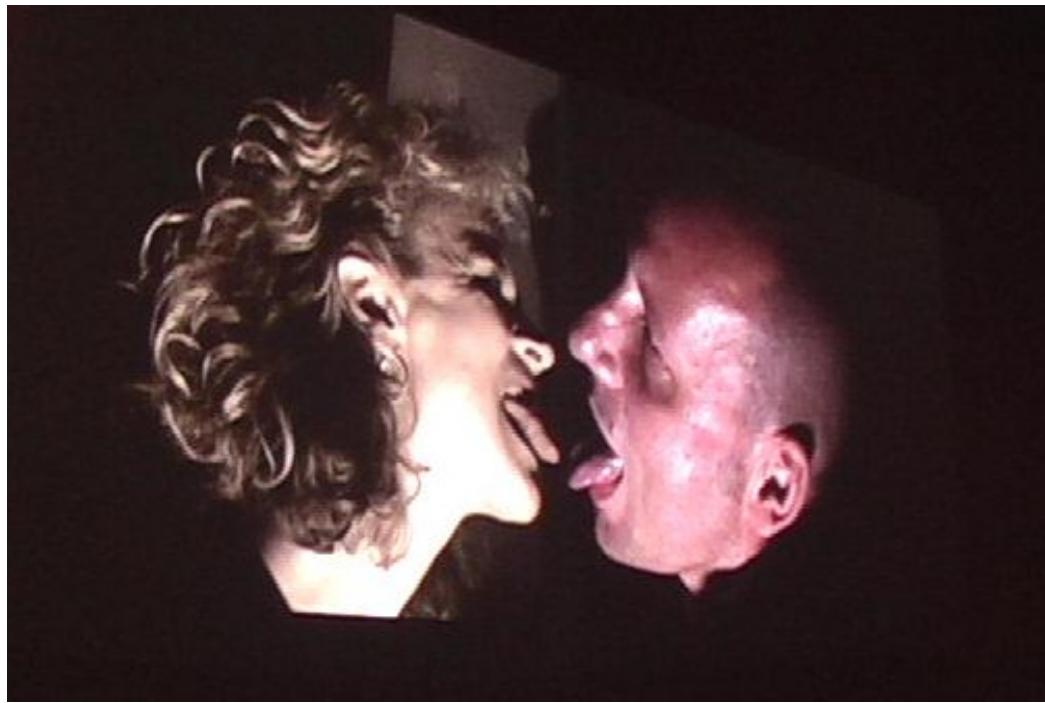
Figure 6: Annie Abrahams and Mark River, *The Big Kiss* (2008). Venue: OTO, New York. Courtesy of Annie Abrahams.

> What's contact in a machine mediated world? What's the power of the image?
> How does it feel to kiss without touching? Does the act change because we see
> it? What does it mean to construct an image with your tongue? And is there
> still desire? Does the act provoke it? What's contact in a machine mediated
> world? (*Bram*, 2008)

Another very relevant piece to the 2020 COVID-19 pandemic includes the ongoing Zoom installations called *Distant Feelings,* which I describe in more detail below in the form of a detailed case study.

Abrahams collaborated on this project with Daniel Pinheiro from Porto and Lisa Parra in New York. Together, they created an annual 15-minute online séance open to multiple participants worldwide, in which they attempt to 'feel' and 'experience' energy flow between bodies. The audience is invited to observe the three performers

merging their concentration into a liminal space of being together; humans are synced into one by the power of the machines (Abrahams, 2020). It evolved into later meetings to involve outside participants. For Abrahams, the audience is often involved, observers. Her interest is finding out how relationships develop in arbitrated spaces, in which she merges her self-confessed preference for solitude in the safety of socially distant exchanged encounters.

Compared to other telematic performance artists, Abrahams' work is visibly less complicated in set-up and quite fascinating in terms of its rather understated simplistic purpose, demonstrating the sheer banality of life itself. Abrahams' work questions the fragmented intimacies, shared absences, the frustrations of mediated communication, broken relationships, desperate attempts to achieve connectivity, the body lost in digital space, distance, and painful and erotic lack. Life, as it is today, in the networks (Chatzichristodoulou, no date). Looking at the telematic space as a platform to make art, joining the fragmented locations challenges the creation of a sense of togetherness. As with any art, this may be subjective to the work created, as telematic performances can deliberately play on contrast to show separate environments. For example, for EPI 2.0 I deliberately separated the digital space from the real space to create a contrast rather than trying to replicate a synchronised environment as I did during *Timelapse* and *Digital Dancing*. However, a closer look at presence in the telematic space, frequently referred to as telepresence, is necessary to identify our understanding of cognitive perception.

Initially, it was imperative to delineate the concept of 'presence'. For example, Carassa, Morganti, & Tirassa elucidated presence as the subjective perception of 'being there' (2004, p. 7). The interpretation of presence is multifaceted, contingent upon various contextual factors and individual predilections. It could equate to

selective attention, whereby the sensation of presence emerges from allocating attentional resources (*ibid*). Presence constitutes an integral aspect of existence, permeating our daily lives across moments, hours, and seconds. Whether consciously or unconsciously, our decisions frequently arise in response to various stimuli, including audio-visual prompts. In the virtual realm, our sense of presence parallels the physical domain. Carassa, Morganti, & Tirassa further posited that individuals bring their personal experiences into virtual environments, concurrently 'assimilating the virtual into their lived experiences' (p. 11). Moreover, the sensation of presence within the virtual sphere can be construed as the 'illusion of being unaware of the medium used to create the immersion' (Bouchard *et al.*, 2012, p. 227), aligning with the overarching objective of telematic art. It further raises the crucial question if of whether true immersion can only occur when users feel fully enveloped in the virtual environment, by allowing them to engage with it as if it were real.

By suggesting that the medium fades into the background of their experience, Bouchard *et al.* imply that the technology enabling the virtual space—be it VR headsets, sound systems, or haptic feedback—becomes secondary to the user's interaction with the content itself. Their statement aligns with the goals of telematic art, which seeks to create seamless connections and interactions across distances whilst enhancing the sense of presence and engagement. In essence, when participants are not consciously aware of the technologies involved, they could potentially focus more on the experience and emotions elicited, leading to a deeper sense of telepresence and personal connection within the virtual realm.

From my own experiences, I learnt that conscious awareness varies greatly from person to person and moment to moment. While some participants may remain acutely aware of the technology and the artifice of the experience, others may become

lost in the narrative or emotional landscape, at least temporarily. The tension created between immersion and awareness is a key aspect of immersive telematic art, provoking questions about the implications of technology on perception, connection, and the nature of reality itself. Ultimately, while the goal is often to enhance engagement and create a sense of presence, a degree of conscious awareness about the medium's construction may always exist, creating a rich dialogue between the two. Therefore, scientific inquiry often grapples with the definitional clarity of 'presence' itself. The impression of being there provides a widely accepted description of the concept, but 'it does not identify the factors influencing presence nor the exact nature of the experience' (Bouchard *et al.*, 2012, p.228).

The exploration of effectively navigating between the physical and virtual realms within a linear world has been a focal point of inquiry in numerous studies and discussions (Boddington *et al.*, 2021b). An earlier article from Bouchard and other researchers state that these discussions often circle back to the challenge of leveraging our senses in alignment with individual interpretations of distinct experiences (Bouchard *et al.*, 2009, p. 4). Achieving the illusion of presence necessitates integrating multimodal input (visual, auditory, tactile, kinaesthetic, or olfactory) from Virtual Environments (VE) to construct cohesive perceptions, thereby engendering the recognition of the VE as 'real'. Integrating multimodal stimuli into an egocentric reference frame enables users to perceive themselves as situated within the environment.

To conclude, facilitating meaningful artistic expression and fostering connection within telematic spaces hinges upon effective communication among remote participants throughout the creative process. It entails articulating and discerning what translates effectively and what does not through the lens of the camera. If a

performer solely directs their attention towards the screen or camera, it risks alienating the audience in the physical space. Thus, the nuances and intricacies cultivated by performers in remote settings must extend and resonate clearly with both physically present and online spectators.

2.3: Audience Immersion

In conceptualising EPI 2.0, the priority was to devise a novel approach to crafting an immersive performance installation that would captivate the audience, engendering a sense of immediacy and integration within the experience. A recurring challenge observed in prior productions pertained to the positioning of the audience, whereby achieving direct visual engagement between performers proved arduous due to the constraints imposed by the screen, often resulting in performers having their backs turned. This section also delves into alternative methodologies for audience engagement within a telematic milieu, such as Paul Sermon's interactive installation, *Telematic Dreaming* (1992).

Engaging an audience hinges on various factors, including the intrinsic qualities of the work itself, its dramaturgical construction, and the intended objectives of the piece. In traditional performance settings, productions can evoke a spectrum of emotional responses ranging from inspiration and empathy to shock or indignation, contingent upon the nature and intent of the artistic outcomes. In some instances, eliciting adverse reactions may be deliberate by the artists, who seek to provoke specific responses. The performers must effectively convey the creative team's intentions and facilitate emotional connections with the audience. It is commonplace for individuals to react differently to performances, each person undergoing a distinct experiential encounter.

One very early example of a seminal achievement worth mentioning is the Cassandra Project undertaken in 1996, which facilitated the connection of dancers, musicians, and technologists in New York and Vancouver via dial-up connection. Regarded as a significant breakthrough in the attempt to unite performers across different locations in real-time, this project influenced subsequent performances and catalysed further research in the field (Naugle and Crawford, 2014). Analogous to Kaprow's *Happenings*, the Cassandra Project leveraged the connectivity among performers and audience members to introduce what Lisa Naugle termed 'distributive choreography' (Glesner, no date). During these performances, audiences actively engaged through chat rooms to manipulate the dancers' movements, thereby potentially rupturing the fourth wall, aiming to merge the tangible with the digital realm. However, the dancers retained agency, deciding whether to adhere to audience suggestions or to incorporate their artistic input through improvisation. The variability of engaging the audience in hybrid performance spaces presents new challenges in achieving accurate data collection. For example, Jill Dolan's book *Utopia in Performance: Finding Hope at the Theater* (2008) suggests that the complexity of assessing the impact of technologically mediated performances on audiences calls for more cohesive methodologies for reliable and accurate evaluation. Existing metrics often rely heavily on subjective reviews, which may not fully encapsulate diverse perspectives. The advent of social media platforms as well as cloud based sharing software that allow real time digital collaboration (for example: Padlet), have democratised the discourse surrounding feedback, enabling broader participation and contribution of opinions. Dolan's analysis of audiences as participatory spectators, a concept prevalent in telematic performance work, draws upon earlier examples from Kaprow and Naugle. She further implies that in the realm of telematic

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performance, where multiple locations may be interconnected, it becomes essential to consider a singular audience and several distinct ones. Live audiences in physical spaces witness a different rendition of the performance than remote audiences in connected spaces. Additionally, live streaming further complicates audience dynamics, as viewers may access the performance through various mediums. In addition, Giges and Warburton (2010) queried the significance of blending live performance with recorded media, highlighting the intrinsic unpredictability of telematic live performances compared to the more foreseeable nature of recorded media, which can infuse a sense of thrill. Their inquiry into the potential impact of telematic performance on performers and the feasibility of establishing meaningful collaboration between physical and remote counterparts underscores the evolving discourse within the field.

Morris (2017) further elucidated that achieving an authentic relationship to 'real' time and rhythm is a crucial element in fostering genuine connections between performers and audiences. The conventional paradigm that correlates emotional experiences with the internal rhythms of the body, accentuated by sensory stimuli from environmental factors, typically serves as a potent arsenal for the dramatic performer (Morris, 2017). However, transposing this framework into the telematic realm presents inherent challenges, primarily attributable to the earlier issues concerning the unpredictable transmission speed, the infamous by-product of videoconferencing known as 'lag'. This phenomenon significantly disrupts rhythmic synchronicity, impeding the performer's connection to the 'real' by the unwelcome intrusion of artificial technological constraints. It presents a formidable challenge to audience immersion, potentially hindering their ability to engage with a creative work's content fully.

However, I found the most exciting aspect to explore was whether the creative process of integrating multiple art forms and technology into a single cohesive entity (commonly referred to by the German term *Gesamtkunstwerk*) requires an emotional connection to engage audiences effectively. The complexity of creating a *Gesamtkunstwerk* in the telematic space could challenge whether the emotional connection is central to the work or if other factors, such as 'un-art' would be more integral to the art itself. 'Telematic culture means, in short, that we do not think, see, or feel in isolation. Creativity and authorship are shared' (Ascott, 1990, p. 243). Ascott strived to improve the communication between artist and spectator, aiming to create a more fluid dynamic between art and technology: 'As we come to see more, we shall see the computer less and less' (p. 244). He boldly stated that telematic networking would allow artists to engage in a spiritual interchange that could lead to harmonisation and creative development of the whole planet. The works notably shifted to practitioners looking at the art of 'physical' interaction in the blended performance space.

Ascott's theories heavily influenced researchers by noticing 'the hybrid interval between cyber and physical space' and how the 'digitally dry, biologically wet, and spiritually numinous' culminates in telematic described as 'moist art' (Santana, 2015, p.189). Despite Ascott's goal to focus on human interaction and consciousness, his early works created more of an 'un-art' atmosphere for spectators as there was still an evident influence on avant-garde-like images seemingly detached from human emotions. His theoretical publications, however, give vital evidence that his findings on interactive network exchanges built the foundations for understanding behaviour in digital communications, including present social media practice.

Telematic art remains a relatively nascent field within experimental domains rather than commercial spheres. This distinction could conceivably influence audience perceptions and reactions. Typically, individuals attend live performances seeking relaxation, entertainment, educational enrichment, or opportunities for civic engagement. In my opinion, the telematic realm, akin to avant-garde or experimental art, may be viewed as a 'laboratory' for self-indulgence aimed at transcending temporal and spatial constraints. In the immediate context, given the ongoing challenges and unpredictability associated with technology, there appears to be limited commercial feasibility for both audiences and creators. Nonetheless, a societal allure exists toward a spectator-participant dynamic akin to the attraction of social media engagement. This engagement may manifest through active physical involvement or mediated participation via digital platforms, such as online commentary or feedback.

A notable milestone in the evolution of audience immersion in telematic performance emerged with Paul Sermon's installation *Telematic Dreaming* in 1992. A protégé of Ascott, Sermon forged his distinct path within telematic art. The groundbreaking work marked a departure from conventional paradigms, as it introduced a novel interpretation of intimacy, enabling telepresence to transcend traditional boundaries and engender live interaction within an amalgamated space that extended beyond the confines of the screen. Sermon's installation appeared distinguished by its exploration of themes such as presence, absence, and the intricate psychology underlying human interaction facilitated through technologically mediated communication (Sermon, 2000).
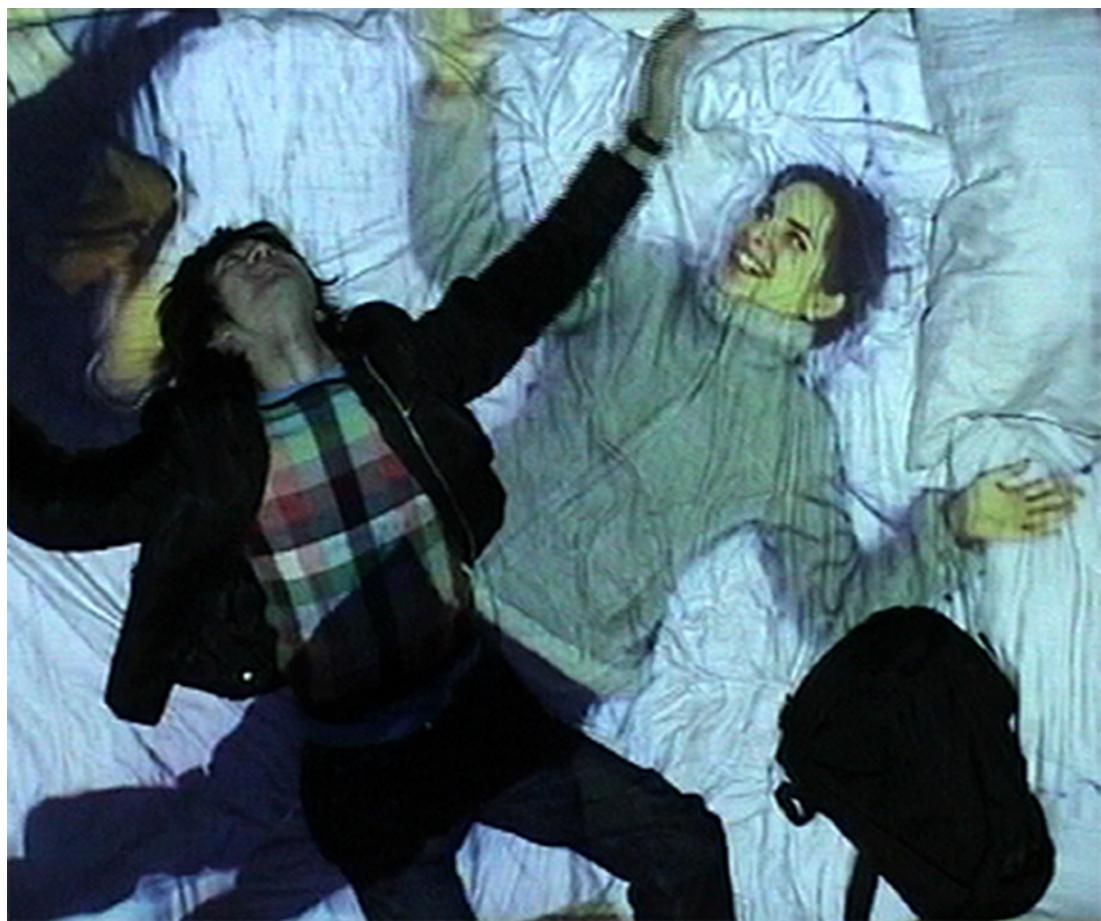
Figure 7: *Telematic Dreaming* Kajaani Finland 1992, University of Brighton, Department of Research and Enterprise (Walder Laso, 2011). Courtesy of Paul Sermon.

The installation heavily relied on active audience participation and a predisposition among viewers to engage in playful interaction. Sermon projected images of remote performers based in Finland onto a pristine bed based in the UK, encouraging individual audience members to interact with their virtual counterparts. Sermon sought to foster novel forms of audience engagement, characterised by open-ended outcomes and unscripted interactions (Wolfensberger, 2008). Subsequent iterations of Sermon's experiments involved the integration of diverse new technologies. Nonetheless, Sermon acknowledged that the latency inherent in earlier works,

attributed to the use of ISDN lines, often contributed to a fascinating phenomenon whereby delayed processing heightened the conscious experience.

When I interviewed Sermon in 2021, he mentioned that achieving the appropriate ratio of individuals depicted in incoming video footage to the sets they were projected onto was a crucial aspect of creating his stage. Through experiments involving camera heights and angles, he embarked on an ongoing exploration of spatiality within the telematic domain, a finding of considerable significance for practitioners in the field. In his subsequent work *Telematic Vision*, audience members found themselves seated on a sofa, joined by life-sized telematic performers projected via video, creating the illusion that these virtual entities were seated on the participants' laps. The immersive experience even escalated into a simulated pillow fight, as depicted in documented film footage (Sermon, 2009). The piece enjoyed multiple exhibitions across various art spaces in numerous countries over a decade, evolving alongside advancements in technological innovation. Sermon's conception suggests that the image displayed on the screen transcends mere presentation, serving as the most unadulterated form of communication occurring in real time (Wolfensberger, 2008).

Sermon's enquiry into exploring interactivity between audience members and performers aided the broader understanding of the immersive experience for audiences. Anna Fenemore (2007) elucidated this phenomenon as the emergence of novel 'behavioural contracts,' signifying an epistemological shift rather than a mere activity whereby actors and audiences become intertwined within a shared virtual stage. She drew upon her first hand experience as a performer in Dixon's and Sermon's production, *Unheimlich,* to formulate a conceptual framework for comprehending the dynamics of relationships forged within digitally mediated and immersive settings. Fenemore conducted exploratory investigations into the

improvisational dynamics of audience participation during her involvement in

Unheimlich's multiple live performances. She suggested that if visual perceptions

were effectively conveyed between performers and spectators, these relationships

could engender 'dynamically and drectionally reversible acts' among participants

(Fenemore, 2007, p. 41).

Central to the piece was the interrogation of concepts such as 'interactivity',

'collaboration', and 'participation' (p. 46), facilitated by the spectatorial engagement

inherent in the performance. By utilising teleconferencing networks to connect two

blue screen studios in Boston and London and incorporating augmented realities via

computer-generated backgrounds, *Unheimlich* sought to stimulate imaginative

dialogue and improvisation among participants and actors in disparate locations.

Fenemore observed that the unpredictable responses of participants often

disrupted the smooth progression of the performances, introducing elements of

complexity. This creative dialogical interaction allowed for individual visual and

cognitive interpretations of meaning without necessarily altering the essence of the

artwork. Fenemore acknowledged the challenges posed by the mediated performance

space, including issues such as time delay, limited physicality, and the disorientation

caused by the reversal of the left-right axis on screen, which expanded the

performance space in unexpected ways (p. 47). Despite these challenges, she aimed to

reframe her understanding of dialogical interaction within the work.

By substituting physical touch with virtual engagement, thereby extending the

body through technological means, productions like *Unheimlich* captivate and

encourage audience participation. Fenemore futher suggests that reflective

interactivity in performance and art is rooted in a reciprocal contract between the

'object' and the 'receiver' rather than emerging solely from postmodernist practices (p. 50).

In conclusion, the telematic space presents an optimal arena for interdisciplinary collaboration and immersive social engagement between performers and audiences. For creators, the novel concept of the extended body in cyberspace is a compelling draw for artists seeking to explore innovative avenues of expression. Especially in the context of a pandemic, providing a secure, socially distanced performance environment that facilitates audience-performer connectivity, fosters self-reflective awareness, and encourages social interaction holds promise as a viable alternative to the conventional theatre space to which we are accustomed.

2.4: Emotional Intelligence in Telematic Performance

Emotional connection within a performance context draws on various literatures to offer diverse perspectives. The investigation into perception theories emphasised the need to become aware of what I refer to as 'new emotional intelligence' in a technologically mediated space. The phrase 'emotional connection' is commonly used in the context of performances within the industry. It refers to 'a constellation of subjective sentiments that form a bond between individuals' (Gladd, 2017). Emotions encompass a spectrum of experiences ranging from positive sensations like joy and tenderness to negative ones like anger and frustration (Gladd, 2017). These emotional responses are primarily triggered by communication, personal experiences, and one's physiological state. However, external factors can also influence and manipulate them, leading to decision-making processes that defy conventional human logic (Pala, 2019). Such manipulative tactics are often employed in focused marketing strategies or by influential figures.

In Performing Arts, emotional connection is a fundamental and ubiquitous mechanism for establishing rapport with other performers, characters, musical compositions, and audiences. For instance, actors are tasked with emotionally engaging with their character's journey and responding to the cues and inputs from fellow collaborators such as directors, fellow actors, and designers (Munro, Pretorius, & Munro, 2008, p. 45).

Peter Salovey and John Mayer initially introduced the term Emotional Intelligence as a psychological concept in their article *Emotional Intelligence*, in the journal *Imagination, Cognition, and Personality* (Orzechowska, 2020). They initially proposed a comprehensive four-stage model of emotional intelligence, which encompasses four critical branches:

1. The ability to accurately perceive emotions in oneself and others.

2. The ability to harness emotions to enhance cognitive processes and decision-making.

3. The ability to comprehend emotions, including the language of emotions and the nuanced signals they convey.

4. The ability to regulate emotions effectively in order to achieve specific objectives (Salovey and Meyer, 1990, pp. 186-200).

This framework highlights the significance of emotional intelligence in both personal and interpersonal contexts, suggesting that our emotional skills play a crucial role in navigating complex social situations. They added to the discussion with the following important findings: 'What differentiates EI from the "personal" intelligences is that EI does not focus on a general sense of self and the appraisal of others- rather, it is

focused on recognising and using the emotional states of the self and others in order to solve problems and regulate behaviour' (Craig, 2019).

Munro, Pretorius and Munro, (2008) further distinguish the terminology between emotional intelligence and emotional creativity, suggesting that the latter can offer evidence of an individual's capability to employ diverse emotional regulatory strategies. They imply that 'an individual exhibiting high emotional creativity experiences a life enriched with intricate emotional encounters, resulting in a broader spectrum of emotions and blends thereof' (p. 57). The concept of emotional intelligence underscores the aptitude to navigate and address emotional complexities effectively. Furthermore, 'emotional creativity entails the capacity to deviate from conventional norms and generate novel emotional responses' (*ibid*). In contrast, my choice of staging for EPI 2.0 intentionally challenged performers' traditional cognitive connections through multiscreen positioning. This set-up prevented performers from responding to audio-visual cues and physical signals from one another, as I will demonstrate in Chapter 4. The approach prompted a deeper exploration of what emotional intelligence means in a performance setting.

Roy Ascott challenges this assertion by further questioning whether using machines in telematic art might result in the 'erasure of human content and values' (Ascott, 1990, p. 241). He was among the first to scrutinise the concept of emotional intelligence within the domain of telematic art. Ascott further posited that the sensory output of the screen necessitates active interpretation by the viewer to derive meaning. Ascott is one of the few authors to recognise the imperative for 'a re-description of human consciousness as it emerges from the developing symbiosis of the human mind and the artificial thought of parallel distributed processing' (Ascott, 1990, p. 242). Telematic performance often embodies a playful essence, with

technology as a conduit for enabling collaboration and interaction across distances. Mills (2014), for instance, observed that in tele-improvised music, social interaction and presence hold relatively less significance than other forms of online collaborations. Therefore, it becomes imperative to reframe the concept of emotional intelligence within varied disciplinary contexts and adjust its definition accordingly.

In contrast, Kris Paulsen's theoretical framework regarding the 'here/there' dynamic examines the interface between different linearities inherent in digital and physical spaces. She posits that actions lacking embodied feedback can pose challenges and result in a void of epistemological and existential validation (Paulsen, 2017). When considering ethical engagements with mediated entities and objects in telematic environments, 'telepresence technologies often undermine the fundamental phenomenological aspects of sensory reciprocity' (pp. 21-22). The concept is further elucidated by Palusius (2017), who asserts that 'the capacity to regulate emotion is intricately linked to the ability to comprehend, undergo, and articulate emotions' (p. 3).

Emotional connections and understanding of both people and objects are largely influenced by our five senses: hearing, sight, touch, smell, and taste. These senses help shape how we experience and relate to the world around us, with the latter two being potentially more challenging to replicate in virtual spaces. Genuine emotions typically arise as responsive reactions, such as a driver warning a pedestrian to clear a pathway. In such a scenario, the vocal tone and accompanying gestures conveying urgency likely elicit a flight response in the pedestrian, activating their nervous system to prompt action (Paulsen, 2017, p. 15). This activation serves as an indicator of a genuine connection to the object.

Ian Burkitt's book *Emotions and Social Relations* (2014) refers to the concept of the world being a stage where individuals adhere to social norms that trigger expressive behaviour (p. 18). Burkitt further suggests that the dramaturgical metaphor of social life is confined to the immediacy of social encounters within the present moment, particularly evident in formal settings or professional environments. Emotions in such contexts are often meticulously managed through controlled gestures and vocal intonations, sometimes employed to conceal or exaggerate reality. However, a distinction exists between one's public and private personas. In private realms, emotions tend to be more profound and complex, influenced by intricate interpersonal dynamics that extend beyond immediate social interactions and can have enduring consequences. The dichotomy between authentic and feigned emotions underscores an ongoing debate among theorists regarding the ownership of emotions, with some arguing for their exclusive residence within the individual (Burkitt, 2014). Emotions are biological mechanisms that prepare our bodies for physical and imagined actions and reactions. The habitual adherence to social norms and the accumulation of life experiences form the foundation upon which performers develop emotional reflexivity. It is further reflected through Paulsen's research who delves into the concept of 'physical connection' in telematic art, particularly highlighting the prevalent use of 'touch' within spaces where bodies are fragmented and dispersed, existing simultaneously everywhere and nowhere (Paulsen, 2017, p. 8). While physical bodies may be unable to connect tangibly in this context, the amalgamation of minds facilitated by networked machinery allows for a presence across multiple locations. Therefore, telematic performance concepts challenge traditional boundaries of physical intervention, potentially leading to an enhanced perception of emotions among both performers and audiences and the construction

of new truths and realities within performance settings. Similarly, Papacharissi and Gibson suggest that contemporary intermediality blurs the distinction between private and public realms. As social platforms become ubiquitous in Western societies, individuals frequently engage in performative acts for audiences that exist in neither strictly public nor entirely private spheres (Papacharissi and Gibson, 2011).

Technological advancements are changing social norms and requiring a re-evaluation of communication and interaction practices. For example, comparing a conference conducted via Skype to an in-person meeting highlights the differences in social dynamics due to the absence of physical proximity. Digital interactions lack sensory cues such as touch and smell, relying heavily on auditory and visual stimuli. Unlike physical encounters, which often involve gestures like hugs or handshakes, online interactions depend more on visual signals for effective coordination of dialogue, leading to the emergence of what Papacharissi and Gibson call 'social intimacy' (2011). According to Paulsen (2017), emotions arise from a harmonious disturbance triggered by various elements, with emotion being both a hypothetical inference and a sensuous element of thought. Paulsen's research does not view the digital revolution as eroding identity and authenticity but rather challenges the notion of defining meaning in true identities.

It is widely believed that 'liveness' is crucial to any performance (Chatzichristodoulou, 2011). For instance, live music performances involve physical interactions among musicians, such as the conductor's emotive gestures, band members' nonverbal communication, and connections between instrumentalists and their instruments. While Mills (2014) suggests that performative interactions are rooted in interpretation rather than communication, Renaud, Carôt, and Rebelo

(2007) express concerns regarding the absence of natural visual and sensory cues in networked performance systems. They argue that these contextual cues, including breathing and gestures, are vital for effective interaction, particularly in systems relying solely on sound. For example, due to the set-up, I used for EPI 2.0 with screens and cameras angled in different directions, I had to add specific visual cues addressed to the screen actors so they could respond.

To clarify, emotions play a crucial role in how we engage with these new forms of communication. They arise from a mix of cognitive understanding and physical sensations, suggesting that our feelings are shaped not just by what we think but also by what we experience through our senses. Consequently, our emotional responses can influence our judgments and interpretations of our experiences. Rather than viewing the rise of digital communication as a threat to our identities and authenticity, research indicates that it offers a platform to redefine how we understand our true selves. Hence, in live performances, the element of 'liveness' is not only essential, but crucial. Live events enable direct physical interactions among artists and audiences, which enhance the emotional connection and communication between them. While some theories focus on performance being about interpretation rather than straightforward communication, there are concerns that the lack of natural visual and sensory cues in digital performances can hinder meaningful interaction. Without these contextual elements- like body language and breath- online performances may struggle to capture the richness of live experiences, especially in formats that rely solely on sound.

Visual presence is crucial in driving tempo, rhythm, and dynamic articulation to create a multifaceted audience experience (Robinson and Hatten, 2012), thus impacting on the notion of emotional intelligence. As Robinson and Hatten describe,

musical gestures convey affective motion, emotion, and agency by integrating separate elements into cohesive continuities of shape and force. While this is true for most creative collaborations in non-mediated live performances, the absence of natural visual and sensory cues in networked performance systems poses significant challenges to interaction and emotional expression. Performative roles and actions face challenges establishing clear reference points within geographically displaced settings. Musicians, accustomed to relying on a multi-modal performance structure encompassing auditory, visual, and proprioceptive elements, may need to emphasise auditory cues more prominently, depending on the nature of the project. This observation confirms the notion that networked performance or online social interaction constrains the utilisation of senses, albeit potentially amplifying the significance and role of both auditory and visual stimuli.

To conclude, understanding the emotional intelligence involved in technical, cultural, and social contexts in telematic performance is crucial for establishing a new framework for both artistic creation and scholarly inquiry. Recognising the emotional nuances of collaboration across distances can enhance the depth and resonance of performances. However, it is essential to acknowledge that the evolution of technology was not specifically aimed at fostering emotional connections in performance; rather, it emerged as a result of inevitable technological advancements and the changing dynamics of social interaction in the digital age. It highlights the need for artists to intentionally cultivate emotional awareness and empathy in their telematic work, creating more meaningful and engaging experiences.

2.5: Zoom Theatre and Case Studies During a Pandemic

The onset of the COVID-19 pandemic prompted many artists to transition their creative collaborations to various forms of telematic platforms. With physical performance spaces rendered inaccessible due to reinforced social distancing measures and temporary closures, a surge of interest emerged in telematic art forms, often colloquially termed 'Zoom Theatre'. This shift spurred innovation as artists adapted to new site-specific performance platforms. In March 2020, the Zoom software, although still rudimentary and lacking in sophistication compared to its current capabilities, presented many novel prospects for remote collaboration. Over two years, like numerous other educators and artists, I was restricted to conducting teaching sessions, holding meetings, and primarily engaging in creative collaborations through the Zoom platform. The prolonged exposure ultimately afforded me the necessary groundwork to grasp the technological intricacies and configurations I sought to implement for EPI 2.0.

However, some of the Zoom Theatre creations during the pandemic frequently confined performers to a predominantly one-dimensional mode of communication, manifesting as faces arranged in grid-like squares (Minns and Mourad, 2020). While serving as a necessary medium for sustaining artistic engagement amidst challenging circumstances, Zoom Theatre was often criticised for its lack of creative complexity compared to other forms of telematic art. Theatre critic Peter Marks, for instance, heavily critiqued productions on Zoom, characterising them as ranging from tolerable to subpar due to the absence of sophisticated technological set-ups and a failure to harness the potential of this novel performance space effectively:

Now that even breath is a potential health hazard, we crave a different method

of connecting to our beloved performing art. But theatre reduced to three or

four camera angles and beamed into a laptop is something else (Marks, 2020).

One could posit that platforms like Zoom are convenient operating systems for

collaborative efforts and rehearsal procedures due to their widespread accessibility.

Nevertheless, the emergence of virtual interaction prompts profound discussions

regarding the significance of physical contact and the attendant challenges it entails.

The digital movement within the arts during the last couple of decades has naturally

evolved along with the landscape of telematic geographies, challenging society as a

whole, particularly in terms of identity, inter-relational and social interaction (Ars

Electronica: *Festival for Art,* 2020). Established telematic artists such as Paul Sermon

reacted to the COVID-19 pandemic by bringing out new experimental concepts of

blending virtual worlds and distant spaces enhanced by computer animations.

Telematic Quarantine is a great example of a layered video environment and

experience of domesticity, fantasy and dream in COVID-19 times (Sermon, 2020).

Typically for Sermon, he uses videoconferencing technologies with green screen

methods in order to create a sense of togetherness for audiences and performers,

moving away from 'the constraints of chat windows we have become accustomed to'

(Sermon, 2021). The immersive nature of Sermon's work creates a visual illusion of

'togetherness' that is very different from the Zoom Theatre making a lot of people

have become accustomed to. The need for physical connection within the virtual has

provided a plethora of new works, allowing rich discussions and new explorations.

Hence this provided me with the opportunity to engage in the subsequent case

studies described below. These observations and experiences gave me new insights

into the possibilities of the telematic realm, cultivating new insights through experimenting with online theatre during the quarantine restrictions in 2020 and 2021.The experience deepened my comprehension of theoretical frameworks pertinent to embodied practice, particularly during periods when I was unable to fully engage with the research initially proposed for my thesis. While the examples below were not exhaustive of my participation and audience experience within the hybrid space, they were particularly salient in unveiling new potentialities and prospects in the digital realm. These events diverged significantly from my prior encounters with telematic performances, enriching my comprehension of emotional intelligence from various angles, unveiling potential designs for online immersive experiences, and elucidating shifts in behaviour and relationships within hybrid spaces. They encompassed the discovery of presence through an 'online séance' in Distant Feelings, watching Chicks on Speed in their All Women Jam Session during the Ars Electronica Conference 2020; participation in Debaig's workshop Remote Intimacy during lockdown, and involvement in Generation 200 as a featured participant influencing the narrative through articulating my vision for the future and voting for outcomes, and participation in an online workshop exploring 'Remote Intimacy'.

2.5.1: *Distant Feelings*

The initial iterations of *Distant Feelings* involved only the three creators Annie Abrahams, Daniel Pinheiro, Lisa Parre and were initially staged on Zoom way before it gained momentum during the COVID-19 pandemic, in October 2015, with the event live-streamed for external audiences. Over time, it became an annual event which garnered a devoted following, with many participants returning every year.

Abrahams provided more instructions in the earlier iterations, prompting

participants to move closer or further from the camera or lean in different directions.

In contrast, later iterations emphasised the stimulus of the compressed

soundscape through silence that permeated the experience. The eighth instalment of

the event occurred on December 20th, 2020, at 6 pm CET, attracting approximately

35 participants from across the globe, myself included, for a 15-minute session.

Participants were instructed to keep their cameras and microphones on, closing their

eyes while focusing on the space and the connection through the interface to one

another. After participating, I reviewed existing recordings of previous meetings on

Abrahams' website, where content, audience feedback, and observations were

shared. The objective of apprehending the energy flow between bodies and

experiencing space collectively resulted in a somewhat peculiar yet positively

relaxing encounter. As described by Abrahams (2020), 'while the performers, during

a session, go more and more into a liminal space of 'being together,' the audience is

invited to observe this silent process of concentration, allowing an intimate 'regard'

on faces slowly reaching a gesture'. Throughout the experiment, I experienced a

peculiar sense of togetherness, preparing to connect emotionally with individuals on

the Zoom screen. My imagination ran rampant, envisioning how my sentiments

traversed through computer wires, cyberspace, interfaces, and digital transmission

waves to reach participants' locations worldwide. The process was sporadically

interrupted by ambient noises, such as participants' breaths, coughs, and external

sounds like passing cars. As articulated by Abrahams *et al.* 'imagination replaces the

secondary signs of communication, and these have to be processed for usefulness'

(2020). Video conferencing proved to be psychologically demanding, necessitating

the brain to reconcile the self as both body and image. Audience responses varied,

with some participants interpreting the noise as a poignant reminder of the ongoing COVID-19 pandemic, evoking an atmosphere of melancholy. In contrast, others perceived the experience as an exploration of expansive open space rather than interpersonal relationships. Below is a screenshot from the session in which I participated (I am depicted in the bottom tile on the right):

Figure 8: *Distant Feelings #8* (Abrahams, 2020). Screenshot of YouTube starting page.

The encounter markedly deviated from any prior engagements I had witnessed, crafted, or participated in, instigating a reorientation of my ruminations on the subject and deepening my comprehension of the challenges posed by embodiment in virtual spaces. The event emphasised the experiential aspect of togetherness rather than complex artistic directives, highlighting connections to theories of extra-sensory perception and broader communication issues.

The amalgamation of practical engagement with insights gleaned from an interview with Abrahams' engendered fresh understandings of how the digital realm can be construed and leveraged within immersive performance contexts, furnishing a

foundation for the discourse on cognitive theories that provided a foundation for creating the immersive installation EPI 2.0.

Engaging with Abrahams' work fostered my realisation that emotions need not invariably occupy the foreground to establish a profound experience. The gallery style approach provided further inspiration for EPI 2.0.

2.5.2: *Chicks on Speed*

The emergence of Zoom theatre during the pandemic significantly influenced my reassessment of the norms and potentials within the hybrid performance realm. Apart from my participation in performances, observations of examples by new collaborations coming out of lockdown influenced my research. One notable example that enriched my understanding of immersive online collaboration was Alexandra Murray-Leslie's Chicks on Speed, featuring the *All Women's Jam Session* on Zoom.

The *All Women's Jam Session* offered intriguing insights into the creative process, unveiling the unpredictable nature of the resulting creations, which culminated in a complex and stimulating audio-visual installation reminiscent of avant-garde artistry. These sessions, showcased at the Ars Electronica 2020 Conference, revealed pioneering practices in telematic art, challenging established conventions and traditions in performance practice. Noteworthy among these sessions were compositions that delved into feminist theories, charting new trajectories for collaborative digital performance. Each session served as a real-time telematic music score, offering a unique and ephemeral experience, showing a:

contrast between the performative aspects of the work, and its video-electronic shape between existence and simulation, with a digested digital

universe to transmitting positive ideas and possible methodologies to address

creatively our current social challenges (Ars Electronica: *Festival for Art,*

2020).

In contrast to Abrahams' *Distant Feelings,* where the connection among performers

primarily stemmed from their collective immersion in a shared digital space, the *All*

Women's Jam Session showcased a different mode of collaboration. Here,

collaborators interlinked their audio-visual creations to facilitate the spontaneous

emergence of music compositions and movements in response to each other's

contributions. Despite the apparent randomness of the compositions, a palpable

sense of connectedness pervaded the virtual environment. The fluidity of the

performance differed markedly from a live studio jam session, primarily due to the

presence of various forms of latency. However, rather than impeding the project, this

latency, in my opinion, accentuated the awareness of real-time disparities among

participants across different time zones.

The samples presented during the festival vividly illustrated how participating

artists leveraged their audio-visual faculties to react to stimuli transmitted through

live feeds. While intimacy among participants may have appeared less central to the

piece, a sense of connection was nevertheless forged through the collective act of

crafting distinct personalities and identities within the digital space. The sonic

landscape was crafted through a blend of traditional instruments, homemade devices,

and unconventional objects such as tennis rackets and cups, with sound generated by

bodily movements. Visual elements ranged from depictions of real-world spaces to

abstract virtual art, including backgrounds and avatars. Notably, the jam sessions

introduced novel homemade and custom-made instruments, termed by Murray-

Lesley as virtual or object instruments, contributing to the innovative spirit of the
collaborative endeavour.

Figure 9: Ars Electronica: *Festival for Art* (2020) Screenshot at 22:46 mins.

Originally, the work influenced some early ideas of how musicians could be
integrated into EPI 2.0; however, I decided to omit this plan as it may have distracted
from the narrative of the piece. Nonetheless, it influenced my research on the notion
of metaversing, which I discuss in Chapter 5.

2.5.3: *Remote Intimacy*

Remote Intimacy comprised a series of online workshops conducted via split screen
webinar software specifically developed by Debaig. Her stimulus to develop this
technology evolved from a central desire on exploring 'our desperate need for
touching and hugging while being miles apart' (Debaig, 2021a). The workshops
commenced with participants learning a series of movements, which were
subsequently recorded via their personal webcams onto a separate website. To

synchronise the movements of participants in real-time, a software application was employed to manage the timing of the sequences, providing visual cues in the form of human body outlines, arrows, and lines for participants to follow. The initial segment of the workshop emphasised facial expressions, while the subsequent section encompassed movements of the entire body. The overarching objective of the workshop was to cultivate a sense of togetherness within the virtual space, despite participants being dispersed across different geographical locations.

An early phase of the workshop involved pairs of participants engaging in improvisational exercises via split-screen interfaces, following the principles of the Mirror Game commonly employed in Performing Arts. This game entails participants mirroring and attempting to synchronise each other's movements. Beyond the enjoyment derived from the workshop activities, I was particularly struck by the refined end product, accessible in its entirety on Debaig's Instagram page (Debaig, 2021a). The accompanying image portrays a composite of my own facial and bodily image merged with that of another performer.
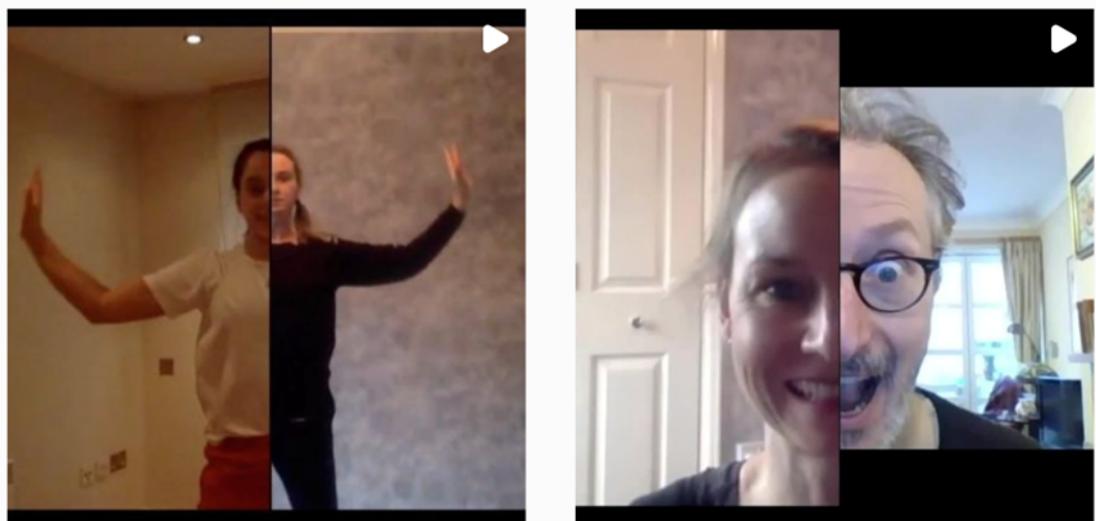
Figure 10: *Remote Intimacy* Workshop (Debaig, 2020).

In common with much telematic performance experimentation, technical challenges arose due to the diverse locations and network infrastructures of participants, leading to occasional issues with lag that hindered seamless synchronicity of movements. Nonetheless, these challenges provided an intriguing opportunity to explore the capabilities of emerging technologies. The emphasis of the experiments was primarily on refining the execution of movements to facilitate the fusion of two bodies into one composite image. Subsequently, Debaig has expanded upon the concept, producing a more polished rendition in collaboration with a dancer based in New York whilst she connected from London, making the final product of Remote Intimacy a public facing online performance.

Debaig is on the forefront of developing wearable technologies that simulate a sense of touch, one of the most difficult technologies to realise in a hybrid collaborative space. *Remote Intimacy* is a well-constructed remote collaboration attempting to close the gap between distant performers (Winship, 2021). The piece shows the performers based in London and New York seemingly attempting to touch in a visually very real picture frame merging the imagery to give the impression of sharing the same room. Debaig mentioned during the interview that the work is one that she was most proud of.

Figure 11: *Remote Intimacy* by Unwired Dance Theatre (Debaig, 2021a). Courtesy of Clemence Debaig.

The exploration of such tools holds potential for diverse applications and has deepened my understanding of how the integration of new software can both disrupt established conventions and expand possibilities within the realms of digital space and multimedia performance. For example, I used the concept of the split by screen dancers for EPI 2.0, however, I used a live performer in the room to respond to the on screen character, embodying and interpreting the text through choreography and spontaneous movements.

2.5.4: *Generation 200*

Marina Hanganu has led several research projects in the domain of telematic performance. Furthermore, she initiated the *Tele-Encounters*: Telepresence and Migration International Symposium mentioned earlier, which was significant for the telematic community. Her work focuses, in particular, on the dramaturgy of telematic performance designs. In 2019, she collaborated with the Creative Europe Programme in a co-funded production called *Planet of the Lost Dreams,* produced through an

artistic research platform called Tele-encounters. The project has taken a new lead in creating an artistic and sociological concept exploring telepresence and family relationships (Hanganu, 2019). The performance collaboration provides an example of a co-funded production between Teatrul George Ciprian in Buzau, Romania, UCAM University in Murcia, Spain, and Municipio de Lousada in Portugal, which received a substantial artistic grant from the Creative Europe Programme. The project involved multi-dimensional spaces connected via videoconferencing and Kinect-controlled animations in Spain and Romania. The plot is based on realistic dramatic art, and the directions in the piece demonstrate the use of traditional acting methodologies such as realism. During the pandemic, she showcased new and innovative approaches to online performance creation, giving me many ideas on how Zoom could be used effectively to create immersive online audience participation. Hanganu's work and her organisation of international conferences and seminars significantly contribute to the broader discourse on telematic performance. Her work epitomises forward-thinking practices, demonstrating various practices suitable for hybrid and online environments. *Generation 200* was created when 'telematic performances reliant on proximal audiences have become challenging or unfeasible during the pandemic, while performances conducted exclusively online have flourished' (Hanganu, 2020).

The performance took place on October 2nd, 2020, as a Zoom webinar, aiming to explore the potentialities of performance creation for an immersive audience experience, using Zoom as a platform. The format leveraged Zoom's webinar function, transitioning between gallery view and 'pinning' specific participants. Structurally, the piece revolved around the narrative of one actress and incorporated audience participation through voting buttons and brief surveys. Centred on the theme of ageing, the show posed questions such as 'What if ageing were no longer an issue?

Should researchers seek the 'cure' for this process? What would humanity resemble?'
(George Ciprian Theatre, 2020). *Generation 200* was marketed as 'an online theatrical
game for a geographically dispersed international audience' (George Ciprian Theatre,
2020).

I voluntarily assumed one of the six featured roles, portraying a 'Futurist,' which
entailed responding to inquiries about potential future scenarios. The role allowed
attiring oneself as a futuristic character, with cameras required to remain on
throughout the performance, although microphones remained muted as no verbal
communication was involved. Audience members, designated as 'World Builders',
could participate through voting and chatting via the integrated multiple-choice
game. The lead actress was the host and narrator, outlining a speculative future
vision. As a featured participant, our Zoom windows were periodically highlighted in
tandem with the narrative, with the plot further propelled by interactive voting,
influencing the actress's responses and altering the potential trajectory of the
storyline. While audience intervention has long been employed as a dramaturgical
device in traditional theatre, this was my inaugural experience of such dynamics
within a performance utilising video conferencing software.

Figure 12: *Generation 200* (George Ciprian Theatre, 2020). Courtesy of Marina Hanganu.

During this particular piece, I found myself more engrossed in the actions and utterances of the actress than in those of my fellow featured participants. I found the chat function somewhat distracting during the performance, as some messages veered into casual banter, diverting attention from the core narrative. Nonetheless, it was an exciting experience, offering a welcome reprieve amidst the heightened screen fatigue prevalent during the pandemic. I was initially sceptical of Zoom Theatre and its propensity for storytelling through grid-like arrangements. However, Hanganu's adept integration of active participation imbued the experience with a

heightened sense of immersion, transcending passivity. Observations of the project

contributed to discerning potential trajectories for the evolution of telematic art, as

elucidated in my attempt at the virtual immersive installation EPI 2.0. I realised there

could be a new structure of immersive space where Zoom tiles could be separated

into different screens. It gave me the idea of the art gallery style for EPI 2.0, where the

audience and performers, both embodied and on screen could mingle, giving

telematic performance a new dimension.

2.6: Hybrid Rehearsals

Telematic rehearsal gained popularity even before the pandemic, largely due to the

cost and time savings it offers companies. A prominent illustration of telematic

rehearsal collaboration within theatrical practice is evident in the Royal Shakespeare

Company's 2016 tour production of *A Midsummer Night's Dream,* which engaged over

600 amateur actors across the nation. Rehearsals with local groups were conducted

remotely via Skype prior to their convergence at various performance venues (Clark,

2015). The adoption of technology in this endeavour alleviated logistical challenges

that would have otherwise rendered such a large-scale project impractical, if not

prohibitive, necessitating the dispatch of a rehearsal director to each location—a

venture both costly and time-consuming. However, the utilisation of interconnected

performance collaboration extends beyond mere rehearsal facilitation. The

accessibility and seamlessness afforded by modern connectivity have enabled artists

to delve into more intricate applications of data processing equipment, culminating in

the popularisation of terms such as Networked Telematic Live performance

collaboration and/or creation.

Yet, it is noteworthy that telematic and telepresence research predominantly occurs within academic institutions, particularly universities. The rehearsal process within the telematic performance domain necessitated extensive experimentation, which significantly contributed to shaping my practice. Additionally, my initial experiences creating performance work in mediated spaces between 2013 and 2017 enriched my understanding of behaviour, communication, and audio-visual challenges. These prompted a deeper exploration into how digitally connected spaces can effectively serve as rehearsal, teaching and learning as well as performance environments. In my capacity as a lecturer, I continued to integrate concepts of intermediality in my lectures experimenting with hybrid creative contexts, particularly during the COVID-19 pandemic.

The integration of digital media in dance and musical theatre programs challenged students' perceptions and understanding of rehearsal processes. Observations within a digital educational space confirmed that intermedial connections have the potential to alter emotional intelligence, awareness, and attitudes toward performance creation outside traditional environments. Engaging in daily online teaching while actively seeking to foster meaningful and effective collaboration within such a mediated teaching space, provided valuable insights into both the potentials and pitfalls of these environments for creation. For example, Braddock and Webb (2018, p. 329) posit that engagement in online social performance art practices fosters reflection on how new methodologies are shaped by, and reciprocally shape philosophical considerations regarding the ethics of listening, communicating, and interpersonal relationships in the world. It was challenging to design a spectrum of creative sessions that would engage participants. The insights gleaned from these experiences informed my practice surrounding the study, primarily revolving around

the efficacy of webcams in capturing actions and reactions, the cultivation of dynamic relationships within online rehearsal settings, and the imperative need to harness these dynamics to invigorate creative processes. These challenges resonate closely with the multifaceted responsibilities educators encountered amidst the exigencies of the times. Immersion into telematic spaces underscored the pivotal role of concepts such as engagement, relationality, and audience reception in shaping meaningful educational content, echoing the sentiments articulated by Fowler and Mayes (1997). These include salient issues pertaining to spatial constraints (e.g., camera angles, focal points, movement restrictions), latency concerns (e.g., audio-visual synchronization, communication efficacy, musical accompaniment), and audience considerations (e.g., target demographic, virtual audience dynamics, perceptual nuances). These considerations are now a more familiar territory to both educators and performance practitioners. However, my pedagogical engagements with undergraduate students in online and blended learning environments, provided nuanced insights into audience/participant perspectives from diverse vantage points.

The convergence of physical and virtual realms presents opportunities for novel artistic creation, exemplified by pioneering endeavours such as Station House Opera's groundbreaking work mentioned in the introduction. Additionally, observation of Gorman's rehearsal methodologies in an educational academic setting offered invaluable insights into the practical exigencies of telematic rehearsal processes, thereby informing the conceptualisation of EPI 2.0's design.

Gorman's work exemplifies the profound impact of cultural and artistic partnerships on undergraduate curricula, epitomising international collaboration through engaging rehearsal and creation processes. Despite acknowledging the inherent challenges of online learning in performing arts disciplines, Gorman has

emerged as a distinguished practitioner in the field, boasting a portfolio of notably successful telematic performance works. The work facilitated through Nimbra Media Server Technology and Polycom Videoconferencing involved various groups of students from Coventry University and the University of Tampere in Finland, spanning several years. During our interview he described how easy it was for some actors to find a certain chemistry and playfulness, who were not fazed at all by the presence of the screen, camera, technology etc. For Gorman it was important that a personal connection and drive to learn from each other's cultures was well established before and throughout the rehearsal process (Gorman, 2020b). He further insisted that it is imperative that the technological medium is only there to enable people to work across a distance, but the processes of artistic collaboration, rehearsal and performance should be guided by the same principles as those traditionally practised in the theatrical space. The social aspects of getting together and finding that downtime, for example sharing a coffee break during rehearsal or a drink afterwards, were factored into his processes. This allowed more space for casual chats to 'break the ice', thus creating a stronger rapport between the actors on both sides.

Alongside his peers, Gorman has highlighted the impediments posed by current technologies in establishing the collaborative dynamics requisite for a flourishing performance ensemble (Gorman, Syrja, & Kanninen, 2019). One such challenge lies in accommodating larger group sizes within a telematic educational model, owing to constraints related to camera angles and screen space limitations, which often compromise visual fidelity and resolution (Gorman, 2020b). Nevertheless, the advantages of fostering a more economical and sustainable educational model,

facilitating international student interaction while mitigating environmental impact, far outweigh these challenges (Gorman, Syrja, & Kanninen, 2019).

Gorman advocates for immersive telepresence as a promising solution for long-distance rehearsals, one that duly recognises the pivotal role of spatial dynamics and human interaction in fostering effective learning environments. Central to this approach is the adept integration of technology as a facilitative tool, enhancing meaningful personal engagement between students, lecturers, and practitioners (Gorman, Syrja, & Kanninen, 2019). Nonetheless, achieving synchronicity in spatial interaction remains a primary concern within the realm of three-dimensional telematic. While minor delays may be tolerable during the rehearsal process, simultaneous speech and movement often impede the attainment of realism in performance, thereby necessitating innovative new strategies (Gorman, 2020b).

Gorman's collaborations have yielded invaluable insights into cultural exchange and textual interpretation, particularly evident in early experiments with Tampere University, where Finnish staff and students engaged in Shakespearean texts within the context of a second language. Emphasising realism, the collaborators integrated virtual social interactions, such as coffee breaks and post-rehearsal gatherings, fostering an environment conducive to student autonomy and ownership of the rehearsal process (Gorman, 2020b). Furthermore, the cultivation of digital literacy and awareness among students underscores the transformative potential of networked performance practices in fostering globally competent graduates, aligning with contemporary educational imperatives (Gorman, Syrja, & Kanninen, 2019).

While not new, articles documenting telematic student performances have long existed, with qualitative feedback often attesting to the profound impact of such experiments in expanding students' horizons and unlocking untapped potentials

(Deal, 2006). Blended delivery models, incorporating both live and virtual teaching spaces, have become ubiquitous in university settings, offering a cost-effective means to broaden the accessibility of courses. However, as Dresser aptly notes in his essay 'Tele-social Music Making', the establishment of such dialogue is seldom a straightforward 'plug and play' process (Dresser, 2006). He emphasises that these practices are often driven by rich art-making concepts. Echoing Dresser's sentiment, Gorman and others confirm the importance of maintaining a sense of 'liveness' within digitally blended spaces, where technology should serve as a facilitator rather than overshadowing the interpersonal dynamics between performers and audiences. It is imperative to view technology as a means to foster international collaborations irrespective of physical barriers.

One challenge of integrating technology into education, rehearsal, and performance processes is the reliance on seamless functioning. As Caroline Wake points out, any disruption, such as a power outage, can lead to significant difficulties in course delivery (Wake, 2018). Nevertheless, the advantages of developing digital collaborations far outweigh the associated risks. Wake further commends the noteworthy contributions of practitioners and educators like Gorman and Prior, acknowledging their work as both striking and captivating. However, she also acknowledges the limitations of a labour-intensive and technologically intricate model, particularly in regions with inadequate infrastructure. Consequently, Wake advocates for further experimentation, research publications, and collaborations to refine telematic performance mechanisms, ultimately aiming to decolonise theatre and performance studies and foster a sustainable model accessible to all institutions and nations, including those facing socio-economic challenges. Notably, there exists a

gap in the literature regarding effective strategies to address these issues, a topic that warrants deeper exploration in the forthcoming analysis in Chapter 5.

2.7 Intitial Conclusions

Technology allows for a new dimension of play and can add further angles to the work by becoming the object that instigates the playfulness of participants. However, technology can be 'clunky' and distract. Traditionally, performers build relationships through physical signals such as body language, gestures, response, touch and general communication. This is further driven and influenced by text or music, choreography, director's intentions etc., which usually trigger responses from collaborators. The distraction of technological mediums such as computers and cameras is not something that can be underestimated. I describe this being 'the third wheel in a relationship'; a preposterous polyamory that could jeopardise the original relationship through its complexity and demands, but the temperament may be controlled to become less of a diversion and interference. The randomness of online gatherings such as *Distant Feelings* or *All Women's Jam Session* are potentially less likely to be burdened directly by the absence of physical presence due to the improvisational nature of the work. The quest to find a connection through the varying distances of performers and channelling the performance energy through webcams, laptops, computers, networks, linking people through cyberspace makes the environment possibly more susceptible to become slightly more chaotic, misinterpreted, and potentially fake. However, the question arises here as to why we are doing this – to seek togetherness without having to commit to the somatic presence of the body, to be freed of the awkward side of visceral corporeality? Experiencing *Distant Feelings* made it clear that the digital medium plays an

important and integral part of the gathering: the physical distance becoming the driver of the plot and the stimulus that challenges the train of thought. There would simply be less of a point if people were practising this connection in the same room.

The same could be noted for *All Women's Jam Session*, where certain sections clearly focused on challenging a 'call and response' model that is commonly used in music performance improvisation. The eclectic mix of electronic instruments, homemade devices or bodies as the instrument exalts the digital medium as the machine that coordinates the deliberate pandemonium, creating the 'anti-art' brought on by artistic concepts such as the Fluxus Movement, which Murray-Lesley clearly based her work on. As mentioned in Benski and Fisher (2013), the relationship between emotion involving the various modes of technology needs further investigation, but it is also noted that 'everyday more and more people develop a wide-ranging repertoire of digital emotional practices' (p. 131).

There are, however, some important differences in behaviour to be recognised depending on the style of the performance. The recently more common practice of Zoom Theatre is often based on much more improvisational styles and the nature of the work as noted further above, can be more random, and sometimes even rather chaotic in comparison to works that involved just two or three physical companies connected via a single webcam in each space. The work by Gorman, whose intention is to produce traditional theatre plays in a telematic environment, tries to mimic a creative process that is very close to more conventional theatre making practice despite the hybrid set-up between performers. Gorman's work won several awards for innovative practice in education and internationalisation, which he effectively achieved through his integration of telepresence in a Higher Education setting. He clearly aims to reciprocate the cast's connection to each other across the screen, like

they are in the same room, to find the same playfulness within a rehearsal process (Gorman, 2020b). For Gorman, the people participating in the process, aka cast and creatives, are the real focal points within his work, and technology is purely a means to make it happen. He is very aware that this is not necessarily the intention of all telepresence researchers or research institutions: 'There is a big shift towards the digital in certain academic institutions, where everything digital is seen as better than analogue' (Gorman, 2020b). A fair argument coming out of this particular conversation with Gorman included that the use of the digital performance medium is attracting more attention in comparison to traditional theatre making. Research that includes technology attracts more funding options, as there is still a huge scope for new exploration that challenges the conventions and possibilities of mediated collaborations.

The examination of diverse practitioners' work within the intermedial and telematic creative process and rehearsals, coupled with an analysis of my own prior experiments, gave me a comprehensive understanding of the prevailing conventions, inherent challenges, and latent possibilities within the sphere. Whilst planning for my new project, EPI 2.0, I recognised the imperative to forge an entirely novel experiential landscape, one that seamlessly integrates elements from conventional telematic set-ups with innovative approaches to Zoom Theatre within an immersive framework. Concurrently, I aspired to substantiate the feasibility of an integrated approach while devising a more accessible and cost-effective model conducive to adoption by non-commercial entities and educational institutions alike. The elucidation and examination of this experimentation will be expounded upon extensively in Chapter 4.

3. Methodologies

Given the primary objective of this research to delineate models of telematic performance practice conducive to fostering future collaborations, a practice-led research methodology emerged as the most efficacious approach. The methodological framework entailed the creative development of EPI 2.0 and active engagement in and keen observation of extant telematic performance practices. Moreover, qualitative methods, ethnographic inquiry, and hypothetical constructs were deemed the most apt instruments for elucidating, contextualising, and probing a phenomenon rich in potential insights capable of refining extant theoretical frameworks (Zhang, 2018).
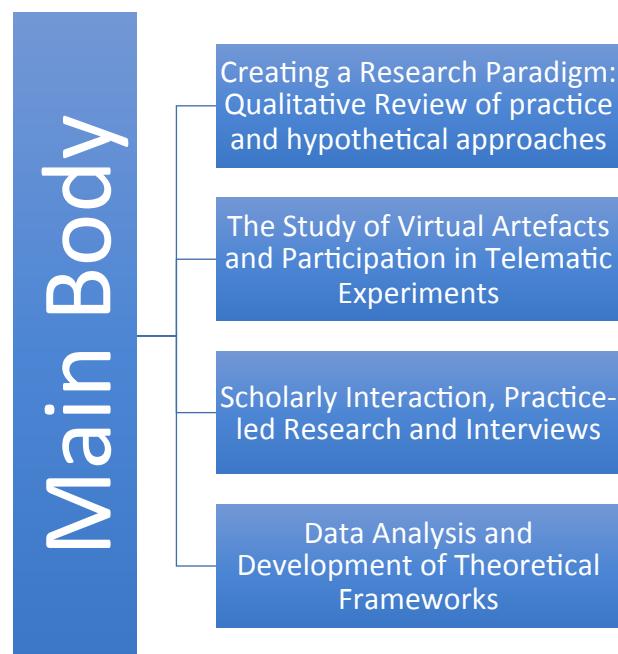
Figure 13: Methodologies Structure by author.

The methodological framework employed in the study was meticulously crafted to facilitate a comprehensive understanding of the issues and obstacles prevalent within

the domain of hybrid performance making. The initial research plan sought to discern the potential advantages of artistic or pedagogical collaborations within an increasingly digitised milieu, particularly amidst the proliferation of more accessible technologies. Moreover, due regard was given to the constraints and challenges encountered by established researchers in the field, juxtaposing these with emergent practices to inform the substantive discourse of the thesis.

Several common issues have been identified within technologically mediated spaces, including those arising from intermedial studies. Spatial constraints, audience immersion, and creative rehearsal processes all contributed to the creation of EPI 2.0. Additionally, the analysis of such practice enabled building the foundations of a new virtual performance vocabulary. The research conducted for this thesis aimed to elucidate how specific artistic or pedagogical collaborations could leverage the advancements of a digitally evolving society, especially in times of crises such as pandemics or situations necessitating social distancing measures. Furthermore, the methodologies for the study meticulously considered the limitations and challenges confronted by established researchers in the field, aligning these with emergent practices to inform the primary discourse of the thesis.

To interpret and analyse publications about technologically mediated collaborations, the research employed a level of auto-ethnography—a method involving self-reflection and exploration of personal experiences—and hypothetical concepts based on potential ideas or scenarios. The approach further facilitated critical and analytical responses to studies and observations of researchers' and participants' experiences and intentions. It is worth emphasising that personal narratives, experiences, and opinions constitute valuable data, providing researchers with tools to pursue tentative answers to their inquiries. As noted by Mèndez (2013),

such narratives are instrumental in the research process, offering insights and perspectives that contribute to a deeper understanding of the phenomenon under investigation.

Drawing on recommendations by Roe (2007), the research adopted an eclectic mixed-methodology research design to explore the intricacies of an artistically complex phenomenon comprehensively. Furthermore, collecting data for this thesis amidst a pandemic presented a blend of opportunities and challenges that were unforeseen at the outset. On a positive note, the prominence of hybrid interdisciplinary collaborations surged within mainstream, educational, and commercial domains. The abrupt need for social distancing measures prompted rapidly expanding accessible technologies, propelling telematic spaces into the forefront of the 'new normal.' The intent to create a project intended for a live immersive audience rather than solely an online environment posed significant challenges to the creative process. However, the rapid surge of new virtual artistic innovations, digital content, and heightened attention to telepresence facilitated access to a considerably expanded array of intriguing and diverse performances for case study and observation. Despite the crisis, traditional data collection methods, including literature review, were not impeded; scholarly publications in the domain proliferated. Concurrently, discussions, online conferences, and webinars about remote collaborations garnered substantial interest and momentum, enriching discourse on other issues such as perception theories and stimulating dialogues on ethical considerations.

3.1: Research Methods: A Practice-Led Approach

For this thesis, the outcomes of practice-led research were extensively researched through written discourse based on the immersive multi-media performance installation, EPI 2.0. The central aim of this research is to enhance understanding of practice itself and contribute to advancing knowledge within the realm of hybrid practice. The research integrates practice as a fundamental component of its methodology and is aligned with the broader action research domain. According to Candy and Edmonds (2018), practice-led research involves investigating the nature of practice and generating novel insights that apply to that practice. The approach was necessary to understand the impact of telematic performance practice on creators, performers, and audience members. This led to the generation of fresh insights that carry practical importance within the discipline. The integration of practical inquiry alongside the analysis of qualitative data facilitates a comprehensive assessment of research inquiries from various perspectives. Another method I incorporated pertinent for the study involved the utilisation of 'praxis,' a concept described as 'practice distinct from theory' (*Oxford English Dictionary*, 2017). Praxis commonly characterises methodologies within the creative sectors. Drawing from my first hand involvement in digitally interconnected interactive studio environments, facilitated through experimentation tools and resources such as Smart Screens, webcams, laptops, and communication software, fostered further understanding. Practice as research is posited as crucial for the social construction of a world that incorporates the researcher within the framework of their inquiry (Braddock and Webb, 2018). Engaging in physical experimentation within the telematic space gave me a more profound comprehension conducive to formulating a rationale, complementing other methodologies like interviews and observation. I ensured that

my beliefs and experiences could not be interpreted to be subjective. However, it's important to note that a statement regarding a researcher's subjectivity can also be viewed as a measure of validity (Yüksel and Yıldırım, 2015). Therefore, this thesis comprehensively examines practice-led research through written discourse and the creative artefact EPI 2.0. The primary objective of the research was to deepen the understanding of practice itself and contribute to advancing knowledge in the field of hybrid practice. The research methodology fundamentally integrates practice, aligning with the broader scope of action research. Furthermore, the concept of emotional intelligence significantly informed the methodology of practice-led research, particularly in the context of exploring immersive multi-media performance installations like EPI 2.0. Since emotional intelligence involves a deep understanding of one's emotions and their impact on thoughts and behaviours, it also aided the self-reflection process, which helped me critically assess my own emotional responses during the creative process. This self-awareness enabled me to recognise biases and assumptions, yielding valuable insights into my practice.

The integration of practice within the research methodology highlights a commitment to action research, which emphasises the importance of real-world application and reflective learning. This alignment leads to the emergence of a research paradigm that prioritises collaboration, context, and continuous improvement. Ultimately, the fusion of this research aligned with the practice created a dynamic framework that helped to address complex issues, contributing to meaningful change in various fields.

3.2: Creating a Research Paradigm

Research in performance-related fields necessitated the establishment of a research paradigm, which can be interpreted as a 'set of interrelated assumptions about the world which provides a philosophical and conceptual framework for the organised study of that world', as described by Filstead, cited in Zhang (2018, p. 81). A research paradigm typically encompasses four fundamental components: ontology (about the nature of reality), epistemology (concerning how knowledge about reality is attained), methodology (about the procedures employed for knowledge acquisition), and methods (encompassing the means utilised for data collection and analysis).

The relationship between ontology, epistemology, methodology and methods are outlined in the following figure:
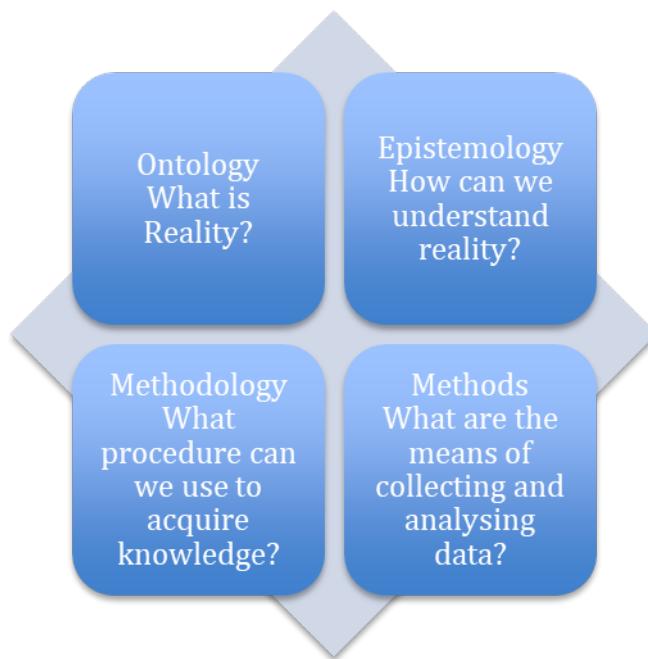
Figure 14: Model based on Rehman and Alharthi (2016)

According to Zhang (2018), ontology and epistemology dissect how knowledge is analysed in relation to research, whilst methodology and methods identify

procedures and means to rectify the validity of knowledge and data analysis (Rehman and Alharthi, 2016).

Ontology is firstly described as the philosophical study of general 'being', and anything related to 'real' (Simons, 2015). General metaphysical theories help to reveal the essence of all things, including bodies, the soul, and even God (Simons, 2015). In telematic performance, the question of where the 'real' space is located versus the other dimension often referred to as 'cyberspace' does need to be inspected from an ontological standpoint as it interrogates the possibilities of existence, relationships, people, and objects. However, ontology has been subjected to many disputes throughout historical developments. Hence, there are many different interpretations of material and non-material matters possible. Experiences in a digitally mediated space vary greatly and depend on individuals' encounters and understanding. Hence, this method relies on considering a variety of interpretations to avoid generalised assumptions.

Epistemology is another philosophical study that looks at human knowledge's nature, origin, and limits (Stroll and Martinich, 2021). An epistemological researcher aims to generate knowledge that helps to comprehend knowledge of the world around us. 'It requires considering the different psychological routes to knowledge, including different processes of reasoning – logical and scientific – introspection, perception, memory, testimony and intuition' (Epistemology | Philosophy | The University of Sheffield, 2022). One of the issues with epistemology is that what is visually perceived can often be interpreted differently or even misinterpreted by individuals (Stroll and Martinich, 2021). This is very much relatable within the telematic space as audio-visual perception is further challenged by the technologies

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used and theories on perception and sensory information processing. Therefore, the technology, including its role, must be considered when evaluating outcomes.

Methodologies form the basis to justify the use of specific research methods. Methods are purely tools to find a solution to a research problem (Bhosale, 2021). Methodologies need to examine the effectiveness of chosen research methods and ensure that they are valuable in identifying the issues of a research problem. Hence, the mixed methods approach, in line with ontological and epistemological analysis, was identified as the most valuable framework to fit the research paradigms for this study.

These elements were examined within the context of three prevailing paradigms commonly employed to substantiate theoretical approaches:

Positivism, interpretivism, and critical theory represent distinct paradigms within social research, each offering a unique perspective on studying society and its phenomena. For example, positivism is rooted in a scientific approach, emphasising empirical evidence and observable facts. Scholars who adopt such a paradigm, such as Jonathon H. Turner (2001), focus on collecting data through experiments and surveys to identify patterns and establish laws governing human behaviour. Positivism operates under the belief that knowledge is derived from sensory experience and that objective measurements can lead to universal truths about social reality (Turner, 2001).

Interpretivism, on the other hand, prioritises understanding the subjective experiences of individuals. This approach confirms that in order to truly grasp social phenomena and cultural contexts, researchers must explore the beliefs, motivations, and meanings that individuals attach to their actions. According to the *Interpretivism in Sociology: Definition & Origin* resource from Study.com (2022), interpretivism is

crucial for uncovering the complexities of human behaviour whilst recognising that social reality is constructed through human interaction and interpretation.

Critical theory goes beyond mere observation and interpretation; it aims to critique and change society. As Bohman (2022) explains, this paradigm not only seeks to describe social conditions but also to offer normative frameworks that challenge oppression and promote freedom. Critical theorists examine power dynamics, social injustices, and structures of domination with the goal of revealing pathways for social transformation and empowerment.

Understanding these paradigms is essential for conducting thorough research. As noted by Rehman and Alharthi (2016), a detailed study of any research paradigm requires careful consideration of the nature of reality and the limitations of what can be known. Each paradigm offers a distinct lens through which to analyse social phenomena, highlighting the importance of context in shaping knowledge and understanding. By integrating these perspectives, researchers can develop a more comprehensive view of the social world.

In summary, positivism emphasises empirical data and objective truths, interpretivism focuses on individual meanings and experiences, and critical theory seeks to interrogate and address social misinterpretations. Together, they form a robust framework for exploring and understanding the complexities of human society.

Houghton (2011) further argued that positivism is based on foundationalist ontology, which represents 'accurate knowledge of the world which can be arrived at through sensory experience'. However, 'logic and ontology are important areas of philosophy covering large, diverse, and active research projects' (Hofweber, 2017).

The philosophical approaches gathered by positivist research aim to verify the accuracy or falseness of epistemological knowledge (Walsham, 2006). Methodologically, positivists usually adopt quantitative methods to acquire empirical evidence to gain independent insight into new streams of knowledge (Adams, Lunt and Cairns, 2016). Using a positivist approach as the sole perspective is insufficient to explain humans' meaning and behaviours (Zhang, 2018), which is even more challenging in a digitally mediated hybrid space. Hence, interpretivism and critical theories must be applied to fully explain the views of researchers, participants, and audiences.

Interpretative methodologies depend upon gaining an overview of social phenomena within a contextual framework (Rehman and Alharthi, 2016). Researchers must find patterns in the data often hidden under broader perspectives and themes. Investigators must try 'to understand individuals' interpretations about the social phenomena they interact with' (p.55) rather than collecting general knowledge and truth through observation and reflection from a single viewpoint. This way, the new realities in a digitally mediated space could be examined from various angles and perspectives in line with existing theories. Furthermore, the dissemination of readings on cognitive science extensively contributed to understanding the context of communication and physical relationships, which were vital components to understanding how emotional intelligence can be framed. Instead of searching for some pre-existing meaning in a work, cognitive science encourages the scholar to ask what their experience of the work was and how it affected them in the before, during and after moments of the performance (Petralia, 2010). Hence, I found the experimental approach by participating in and trialling new innovative lay-outs of digital performance spaces very useful. It allowed me to assess my surroundings and

observe performers and audiences in the process. A thorough interpretation of the performance practice in line with the capture of performer and audience feedback provided proof of the authenticity of a reality that is generally shaped by individual experiences and opinions.

Critical Theory through observation

The practice-led research, in line with feedback, revealed that individual perception is further shaped by the location (remote vs. being in a live space), cultural factors (in some instances, language barriers), and sensory involvements. According to Louis Cohen, critical theory's epistemology derives from proponents' social and positional power rather than the truth (2002). Methodologically, it is common practice for investigators to apply critical theory to encode experiences whilst also probing and critiquing assumptions to change awareness (Rehman and Alharthi, 2016).

Using a mixture of such paradigms and methods allowed a more thorough evaluation of the validity of practical and theoretical approaches. Manifesting the aims and objectives related to the questions established a multifaceted approach whilst confronting issues arising from several perspectives.

Dialogical, experimental, and critical hypothetical discussions evolving from the chosen methods helped me respond to the challenges in a technologically mediated space. The literature review has proven a lack of comprehensive analysis of the implications of collaborating in technologically mediated spaces, as factors such as accessibility, cultural diversity, and experiences for performers and audiences alike are often not commonly acknowledged. Conjointly, a hybrid collaborative set-up does not conform to a universal terminology; hence, some details for the questions outlined for this thesis provide scope for further investigation for future researchers

to examine existing telepresence models from various angles and perspectives. The study brought on new knowledge, enhancing and supplementing current understanding of the topic. The qualitative study of hypothetical concepts provided a necessary understanding of the possibilities and limitations of this thesis. The creation of practice-led research and participation in the case studies described in the previous chapter determined that a new approach to intermedial and telematic performance is necessary (as detailed in Chapter 5).

Using the observation method provided a stimulus for interpretative evaluation of existing practice. Emotional connection and intelligence in a performative setting traditionally involve utilising most of our senses to provide an impression of reality, which entices audiences to relate to the characters and/or the plot/composition/ dance. To prove the validity of hypothetical concepts in performance research, I needed to use an auto-ethnographical element, which required collecting a breadth of samples for observation and experimentation. The diverse and interactive complexity of artefacts and applications of telematic collaborations in fields such as entertainment, music, education, and creative art were sourced from readily accessible online presentations. It provided an opportunity to observe participants in a range of settings.

The observation of participants and artists has 'the potential to represent in ethnographic form the messiness of daily life and the way that messiness is an integral part of research' (Butz and Besio, 2004, p. 433). It was helpful to witness other researchers' ethnographical theories in practice in order to be able to scrutinise a wider assortment of auto-ethnographical practices, which helped to become more attentive to their representations in line with the researcher's own experiences (Butz and Besio, 2004). Observation is a valid means of accessing information that is

otherwise unavailable and provides an opportunity for gathering data that would otherwise be difficult to collect. Ugoretz (2017) implied that unobtrusive observation of social interactions enabled by technology allows for full exploration of online social interactions while preserving study participants' protection and privacy. However, I ensured that ethical issues and data protection were always considered. Reflections upon my artistic contributions to telematic works in the past and my participation in new experimental work helped me understand the possibilities and limitations of digital collaboration.

3.3: Conference participation and contribution to seminars

McMonigle (2024) argues that conference proceedings provide researchers with a platform to present their work in a less formal setting compared to peer-reviewed journals, a view I share. Discussions with fellow academics about ideas and observations can offer valuable insights into specific research areas' relevance and potential limitations. As outlined in the initial proposal for this thesis, the approach naturally facilitated the development of new networks and opportunities. Participating in, contributing to, and even chairing symposiums, conferences, and roundtable discussions yielded benefits beyond mere networking. Presenting ideas to peers and scholars led to a clearer understanding of the possibilities and limitations within the field and highlighted additional knowledge gaps essential for constructing a cohesive argument. Engaging in debates and dialogues also increased awareness of the diverse performance practices employed by practitioners—an aspect that may not have been initially considered for inclusion in the inquiry. Kochetkov and Birukou (2020) further emphasise the importance of conference proceedings in experimental

research, noting that they often serve as a critical outlet for disseminating original findings.

In addition, the COVID-19 pandemic necessitated a shift to online platforms for many events, which substantially increased accessibility to numerous seminars and conferences due to the removal of travel constraints. It created further opportunities, allowing for increased participation in relevant events, resulting in substantial collection of knowledge and information.

Frequent participation in online roundtable discussions with dance companies such as IJAD and Online Open Theatre facilitated connections with practitioners who later provided workshops and seminars on topics like remote intimacy in digitally blended spaces. Curtis and Coulter (2019) suggest that attending networking events, such as conferences, offers both social and educational benefits. They argue that, in addition to fostering networking opportunities, these events serve as platforms for knowledge expansion, problem solving, idea presentation, and interdisciplinary learning.

Hence, the active participation in conferences and seminars characterised by being present and engaging in first hand observation of diverse practices, proved informative and beneficial. The insights gained from these were then used to bridge theory and practice, directly informing the research inquiries alongside insights obtained from other methodological approaches. The empirical findings then supported emerging conceptual frameworks.

3.4: Interviews

The classic method of conducting structured and semi-structured interviews proved invaluable in gathering insights from esteemed researchers and practitioners within

the field. Dialogues with prominent figures such as Ghislaine Boddington, Paul Sermon, Annie Abrahams, Johannes Birringer, Tom Gorman, and Clemence Debaig enriched my understanding of individuals' experiences with digital relationships and prevalent challenges encountered in online collaborations. These exchanges facilitated the identification of emerging ideas and issues shaping theoretical discourses concerning the future trajectory of mediated performance environments.

Establishing novel professional connections through participation in various roundtable discussions and conferences facilitated encounters with the aforementioned practitioners, which brought diverse perspectives to the discourse. While the interviews were initially structured around predefined questions, the conversations organically veered into shared experiences, sparking new avenues of inquiry and expanding my comprehension of critical concepts. Such spontaneity unveiled novel conventions that supplemented gaps in existing literature, akin to the approach advocated by Jamshed (2014) regarding unstructured interviews in ethnographic research.

For instance, the ethical considerations such as data protection and sustainability mentioned in Chapter 5 emerged as crucial yet underexplored themes within telepresence. Delving deeper into these pivotal components was imperative to grasp the potential trajectory of technological interventions in performance and art. The interviews, conducted and documented via Zoom, were meticulously archived in a secure database to serve as substantiating evidence for future analysis.

Hence, insights gleaned from the guidance of these esteemed researchers and artists informed the refinement of new theoretical frameworks, fostering critical thinking processes and fortifying empirical evidence. Additionally, interviews with

audience members of EPI 2.0 corroborated and challenged personal opinions, offering stimuli for further exploration, for example the role of cognitive science.

In conclusion, this methodology chapter outlined the comprehensive approach combining practice-led research and action research to investigate the research questions. By integrating hands-on practice with reflective inquiry, the methodology enabled the exploration of practical challenges and fostered the generation of new knowledge through iterative cycles of action and reflection. A dual approach enhanced the understanding of evolving practices, encouraged participant engagement, and contributed to developing strategies to inform future initiatives. Ultimately, the methodology aimed to bridge the gap between theory and practice, ensuring that the research process was dynamic and responsive to the needs of the participants and the context in which they operated.

Central philosophical questions were deeply connected to how logic and ontology relate. Although there is no definitive solution to the challenges of the telematic space, exploration of these issues have the potential of offering fascinating new paths for philosophical exploration (Hofweber, 2004).

4. Exploring Digital Dynamism: A Telematic Interpretation of Andy Warhol's Exploding Plastic Inevitable

This chapter explores the conceptualisation and execution of a telematic performance project inspired by Warhol's groundbreaking multimedia event, the *Exploding Plastic Inevitable*. Drawing on Warhol's ethos of blending various art forms and incorporating the widely used videoconferencing software Zoom, the project aimed to reinterpret the essence of the original EPI within a contemporary, immersive digital landscape. It addresses explicitly two key thesis questions:

1. How can interdisciplinary hybrid performance settings challenge performers and creatives to develop innovative sound performance concepts?

2. How can an understanding of emotional intelligence help overcome challenges in a digitally mediated environment?

The objective was to analyse the findings in conjunction with the research presented in Chapter 2, ultimately seeking to address Question 3:

3. How might telematic performance experimentation contribute to a new hybrid performance vocabulary and identify the issues in a technologically mediated immersive performance space?

Through an interdisciplinary approach, combining elements of the digital space, original recorded music from Nico and the Velvet Underground, live dancers and remote actors, EPI 2.0 seeks to explore the intersection of virtual and physical spaces, challenging traditional notions of performance and audience engagement. The exploration led by practice emphasises the creative process by examining technical set-up, spatial use, and audience immersion and experience through careful questioning and observation.

4.1: Introduction and Outline of the Project

Warhol's *Exploding Plastic Inevitable* (EPI) revolutionised the art and entertainment scene of the 1960s, epitomising the convergence of avant-garde aesthetics and multimedia spectacle. As a pivotal moment in the history of performance art, the original EPI pushed boundaries and defied conventions, captivating and revolutionising its kaleidoscopic fusion of music, film, dance and visual projections. Inspired by Warhol's visionary approach, the chapter chronicles the development of a contemporary telematic performance project that pays homage to the spirit of EPI while embracing the possibilities afforded by digital technologies. By leveraging telecommunication tools and virtual platforms, the project aimed to reimagine EPI for the digital age, offering a dynamic, immersive experience that transcends physical space limitations in a collaborative performance setting.

An initial goal included contributing to the ongoing discussion in telematic performance research on the particular focus on presence within telepresence and how it can affect an immersive experience in the telematic space. Kwan Min Lee (2004) defined presence in a virtual environment as 'a psychological state in which virtual objects are experienced as actual objects in either sensory or non-sensory ways' (p. 39). According to Lee, the term telepresence was first coined by Marvin Minsky in 1980 and has 'since been used to refer to a sense of transportation to a space created by technology' (2004, p. 29). Minsky, a pioneer in cybernetics and artificial intelligence was what we would now class as an influencer in times of social media. He often referred to telematic environments as out-of-body experiences. Minsky hypothesised that an ultimate technologically influenced mediation of the input-output channels would replace what a person perceives as being in their environment (Herbelin *et al.,* 2015). Feeling present in a technologically mediated

environment whilst remaining in a state of environmental awareness and consciousness can be particularly challenging for online actors, which became apparent during the process of creating EPI 2.0.

The 'conscious disappearance' of the medium of the technological interface is often a goal for a human-computer-mediated setting (Ch'ng, 2009). However, for EPI 2.0, I opted to integrate the technology in a way that it became a part of the performance and the set. From the outset, I deliberately chose to stage the Smart Screens as an integral part of the artwork in this project. As detailed in Chapter 3, the methodology employed herein integrated artistic experimentation, technological trials, and theoretical inquiry. Using principles of practice-led research, the creative process unfolded through interactive cycles of experimentation, prototyping, and refinement. Collaborative workshops and rehearsals acted as environments for exploring the expressive potential of EPI 2.0. Participants engaged in improvisation, studying set choreography and text and playful digital media manipulation. At the same time, theoretical frameworks from media studies, performance theory, and analyses of existing works informed critical reflections on performance techniques suitable for telematic artforms.

For example, it was helpful to look at studies on rhizome theories, which were first introduced by Gilles Deleuze and Felix Guattari's *Mille Plateaux* (1980), translated into English as *A Thousand Plateaus* in 1987. According to Claire Colebrook (2021), the term rhizome has a broad reference towards modes of thinking and analysing that are non-hierarchical and decentred, which is a very apt framework for the telematic realm. A rhizome is often described as a juxtaposition to a tree. The latter is organic, and has a clear beginning and an end (roots, trunk, branches), whereas 'a rhizome has no beginning or end; it is always in the middle, between things, interbeing,

intermezzo' (Deleuze and Guattari, 1987, p.25). The Internet is often described as a modern world rhizome as it is vast, interconnected, and non-linear (Lin, 2022). Through a synthesis of practice and theory, rhizomatic concepts were applied during script writing and the creation of the choreography, composed of multiple points of entry rather than following a linear development or progression (Colebrook, 2021). The project generated new insights into the decentralised power of digital connectivity, helping to shape an approach towards novel contemporary artistic practice.

The concept of this performance based on Warhol's original EPI emerged from a collaborative writing effort with creative colleagues in Los Angeles some years ago. We envisioned a project rooted in Warhol's intermedia settings, aiming to create an immersive performance that vividly depicts Warhol's life story's various worlds and concepts. However, various factors, including the COVID-19 pandemic, prevented the full realisation of the planned collaboration as we initially intended to develop a project with commercial potential influenced by works such as Punchdrunk's immersive theatre experiences.

The idea to create a telematic performance surfaced several years later as I delved into documentaries on Warhol, leading me to explore EPI. Warhol's aspiration to establish the world's largest discotheque intrigued me from a commercial standpoint, and the concept of combining multimedia set-ups with live performances in an immersive setting appeared ideally suited to investigate hybrid spaces and collaboration. Unfortunately, I had to seek out alternative actors and creative collaborators due to timing issues and the closure of the Los Angeles-based institution with which I initially intended to collaborate. Fortunately, I was able to enlist performers experienced in telematic performance set-ups, including two actors

from Romania who performed in Hanganu's work, notably *Tele-encounters*, and two further actors from Gorman's Performing Arts department at Coventry University, who are renowned for their work in telepresence. The lead actor portraying Warhol was a former student who participated in my previous project, *Timelapse*. Additionally, I engaged sixteen volunteers from the BA Hons Dance for Commercial Performance degree at University Centre Weston. With the cast firmly established, I focused on the potential set-up and available technologies to bring the project to fruition.

To avoid replicating the staging of my previous works, which utilised a single screen and camera output, I opted for a multi-screen and multi-camera approach to create a gallery-like environment within a 3D setting. To begin with, I started experiencing random formations of the screens, as I needed clarification on the best possible placement within the performance space. As I was unsure how the layout could work, I had to try multiple and self-replicating ideas. I allowed for a natural progress of experimentation based on notions of Dave Comier's rhizomatic learning theories (2024), which implies that new ideas often stem from chaos. Initially, I needed to consider the size of the performance space, ensuring that screens were strategically positioned to optimise visibility and audience engagement. As this would be an immersive piece, I also had to consider cast and audience size for comfort and Health & Safety. The technical infrastructure, encompassing cameras, microphones, and network connectivity, had to be robust enough to facilitate seamless live streaming across multiple locations.

However, most importantly, I wanted to highlight the integration of remote performers as a significant evolution of the original EPI performance. Since remote and transnational collaboration is a central tenet of hybrid performance, it was

essential to demonstrate the importance of transcending physical boundaries. Yet the random set-up that was initially considered (depicted in figure 15 further below) would not yield the detailed insights sought.

My initial idea was to create a dynamic experience akin to Sermon's *Telematic Dreaming* and the *All Women's Jam Session*, where screens would be movable, enabling audiences to interact with online performers, with a central screen featuring an actor portraying Warhol as the host. In the early stages of experimentation, I aspired to incorporate several performance disciplines, including live musicians, both online and in the physical space. However, given budget and time constraints, I soon realised the impracticality of this ambition. Research into online choir practices for technical guidance underscored the challenges of achieving the level of synchronisation necessary to evoke Warhol's original project, which revolved around the rise of the Velvet Underground. Ensuring a semblance of synchronicity among musicians posed a significant obstacle, potentially leading to a chaotic presentation and lacking coherent dramaturgical structure. As James Hawkins (2020) noted from his experience organising musicians and choirs via Zoom, achieving audio synchronicity proved unattainable within a low-cost set-up. It is mainly due to each member having a different connectivity speed via the Internet. Therefore, synchronising the musicians or singers is challenging without significant investment into high-end equipment. Hawkins confirms this further through online music experiments conducted via Zoom: 'Although everyone in the digital space may output another clearly, if they all played with their microphones on, all that could be heard would be a cacophony of singers/musicians out of time' (2020). A lack of synchronicity would therefore result in distortion of the music, particularly with more than one Zoom call in the same room. It was important that the music was

recognisable, and provides homage to the original band. In addition, the creative

scope afforded by an improvisational approach might have proven inherently

limiting, potentially yielding inconclusive outcomes. Furthermore, logistical

oversights concerning the mobility of the screens were apparent. Despite their

portability, the need for connection to a power source via cables would significantly

constrain their range of movement. Moreover, such configuration presented safety

implications, as cables could pose a tripping hazard for performers and audience

members within the physical space. Below is an illustration of my preliminary design:
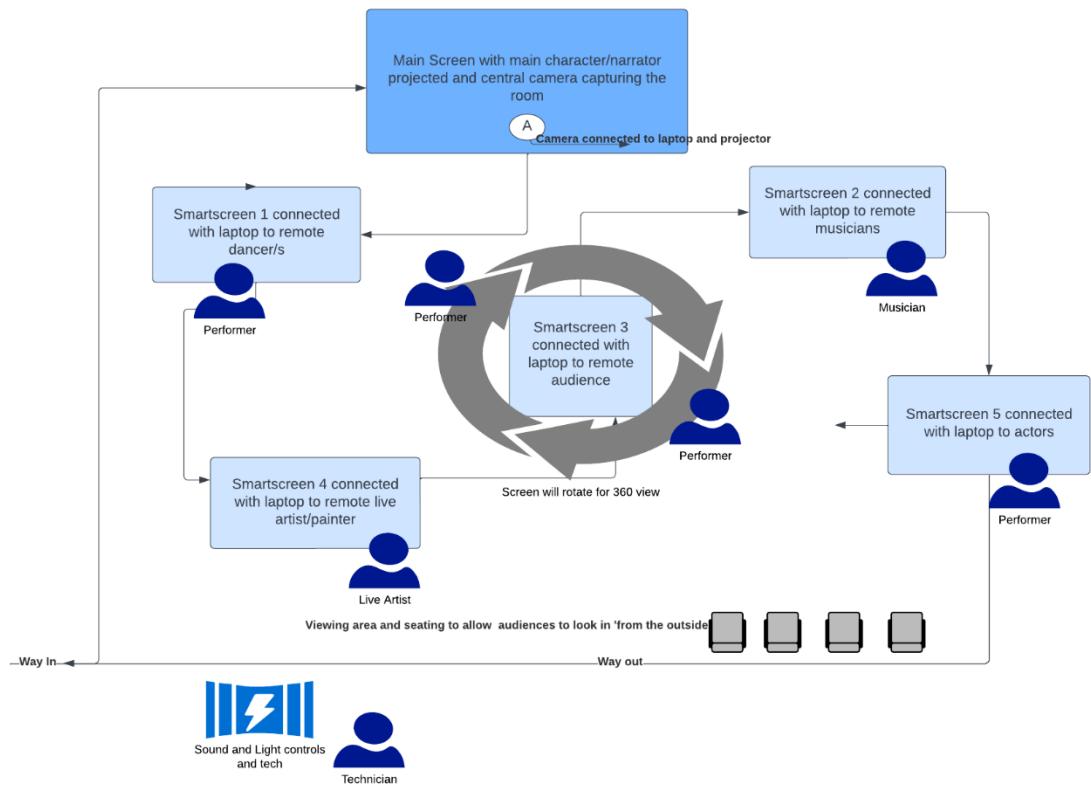
Figure 15: Original Stage Design by author (2022).

The original concept aimed to create a gallery-style performance featuring a

central rotating screen. The idea included prompting audience members to navigate

the space under the guidance of live performers and engage in interactive encounters.

I envisioned the choreography to potentially encourage audience participation in an improvised manner, blending pre-planned elements with spontaneous actions. The seemingly random nature of the installation, reminiscent of Deleuze' and Guattari's idea of rhizomatic structures, presented an intriguing opportunity to explore multimedia installations and to deepen my understanding of telepresence.

However, upon reflection, I realised this approach would again impose significant limitations on my creative exploration within the hybrid space. While the concept suggested the potential for investigating new realms of emotional intelligence, implementing it would pose significant challenges in articulating a cohesive rationale and developing a distinct vocabulary for telematic performance. As Minns and Mourad (2022) suggest, artists should focus on future-proofing their work to ensure originality and authenticity.

Considering the complexities of telepresence and remote connectivity, I recognised that the proposed set-up might not be sufficient for a comprehensive inquiry. Ascott's philosophical insights prompted me to delve deeper into the nature of mediated interactions, which he argues should embody aspects of intuition, nature, and metaphysics. Furthermore, Ascott posits that such interactions are contrasted with technologies driven by analytic reason, machinery, and physics, evoking both utopian and dystopian visions of the future (Ascott, 2003).

The original EPI events, held in two physical locations—New York and Los Angeles—already exemplified these futuristic visions as a pioneering intermedial performance concept in 1966. My initial objective therefore was to envision what Warhol's approach would have looked like in the 21st century. In furthering the experimental phase, I engaged in solitary practice sessions involving five different screens within the performance venue to determine the optimal configuration.

Initially, I began with a combination of blank Zoom and Teams meetings without active participants, which allowed me to familiarise myself with the technology and explore its visual functionalities. However, I faced a limitation with my educational Zoom account, which restricted me to hosting only two concurrent meetings. Despite the setback, I resolved the issue by accessing two additional Zoom accounts linked to my profile. It helped to streamline the technological framework and ensured operational continuity. Reflecting on the preliminary experimentation, I aimed to assess the impact of conducting separate calls on the overall infrastructure, considering factors such as set-up logistics and the potential for latency or audio disruptions.

A particular concern was managing sound transmission and minimising noise interference. During the set-up phase, I enlisted nearby colleagues to participate in brief experimental sessions as on-screen contributors. Fortunately, I quickly determined that this approach was viable, with no noticeable sound transmission or interference issues. The visual clarity was satisfactory, and fine-tuning each screen's sound output proved relatively easy.

With the help of a technician I devised a practical solution to enhance sound quality by using individual speakers tailored for older-style screens, aligning with our budget and maximising available resources. To evaluate the viability of such a randomised model and its proximity-based dynamics, I directed the voluntary on-screen participants to respond sequentially and collectively. This methodological exercise aimed to discern whether such configurations could yield substantive outcomes while gauging the adequacy of both auditory and visual components for providing an enjoyable experience for the audiences.
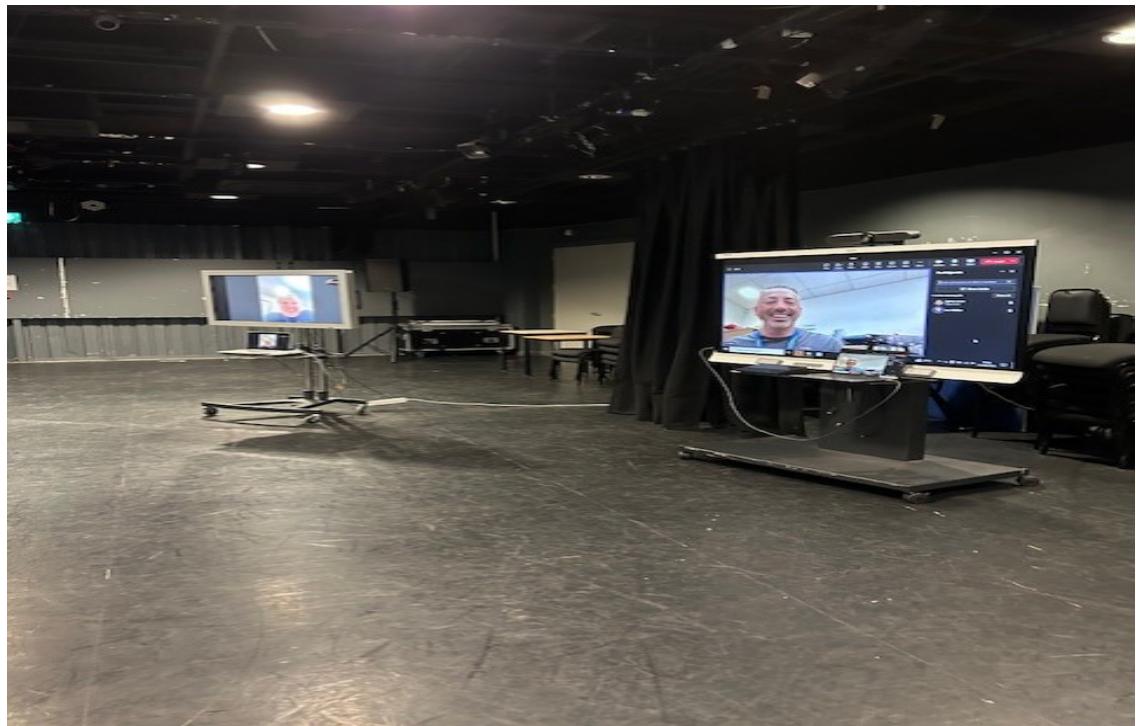
Figure 16: Screen test with volunteers. A trial mixing Zoom and Teams calls simultaneously on four screens. Photograph by author.

The preliminary experimentation phase helped to determine that creating a scripted and choreographed spectacle would be more suitable and intriguing for an immersive performance piece. My goal was to deepen my comprehension of connectivity in a realm where temporal and spatial constraints dissolve. Moreover, the interplay of movements, auditory cues, and individual impulses from performers and audiences alike needed to serve as catalysts for momentum. Therefore, technology and humans must collaborate within a uniquely blended 'universe' that creates the perception of a unified presence in a telematic performance environment. Hence, telepresence, media and user characteristics are needed to produce an established co-existence (Ch'ng, 2009). Interestingly, Ch'ng discovered that placing more than one person into a virtual environment instantly creates a greater sense of presence, which increases regardless of any other perceptual features of the space. In addition, the more

realistic the audio-visual settings are, the better it makes for a heightened sensory experience.

The concept of immersive theatre significantly influenced the design of Exploding Plastic Inevitable 2.0. By embracing the principles of immersive performance, I aimed to transform the audience's experience from passive observation to active participation. Just as immersive theatre invites viewers to engage with the narrative and interact with performers, I designed the space to encourage attendees to move around freely. I intended to motivate them to engage more inwardly with various elements, allowing them to influence the unfolding of the experience.

The design aimed to create a more profound sense of connection and involvement, with the goal of making each attendee's experience unique and personal. The incorporation of interactive spaces and the emphasis on audience agency within a hybrid setting echoes the immersive theatre ethos, allowing participants to witness art and become a part of it, blurring the lines between creator and spectator.

> Immersive experience is both physically and mentally all-encompassing, but its temporary state is also a vital part of its defining quality. Leaving a state of immersion is as distinct and deliberate as going in. You go in; and you come out, changed (Biggin, 2017, p. 27)

The statement influenced the design of EPI 2.0 by emphasising the importance of creating experiences that fully engage users, both emotionally and intellectually, while ensuring these moments remain temporary and impactful. It guided me to focus on facilitating meaningful transitions in and out of immersive states, so users emerge transformed by the experience.

Crafting a set script and choreography represented more than just the integration of a storyline featuring key characters from the original EPI installation; it served as a means to realise Warhol's overarching vision—a space wherein spectators could witness and actively engage in the storyline. Consequently, I developed a script centred on prominent characters who played pivotal roles in Warhol's EPI (full script available in Appendix 4, p. 325). While preserving elements of the original set-up, such as the main screen featuring a remote portrayal of Warhol as the principal host, I deliberately focused on characters that had passed away. Leveraging the telematic environment, I sought to facilitate the 'resurrection' of these characters (metaphorically speaking) from a fictional metaverse into tangible physical manifestations. The revised technical set-up offered a more realistic rendition that was manageable and accommodated elements of group choreography, thereby potentially enhancing the commercial viability of the project. It is important to note that Figure 17 depicts only the initial position when the entire company is on stage. The cables for the four side screens were loosely taped to allow rotational movement of approximately 45 degrees, facilitating their integration into the choreography.
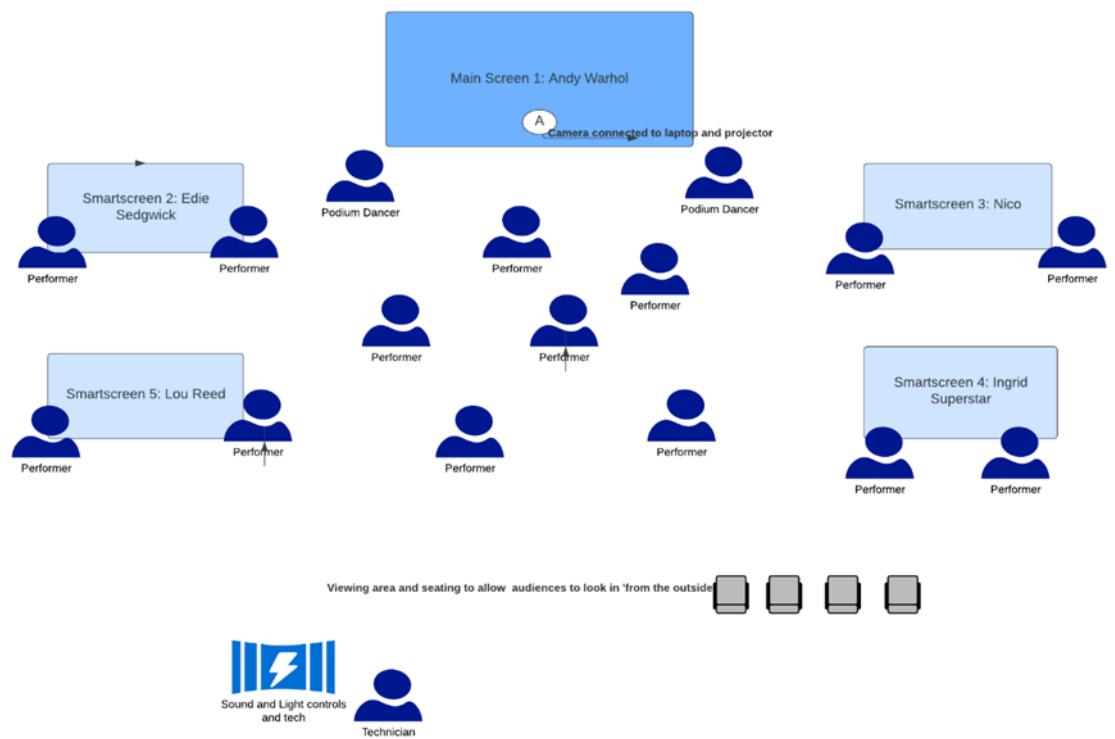
Figure 17: New Stage Design after trials (Lane, 2023)
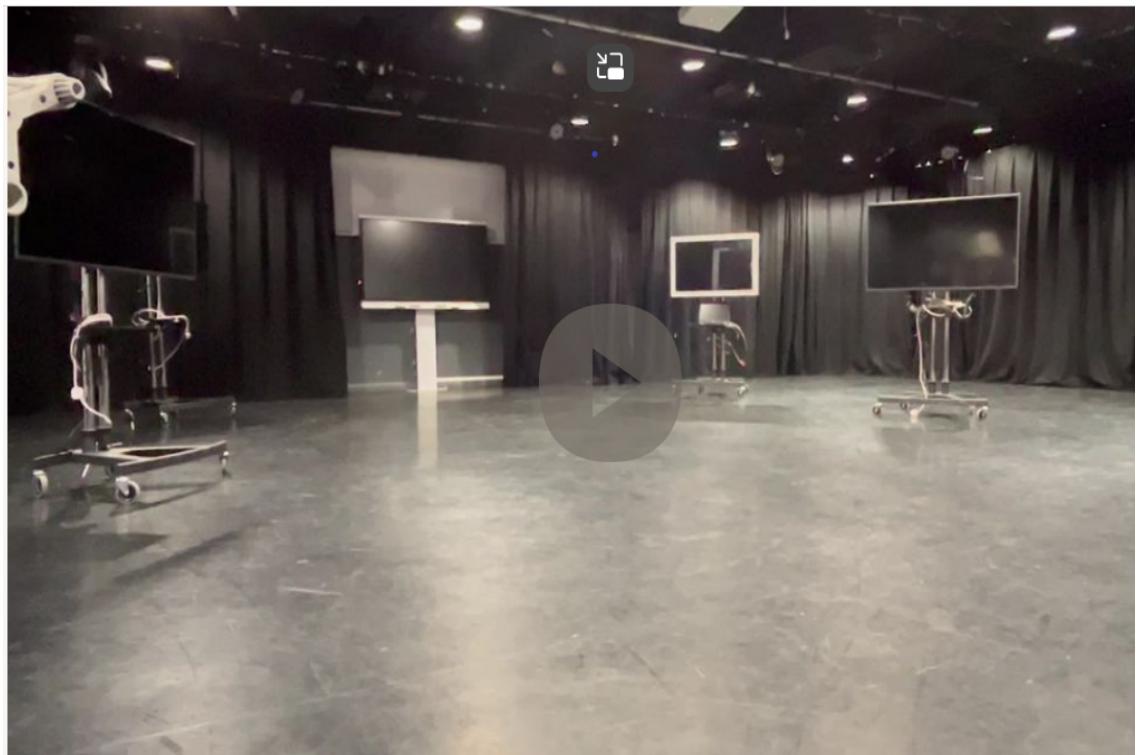
Figure 18: Picture of Initial Screen and Space Configuration (2023). Photograph by author.

Upon the establishment of the performance space, I embarked on a critical examination of the selection of iconic figures to accompany Warhol. My eventual choices included Edie Sedgwick, Nico, Ingrid Superstar, and Lou Reed. Each of these individuals experienced tragic fates, mainly due to the detrimental effects of substance abuse.

Considering the spatial arrangement of the screens, I concluded that each character would deliver a distinct monologue encapsulating their personal narratives. To develop these monologues, I extensively researched each individual's biography and then adapted the findings into soliloquies infused with poetic and dramatic elements.

The primary objective was to give audiences an insight into the possible trajectories of their lives amid the ascent of fame and fortune while illuminating the inherent vulnerabilities and anxieties that ultimately contributed to their tragic downfalls.

With these monologues serving as the cornerstone of the script, I began to conceptualise the performance around them. Central to my vision was the audience's immersion in the space, aiming to evoke the sensation of participating in the 'world's biggest discotheque'. This realisation underscored the diverse perspectives through which individuals in the audience would perceive and experience the performance to enable each individual's temporal and spatial dimensions uniquely. The concept of immersive telepresence significantly enhanced my vision of creating a unique experience for the audience. Consequently, immersive telepresence allows audiences to engage with the performance in a more profound way, transcending physical boundaries. I intended for individuals not to be merely passive observers; instead, I wanted them to interact with the space and the performance in real-time, thereby

generating a personal connection that would shape their experience. The design needed to allow for varied perspectives to flourish, as each audience member's unique interactions would create distinct temporal and spatial experiences. Additionally, I wanted the immersive telepresence set up to help create a collective experience where the energy and reactions of others could be felt and shared. A communal aspect was designed to amplify the feeling of being part of a larger event, thereby enhancing the overall immersion. Ultimately, I aimed to transform the performance into a dynamic environment that would evolve in response to the audience, enriching their perception and emotional engagement with the art. According to Biggin (2007, p.4) Punchdrunk's Artistic Director Felix Barret emphasises that immersive experiences are largely driven by emotional reactions, focusing on the instinctive responses of the audience. In this context, immersive theatre centres on the impact it has on viewers, with artistic choices guided by the desired emotional effects rather than merely for the sake of being inventive.

The insights on immersive experiences have profoundly influenced my work, guiding me to prioritise emotional responses from the audience over mere innovation. By focusing on how immersive elements can evoke instinctive feelings, I aimed to create a more impactful and resonant theatrical experience.

Throughout the creative process, I maintained a cognitivist perspective, consistently interrogating how to garner substantive evidence to substantiate the value of telematic research realms. An approach to soliciting accurate feedback sought to delineate evidence accumulation within perceptual systems, as articulated by Burr (2016). However, the attempt to align the audiences' perceptions with my hypothetical conclusions necessitates careful consideration, as it carries the potential for both philosophical elucidation and the propagation of erroneous assumptions and

biases, thereby compromising the integrity of a coherent interpretation.

Consequently, storytelling through monologues may not be enough to engender a

profound and memorable audience experience, particularly in commercial

performances. Since exploring emotional intelligence inherently entails a

philosophical analysis of problems, my efforts were directed towards synthesising

principles of logic and ontology to formulate a more cohesive concept for the

performance.

As articulated by Thomas Hofweber (2004), the relationship between logic and

ontology is not characterised by a singular problem but rather encompasses myriad

intriguing connections, many of which are closely intertwined with fundamental

philosophical inquiries. It underscores the necessity of acknowledging that the

psychological state of individuals, alongside their experiences of presence and

perception within a given context, collectively engender a narrative that the observer

perceives as rational. Transforming this understanding to the virtual space could

strengthen the rationale for changing our behaviour and action to adapt to a

technologically mediated audio-visual/multi-sensory virtual reality.

The subsequent phase involved the creation of an audio-visual experience

designed to leave a lasting impression and enhance the audience's overall enjoyment.

Initially, my focus was primarily on shaping the experience for the in-person

audience. However, as interest grew from individuals in Los Angeles and Romania

who wished to participate remotely, I also recognised the need to accommodate an

online audience. Given the spatial constraints and the desire to ensure an immersive

experience, I opted to cap the live audience at 30 individuals per session, with each

performance lasting at most 25 minutes. By staging two performances consecutively,

I wanted to explore the efficacy of the concept as an immersive room experience for

distinct audiences, allowing for a comprehensive assessment of its dynamics, audience engagement, flow, and feedback.

A pivotal aspect of the project was the selection of music. Drawing inspiration from Warhol's EPI, which prominently featured Nico and the Velvet Underground, I immersed myself in their albums and archival recordings of the original happening. The evocative psychedelic compositions proved instrumental in bringing the characters to life and evoking a sense of nostalgia. I assigned each character individual songs from the band to serve as underscores and auditory cues for the online actors. However, as I delved into modern psychedelic music for a contrast, I discovered Shpongle, a folkloric and psychedelic music project founded in England in 1996. The fusion of world music with trance and techno beats offered an ideal stylistic complement that resonated with the thematic essence of the performance. I collaborated closely with a technician to curate a six-minute track by remixing Shpongle's compositions with generic disco and techno beats, intending to culminate the performance with a choreographed visual spectacle. The objective was to create an ambience reminiscent of a nightclub, embellished with dancers and choreography to provide a visually captivating experience. Additionally, I curated music soundscapes to seamlessly transition the audience's journey from the moment they entered the room, aiming to evoke an atmosphere akin to a metaverse encounter.

The project fostered collaboration across multiple departments within the college. Members of the dance faculty contributed their expertise in choreography and staging, infusing the performance with a blend of commercial (Vogue, Waacking, Hand Choreography, and general commercial movements), Contemporary, and Bollywood elements. This amalgamation sought to encapsulate a global essence, symbolising the absence of boundaries within the telematic realm. Moreover, the

Theatrical Make-Up department played a crucial role in shaping the overall aesthetic. Collaborative discussions led to the selection of festival-style outfits and makeup for the dancers, featuring embellishments such as feathers, glitter, and beads. Additionally, three distinct Bollywood dancers adorned with Henna tattoos on their hands were incorporated, with choreography designed to draw attention to these cultural nuances. Due to the remote location of the screen actors, it was important to create a unique and distinct look for each character that the actors could achieve. In deliberating the portrayal of the main characters by the on-screen actors, a departure from the pursuit of naturalistic resemblance was contemplated. Instead, a conceptual pivot was more attractive for me, in which I aimed to create a depiction of where characters resembled a 'reincarnated' version of their original counterparts. A conceptual look aimed to retain select distinctive features associated with each persona, such as the use of a headscarf for Ingrid Superstar and the characteristic ensemble of a turtleneck and sunglasses for Warhol, for example. In addition, the diverse linguistic backgrounds and accents inherent among the actors resulted in the deliberate choice to disregard and attempt for the emulation of naturalistic portrayals. During the process of creating the individual looks I worked with the lead actor portraying Warhol on a look that I would later use for the promotional poster. I created the design on Photoshop by using filters, brush function and layering of backgrounds to achieve an effect to capture the notion of liveness within an intermedial picture frame:
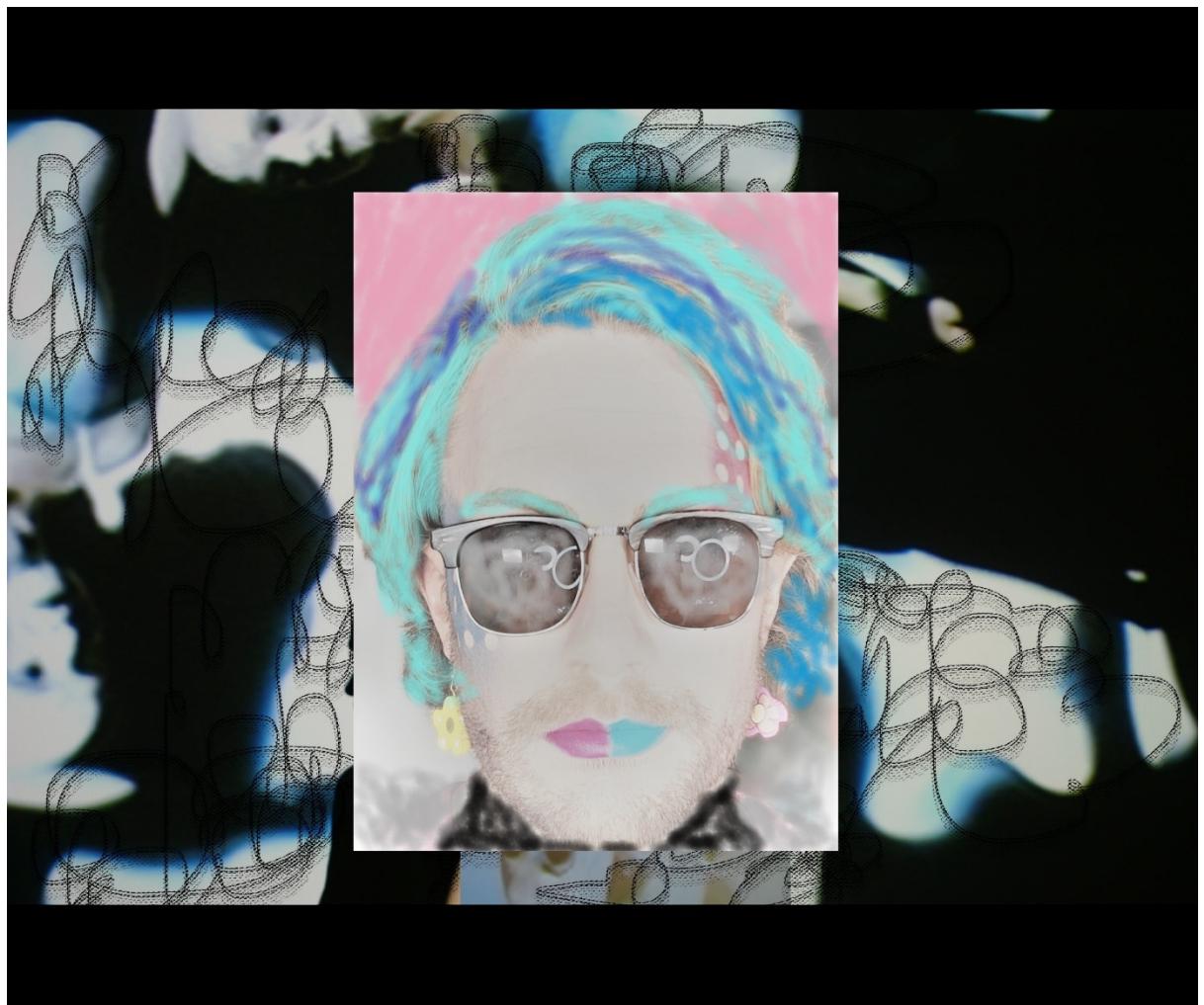
Figure 19: Design for Poster by author (2023).

Aligned with the practice observed in various telematic projects, the emphasis shifted towards foregrounding the diverse proficiencies and cultural identities of the performers. Such a paradigmatic shift underscores the fundamental ethos of telematic performance, wherein the facilitation of international and interdisciplinary collaboration is underscored as a pivotal endeavour enabled by technology.

In the final stages of preparation, more attention turned towards crafting the aesthetics for the background of the online actors. It was imperative to select a theatrical backdrop that would inject vibrancy into the room and accentuate the visual impact of the screens. Opting to maintain a darker ambiance for the physical

dancers, I opted for colourful stock image backgrounds for the online actors. Initially, I found the straightforward liveliness of the actors on screen to be lacking in the desired aesthetic. My vision was to achieve an ambiance reminiscent of a metaverse space rather than a conventional theatrical backdrop. During online rehearsals with the two Romanian actors, we experimented with various screen settings. Upon activating the 'I have a Green Screen' feature within the visual output on Zoom, an unexpected yet aesthetically pleasing transformation occurred: the background and actors underwent a distortion that evoked the essence of modern Pop Art. This serendipitous discovery proved to be an ideal fit for the project, offering a captivating visual element that aligned perfectly with the artistic vision. Below is an image capturing this transformative moment, showcasing the accidental yet striking revelation.
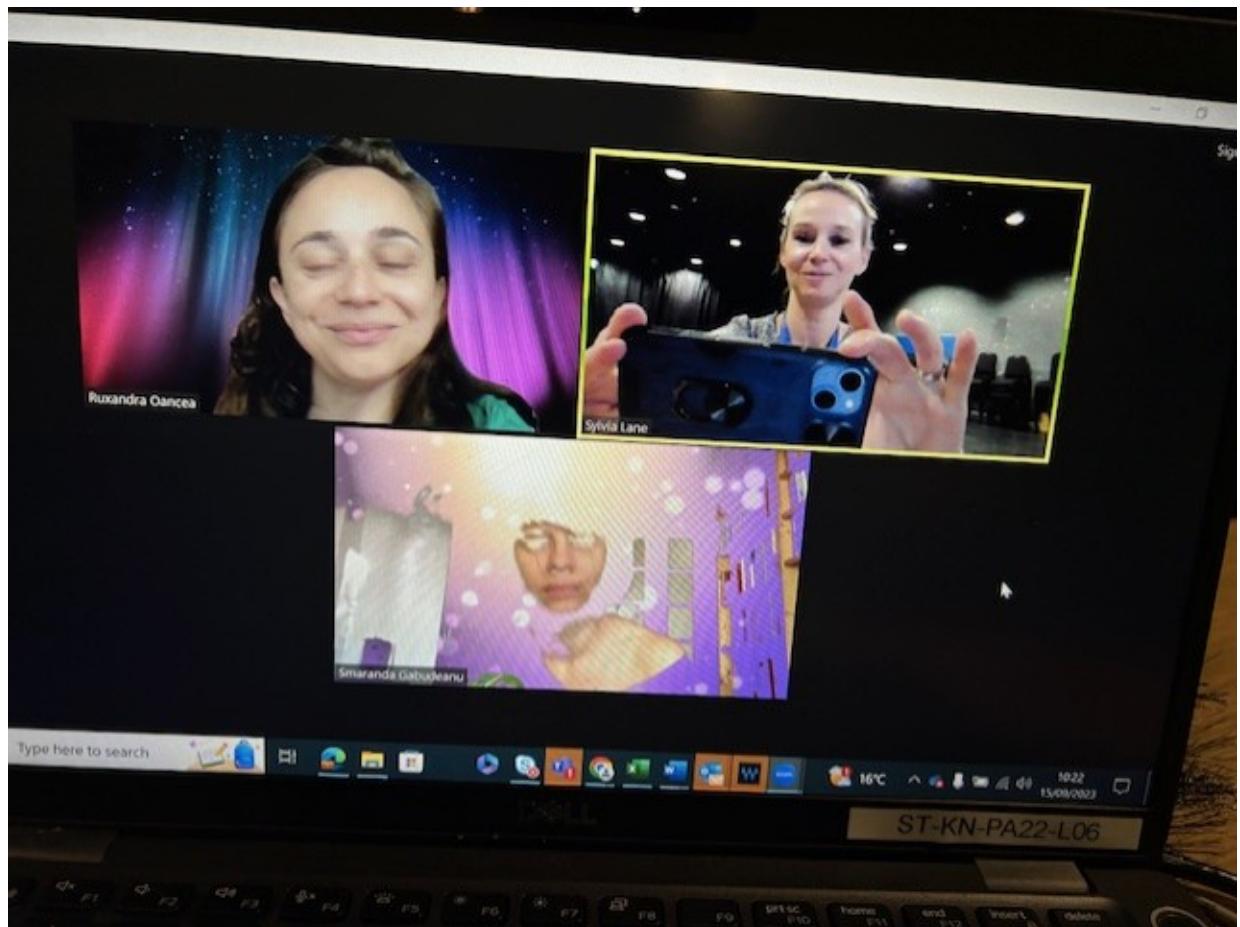
Figure 20: Screenshot during Zoom Rehearsal with actors in Romania whilst designing the pop art background (2023). The actor in the upper left corner used the plain image background, vs. the actor in the bottom window, who applied the green screen setting. Photograph by author.

For audio configuration, we opted for Zoom's live performance audio feature, carefully ensuring that the background noise suppression option was deactivated to prevent any potential feedback issues.

This segment concludes the project's framework and underlying rationale. The subsequent section will delve into the rehearsal proceedings and the live performance, comprehensively analysing the project's execution.

4.2 Rehearsal and Performance

In telematic performance, the intricacies of professional rehearsal processes are paramount to realising a cohesive and immersive artistic production. The narrative unfolds within a multidimensional landscape, where the convergence of digital connectivity and artistic expression engenders a dynamic interplay of creative energies and technical precision. Despite disparate geographical locations, creating in a physical environment connected to a virtual rehearsal studio allows creators and performers to embark upon a journey of collaborative exploration. Rooted in practice-led research, the telematic rehearsal process became a significant arena for artistic experimentation and theoretical inquiry, carefully guided by the orchestration of technology.

As director and choreographer, I assumed a dual role as conductor and facilitator, orchestrating the performers' technologically mediated interactions with precision and spontaneous thinking. Drawing upon theoretical frameworks from media studies and performance theory, the intricate terrain of telematic performance adds another

dimension to a rehearsal process, deftly weaving together the added challenge of digital connectivity.

Like during my previously staged telematic performance projects, performers were encouraged to engage in a mix of improvisation exercises, set choreography, and digital manipulation, their movements mediated by the presence of the screens. Through practicing synthesis of physical presence and digital mediation, the performers were encouraged to traverse the liminal thresholds of telepresence, embodying the transformative potential of virtual embodiment.

However, the technological infrastructure formed the backbone of the rehearsal process; its robustness and reliability were essential to the seamless integration of disparate elements. Microphones, cameras, and network connectivity are conduits for transmitting artistic vision, facilitating the fluid exchange of creative impulses across virtual boundaries. As the rehearsal unfolded, the complexities of working in a technologically mediated space whilst negotiating the nuances of latency, sound and visual issues were challenging. Regardless, these challenges led me to new insights through the lens of collaborative online exploration, which became naturally clearer throughout the process.

Rehearsals commenced approximately two weeks before the performances, which were scheduled for September 28th, 2023, at 6 pm and 6.30 pm, respectively. Due to the disparate geographic locations and divergent schedules of the cast members, flexibility was needed in orchestrating rehearsals with the remote performers. Initially, individualised rehearsals were conducted online with each actor. Given the volunteer nature of their participation, temporal constraints were an issue. However, the conceptual framework of predominantly monologues helped with some of these logistical complexities.

Notably, in the wake of the pandemic, a palpable adaptation to the online naturally developed, thereby streamlining the rehearsal process. The actors enlisted for the project demonstrated a notable experience of rehearsing within an online environment. Despite the deleterious impact endured by live theatre during the COVID-19 pandemic, opportunities for the entertainment industry to innovate and pivot towards novel models for rehearsal and performance have emerged, potentially engendering enduring ramifications for the sector. The efficacy of the rehearsal process was markedly augmented by the online participants' pre-existing familiarity with virtual conferencing platforms such as Zoom, facilitating easier navigation of the hybrid setting.

Likewise, Hanganu further confirmed that rehearsal and performance in a hybrid space could extend and challenge our understanding of theatricality and performativity. Through accepting other types of presence other than the human physical body, the pandemic shone a light on the need for identifying new ways of what theatre of the future could be like:

> In the crude light of the pandemic, telematic theatre may well begin to see itself as a mark of creative resilience and a way of overcoming our shared vulnerability. In parallel, mainstream theatre, currently brought to its limits, could expand its pallet of expression, its rehearsal methods, and its understanding of 'presence' (Hanganu, 2020, p.9).

The experiential insights garnered during rehearsals in the initial creative phase for EPI 2.0 proved invaluable in optimising the efficacy of the collaborative process within the hybrid space. The sessions with the actors were dedicated to script

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refinement and experimentation with diverse audio-visual configurations. Conversely, the choreographic sessions with the dancers adhered to conventional practice, predicated upon a sequential pedagogical approach. Initially, the dancers were tasked with mastering choreographic sequences within the confines of a traditional dance studio milieu. Subsequently, the choreography was adapted to accommodate the spatial restrictions posed by screens.

Integrating the project into the undergraduate dance curriculum was valuable from a scholarly aspect, affording the participating student performers an opportunity for practice-led research within an intermedial environment. Simultaneously, it served as a platform for their immersion in a novel technologically mediated performance space, fostering the understanding of digital adaptations. A pedagogical dualism permeated the initiative, wherein the actual performance sought to provide a substantive dance video project for the students, thereby augmenting their aptitude in camera technique and facilitating their vocational development. A specialist dance videographer documented the dress rehearsal and two subsequent performances with roaming and static camera set-ups.

Below are a few screenshots from the final rehearsals:
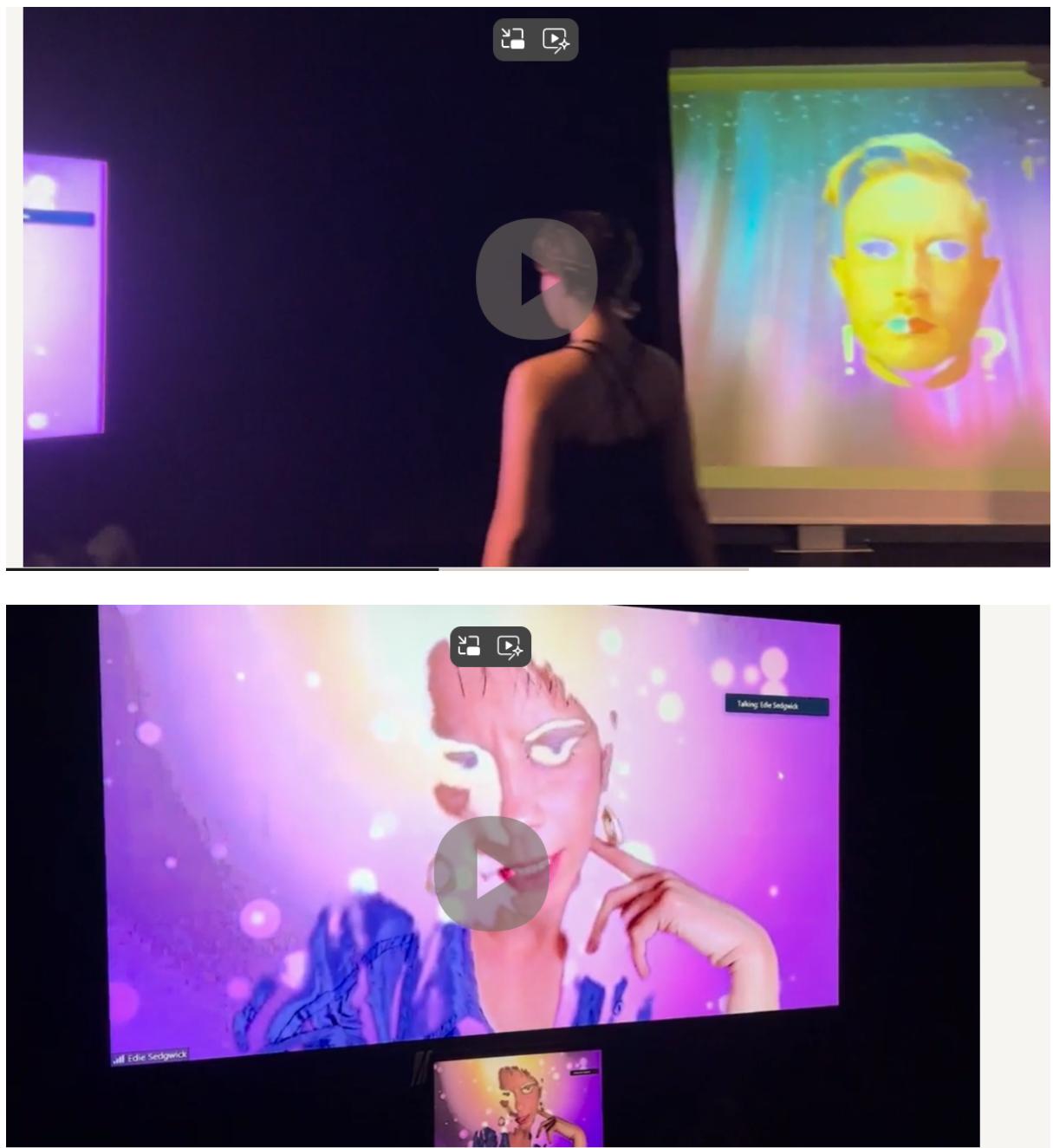
Figure 21: Rehearsal Screen Shots by author (2023)

The illustration above offers a glimpse into the achieved aesthetic picture on one of

the screens during a rehearsal session, showcasing the portrayal of Edie Sedgwick.

Rather than solely relying on a single webcam feed, the decision was made to

prominently display the laptop screen, a choice motivated by its contribution to the

overall artistic presentation and its inherent flexibility, facilitating swift adjustments if necessary.

The rehearsal process for EPI 2.0 emphasised the imperative of meticulous planning and continual experimentation, necessitating a willingness to incorporate spontaneous adaptations into the final presentation. Given the inherent unpredictability of telecommunication technologies and the omnipresent risk of latency or 'lag', the artistic domain of telematic performance appears inherently restricted to fostering meaningful interaction. Hence, throughout the rehearsal process of EPI 2.0, performers were encouraged to adopt a heightened sensory approach to the development and interpretation of characters, music, script, and movement. Despite the enriching milieu afforded by a multicultural and educational environment, navigating the diverse range of abilities and levels of commitment among participants presented further notable challenges. Individualised experiences, training and experience, and nuanced understandings of performance methodologies naturally influenced their cognitive processes. Introducing technological elements into this multifaceted mix further compounded complexities, particularly for undergraduate dancers grappling with initial navigational hurdles within the telematic realm. Scholarly insights, such as those elucidated by Lamont (2012), confirmed the profound impact of both positive and negative personal affectations on the creative process and subsequent production outcomes. Indeed, the pervasive anxiety stemming from the inherently unpredictable milieu of mediated performance spaces can significantly impinge upon a performer's capacity to deliver a seamlessly connected and emotionally resonant performance (Lamont, 2012, p. 575).

Technology can disrupt the ability to fully immerse in what is traditionally described as an 'emotionally connected performance'. I found this to be the case on

occasions with the even more experienced online actors. For instance, when we encountered the incident concerning audio settings during the final dress rehearsal, the actor was unable to hear anything whilst also distorting their voice intermittently (more detail in the next section). The unfortunate occurrence unfolded mere moments before our final dress rehearsal, scheduled an hour prior to the commencement of the show. Through concerted efforts, we rectified the issue in due course. However, the ensuing delay and attendant commotion undeniably took its toll on the affected individual's performance during the rehearsal, precipitating a perceptible disruption in the overall flow of proceedings. Referring to the manifold challenges inherent to telematic environments impacted the performers' ability to fully engage their sensory perceptions.

Since the remote performers were isolated in separate Zoom calls, they could not engage in the customary interplay or provide physical assistance to one another (as actors would in a physical shared space). Undoubtedly, this posed the most formidable challenge throughout the project, culminating in a notably stressful dress rehearsal. Initially, I created a WhatsApp group for communication purposes, however its effectiveness was limited. With performers isolated in separate Zoom calls, communication became fragmented and presented considerable challenges. Addressing issues and troubleshooting required individual attention to each screen, further compounded by the issue that the online performers did not have a clear view of the performance space due to varied angles and camera placements. Consequently, managing the audio-visual set-up was the most formidable challenge encountered throughout the project.

The gallery-style configuration and immersive audience engagement characteristic of EPI 2.0, made it necessary to work on establishing clear visual cues for the remote

actors. It was paramount to enable seamless coordination with the live performers in the space. This critical aspect was further compounded by the dispersion of audio originating from disparate speakers positioned throughout the performance space, creating a formidable challenge for online actors striving to engross themselves fully in the unfolding proceedings. To mitigate this challenge, a strategic allocation of specific dancers to each actor was devised, wherein a designated gesture prompted the commencement of dialogue thereby fostering a semblance of synchrony (example: in Appendix 1, p. 323; recording of roaming camera; Show 1, at 4:50, the dancer moves to the camera making a clear gesture for the actor to prompt the start of the monologue). While effective in ensuring temporal coherence, such mechanisms may inadvertently detract from an actor's immersive engagement and experiential immersion, underscoring the delicate balance inherent in telematic performance dynamics. However, it was noted that regardless of the body's presence, live on screen or in person, the emotional and sensory intensity would affect the body's automatic responses (Baker, 2016).

The rehearsal process was sufficient to find solutions to some of these problems. Furthermore, the opportunity to test and refine the material throughout a rehearsal process in an academic setting provided a cost-effective way. It allowed me to assess EPI 2.0's quality without going through the lengthy, costly and risky business of staging a professional production, which is standard practice in music and performance (Mallet, 2018). Throughout the process, I engaged in auto-ethnographic documentation, meticulously cataloguing the rehearsal proceedings through copious notes on the scripts, successive drafts of the storyline, and dedicated studio sessions collaborating with my co-creators on choreographic elements. Such a methodological approach proved invaluable, allowing me to revisit and reflect upon the nuanced

intricacies of the creative journey. Moreover, the review of the material and the considered assessments and feedback from the performers fostered a valid opportunity for insight and critical appraisal. The reflective exchanges not only proved valid towards the outcomes of this research but also catalysed the creation of novel insights and creative epiphanies, thus furnishing fertile ground upon which to cultivate a vocabulary of artistic expression emblematic of future collaboration within the realm of mediated performance.

Dress Rehearsal and Performance

While the amalgamation of efforts in the rehearsal phase engendered a sense of excitement as the project took shape, it was not devoid of challenges. On the day of the performance, I scheduled a final dress rehearsal for 5 p.m. to ensure the seamless execution of all elements. Throughout the day, I collaborated closely with the technician to verify the readiness of all audio and visual cues. Notably, I incorporated a live video recording featuring Warhol articulating his original intentions for EPI, strategically overlaying it before the actor's appearance on screen to enrich the narrative. However, despite meticulous preparation, our expectations were challenged as we encountered significant discrepancies in audio and video settings compared to the previous day's configuration when participants logged in at the appointed time. The meticulously crafted aesthetic through the green screen setting realised during the rehearsal process had to be abruptly discarded on the evening of the live showcase. Unexpectedly, a disruptive interference emerged, where the video background inexplicably impinged upon the audio output, distorting the actor's voice to an extent that compromised the integrity of the monologue delivery. This predicament was further compounded by the unforeseen alterations experienced

upon re-entry into the performance space on the day of the live showcase, despite the comprehensive tech rehearsals conducted on the previous day. Consequently, a frantic effort ensued, necessitating the complete overhaul of audio configurations and visual settings merely an hour before the audience arrived, evoking considerable stress and apprehension. An introspective analysis throughout this exigent process underscored the inherent limitations associated with the adopted 'low-tech' modality, a notable difference I experienced from the more intricate and complex frameworks I used in my previous work. In a frantic attempt to troubleshoot, the particular screen proved exceptionally problematic, compelling us to relinquish the desired pop art effect for a more conventional aesthetic to ensure more precise audio quality (Example: Appendix 1, p.323; recording roaming camera show 1, at 4 minutes 30 seconds). The perplexing interference between audio and video settings posed a nuisance and a complete riddle at that time. By 5:30 p.m., despite some lingering technical challenges that remained unresolved, I decided to proceed with the rehearsal, hopeful that these issues would dissipate during the run-through. Fortunately, several of these concerns resolved themselves before the live performance commenced. Given the circumstances, the rehearsal proceeded smoothly, allowing us to complete an entire run without interruption and concluding with approximately three minutes to spare.

Meanwhile, the audience had already congregated outside the Blackbox Studio space, awaiting the commencement of the performance. Ideally, I would have preferred to conduct the final rehearsal earlier in the day; however, logistical constraints stemming from the performers' schedules necessitated a rehearsal closer to the performance time. Consequently, I had minimal time for notes or adjustments; my primary focus at this stage was ensuring the seamless integration of technology.

In a brief moment before the performance, I expressed my gratitude to everyone

involved and reassured the online actors of the clarity of their audio and video feeds.

The professionalism exhibited by the performers instilled confidence in me, and I was

sure that the novelty of the experience would overshadow any technical hiccups

during the performance itself. At precisely 6:02 p.m., I ushered the audience into the

space. As this performance formed part of a research endeavour, I gave the audience a

brief overview of the project's objectives and imparted pertinent health and safety

instructions. With the performers, technicians, photographers, videographers, and a

colleague facilitating the webinar streaming via their phone, we were poised to

commence the show.

Despite the tumultuous circumstances preceding the live showcases, the integrity

of the set-up persevered relatively unscathed during the performances. Occasional

instances of truncated speech and discernible lag on the Warhol central screen,

wherein vocal audio preceded corresponding mouth movements, were the extent of

notable technical implications (Example: Appendix 1, roaming camera show 2, p. 323;

at 48 seconds and again at 1:12). However, it was noted later on by audience

members, that such imperfections, endemic to the utilisation of readily accessible

technologies still in their formative stages, contributed to the inherent artistic

essence of the telematic performance experience. This contention resonated with

insights gained from Sermon's seminal work on Telematic Dreaming, wherein he

commented on the intriguing experiential dynamics engendered by the conscious

processing of delayed stimuli, as encapsulated within the notion of 'lag' prevalent in

earlier iterations employing ISDN lines:

It produces a delayed reaction. You do something, and then you watch what

you are doing; a moment after you have done something, it happens. You get

into this kind of sync to slow the spacetime continuum down to see where you

are, what you're doing, and understand your presence (Wolfensberger, 2008,

p. 3).

Performing two consecutive shows and a demanding dress rehearsal presented a

formidable challenge. The rationale behind structuring the project that way was to

evaluate its viability as a live immersive virtual experience. Drawing inspiration from

pioneering companies like Punchdrunk, renowned for their innovative work in

immersive performance I sought to emulate their approach within the confines of EPI

2.0. Although our rendition unfolded within a single space rather than across multiple

venues, the fluid progression from the central screen to disparate narratives from

various screens naturally encouraged audience exploration and spatial curiosity. The

grand finale, characterised by a crescendo of a dance performance, aimed to unify the

audience in a central space, thus delivering a climactic and conclusive experience

(Example: Appendix 1, p. 323; both shows at approximately 18 minutes). The design

ethos mirrors the strategies employed by immersive theatre companies such as

Punchdrunk, who often conclude their productions with a traditional closing scene to

provide a sense of narrative resolution:

At the end of the night, the audience, then scattered across the building in

the pursuit of their journey, is guided to the space where the closing scene is to

be performed, and they all gather, along with the performers. The finale marks

the end of the show and the narrative (Prudhon, 2018, p.7).

The performances proceeded relatively smoothly, albeit with minor discrepancies between them. The initial showing enjoyed a more vibrant audience response, whereas the second encountered a few more minor technical hiccups. For example, the main screen's video momentarily froze, resulting in subdued energy and some actors faltering in their delivery, notably slowing down their dialogue. Despite these challenges, both performances adhered to the scheduled timeline, experiencing slight delays and avoiding any significant glitches that could have compromised the piece's integrity.

The multi-screen set-up and immersive nature of the performance pushed the boundaries of my capabilities as a telematic performance creator and researcher. While I possess considerable experience in the field, transitioning from a conventional single-screen display with a single technological interface to managing five distinct screens proved formidable. However, this project served as a valuable learning experience, demonstrating the feasibility of such complex arrangements. With a more significant budget allocation, the potential exists to enhance major commercial productions, such as those orchestrated by Punchdrunk, by integrating remote performers into the live experience. For example, using new technologies, such as holograms, could further advance performance aesthetics. In short, holographic technologies, which have undergone significant advancements in recent years, enable individuals, animals, and objects to appear as life-sized representations in remote locations, facilitated by a fusion of videoconferencing and projection technologies (Lombardo, 2020). Thus, incorporating such 'high-tech' innovations could enrich an immersive performance experience, offering a glimpse into the future possibilities of telematic artistry.

Overall, I am content with the outcomes of the project, as they have deepened my comprehension of the intricacies involved in designing and executing a new way of telematic project. These new findings, in conjunction with the feedback received from both performers and audiences, provide further insights into the project's efficacy and potential areas for refinement as presented in the following section.

4.3: Audience Feedback: Results and Discussion

What was positive to note was that audience attendance was very good; the first show at 6 p.m. was sold out at 30 places in the live room, with an online audience for the live stream of 18. The second performance at 6.30 p.m. was nearly complete, with 25 people in the live space and ten online. While my primary concern was to create an experience for the physically present audience, the substantial number of online spectators pleasantly surprised me. To enhance their immersive experience, I enlisted the help of a co-choreographer to navigate the performance space with a mobile phone linked to the webinar. This approach proved more effective than using a static camera. For instance, Yoni Prior (2014), whose work I referenced earlier in this thesis, critiqued her early experiments in the telematic space as deeply unsatisfying for remote audiences. She noted that creating a satisfactory visual theatre space is challenged by the typical set-up of flat, projected actors on a screen behind local actors, which restricts mutual visibility and impacts the audience's overall experience (p. 179). In subsequent works, Prior frequently adjusted the set-ups to optimise the spatial relationships between the 'real' stage and the screens. Like several other scholars discussed in previous chapters, she emphasised the importance of incorporating 'lag' in telematic performance (p. 185). It often translates into dramatic pauses filled with physical reactions and 'conducting' prompts through the

transmission technology. Hence I wanted to ensure that the remote audience would feel a similar kind of immersion to those physically present in the space. The telematic adaptation of Warhol's original production through EPI 2.0 provided multi-faceted results, reflecting the complexity of mixing performance spaces between physical and digital realms. Central to the project's aim was cultivating a sense of 'virtual presence,' wherein participants and audiences feel immersed in the shared, live telematic space despite physical separation. By harnessing telecommunication technologies like Zoom, the project blurred the boundaries between performer and spectator, performer and performer, and physical and virtual environments. The dynamic interplay of audio-visual stimuli, interactive interfaces, and networked communication channels has long fostered new modes of audience engagement and aesthetic experiences in intermedial performance settings. Therefore, an important objective for me was to devise a set-up to discover any benefits of using 'low-tech' equipment for experimentation as described in Pérez (2014, p. 2). Leveraging a simple Zoom set-up proved highly efficacious for this purpose. Moreover, the project highlights the democratising potential of telematic performance, enabling participation across geographical distances and socio-cultural collaboration. Through post-performance reflections and audience feedback, this section elucidates how the telematic adaptation of EPI 2.0 resonated with contemporary audiences and contributes to the ongoing discourse surrounding digital art, telepresence, and collective creativity.

In order to capture feedback, I created a QR code linked to a Padlet questionnaire on which people could leave their comments. However, the most useful feedback I received was from two specialist telematic researchers, Ximena Alarcón Díaz (introduced below), who attended in person, and Marina Hanganu (Case Study:

Generation 200), who joined online from Romania (both offered contributions to valuable discussions afterwards). The mixture of Padlet questionnaires plus some direct interviews (in person and via email) formed the main body to collect audience and participants' feedback. I will refer to the two telematic researchers, Hanganu, and Alarcón Díaz by name. The general feedback on Padlet was registered anonymously to allow for the privacy of attendees.

Alarcón Díaz is famous for her piece called Networked Migrations, which 'explores the 'in-between' sonic space within the context of migration through deep listening and improvisatory performances across and through the Internet to expand the perceived spaces that inform the migratory experience' (Alarcón Díaz, 2021).

Her focus on explaining and exploring the sense of presence within telepresence is to find an embodied interface that would support multi-sensory experiences in a digitally mediated hybrid space. Alarcón Díaz's work uses breath, 'listening' to dreams, experiences of physical spaces and 'walking to find a place'. It creates a process of helping to start their new journey as settlers, creating an opportunity for transition into a new life (Ars Electronica: *Festival for Art*, 2020). Her piece Intimal culminated in a telematic performance in 2019 featuring nine Columbian migrant women based in London, Oslo and Barcelona, connected through newly developed software. The aims included exploring the context of place and presence challenged by migration through a new innovative 'embodied' virtual-physical system for relational listening (Ars Electronica: *Festival for Art*, 2020). The software modules include 'Respiro' breathing sensors and transmitters to telematically sonify breath for improved listening, Memento which acts as sensors of movement through a mobile form, allowing participants to receive signals in order to inter-relate the stories, and Transmission, an improved audio experience facilitated through OBS broadcasting

systems, YouTube, Zoom and Discord apps (Alarcón Díaz, 2019). As in Annie

Abrahams's work (e.g. Chapter 2), Alarcón Díaz uses breath as an emotional bridge

within telepresence.

Alarcón Díaz gave me feedback in a live discussion after the performance and some

written thoughts via email exchange afterwards. For this project, engaging in a rich

discussion was more beneficial than relying on just the data from the audience's

anonymous feedback.

Summary of the discussions:

Alarcón Díaz found the mediatic appearance of each original character in the

performance to be very aesthetically attractive, through a 'full explosion of

colour'. She was intrigued by the symmetry of the screens as a stage, evoking

hierarchical spaces with Warhol at the centre. She wondered if I tried to recreate the

original stage. However, I explained that some of the frontal aspect of the main screen

was meant to replicate the original. However, the additional monitors in the room

were not part of the 1966 production. She further mentioned that the 'plastic texture

of media with hyper-colours in the contemporary world' was particularly interesting,

especially with the Zoom platform. She has not seen colour 'explode in that way' on

other video-conferencing systems, which she considered another entire topic to

explore. Hanganu somewhat agreed to this with a similar statement:

I liked the psychedelic aesthetic since Warhol's was one of the first multimedia

performances. I liked the 'exploded' video grid, with windows removed and

transformed into individual screens. The performance is like a tool for

excavating/reinterpreting a milestone of multimedia pre-digital performance

(Hanganu, 2023)

The serendipitous discovery of the Zoom setting that produced the distinctive visual effect on the actors' screens emerged as one of my most valued findings (despite the glitch of one screen mentioned in the rehearsal section). Such enhancement added vibrant colour to the overall atmosphere and reduced the need for extensive stage lighting. Feedback from anonymous comments on Padlet corroborated this positive impact. Drawing upon the theories of Petralia (2010), the interplay between the image-on-screen and the body-in-space is contextualised within the audience member's physical experience. Petralia asserts that 'egocentric and proprioceptive perceptions are notable for how they relate to the body' (p. 139), emphasising that the audience's physical experience is central to their emotional engagement and affect. The allure of telematic performance, whether as active participants or passive spectators, may be improved by the visual experience, thus creating a juxtaposition of 'live' and 'real' despite the constraints of the technical mediums. The enhanced colour is meant to emphasise the mediated Pop Art experience, significantly enriching the audience's experiences as indicated by the feedback.

Regarding the script, Alarcón Díaz praised the focus on the words, the dramaturgy of each character, and their emotional depth; she felt that each character was distinctly portrayed, even for those who were unfamiliar. She described the format as evoking a 'real-time' memory with profound nostalgia for the 1960s while conveying a vitality and artistic quest shaped by contemporary circumstances. The feedback aligned well with my intention for the soliloquies, which aimed to resurrect the

deceased artists, presenting them as reincarnations rather than exact replicas of their original personas.

Anonymous audience members made several comments regarding the voice of Warhol being out of sync at times. Alarcón Díaz noted that this delay artistically added to the 15 Minutes of Fame concept. She liked the time dimension in the telematic transmission and how it contributed to the entire performance. When I asked her if the different sound qualities of each computer were problematic, she stated that it helped to determine the presence of each performer. She noticed that the two performers who struggled to be heard due to lower audio levels moved more, seemingly activated by the physical presence of the dancers. She interpreted this as a way for them to compensate for their presence, even if they could not hear the audio level themselves.

In discussing the hybrid immersion model, Alarcón Díaz observed that the initial sounds created a sense of anticipation and suggested a mechanical breathing rhythm. She appreciated how the hand gestures on the screens indicated the physical embodiment of the virtual talking heads from the audience's perspective. Alarcón Díaz interpreted the dancers accompanying each monologue as translating the still, unseen bodies of the speakers. In her view, the dancers' eye contact with the audience was compelling in the transmission. She perceived them as extensions of the speakers, who appeared to be 'trapped in the screens and their memories'. Regarding the collective work of the dancers, Alarcón Díaz noted how they formed a flexible wheel, evoking an exciting sense of plasticity. She found the contrast between the virtual heads and the physical bodies potent and compelling. The inclusion of oriental dance and the focus on hand movements as a sensorium particularly intrigued her.

Whilst Alarcón Díaz enjoyed the dance performance and the immersion in the physical space, she missed the connection with the virtual performers during the collective dances. She felt the connections the four dancers established accompanying each character's speech were lost. There were some similar remarks from some online audience members and within the Padlet feedback. Alarcón Díaz felt that the explosion of colour, words, emotions, and the spectators of the dance surrounded the audience. Some audience members were moving to the music and dancing, but the separation between the stage and the audience was difficult to dissolve (Example: Appendix 1, footage of both shows, p.323; around 17 minutes, just before the main dance section). She was curious about the immersion aspect, wondering if more time was needed and if the audience could activate the 'talking heads', allowing them to speak simultaneously and overlap their words. Alarcón Díaz pondered the dominating presence of the screens and their stillness; to her they appeared to become mere observers for the principal dancers and the audience. She suggested that if the virtual performers dissolved into their colours and brought their presence through words, there might be greater audience immersion with the dancers in the physical space and less focus on the 'heads'.

She felt that trying to pay attention simultaneously to the screens and the dancers hindered the immersion. However, she acknowledged that the experience was highly subjective. Hanganu, who sent me her feedback via email, agreed to this and further suggested:

> If you plan to build on this performance, the next stage, from my point of view, would be to expand the 'metaverse'. Perhaps some interaction between the remote performers and/or the performers and the audience could enhance the

sense of the virtual being imbricated into the physical and also underline the

liveness of the onscreen performance (Hanganu, 2023).

I fully concur with the feedback received for this project, as some moments during the

performance hindered full participation in the live performance. In retrospect, some

choreography was overly complex and would have benefited from simplification.

Additionally, the positioning of the podium dancers proved ineffective, as they

seemed to disappear within the piece and did not significantly contribute to the

overall experience. Hanganu picked up on some technical glitches, noting that in the

Zoom Windows some of the characters' names appearing wrong, as the actors from

Coventry University forgot to change their Zoom names back to their characters. Due

to time constraints and focus on recurring audio issues, the name display was not

followed up. This slightly disturbed the intentionality behind these distinctions and

potentially impacted on the audience's understanding of character identity. Hanganu

confirmed that technical challenges, such as the disappearance or malfunction of

presets, are not uncommon in complex multimedia performances. She reflected in our

discussion that similar issues were encountered during the rehearsals for her

telematic production of 2032 SMART-Family, where updates to the custom-made

interface frequently disrupted preset videos and robotic camera movements. Hence,

such challenges highlight that even with robust technical planning, flexibility is

essential in live multimedia performances.

Hanganu raised another critical point for consideration: If the online audience

window were displayed anywhere, would it (if at all) contribute to the overall

immersive experience? Perhaps this approach could enhance the 'expanded

metaverse' where the focal point is the interaction between remote performers and

the audience. Such interaction could reinforce the imbrication of the virtual into the

physical, emphasising the liveness of the onscreen performance. The conversation

later inspired me to connect those findings to the new concept of a Telematic

Multiverse, as explored in Chapter 5.

Figure 22: Motion captured images demonstrating audience immersion and live dancers connected to the lights and energies from the screens (2023). Photographs courtesy of Dimi, UCW Media Department.

The contrast in visual effects, where some actors had the psychedelic effect while others maintained a virtual background, played a significant role in audience perception. This contrast allowed for the discernment of facial expressions and created a dynamic interplay between proximity and concealment, adding depth to the characters' intimate monologues. The choice to manipulate degrees of disclosure and distance effectively conveyed the characters' varied levels of vulnerability. Generally, several comments on the Padlet confirmed that this aesthetic worked well. Overall, the more qualitative comments were more helpful; particularly those suggesting what could be done to take the concept further in future explorations. Most comments on Padlet were more generic, as could be expected from a non-paying audience, mainly consisting from undergraduate students, some curious industry professionals, and a

few academics. The average comments could have added to the conclusions.

However, they were lovely to receive:

'I think it was a really good performance, it felt very professional and it was really

creative' (Anonymous, 2023).

4.4: Conclusion and Concerns

The performance of EPI 2.0 aligns with a broader trend in academic research,

reflecting a significant shift from theoretical frameworks to practice-led approaches.

Such transition underscores a growing recognition of the importance of practical

engagement as a form of research, offering fresh insights and methodologies to

explore the complex dynamics of telematic performance.

As noted by Hanganu, Warhol's multimedia performances pioneered a psychedelic

aesthetic and innovative technological integration in art. The ambition to trial the

recreation of 'the world's biggest Discotheque' was partially realised during EPI 2.0,

evidenced by audience feedback that suggested it felt like a remarkable experience,

yet there was a notable lack of interaction. Many attendees appreciated the visual and

audio concepts, emphasising their effectiveness, appropriate length, and the historical

context they provided. Whilst EPI 2.0 provided further insights into the conventions

and possibilities of telematic performance making and new considerations, as

discussed in the following chapter, there are notable counterarguments to consider.

While audience comments largely praised the performance, some critiques

emerged around the staging and interaction dynamics. It was suggested that

positioning dancers in various areas might enrich the experience further. The

decision to forego interactive elements involving the 'talking heads' aimed to prevent

chaotic sound issues, leading to a smoother multimedia experience. Yet, this modified

approach relegated the audience to more passive observers, a point of dissatisfaction for some participants. The critique raises questions about the balance between delivering a cohesive performance and fostering audience engagement, which is critical in such immersive formats. Moreover, suggestions for longer performance duration highlight a desire for increased interactivity with the screens. While the shorter experience left some audience members wishing for more, it also indicated that constraining timeframes might limit the depth of engagement that telematic performances can offer.

The interplay of theoretical frameworks with practical exploration in EPI 2.0 effectively illustrates the necessity of integrating diverse methodologies in technologically mediated performance collaborations. Working creatively with online actors contributed to developing a new performance concept and provided a deeper understanding of the consciousness emerging in hybrid performance spaces. As Matthias Fuchs (2009) posits, this dynamic forms the conceptual foundation for various contemporary international networking projects.

Telematic performances embody speculative measures and ideological ideals derived from the need to experiment and disseminate these complex relationships. Nevertheless, while such praxis affords valuable insights, it raises concerns regarding emotional intelligence and its role in mitigating issues within digital spaces.

Creating a telematic performance inspired by Warhol's *Exploding Plastic Inevitable* achieved a balanced blend of historical tribute and technological experimentation. By reimagining EPI for the digital age, the project not only honours Warhol's legacy but also navigates new frontiers in telematic art making. As digital technologies evolve and increasingly influence contemporary life, this project stands as a testament to the

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transformative potential of digital dynamism in fostering artistic expression, cultural exchange, and engagement.

Looking ahead, further research and experimentation in telematic performance promise to illuminate the myriad possibilities and challenges at the intersection of art, technology, and human interaction. On-going exploration lays the groundwork for understanding space decentralisation while fostering new models of intermediality. The following chapter will delve into how these insights may give rise to new performance vocabularies for future mediated art making, balancing both audience engagement and artistic integrity.

5. Metaversing: A New Virtual Intimacy in Hybrid Performance Settings

This chapter delves into an in-depth exploration of how diverse practices in telematic performance can redefine standard terms such as immersive telepresence and intermediality. It seeks to adapt established terminology through the lens of new findings that align with an evolving and more detailed vocabulary, reflecting the rapid developments in digital performance making.

Based on the practice-led research, looking at semiotics within the concept of a 'new metaverse' ignites a transformative vision for telematic performance. In an age where digital technologies continuously reshape our interactions and experiences, this chapter investigates how to navigate the evolving landscape of hybrid performance making, focusing on how these changes call for a re-evaluation of established concepts.

Traditionally, terms like immersive telepresence and intermediality have long provided frameworks for understanding performance in both physical and digital realms. Telematic researchers and practitioners, such as Gorman, support this view. Gorman refers to the physical hybrid presence in telematic performance as 'immersive telepresence' (2021). These terms are useful when discussing a blended physical space, new levels of consciousness and awareness in the metaverse. However, as artists and technologists experiment with new modalities and concerns, such as intimacy in a mediated space, we should challenge these conventional definitions (Minns and Mourad, 2020). The exploration of a potential telematic metaverse emphasises the significance of adapting language to capture the nuances of contemporary practices, highlighting the intersection of bodily presence and virtual engagement.

By introducing a new vocabulary that reflects these innovations, the chapter delves into the analysis of consciousness within the experiential dimensions of telematic performance. It recognises that the relationship between performers and audiences is being redefined in hybrid settings, where physical and digital existences intertwine. As such, it not only seeks to articulate the changing dynamics of participation and connection but also opens a dialogue about the implications of potential new forms of intimacy.

Through the previous comprehensive examination of case studies, practical research and analysis of new emerging works, this chapter invites further consideration of how these intermedial shifts can enhance our understanding of the art form. Ultimately, it posits that by embracing an evolving lexicon, we can better appreciate the rich tapestry of experiences that telematic performance offers, paving the way for a deeper engagement with both the art itself and the wider cultures and communities it connects. Lastly, the findings, as well as the ongoing discussions and results from interviews inform the challenges that imminently arise from these fairly new territories, which could be classed as a decentralised space without 'border controls'.

5.1: The Metaverse and Immersive Telepresence through the Lens of Social Semiotics

Like Roger Mills' (2019) suggestion that online jamming, which involves music improvisation in real time, poses unique challenges to intercultural interaction, the physical challenges in the virtual collaborative space provide similar restrictions. During a music jam session, for example, the performers have to negotiate differences in musical style, communication protocols, and cultural norms, all while navigating

the limitations of the technology (Mills, 2019, p. 307). The limitations that a technologically mediated space provides for dance, movement and visual interactive interplay as I experimented with during EPI 2.0, created room for navigating a new landscape of performance protocols, which I refer to in this chapter as 'metaverse/metaversing'. According to one of the leading internet domains for a collaborative digital community called Meta, '[t]he Metaverse will be built by everyone, with creative ideas and practical applications being developed daily by all sorts of imaginative people' (2024). Science fiction, gaming platforms and virtual worlds like Second Life, Decentraland and Fortnight have long referred to the merge of digital and real space as the metaverse (Dwivali *et al.,* 2022). The idea of the metaverse in the realm of general knowledge is that the intention is to become a very common 'playground' for most of the developed world. 'The metaverse is essentially a merging of virtual, augmented, and physical reality, and blurs the line between your online interactions and real-life' (Hou, 2021). This is particularly the case in work that includes advanced robots or virtual headsets. Hemmati (2022) further argued that a move into the metaverse changes the landscape and perception of urban audiences:

> Given that the metaverse seeks to reconstruct the world, its emergence seems to influence the urban landscape, which is a product of the perceptual interactions between humans and the city (p.53).

Currently, there is a compelling indication that telematic performance is poised to play a significant role in the emergence of the metaverse. Such shifts are primarily driven by recent performance works post-2020, which are increasingly inclined to integrate real environments with Augmented Reality (AR). The concept of

'metaversing' has yet to gain widespread recognition in the realm of virtual

performance creation and is a rather vague and broad definition. However, as the

term itself is yet to be copyrighted to a specific realm, I argue that it can be a more

playful way to add it to intermedial performance creation.

Comparing the more rational and calculated decisions of data-driven machines to

human behaviour and decision-making is complex and problematic for a number of

reasons. For example, integrating telematic collaboration through AI and VR

technologies is becoming increasingly common. In order to find answers to the

question of creating a new vocabulary, I compared my practice of creating a telematic

metaverse through EPI 2.0 with other emerging works, trying to identify similar

objectives. For example, one of Debaig's works, *Dancing in the Metaverse,* illustrates

how dancers in remote locations connect 'physical touch' using motion-capture

(Mocap) technologies while improvising movements in a blended virtual space. In the

piece, dancers' images were transformed into avatars, guided by haptic feedback

within their suits initiated by AI that reacted to their movements. Although human

decision-making remained a factor, the interaction was also influenced by the sensory

prompts created through these technological stimuli. An interactive HCI relationship

fosters a collaborative process where the computer and the human contribute to

decision-making. It is essential to harmoniously integrate machines to ensure that

computers do not dominate the process but are programmed to provide more choices

and decisions as long as the systems allow for variability (Garibaldi, 2019, p.1).

The experiment served to find a way to create a sense of virtual presence,

proximity and touch (Debaig, 2021a). The image below captures the artistry between

the live performer (shadow to the right) and the avatars in the virtual space:

Figure 23: Virtual Touch, Virtual Dancing (Debaig, 2021a). Screenshot at 13 seconds, Goldsmiths University. Courtesy of Clemence Debaig.

In examining Debaig's pioneering contributions during an era characterised by physical constraints in 2021, it became evident that the work was integral to exploring the technologically mediated possibilities within the virtual domain. However, I found that these high-tech set-ups create too much of a sense of anonymity in the space, restricting understanding the semiotics of genuine emotional connection. Furthermore, during my enquiry I wanted to further investigate how a physical audience navigates the nuanced relationship at the intersection of the physical and virtual realms. Technologies that enhance hybrid performance collaboration are an area in which creators like Debaig have already excelled, and they are a field that is currently exhaustively explored. However, I found it problematic to capture the implications of technological integration on our emotional intelligence, which hinders the development of interpersonal relationships between performers and audiences. Hence, the notion of physical intimacy in a hybrid metaverse is a curious challenge open to multiple explanations and interpretations.

During EPI 2.0, establishing a meaningful connection through the spatial design was paramount for me. I aimed to offer audiences a choice: they could engage more deeply with the virtual screens, which were intentionally designed to be visually striking and captivating. In contrast, the live performers were dressed in darker costumes, allowing them to maintain a subtle and neutral presence. This choice was deliberate, as it allowed the performers to embody the vibrant, pop art-inspired visions presented on the screens without overwhelming the audience.

By orchestrating a dynamic between the vivid screens and the understated live performers, I created a semiotic visual realm that enhanced the overall experience, fostering a more intimate sense of immersion. The interplay between the technologies and the live elements encouraged the audience to forge their own connections, enriching their experience and deepening their engagement with the work. Overall, this approach not only highlighted the significance of the individual elements but also celebrated the unique dialogue that emerged between them.

The diverse art forms within telematic performance, irrespective of the selected or favoured metaverse for exploration, provide various avenues for delving into an emerging intimacy, which is one of the central themes within the digitally blended creative space. As a dancer and choreographer, I experienced first hand the profound knowledge and intimacy a dancer exudes through physical training. This training fosters a conscious connection between the body's structure and its movements about space and time. Engaging in experimentation within a blended space can contradict such physical interplay, demanding the utilisation of our training, sensory perceptions, and mutual motivation in order to be able to navigate the mediating tools employed. This was especially noticeable during the rehearsal process. For some of the young dancers, establishing a physical connection with another

performer on a screen was challenging. Initially, they were reluctant to view such online presence as a real partner. It was particularly difficult for the dancers who conveyed the narrative through improvisational movements during the process.

As Birringer articulates, our understanding of intimacy typically does not extend to machines or the capacity for physical closeness across remote distances, even as our senses undeniably extend into space and connect us to that which remains unseen (Chatzichristodoulou and Zerihan, 2012, p. 144). However, I observed a marked shift in connection dynamics from my early telematic experimentation between 2015 and 2017, in comparison to the EPI 2.0 project in 2023. Following the onset of more excellent connectivity and the expansion of the online space since 2020, the nature of performer interactions has evolved significantly. The novelty and realisation of boundary-less performance creation emerged as a compelling concept, directing attention towards how technology facilitates our ability to connect and traverse a collaborative virtual landscape.

Post-COVID-19, performers showed diminished concern for their real-time interaction and performance with individuals in disparate locations. However, throughout the rehearsal and performance processes, it became evident that performers, co-creators, and audiences alike appreciated the aesthetic dimensions of the mediated expanded space. Notably, creativity, observation, and intuition constitute essential components for understanding meaningful connections within artistic collaborations.

However, it is essential to recognise counterarguments that question the efficacy of virtual interactions in truly fostering emotional intimacy. Some critics assert that the absence of shared physical space fundamentally limits the depth of connections that can be formed. The tactile and sensory experiences in traditional performance

settings, such as the ability to perceive body language and emotional nuances, may not be fully replicated in a virtual environment. It leads to concerns about the potential superficiality of connections forged in the digital landscape, as the nuances of human interaction can sometimes be lost in translation through screens.

Furthermore, while the technological advancements post-COVID-19 have allowed for increased connectivity, they may also create new barriers to equitable participation. Not all performers and audiences have equal access to digital tools and high-speed Internet, which can lead to disparities in engagement and experience (Boddington, 2021). The claim that technology democratises performance can be contested by recognising that it may inadvertently favour those with more significant resources (Boddington, 2021).

Thus, the research increasingly refocused on comprehending the nature of human processing within the virtual realm, yielding valuable insights into how social semiotics may be interpreted, thereby fostering meaningful relationships within a potential telematic metaverse. Nevertheless, the ongoing discourse must consider the limitations and challenges posed by the virtual medium, acknowledging that while it offers unique opportunities for exploration, it does not replace the irreplaceable qualities inherent to physical presence and interaction.

To explain this in more detail, mainstream social semiology is built upon system and product; social semiotic theory draws upon how people make meaning in social settings (Rose, 2012, p.106). For example, a theory first coined by Gunther Kress in 2010 noted that the semiotic potential of signifiers, actions and objects is utilised both when we produce meaning (create) and receive meaning (interpret). For example, humans in specific situations make individual kinds of meanings about the communicated acts, providing a multimodal base for interpreting social

communication semantics (Rose, 2012, p.106). The model is prevalent in acting and performance making. Regarding the metaverse, social semiotics in the digital age created a new phenomenon called 'semiotic technology', which queries how social and semiotic assumptions appear within technologies and social practices that use technologies (Poulsen & Kvåle, 2018, pp. 700-717). This insight has significantly contributed to my understanding of Human-Computer Interaction (HCI) during the performance process. Social semiotics not only regulate but can also be regulated by semiotic technology. Poulsen and Kvåle elaborate on this, stating that 'digital technologies, including social media, are treated not merely as 'tools' or as technological 'carriers' of semiotic displays, but as social and semiotic artefacts in themselves in performance settings, semiotic technologies must cultivate a parallel environment and tools for designing and managing human signals in virtual spaces' (p.704). The essence of digital conversations lies in multimodal messages intertwined with inter-semiotic relations (Mehmet, Clarke, & Kautz, 2014). Such complexity illustrates why theories addressing behaviour in digital conversations are intricate; the spatial, temporal, and causal dynamics inherent in semiotic digital spaces add layers of complexity. The density of semiotic messages in digital environments far surpasses that found in physical realities, leading to an overwhelming experience for the mind due to the richness of multimodality and subliminal influences, particularly among social media users.

The intricacies of space, time, and relationships within digital environments, such as networked telematic performance, have prompted me to evaluate a variety of philosophical perspectives on consciousness. Early telematic researchers like Martha Ladly posited that 'all preconceived ideas of consciousness were to be set aside so that one might observe what is actually taking place within consciousness; within the

here and now' (Ladly, 2007, p.139). She further analysed Heidegger's notion of 'Da-sein' as a crucial driver for all actions applicable to digital and real-world interactions. Recognising one's presence across various timeframes or spaces is essential for self-determining moods. Practising mindfulness while navigating the telematic space can be as straightforward as acknowledging the existence of another person or object.

The technology of computerised media and telematics systems is not longer to be viewed as a simply as a set of rather complicated tools extending the range of painting and sculpture, performed music and literature. It can now be seen to support a whole new field of creative endeavours that is as radically unlike as each of those established genres as they are unlike of each other. A new vehicle of consciousness, of creativity and of expression, has entered our repertoire of being (Ascott, 1990, p. 247). For that reason, Ascott has long acknowledged the impact of technology and telepresence on art and performance collaboration. His vision and forward thinking were very much ahead of researchers in the field. He clearly opened up the dialogue challenging the issues of technological influences on art in a performative collaborative context as almost a natural extension to Heidegger's philosophical underpinnings. He strongly believes that reality can be interpreted in many different ways.

The future of telematic performance as a viable art form to create this new metaverse is not yet clear. Although the research demonstrates how new and innovative projects in hybrid spaces have recently gained momentum and the use of digital mediums in performance creation has increased, telematic performance is still very complex due to its multi-facetted nature. Everything that we observe or intersect with 'emerges out of concealment into unconcealment' (Verbeek, 2005).

The concept of Human Computer Interaction (HCI) may not be resolved entirely within the next decade or so, but there is a strong notion that change is inevitable and HCI will form a more important part of life. During interviews conducted for this research, the answer to the question as to whether telematic performance collaborations will dominate the future of performance making was met with a reluctant 'no'. Nonetheless, the data collection for this investigation strongly hints at that hybrid spaces have gained more prominence recently, and the expansion of the technologically mediated space certainly impacts on the future of performance making and telematic collaboration.

As Verbeek already confirmed quite a few years ago, technology will influence 'the way we interpret being aligned with technological intervention' (Verbeek, 2005). Furthermore, the understanding of how emotional intelligence changes in a virtual space is imperative in the design and realisation of new telematic works:

> Relations of power between people in network societies will increasingly revolve around whose displays of emotion will be successful in enhancing cultural capital and emotional energy and making use of it. These conclusions will benefit from future empirical studies on how the values and norms of connectedness, responsiveness, and reflexive individualization push/discipline people to reflexive emotion displays online, and exactly how these displays of emotional energy are used to negotiate status and positions in the peer network (Benski and Fisher, 2013, p.29).

If we can gain a better understanding of relationships within a digital environment, it will be easier to not only create work, but to educate people in their understanding of

conduct and values in such environments. It has the potential to then lead to a better

global culture and productiveness between the human and the machine, creating the

potential to grow a vibrant, innovative and connected arts community through a

commercially viable multiverse concept.

5.2: Digital Migrations: Challenging Virtual Consciousness

In the last decade, the definitions of time and space have come under significant

scrutiny, driven by the rapid growth of digital networks. The rise of social media and

political, economic, and social upheaval has further complicated our understanding of

'place'. As noted by some practitioners, 'place is also tied in with ideas of space and

time, both equally complex areas that have divided opinion between geographers,

sociologists, and urban theorists alike' (Ed, 2011, p. 3). Interestingly, as we engage

with the Internet, a new awareness of emotional behaviour has emerged, revealing a

surprising synergy: 'This is despite the cold and rational technology of the Internet

seemingly removed from the visceral and physical experience usually associated with

emotions' (Benski & Fisher, 2013, p. 2).

Such discussions spring from examining waves of global movements that remain

static regarding physical relocation yet are more mobile and culturally diverse than

ever. Some of the practitioners I interviewed agreed that the chaos during times of

turmoil has fuelled a surge in the digital revolution as a dynamic response to supply

and demand. While we may not witness a decline in physical migration in the 21st

century, a new form of migration into the digital realm is undeniably taking root.

Digitisation has profoundly transformed workplaces and entire economies, for

example resulting in the emergence of new labour markets. Altenried and Bojadzijev

(2016, p.2) aptly describe virtual migration as the emergence of new forms of digital

labour opportunities: Digital technology and infrastructure has changed existing jobs and created new ones, and these changes come with spatial and temporal transformations, impacting the mobility of labour. It imminently influenced immersive theatre practice and intermediality.

Reflecting on personal 'physical' experiences, for example during participation in *Distant Feelings* (2020), highlighted the crucial role of active listening in establishing connections within digitally mediated environments. In *Distant Feelings,* participants kept their eyes closed, which allowed the sounds of breaths, sighs, and other background noises to enhance our awareness of each other's presence, even from a distance. Engaging in this slightly different immersive practice, which centres on experiencing moments 'in the act,' enables participants to employ critical hermeneutics—stimulating a 'reflective oscillation from the specific action to a reflection on the whole event' (Taiwo, 2021). The exploration of the absence of corporeal intimacy, typically found in collaborative physical spaces, prompts a re-evaluation of learned behaviours. Navigating new environments, empowered by digital tools such as cameras, audio software, monitors, and haptic devices, cultivates a distinct desire for emotional connection (Minns and Mourad, 2020). It is clear now that the virtually mediated space has triggered an unprecedented mass migration into the 'land of telepresence,' a transition that may not feel instinctively natural for many individuals.

Technological devices can introduce a new dimension to contemporary work by serving as tools that encourage playful engagement. Birringer (2020) illustrates this, noting that the absence of physical closeness in traditional dance and theatre has led him to become more playful through the use of intermediary devices; in this context, the medium acts as a translator, and the 'actor morphs into some kind of

actor/puppet with the camera, somehow hoping that something transmits to the other side.' He asserts that a reaction is always essential to foster emotional togetherness. For many digital artists, the challenge has become finding meaningful connections with other collaborators in a hybrid space. The quest for 'remote intimacy' allows them to create purposeful and cohesive work.

I initially believed that emotional intelligence in telematic performance was primarily about establishing clear connections and solid relationships within an immersive hybrid performance field. However, with the recent growth in the public's understanding of telepresence, it has become evident that the concept can be both wondrous and liberating. Nevertheless, the challenges posed by mediated spaces, including spatial limitations and time delays, can be both a nuisance and a concern. For example, Birringer's research into technology and mediated spaces has challenged him for several decades (2020). Recently, his work has shifted away from the constraints of technology and telematic environments as he began exploring nature as an immersive performance space, utilising open-air locations with trees and rivers. In this context, he investigates the audio-visual habitats that shape human experiences (Birringer, 2020).

Haytham, as mentioned by Burr (2016), suggested that 'many visible properties are perceived through judgment and inference' (p. 66). For example, the Bayesian Brain Hypothesis supports the idea that the brain employs processes that approximate a rational method of weighing new evidence against prior beliefs (p. 66/67). In a natural 4D environment, within 'real' space, rational and logical explanations may closely represent, if not fully capture, the truth of an occurrence. However, achieving this may be more challenging in a hybrid, mediated environment, where multi-sensory stimuli can distract from rational and logical interpretations of

objects or people. Davidson (2016) described this as a multi-level response to interoceptive and exteroceptive stimuli, where the mediated body emerges as a hybrid.

Understanding the specifics of psychological states in the telematic space is crucial for comprehending how perception and behaviour can be altered or misinterpreted. Sensory signals may be interpreted differently when experienced physically.

Edoardo Lamenico's extensive research on perception offers insightful perspectives, contributing further to the discussion (2015). His theories provide valuable insights into how embodied presence in the telematic space can be understood. Our sensory organs transmit data, allowing individuals to experience what Lamenico describes as the 'actualisation of experience in the form of perceptual experiences' (p. 15). From the moment we wake up, our perceptual experiences contribute to a general felt sense of the world around us (*ibid*). Lamenico argues that during the early stages of waking up, our senses gradually sharpen, making us more aware of our surroundings, which 'builds to a sort of climax that consists of one's feeling of being alive again' (p. 16). The phenomenon can be analogously observed when we power on a computer; the display of information on the screen also experiences a gradual build up.

During sleep, our senses undergo a temporary suspension, which only sharpens progressively upon waking. Velluti (1997) noted that our sensory experiences can influence sleep, with sensory systems undergoing changes based on whether the brain is in a sleep or waking state (p. 61). The quality and depth of various sleep phases affect our sense of being present in the real world, causing it to blur momentarily. Velluti's study aligns with Lamenico's observation that, during sleep, a

normal reaction to any significant sensory input markedly changes, especially when transitioning back to consciousness (p. 63).

Understanding personal access and response within a qualitative dimension of existence articulates our individual sense of 'reality' (Lamenico, 2015). Machines are created and programmed by humans, resulting in observable similarities in behaviour that suggest a potential for closer collaboration between humans and computers. For instance, the transition from sleep (a temporary interruption of reality) to full alertness mimics the process of turning on a computer, which also requires a brief period to function fully. The process of making sense of our surroundings—fully perceiving what we hear, see, and smell upon awakening—allows us to reach a point of being 'fully functioning,' thus enabling us to respond to and communicate with the world. This activation process resembles starting an interface.

The performance of EPI 2.0 aimed to immerse viewers in a sensory-rich environment, prompting them to engage deeply with the visuals, sounds, and movements presented. By activating their senses and helping them make sense of their surroundings, the audience could achieve a heightened state of consciousness, similar to being in a dream like state. The engagement may have fostered a more profound connection to the themes and concepts explored in the performance, allowing the viewers to respond and communicate with the art on a personal level. EPI 2.0 had the potential to transform passive observation into active participation, as audiences might have found themselves reflecting on their emotions and reactions, ultimately enhancing their understanding of the performance's message. This activation process of the dream-like state of mind could also contribute to a unique

sense of community among the viewers as they collectively navigate the sensory landscape created by the performance.

For example, Hobson, Hong, and Friston (2014) compared dreaming to a 'virtual reality hypothesis.' Their study examines perceptual inference during dreaming and wakefulness from a predictive coding perspective, providing insights into the nature of conscious inference and its neurophysiological foundations. While computers can mimic human traits and respond to commands like sleep/wake modes, the hierarchy is evident: computers are tools created through human activity. Whitworth and Ryu (2009) concluded that, despite rapid technological advancements, computers remain far less complex than the millions of optic nerve fibres in the human brain. Research in the field is progressing rapidly, with theories evolving alongside new discoveries. Nonetheless, some early observations that compare memory use in human brains and computers remain valuable for identifying potential parallels between the two.

Whitworth and Ryu further clarified that 'there are no particular brain cells for particular memories' (p.234). They imply that specific memories do not have designated storage locations in the brain; however, electrodes from different brain cells can activate them, highlighting the intricate nature of memory retrieval. The same article notes that a healthy and undamaged human brain, unlike a computer, will never issue a 'memory full' error message. While Whitworth and Ryu provide a helpful comparison of the similarities and differences in processing between computers and the human brain, their conclusions exhibit contradictions when examined alongside more recent neurological research. The discrepancy between human and machine processing raises intriguing questions about intimacy in telematic performance. Telematic art has the power to solve these critical questions about the authenticity of emotional engagement, which is particularly relevant to the

EPI 2.0 performance project. Exploring the intersections of human expression, technology and understanding the limits of machine-mediated interactions helped better understand how meaningful connections between those intersections work.

At this point in the quest to find answers to the research questions, I want to add a future provocation to start a debate over whether machines can perform cognitive functions equivalent to those of the human brain, which has persisted for years. A central question remains: can computers truly 'think' and 'understand?' (Harvey, 1995). Although machines excel at tasks involving complex calculations and are programmed to tackle specific chores, the human brain demonstrates a remarkable ability to learn new concepts more easily and quickly (Chudler, 2008). While the brain relies on chemical signals to transmit information, computers utilise electricity. As noted by Chudler (2008), 'computer memory grows by adding computer chips. Memories in the brain grow by stronger synaptic connections'.

The reliance on technology might lead to a disconnection, where interactions become transactional rather than relational, thus affecting the emotional fabric of telematic performances. Consequently, the challenge lies in balancing the efficiency of machines with the richness of human emotional experience, ultimately questioning how technology can enhance, rather than inhibit, intimacy in our increasingly digital interactions.

Recognising that the human brain predates the machine in evolution is essential. The brain and computer systems operate uniquely, reflecting individual differences among humans and devices. There are notable similarities and differences to consider. For instance, while computers depend on structured programming to execute mechanical processes, the human brain requires sensory input to function effectively. Prolonged deprivation of sensory stimuli can lead the human brain to

fabricate perceptions during periods of inactivity, whereas a computer without input becomes idle (Whitworth and Ryu, 2009, p. 232).

Furthermore, human longevity dramatically surpasses that of machines. In comparing their 'operating systems,' the human brain is built last much longer. The fundamental distinction underscores the resilience and adaptability of the human brain in contrast to the more rigid nature of computer systems, which is particularly relevant in telematic performance where consistent and reliable decision-making often hinges on human oversight and interpretation of data rather than solely on automated systems.
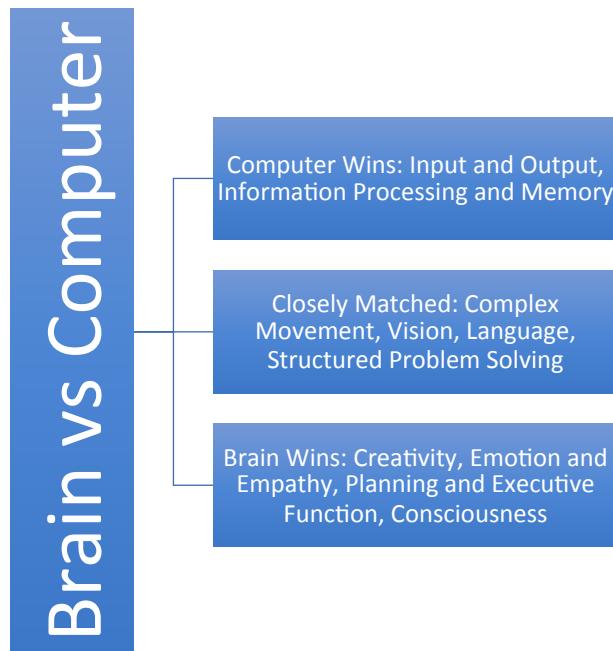
Figure 24: Brain vs. Computer: Diagram adapted from RodriguezRamos (2018)

The figure above illustrates a significant distinction between human emotional and creative capabilities and computer technology's current limitations. While humans design and operate computers, they lack the innate emotional intelligence that underpins human relationships and creativity. Despite advancements in realms such

as artificial intelligence, the intricate workings of the human brain, particularly in relation to emotional experiences, remain less understood.

Philosophers like Heidegger have challenged the notion that technology is merely a tool for human purposes (Verbeek, 2005). Verbeek emphasises the need to examine how computers and technology influence and shape our interactions with the world around us. This exploration is particularly crucial for understanding telematic performance in the context of EPI 2.0, as it reflects the complex interplay between technology and human emotion.

In a technologically mediated space, understanding emotional intelligence becomes essential for redefining relationships in artistic and performance contexts. As R.J. Harvey already noted in 1995, discrepancies in our grasp of the human-computer relationship often arise from varying interpretations of what it means to 'think' and 'understand'. The cognitive and emotional processes involved in understanding are transparent for a normally functioning brain. In EPI 2.0, this revelation was vital, as it informed new theories how we could navigate and express emotions within telematic interactions, ultimately enhancing the richness of a perceptual experience. A computer or robot's ability to perform tasks usually associated with intelligent beings is commonly referred to as ' Intelligence', or in short, AI (Copeland, 2021). RodriguezRamos (2018) suggested that despite making significant progress in the deployment of the latest AI techniques, there is still a long way to go to create a general system that could learn and adapt new complex motor behaviours.

AI refers to machine intelligence or a machine's ability to replicate the cognitive functions of a human being. It has the ability to learn and solve

problems. In computer science, these machines are aptly called 'intelligent agents' or bots (Colson, 2019).

As audio-visual processing, reasoning, and problem-solving capabilities continue to progress rapidly; the realm of telematic performance has the potential to emerge as a front runner in blurring the lines between human and machine intelligence. While machines excel in making calculated choices, particularly in complex mathematics and generating innovative ideas through random reconfigurations (Colson, 2019), they still struggle with nuanced decision-making in multifaceted areas, such as love and interpersonal relationships.

The human brain, with its vast storage capacity and intricate interconnections, currently surpasses computers—however, advances in computational speed mean that machines can process data up to a million times faster (Norvic and Russell, 2021, p. 12). This again raises compelling questions regarding consciousness. Referring back to R.J. Harvey (1995), he posited the idea that consciousness might only emerge in biological systems, such as the human or animal brain (p. 117). In the context of EPI 2.0, where interaction is fundamentally an audio-visual sensorial experience, the 'machines' served not only merely as tools, but also as co-shapers of the entire experience. Hence, networked collaborative environments offer fertile ground for continuous exploration by merging physical and virtual elements. As we look towards the future, the design of technological products must account for their role in facilitating a sensorial and interactive relationship with users. The integration could ultimately enrich our understanding of how human and computer intelligence might coexist and synergistically thrive within shared environments, enhancing the scope of telematic performance. An awareness of personal realisation and recognising

perceptual and proprioceptive experiences can significantly enhance the understanding of telematic performance. In the context of telematic performance, where physical presence is separated by distance, the individuals' awareness of their own body and senses becomes essential. This understanding can influence how a performer interacts with the machine—whether it's a digital interface or a remote device—ultimately shaping the quality and expressiveness of the performance. By fostering a deeper connection to one's own experiences, performers can bridge the gap between themselves and the technology, leading to more impactful and cohesive telematic expressions.

> If it could be shown that telematic art had the potential to embody love, then it would not be a paradox for art to be electronic and simultaneously serve humanist principles (Ascott, 2003, p.105).

In line with Ascott's notion, Riva (2018) suggests that our perception of our bodies is not immediate or direct. Instead, it is shaped by sensory information, internal feelings, and past experiences stored in our memory. These elements work together to influence how we perceive our bodies and how we respond to them.

From Inside:
Proprioception:
The sense of the position of the body/body segments originating through input of muscles and joints

From Memory:
Body Memory:
The first person and third person, implicit and explicit representations of the body resulting from predictive multi-sensory integration (predictive coding mode)

From Inside:
Interoception:
The sense of the physiological condition of the body originating of sensory nerve endings

From Outside:
Perception:
The Awareness of the body through the senses

The Human Body

From Inside:
Vestibular Input:
The sense of position and motion of the body originating through vestibular system coding for the head position and movements

Figure 25: Diagram adapted from Riva (2018, p.242)

Research, including Riva's insights, illustrates that our perception of body representation consists of multiple layers. Such complexity is further enriched when viewed through Causey's concept of the digital self, which suggests that our self-image is not only influenced by physical and psychological factors but also by our online interactions and digital identities.

Recognising that our spatial self-perception may be misaligned with reality is important. Cognitive distortions, especially those related to physical or mental health issues, can significantly affect how we perceive ourselves. For instance, visual filters in social media apps can alter our appearance; these distortions can create a skewed image of who we really are. Additionally, the representations depicted in Riva's diagram highlight that technological engagement and digital representations can distort our body image, which is influenced by our experiences, beliefs, and interactions with digital platforms. These layers of perception may shift in response

to both external inputs and internal beliefs, culminating in a multifaceted understanding of self that encompasses both physical presence and digital identity.

In the context of telematic performance, it is essential to consider the implications of how our bodily experiences are traditionally constructed. Typically, our bodies are experienced from within, regardless of our physical location (Gaggioli *et al.,* 2016). This intrinsic understanding of our proprioception and interoception is fundamentally grounded in direct sensory feedback from our physical environment.

When engaging in telematic performances, such intrinsic experience can become fragmented. The reliance on virtual representations may distort our understanding of our physical self and the environment around us. While explorations such as EPI 2.0 enhances connectivity and remote participation, the potential for a disjointed sense of 'being there' can lead to a conflict between our perceived and actual physical states.

In essence, the challenge lies in the fact that the virtual environment may not provide the same richness of sensory feedback necessary for accurately recognising one's body's position and motion. Instead of fostering a seamless experience, disconnection and misrecognition of one's physiological conditions may arise. Such distortions can undermine the essence of embodied experience that telematic performance aims to celebrate. Thus, while EPI 2.0 presents opportunities for innovation and connection, we must critically examine how it reshapes our physiological awareness and the authenticity of our embodied presence in these virtual domains.

The average technologically engaged individual allocates between two and three hours daily to social media platforms (Metev, 2021). While the long-term ramifications of the shift into a more digital existence may not be immediately apparent, such changes will undoubtedly influence traditional perceptual theories.

The ongoing integration of digital elements into daily life is already reshaping human social interaction and communication patterns. Hence, some researchers on HCI are concerned with the increased level of multitasking through HCI. This could be a highly contradictive problem in the telematic space. For example, Lee (2020) elucidates that the demands of multitasking disrupt neurological pathways within virtual communication environments, jeopardising our 'attentional' capacities. Research for this thesis revealed a considerable divergence of scholarly opinion regarding multitasking and its implications for human cognition. Numerous studies contend that true multitasking is unattainable for the human brain, which is inherently incapable of processing multiple tasks simultaneously. Instead, individuals use task-switching, rapidly alternating between activities rather than performing them concurrently (Burkus, 2018). The phenomenon of multitasking exacerbates cognitive load, ultimately diminishing productivity. In this context, the telematic space could emerge as particularly problematic as technology introduces an additional layer the brain must navigate. Transitioning between conversations with present and remote individuals while acknowledging the role of technology potentially poses significant challenges to sustained attention, maybe even leading to counterproductive outcomes.

> The transition between tasks is far from seamless, as the brain requires a brief period to recalibrate with each switch. Estimates suggest that multitasking attempts can extend the time required to complete tasks by up to 40 per cent compared to the efficiency achieved when dedicating full attention to a single endeavour (Burkus, 2018).

Moreover, Kirschner and De Bruyckere (2017) draw an analogy between the human brain and a single-core processor, emphasising its limitation to task-switching capabilities. Such analogy may elucidate the pervasive issues of cognitive fatigue and 'digital burnout' that individuals frequently encounter during extended periods of screen exposure. In telematic performance, this perspective underestimates the cognitive costs of forced multitasking and the resulting impairments in 'attentional' focus. As the digital landscape continues to evolve, understanding and addressing these challenges remains imperative for optimising performance in telematic contexts.

> Cognition maintains a set of active goals that produce threads of goal-related processing across available resources. All resources – cognitive, perceptual, and motor – execute processing requests serially, one request at a time. Threads acquire and release resources in a greedy, polite manner. When multiple threads contend for the procedural resource, the least recent processed thread is allowed to proceed (Salvucci and Taatgen, 2008, p. 107)

These studies confirmed that attempts to juggle multiple activities simultaneously can significantly hamper human effectiveness and slow performance. I argue that in hybrid environments, performers and audiences are increasingly required to become adept 'multitasker individuals' skilled at swiftly switching between diverse tasks.

In addition, Anson (2017) introduced a compelling argument regarding computers, suggesting that the answer might be a complex 'yes and no.' While a computer's CPU (central processing unit) is, by design, only capable of executing one task at a time, its rapid switching between processes—often within milliseconds—creates the illusion

of true multitasking. The advent of multi-core processors has further enhanced this capability, allowing for more simultaneous tasks.

Ansons' analogy compares a CPU to a toll highway, where each core represents a tollbooth. The number of booths determines how many tasks can be processed simultaneously, with each vehicle symbolising data or processes. While a single booth can only handle one vehicle at a time, adding more booths allows for simultaneous processing, enabling true multitasking. In contrast, while humans can perform multiple automatic mechanical actions — such as walking and eating — simultaneously, these tasks engage distinctly different areas of the brain. For instance, it is feasible for the brain to manage concurrent tasks such as reading and softly listening to classical instrumental music. However, combining reading with music that includes lyrics hinders information retention, as both activities activate the brain's language centre (Taylor, 2011).

Compared to immersive telepresence environments, audiences may find themselves overwhelmed by the multitasking demands of their surroundings. Many have likely encountered conversations interrupted by individuals frequently checking their phones. These distractions can disrupt the flow and clarity of communication, leading to what might be described as distracted verbal discourse. Similarly, the technologically mediated hybrid space inundates users with distractions, primarily arising from their immediate physical environments. As Rosenbaun, Rafaeli, and Kurzon (2016) noted, 'As users are immersed in their everyday spaces, interferences from their domestic sphere are common occurrences that break the participatory framework established in the digital sphere' (p. 291). They further imply that incessant toggling between tasks and the varying degrees of engagement can result in fragmented attention spans (*ibid*).

The situation underscores the potential for the telematic space to substantially interfere with human decision-making, leading, in my opinion, to 'false action' and 'unnatural reaction.' Such dynamics yield new forms of emotional intelligence shaped by HCI, all orchestrated within an environment that thrives on illusion.

 Given these complexities and the evolving nature of our interactions within these immersive environments, it becomes imperative to define a new virtual vocabulary that accurately captures the nuances of multitasking and attention fragmentation. This new lexicon will facilitate more transparent communication and understanding of experiences in hybrid spaces, enabling users to navigate the challenges posed by technological distractions while fostering more meaningful engagements in both, digital and physical realms.

Adapting attention to multiple contexts often encompasses recognising diverse cultural settings, temporal elements, and geographical locations. Such adaptation may necessitate new approaches that challenge traditional communication norms. For instance, a lunchtime meeting in the UK involving participants from Australia disrupts natural sleep-wake cycles, thereby influencing the effectiveness of communication.

It is clear that overall, communication technologies encompassing text-based tools require more time and effort to convey information effectively and often lack crucial social signals and nonverbal cues essential for establishing rapport among collaborators (Morrison-Smith and Ruiz, 2020, p. 8). The transformation and significance of digital advancements could compel individuals to actively engage in cognitive adjustments, for example embracing the 'new normal' during periods of travel restrictions. These circumstances have highlighted the enhanced convenience of online collaboration. A deeper understanding of psychological principles and

attention-driven salient areas may yield groundbreaking insights that instigate a new digital social revolution and advance research areas in robotic programming (Costin, 2011).

For example, while the human brain's capacity to handle multiple cognitive tasks simultaneously is limited, emerging computer technologies and robots may enhance human efficacy. Nevertheless, the domain remains in its nascent stages of development. Fundamental and learned behavioural actions, such as movement and response, coupled with studying human senses, provide critical clues enabling computers to make decisions akin to human processes. Costin's research into the progression of image processing in robotic vision illustrates the necessity of establishing cognitive architectures for computers to replicate human behaviour: 'Cognitive aspects implemented in computational processes establish frames to model human actions relative to the human corresponding senses' (Costin, 2011).

Frequently, narratives in science fiction depict machines designed to possess human-like qualities as potential threats to humanity. While the fear of machines overtaking humanity may seem exaggerated, it is imperative to contemplate the hierarchies inherent in designing new technological systems. Whitworth and Ryu (2009) further argue that humans must retain the senior partner role in such developments and dominate this relationship. They assert, 'To try to design computers to do everything that people do seems both unnecessary and undesirable, as computers are not responsible for their acts' (p. 238). Conversely, Dong *et al.* (2020) contend that AI's capabilities will soon be able to simulate and replace aspects of human imagination, emotional responses, intuition, tacit knowledge, and other forms of personalised intelligence. Numerous others join them in foreseeing a future, where rapid developments in neuroscience, cognitive psychology, quantum physics

advancements, and refined algorithms collectively create fertile ground for AI to thrive. However, such progress comes with a series of detrimental societal implications. The authors note, 'the application of robots has led to unemployment; the application of AI has widened the gap of wealth; AI algorithms have caused bias; big data has resulted in privacy leakage and degeneration of human's spiritual life' (Dong *et al.,* 2020, p. 2).

Future advancements in human-computer interaction (HCI) alongside more sophisticated AI systems must adhere to a complex framework that aims to enhance human life rather than hinder it or erode established social norms. As a biological organ, the human brain cannot function independently from its body or the surrounding environment (Stiefel, 2021). The interplay between a being and its environment engenders embodied cognition, emphasising the necessity of interaction beyond mere brain signals (Stiefel, 2021).

In telematic performances, particularly those involving participants from varying geographical locations and time zones, it becomes essential for collaborators to cultivate relationships both with one another and with the technology they utilise. Successful outcomes depend on the coordination of mental signals and a well-functioning body, exemplified in physical collaborations such as dance performances. Additionally, circadian rhythms can significantly impact stable mental function (Stiefel, 2021), presenting challenges in telematic environments (particularly when collaborating across diverse time zones). In addition, the acknowledgement that personal experiences, physical conditions, and cultural influences shape behaviour further corroborates the idea that actions and interactions, whether in real or virtual spaces, are impacted by individual backgrounds. Hence, AI developers must consider such cultural nuances to mimic authentic human behaviour effectively. As performers

and collaborators navigate the hybrid space, their diverse backgrounds and experiences inform the collective interaction, ultimately highlighting the necessity for cultivating an inclusive and equitable creative process. Understanding how these elements interplay is vital for shaping interdisciplinary collaboration within an effective hybrid environment in the future.

Human actions are fundamentally rooted in decision-making; thus, advancements in AI engineering face challenges in enabling machines to make informed decisions rather than merely executing calculated responses. Colson (2019) challenged the idea that humans and AI are processors, albeit with differing capabilities. He emphasised that human intuition is often flawed in decision-making, noting that 'our brains are inflicted with many cognitive biases that impair our judgement in predictable ways.' Ferreira and Monteiro (no date) agreed that decision-making processes influenced by AI should adopt a collaborative approach. The complexity of comparing data-driven machines to the more rational and calculated decisions of human behaviour is fraught with challenges for numerous reasons. The integration of telematic collaboration with AI and VR technologies is becoming increasingly prevalent, as seen in Debaig's work, for example, the previously referred to *Dancing in the Metaverse*. Dancers' images manifest as avatars, guided by haptic feedback from AI technologies that respond to their movements. An interactive relationship fosters a collaborative decision-making process wherein the computer and human rely on working together. Ensuring that AI enhances rather than dominates this interaction is crucial; machines must be programmed to present a more comprehensive array of choices while allowing for fluctuations (Garibaldi, 2019, p.5).

In addition, recent scientific findings indicate that systems designed to allow variability in decision-making mimic the behaviours of humans more closely,

employing a 'fuzzy inference' system that presents a diverse range of options essential for problem-solving and real-life decision-making. A study by Valeriani (2019) demonstrated that greater accuracy in decision-making could be achieved through the combination of computer and human interactive, collaborative processes. While accuracy is vital in fields like medicine and machinery, it plays a different role in creative and improvised collaborative areas. Understanding data comparisons in HCI has yielded valuable insights into various theoretical frameworks relevant to this study. For example, the human brain often stores multiple options and probabilities before instinctively choosing a path. Referring back to the Bayesian decision-making framework context, diverse information sources, both virtual and human, can be optimised into a combined estimate (Körding and Wolpert, 2006, p.321). Digital researcher Dari Trendafilov (2017) elaborated on the concept, stating that: 'The human brain runs simultaneously multiple forward models that predict the sensory consequences of particular actions, and if the prediction of a forward model closely matches the actual sensory feedback, then its paired controller is selected to determine subsequent motor commands' (p. 15). Again, in EPI 2.0, these decision-making principles and collaborative interactions can be observed through the integration of human expression and digital technologies, coalescing to create a vibrant and responsive performative experience. A synergy between human expression and use of technological gimmickry enriches the creative landscape, illustrating how both entities can navigate the possibilities of HCI.

Humans can respond and adapt to uncertain situations and environments shaped by their perceived constraints. This capacity explains Trendafilov's research, which uses 'empowerment as a measure of uncertainty' (p.15). By leveraging empowerment as a metric for predicting user performance and perceptions, we stand to enhance the

Human-Computer Interface significantly. The telematic collaborative space serves as an exemplary 'playground' for experimentation, providing insights into the future of HCI. Although almost a decade apart, notable immersive installations such as Ghilaine Boddington's and Jo Hyde's *Me and My Shadow* (2012) and Debaig's *Virtual Touch, Virtual Dancing* (2021) exemplify interactive environments that facilitate the exploration of decision-making within multi-sensory contexts. Notably, the focus on bodily movements within the aesthetic frameworks of virtual installations, as seen in *Me and My Shadow*, fosters a unique connection between the user and technology, prompting us to reconsider our perceptions of intimate interactions with machines. This is encapsulated in the insight that 'there is an intimate connection formed between the movement and the display that challenges our understanding of what it is to be intimate with technology' (Pitsillides and Jefferies, 2016, p. 149).

In the context of remote intimacy within hybrid spaces, these immersive experiences not only bridge the gap between physical presence and virtual interaction. Such an engagement transforms our understanding of human-machine relationships and redefines such intimacy, suggesting that it can flourish in hybrid settings where technology enhances rather than detracts from personal connections. As we navigate these evolving landscapes, hybrid spaces within the arts hold immense potential for deepening our understanding of the intricate ties that bind us to one another and the machines with which we interact.

In short, the realm of creative telematic performance making, computers' roles go beyond mere algorithm solving and mathematical calculations, which are their traditional strengths. While machines were initially designed for precision in those areas, the integration of emotional intelligence into AI is not necessarily their primary focus. Nonetheless, the rapid advancement of technology in social contexts and the

growing dependency on digital devices have opened doors for innovations that can better understand human emotions.

At present, AI exists in what can be described as a 'weak AI phase.' It means that typical technological tools are primarily limited to simulating and extending 'low-end' human intelligence, affecting our feelings, perceptions, and fundamental logical reasoning (Dong *et al.*, 2020). Despite advancements, computers still cannot truly 'feel' genuine emotions. However, they can recognise and mimic emotions to a certain degree (Evans, 2001). Media analytics are prevalent in online environments and designed to gauge human emotional behaviour. Emotion AI software is primarily utilised to enhance consumer engagement, providing brands with insights to optimise their content and media investments (Duncan, 2020). However, such practice raises ethical concerns, particularly regarding the manipulation of human emotions for profit. The need for a more complex ethical framework is pressing, as advocated by Boddington (2021), who frequently highlights the importance of developing responsible technology within creative telematic performance. This will be discussed further in the following sections of this chapter.

In conclusion, the ability of artificial intelligence to express emotions independently, without relying heavily on Human-Computer Interaction (HCI) frameworks, is in its nascent stages. Nonetheless, recent advancements in machine learning and neural network technologies are rapidly enhancing these capabilities. As researchers explore sophisticated algorithms for emotional recognition and response, we can expect significant progress in AI's ability to understand and simulate human emotions. Such evolution holds potential for transformative applications across various sectors, including performance collaboration and intermedial art, ultimately

bridging the emotional gap between humans and machines and fostering more intuitive interactions.

5.3: A New Vocabulary for Hybrid Performance

The new digital generation seems more skilled at adapting to the shift toward digital interactions, likely due to their familiarity with the concept of the 'digital self' as discussed in earlier chapters (Causey, 2016, p. 433). However, it is essential to introduce a new virtual vocabulary in telematic performance for several reasons.

Firstly, the existing terminology related to telepresence needs to encompass the nuances of contemporary digital experiences. As Lee (2004) points out, the absence of unified terminology can create confusion for newcomers in the field. My earlier projects prior to the research highlighted this issue. A new vocabulary would offer a more precise framework for articulating these complex interactions, enhancing clarity for academics and practitioners.

This became particularly evident during my early experiments, especially during the 2017 *Digital Dancing* performance. In that performance, I navigated the complexities of choreographing a pas de deux between live performers in Weston-super-Mare and Los Angeles. The performance was inspired by a concept derived from the book West Side Story.

The picture below depicts an attempt of dancing together:

Figure 26: *Digital Dancing* (2017). Photograph by author.

Consequently, creating a dance performance in a telematic environment poses challenges due to the absence of physical touch, which is fundamental to traditional dance. Dancers must navigate the limitations of virtual spaces, relying on digital communication to convey emotions and synchronise movements. It can lead to disconnection and difficulty in establishing a shared presence. Choreography must adapt, emphasising visual and spatial elements while exploring how technology mediates interaction. Additionally, the separation may hinder the visceral connection that often defines dance, requiring innovative approaches to engage audiences and create a compelling emotional experience across distance. Hence, the creation of new

vocabularies may be useful for future telematic collaborations, even if they may only contribute in a more playful way.

Zhang (2018) highlights further that the ambiguity inherent in the current lexicon of performance terms hinders effective communication and collaboration across diverse disciplines. Establishing a standard set of terms specific to telematic performance could foster a shared understanding, bridging gaps between various fields. This would likely lead to more innovative approaches and deeper explorations of the medium, enriching the discourse surrounding telematic practices: 'In prior studies, the term telepresence was often used interchangeably with presence, virtual presence, mediated presence, physical presence, and personal presence' (p.14).

Both Lee and Zhang affirm that Minsky's characterisation of telepresence is closely aligned with philosophical concepts such as Heidegger's 'being there' (literal translation from German: 'Da-sein'. The virtually mediated space lets users identify and interpret objects that they are experiencing (Lee, 2004). Such identification can create a sensation of being phenomenally immersed in a shared space, bridging the 'real' and the 'virtual' to such a degree that the awareness of space merges into one coherent experience. However, it is also crucial to recognise the 'competition for the user's attention between stimuli from the physical and the mediated environments' (Zhang, 2018). However, various projects introduced in this research demonstrate that technology can simultaneously enable and disrupt physical and psychological presence.

Nonetheless, one aspect remains paramount in any work within the field of telematic performance: the significance of liveness. The distinction between utilising live performers with real-time interaction versus relying on recorded media is a fundamental characteristic of questioning the significance of telematic performance.

In contrast to the arguments presented, introducing a new virtual vocabulary in telematic performance is essential for several reasons.

Like Gorman, Syrja and Kanninen (2019), who determined that liveness is crucial to telematic communication, I grappled with the concept of immersive telepresence for a long time. Hence, 'live-streams do not qualify as telepresence collaborations, and neither do recorded performances- real-time interaction is essential to the experience' (Gorman, Syrja and Kanninen, 2019, p. 25). Rather than employing traditional staging, they opted for the concepts of immersion and telepresence to characterise the spatial aspects of the technology. As Gorman *et al.'s* work confirms any collaboration within the telematic realm must be structured to enable a degree of physical immersion for both audiences and performers. This immersion can manifest in various forms, whether in a purely digital context, as experienced in Zoom Theatre, through virtual immersive environments, or within blended settings. The overarching objective remains clear: participants must be aware of their co-presence in real time, acknowledging that the other person exists in the here and now, irrespective of spatial, temporal, and distance constraints. The connection to a virtual individual mirrors the connection we perceive in physical spaces.

All mediated spaces have a physical and a conceptual dimension, with the physical presence having to transcend the limits of our senses. Such an abstract ontological perspective necessitates the development of a new framework for emotional intelligence that enables our cognitive processes, such as perception, to reach into realms more recently referred to as the metaverse, multiverse, cyberspace, or mediated space, among others. A significant insight from this research is that only one genuinely multidimensional space exists, likely extending beyond our everyday understanding. The term metaverse introduced in the opening section of this chapter,

originates from the term 'universe'. The latter derives from its Latin origins: universus/universum, which means 'combined into one/whole, all existing matter and space considered as a whole: the cosmos' (*Oxford English Dictionary*, 2024). The discussion on telepresence within such a complex and complete cosmos seeks to understand how 'place' (physical, virtual) can be aligned with 'feeling present'. Therefore, the exploration of the telematic realm is deeply intertwined with the concept of multidimensionality in the Universe, which was one of the most prominent findings within this research. In telematic performance, the seamless integration of physical and virtual spaces reflects a sophisticated interplay between presence and distance. Thus, telematic performance becomes a medium of artistic expression and a platform for exploring and redefining our notions of presence and interconnectedness within the larger cosmos. Perception plays a big part when we tap into the vast potential of the Universe, bringing forth an experience that emphasises unity and co-existence amidst diversity, much like the cosmos itself.

For example, Christopher Burr's (2016) theories on embodiment and cognitive decision-making provide some useful models for understanding how these feelings of 'being there' in telepresence, such as unity and co-existence, could be explained. He implied that sensory perceptions might be similar to the concept of 'self-evidencing', as people tend to generate their individual hypotheses when confronted with an unusual or unfamiliar situation (Burr, 2016, pp.79-89). Perception is naturally an individual experience, which will alter actions and reactions depending on various personal circumstances and overcoming obstacles. Moreover, creating a self-evidenced, personal hypothesis plays a massive part in performance creation; however, this is not necessarily acknowledged as such in conventional performance traditions. A personal interpretation of certain phenomena occurring in our daily life

could provide potential clues, but not necessarily concrete evidence. The interpretation of perceived occurrences depends on individuals' experiences, which rely on cognitive decision-making, although the same situation experienced by a variety of people might provide rather varied outcomes.

Cyberspace should not be understood as physical space; instead, it functions as a semiotic representation of reality, achieved by manipulating moving image frames that capture 'the other there' (Demetriou, 2018). Building on such a notion, Demetriou characterises cyberspace as a digital, biological, and spiritual convergence point. In such contexts, the concept of presence acquires a new semiotic significance, prompting an opportunity for an open-ended philosophical inquiry: How can a performer navigate the imperative of being present amidst the pervasive nature of mediated experiences? For example, Pérez (2014) focused on positioning the actual artwork within an expanded conceptual space despite acknowledging that her commentary is metaphorical. She further emphasises the importance of an active role of spectatorship, suggesting that spectators, as active participants, may emotionally engage more with the content. It does not necessitate the spectator's physical presence in real time and space but the general ability to support and respond to actions, subsequently influencing the dynamics of relationships between performers, audience and medium. This was a crucial aspect of EPI 2.0. For example, the dynamic differences between the two performances were evident, influenced by the varying reactions of different audiences. These variations highlighted how audience engagement can significantly impact performance outcomes.

Integrating the notion of unfamiliar spatiality and the absence of a conventional temporal framework within a multimodal context indicates a pressing need for re-evaluation of how relationships are navigated in such complex dimensions.

Considering the complexity of a telematic performance set-up, plus the ongoing

challenges like the typical battle with 'lag' amongst others, this scenario can be

likened to the enduring fascination with time travel. Such complexities in an

immersive telepresence environment create the most significant barrier to the

argument between creators and researchers. Whilst the 'lag' may provide another

artistic element that makes the realisation of liveness more real and apparent (which

Alarcón Díaz picked out as a rather beautiful by-product in her feedback for EPI 2.0),

it would be a hindrance within the commercial performance market. The latter may

be more reluctant to commit to remote live interaction due to the ongoing

complexities, unpredictable nature and potential disruption. Hence, in order to move

telematic performance away from solely educational or research environments, the

technology must evolve to provide a cost-effective and failure-proof solution. At this

stage, it is difficult to predict when this may occur in the near future, but

developments in the technical industries will eventually succeed.

A revitalised vocabulary would ultimately empower creators and scholars to

express their experiences more effectively, paving the way for more prosperous,

more meaningful discussions about the intersection of technology and performance.

The significance of liveness, as raised in earlier chapters, only further underscores the

need for precise language to distinguish between live performances and mediated

experiences.

The practices employed in EPI 2.0 and participation in immersive experiences

during the pandemic (such as *Remote Intimacy*, *Distant Feelings* and *Generation 200*)

highlighted the potential of telematic immersive spaces. These experiences, combined

with my previous works like *Timelapse* and *Digital Dancing*, demonstrate that new

conventions and opportunities for meaningful social connections can emerge,

regardless of physical location. Mediated spaces can be created using readily available everyday technologies or through significant investments in cutting-edge innovations, both of which yield valuable outcomes. It is clear that digital spaces enable interaction with individuals previously unknown and allow for virtual visits to distant countries that one may never physically encounter (Ladly, 2007). This reality calls for a re-examination of how we navigate and communicate within such a new framework.

In the evolving landscape of telematic performance, the notion of liveness between the physical and the online space present a unique opportunity for creators, performers and audiences alike. A new virtual vocabulary, which aims to bridge the gap between traditional movement and digital interaction, offers innovative and playful ways to express creativity in hybrid performance settings. By experimenting with various modalities, we can redefine how we communicate through interaction and movement, expanding the possibilities of interdisciplinary collaboration in our increasingly interconnected world:

Metaversing:
The exploration of virtual environments where dancers can interact with digital elements, creating a seamless blend of reality and virtuality in choreography. This concept enhances performance by creating rich, immersive settings that transcend physical limitations.
Body Zooming:
The technique of emphasising movements through digital magnification, allowing audiences to focus on specific bodily expressions during a performance. This can enhance emotional engagement and potentially offer a deeper understanding of the performers' intentions.
Multi-Reach:
A concept that refers to the ability of performers to extend their physical and conceptual boundaries by engaging multiple digital platforms simultaneously. This not only broadens their audience but also encourages innovative artistic collaborations.
Metatude:
A term that captures the attitude and mindset needed to navigate the complexities of virtual and augmented performance spaces. This mindset is crucial for effectively interpreting and presenting work in a new context.
Multigaze:
The simultaneous engagement of various visual perspectives in a performance, allowing audiences to experience it from multiple angles through digital media, providing a multifaceted experience that traditional performances often lack. This multi-angle engagement can foster a more profound connection between viewers and

the art.
Extended Reach:
The capacity for dancers to connect with wider audiences beyond geographical limitations, using virtual platforms to expand their performance's accessibility.
Virtual Pas de Deux:
A choreographed duet performed in a virtual environment, utilising both dancers' physical presence and digital augmentation to create a dynamic partnership. This creates a dynamic relationship between dancers that can evoke unique emotions and narrative layers.
Virtual Gravity:
A concept that redefines the relationship between dancers and their environment in a digital space, allowing for altered sensations of weight and movement that can surprise and intrigue audiences.
Parallel Digital Performance:
The concurrent execution of live and digital performances, where both mediums inform and enhance each other, creating a rich tapestry of experience for the audience.
Sensography:
The integration of sensory technologies to enhance the audience's experience in telematic performances, allowing for feedback loops that respond to movement and emotion, thereby deepening the engagement with both the performers and the digital space.

Figure 27: Suggested table of potential new terminology (Lane, 2024)

The integration of terms such as *Metaversing, Body Zooming, Multi-Reach,* etc. represents a significant evolution in hybrid immersive telematic performance making. These concepts serve not only to articulate the intersection of dance, performance and digital technology but also to challenge traditional performance paradigms, reshaping how artists and audiences engage with movement in virtual spaces. For example, *Metaversing* highlights the exploration of virtual environments, wherein dancers can interact with not only other performers but also with digital elements that augment the choreography. The synergy fosters a new reality where creativity can flourish unbound by physical constraints. Coupled with *Body Zooming*, which magnifies specific movements, audiences can delve deeper into the nuances of performance, gaining insights into the emotional and physical vocabulary of the performers. The magnification allows for a more detailed exploration of bodily expressions, expanding the emotional resonance of performance art. The concept of *Multi-Reach* illustrates how performers can navigate multiple digital platforms simultaneously. By engaging diverse media, performers can expand their reach and connect with collaborators through a distance, fostering cross-disciplinary collaborations and innovative artistic expressions. However, such expansive engagement also necessitates a *Metatude*, a mindset that embraces the complexities of virtual and augmented performance spaces. This attitude is paramount for artists seeking to effectively harness technology, as it informs their creative processes and shapes their approach to storytelling. In addition to enriching audience experiences through *Multigaze*, which allows for multiple visual perspectives, Similar to the concept of *Multi-reach*, the framework of *Extended Reach* empowers performers to overcome geographical and logistical limitations. Its democratisation of access positions digital platforms as vital tools for artistic expression and outreach.

Contrarily, the embrace of digital elements in performance has sparked critical debate around the potential erosion of embodied presence. As demonstrated throughout this thesis, researchers often argue that distractions inherent in digital performance can detract from the visceral experience traditionally associated with live performances. The argument posits that the *Virtual Pas de Deux* may lack the immediacy and tactile connection inherent in physical dance partnerships. While digitally enhanced interactions can create intriguing visual narratives, some people may contend that they may lead to a diluted sense of authenticity, as technology mediates the experience. Furthermore, the notion of *Virtual Gravity*, which seeks to redefine how dancers relate to their environments, raises questions about the fidelity of physical sensations in virtual spaces. However, the concept, while innovative, may risk disengaging the body from its natural context, potentially leading to an experience that feels disembodied or surreal. This perspective aligns with Irwin's (2011) assertion regarding the 'intrinsic relationship between embodied presence and its place in the world'. The argument suggests that audiences may find it challenging to emotionally connect with digital representations of movement when contrasted with the direct, tactile sensations offered by live performances. Nevertheless, the counterargument emphasises that hybrid performances, facilitated by *Parallel Digital Performance*, can indeed enrich the theatrical landscape. By concurrently blending live and digital mediums, performers may cultivate a richer tapestry of experience that transcends traditional boundaries. The use of *Sensography,* which traditionally uses technology that enhances audience engagement through sensory feedback, also provides opportunities for deeper interactivity by encouraging viewers to become active participants rather than passive observers. While the integration of these innovative concepts facilitates a transformative approach to performance making, it

is essential to engage critically with the implications of such a digital shift. The expansion of emotional intelligence and the understanding of identity in performance, particularly in telematic collaboration, raise questions about authenticity, embodiment, and the role of technology in art. Therefore, further philosophical, sociological, and contextual analyses are warranted to navigate these complexities and enrich our understanding of contemporary performance in an increasingly digital world. By addressing both the benefits and critiques, the discourse surrounding hybrid immersive telematic performances can evolve into a nuanced understanding that honours both tradition and innovation.

5.4: Issues and Considerations

Whereas I did not encounter severe ethical issues other than technical challenges during my practical experimentations, the interviews, seminar and conference participation on the subject of telematic performance highlighted some facts that must be given some serious considerations for the future of technologically mediated productions. It prompted a re-evaluation of how new digital discourses must consider ethical implications, particularly concerning privacy and protection in the digital realm. The dynamic relationships among performers, creators, and audiences and the technologies that connect them are central to creating telematic performance. However, significant considerations will shape future practices in this area. Moreover, these factors will influence how emotional intelligence informs an evolving consciousness within a potentially decentralised context.

When the multidisciplinary field of Human-Computer Interaction (HCI) first surfaced in the early 1980s, it facilitated the integration of computer science with cognitive science and human factors engineering (Soegaard and Friis Dam, 2014). At

that time, practitioners did not face today's complex ethical dimensions. Some experts appreciate the developments in HCI as 'the continuing synthesis of disparate conceptions and approaches to science and practice in HCI has produced a dramatic example of how different epistemologies and paradigms can be reconciled and integrated into a vibrant and productive intellectual project' (Soegaard and Friis Dam, 2014). Creating further new vocabularies suited for telematic performance necessitates addressing critical considerations that will significantly impact its future. Insights gathered from interviews with leading practitioners revealed emerging concerns that transcend the creative process, challenging our understanding of emotional intelligence in this context.

The ongoing digital transformation presents numerous challenges regarding privacy, trust, bias, and accountability for organisations and individuals. Many individuals must be made aware of the pressing ethical issues arising in technologically mediated environments. Lack of awareness may stem, in part, from the varying visibility of these concerns. In the telematic performance space, participants often embody a spirit of curiosity and experimentation with technology, leading to the potential oversight of individual needs. There is a prevailing assumption that online spaces provide safe and protected environments, but these beliefs deserve critical examination. This is especially crucial for those who may feel discomfort when utilising cameras and microphones, as highlighted by practitioners like Kristin Burnham (2016).

5.4.1: *Digital Phobias*

It is imperative to avoid the assumption that individuals have quickly adapted to navigating digital environments. Moreover, it should not be taken for granted that

everyone is comfortable with technology's encroachment into personal and professional spheres.

Currently, there exists no established term to encapsulate the emerging phobia regarding social communication via videoconferencing technology. It is essential to recognise that certain circumstances may impede participation, extending beyond accessibility concerns or more overt disabilities. For instance, during the transition to entirely online work environments amid the COVID-19 pandemic, I encountered individuals who expressed a profound anxiety disorder. Some participants disclosed their apprehension towards engaging in real-time online interactions, which rendered them unable to partake in sessions conducted through platforms such as Teams or Zoom. Burnham (2016) states, 'Just like listening to a recording of your voice makes people uncomfortable, many are uncomfortable with seeing themselves on camera.' Consequently, technology should not be assumed to be universally accepted or quickly embraced. Several factors contribute to this phenomenon:

While the technological medium enables broader channels for emotional expression across geographic distances, facilitating increased intimacy, it is also essential to acknowledge that such intimacy can overwhelm certain users. Such a dynamic accentuates the reality of physical absence, even as it strives to bridge the gap (Benski and Fisher, 2013, p. 134). The acknowledgement of distance may trigger cognitive difficulties, complicating the ability to focus thoughts into coherent action. It could be posited that technology's inherent unpredictability exacerbates anxiety associated with its use. However, it is crucial to note that significant behavioural differences emerge depending on the nature of technologically mediated collaboration. Certain online interactions may offer greater comfort, particularly when devoid of audio-visual engagement, with both camera and audio turned off.

5.4.2: *Online Safety*

The landscape of online interactions is fraught with significant ethical challenges, particularly in the context of telematic collaborations. Individuals and organisations continuously face common threats like computer viruses, phishing emails, and malware. In response to a growing prevalence of abusive behaviours in virtual environments, the UK government has proposed a draft online safety bill to establish a legal framework to regulate online content (Department for Digital Culture, Media and Sport, 2021). Nevertheless, Internet safety concerns encompass complexities that extend beyond mere regulatory measures.

Despite advancements in training initiatives conducted by educational institutions and corporations, there remains a pervasive misconception regarding the security of personal information online. The increasing demand for digital connectivity, coupled with extended periods spent online, has led to a pronounced risk of data breaches and identity fraud (Boddington, 2021). The scenario necessitates an urgent and thorough re-evaluation of policies and privacy laws to ensure robust protection for individuals engaged in online collaborations. The potential threats extend beyond privacy invasions; they include identity theft, copyright infringement of digital content, and instances of trolling, all representing critical ethical considerations within the digital domain. Terms such as 'cyber attack' and 'cybercrime' have become deeply embedded in the digital lexicon, highlighting the urgent need for heightened awareness in our increasingly technology-driven environment.

The emergence of cyber security risks stemming from the inherent vulnerabilities of digital technologies is not a novel phenomenon. However, the socio-political and economic pressures intensifying the necessity for connectivity present fertile ground for cyber attacks. Malicious individuals worldwide are exploiting shifts in workforce

dynamics and the surge in online activities, launching large-scale phishing schemes, telephone scams, and various cyber exploits aimed at these vulnerabilities. These successful cyber attacks can result in severe consequences such as data loss, damage to reputation, and a growing mistrust of technology, factors that could undermine collective efforts to address global challenges, such as those posed by the COVID-19 pandemic (Okereafor, Manny and Okereafor, no date).

In navigating these complexities, telematic collaborators must comprehensively understand the diverse risks and ethical 'grey areas' prevalent within the online sphere. Creative practitioners operating in traditional performance spaces are morally obligated to ensure the safety of all participants, including audience members. However, this responsibility becomes increasingly complicated in settings needing transparent regulatory governance. The nature of collaborative projects further complicates these ethical considerations, particularly when engaging multiple locations and participants from uncontrolled environments, which can jeopardise data protection and expose individuals to threats such as inappropriate conduct and verbal abuse.

The ethical imperative in the telematic realm thus revolves around fostering a culture of safety and respect, necessitating vigilance and proactive measures to mitigate risks. Stakeholders must prioritise creating and enforcing comprehensive policies that protect not only the technological infrastructure but also the rights and dignity of all individuals involved.

5.4.3: *Anonymity and Online Behaviour*

The implications of negative online behaviours and a deficiency of moral conduct can significantly affect individuals' physical and mental wellbeing.

Anonymity in online social and collaborative environments presents a dual-edged issue. In contrast to physical settings such as performances, conferences, and meetings (where audiences are visibly present, and their actions can be discerned through verbal and non-verbal communication), online audiences benefit from certain comforts. Participants are often relieved from the pressures of maintaining an orderly and polished appearance, as humorously depicted in countless images of individuals dressed in formal attire above the waist while donning pyjamas and slippers below. In the digital realm, individuals can assume various identities through cyber names and avatars. This newfound autonomy allows for experimentation with alternative behaviours without the immediate fear of social repercussions (Christopherson, 2007).

Clémence Debaig (2021) further elucidates that the intricacies of online performance, particularly when involving unmonitored audiences, can swiftly devolve into ethical dilemmas, irrespective of the intentions held by stakeholders. For instance, in one of her experiments involving shared dance experiences through avatars, a participant was subsequently disclosed to be an underage minor. While Debaig's work is not inherently provocative, the seemingly innocuous practice of 'virtual touch' may give rise to moral quandaries. Urgent attention is required regarding data usage, breaches, and informed consent (Boddington *et al.,* 2021).

Typically, audio-visual cues in social interactions offer suggestive indicators critical for assessing individuals' social status—including gender, race, age, ethnicity, physical disability, and attractiveness. The concealment of physical appearance in cyberspace has prompted researchers to develop the 'equalisation hypothesis' or 'deindividuation theory' (Christopherson, 2007). The conceptual framework aims to establish an equitable communication platform devoid of prejudicial judgments.

While such an approach yields advantages and disadvantages, it can encourage individuals to express their thoughts and feelings more freely, particularly within environments that foster equality and minimise societal normative expectations (Christopherson, 2007). Furthermore, Cho and Kwon (2015) have characterised the outcomes of anonymity as a degree of 'disinhibition.' Individuals may exhibit reduced inhibition in specific online contexts due to the lack of accountability. Although this can facilitate a heightened sense of freedom and openness, it also commonly results in aggressive and anti-normative behavioural tendencies (Cho and Kwon, 2015).

Terms such as flaming, trolling, and cyberbullying have become commonplace descriptors for online abusive behaviours, often perpetrated from concealed identities. Regardless of whether anonymity is preserved, online environments frequently encompass participants from diverse locations and time zones, each carrying distinct perspectives on moral conduct influenced by various factors, including educational and cultural backgrounds. Moreover, the nature of digital interactions minimises the likelihood of face-to-face confrontations. In the context of telematic performance, particularly in scenarios that permit audience involvement and commentary via chat functions, these dynamics may impede the overall experience and pose significant threats to the production's success.

5.4.4: *Data Harvesting and Data Protection*

Increased connectivity brings about a myriad of challenges, including identity theft, heightened surveillance, and data harvesting—issues that often go unnoticed. Boddington (2019) highlights the significant shift in awareness over the past two decades, noting that while individuals were once primarily concerned about basic personal information such as dates of birth, telephone numbers, and email addresses,

technological advances have expanded the scope of data being collected. Today, we find that 'the data of our bodies and identities: our fingerprints, facial recognition, our voices, how we move through the world' are actively being recorded, harvested, and tracked (Boddington, 2019). This shift is not merely a product of technological innovation but also results from a confluence of global political events that have fostered the alignment of resources, technology, and political will (Nicholls, 2017).

The concept of the Biodigital Citizen, as Boddington (2019) points out, is already a reality in many countries. However, its exact implications remain ambiguous and hotly debated among scholars. Peters, Jandrić, and Hayes (2021) further elaborate on this, noting that 'what that [biodigital] means is still in the making – new forms of synthetic life that may also be part of humans.' In a digital landscape, where personal data is extensively monitored, and networks and smartphones augment surveillance capabilities, individuals become increasingly susceptible to constant observation.

While some might argue that specific dystopian predictions regarding technology's intrusive nature were once relegated to science fiction, we are now witnessing these concerns materialize in real life. The prospect of a comprehensive solution to safeguard all online activities seems distant, as regulation could threaten the very interest of companies that benefit from privacy intrusions. The phenomenon of instantaneous advertising, where users are faced with targeted ads following searches for specific items, exemplifies such intrusion. As human actions fundamentally shape technology, the fault lies not solely with the technology but with the human operators who wield it.

Consequently, as outlined in previous discussions, the relationship between humans and machines remains intricate. Peters *et al.* express the pressing issue: 'What is to be done?' They acknowledge the limitations inherent in our understanding

of reality (science) and the transformations wrought by technology, recognising that 'Rome was not built in a day, and we cannot solve all the world's problems at once—therefore, we need to 'attack' problems one by one' (Peters, Jandrić, and Hayes, 2021).

In the physical realm, individuals' actions are often more complicated to monitor or trace with surveillance systems or eyewitnesses. In contrast, the digital footprint is enduring, encompassing search histories, cloud storage, hard drives, applications, and online consumer behaviours. Numerous sources assert that our data can be tracked while engaging online, even under anonymity (Boddington *et al.,* 2021a).

Practitioners like Debaig and Boddington are actively involved in initiatives to enhance security and protection within online spaces, such as telematic art. They are committed to creating inclusive, diverse, and interdisciplinary environments that foster creativity and safety. Acknowledging and understanding online engagement's inherent challenges and risks is vital for navigating a technology-dominated landscape, particularly as it increasingly permeates work and education. In addition, Cho and Kwon (2015) note that policy-driven regulations or voluntary measures currently govern online disclosures and anonymity. While enforcing laws and tracking identity may cultivate a heightened sense of liability, these measures must be meticulously crafted to ensure compliance and protect the rights of all participants.

Furthermore, Boddington advocates for companies to re-evaluate their ethical responsibility regarding bio-signals and data usage in an interconnected future, suggesting adopting transparent, collaborative processes (Boddington *et al.,* 2021a). Whether these frameworks emerge from mutual agreement or legal enforcement, it is critical to recognise that such measures alone cannot wholly mitigate individual wrongdoing. Many privacy violations within online environments are intentional and

driven by personal or financial motivations for individuals, corporations, or governments. At times, these actions stem from conscious choices, while in other instances, they may arise from ignorance or naivety.

5.4.5: *Zoombombing*

The increased adoption of videoconferencing during the COVID-19 pandemic has led to a new form of online intrusion known as Zoombombing. The term refers to a type of cyber-harassment where individuals or groups intrude into private online gatherings for which they were not invited (Bernstein, 2021). While many instances of Zoombombing may be relatively harmless and do not yield disastrous consequences, they can still pose significant security risks to organizations and individuals alike. Some 'Zoombombers' engage in vulgarity, share pornographic material, and display hate imagery, which can be profoundly offensive and disruptive, potentially causing lasting trauma (Bernstein, 2021).

The concern extends beyond the initial act of intrusion; the subsequent sharing of these incidents can further compromise personal privacy, exposing information such as images, names, and conversations that can be easily manipulated and taken out of context. For example, one of my colleagues experienced this first hand early in the COVID-19 lockdowns. As education transitioned online, sophisticated videoconferencing platforms like Zoom, Teams, and Google Meet became essential for maintaining continuity in teaching, particularly in further and higher education.

Despite improvements in security settings, including private links and passwords, a colleague's lecture at a small university in the UK was subject to a Zoombombing incident by an anonymous individual wearing a mask. Although there was no immediate threat or overt indecency, the lecture had to be halted. Initially, there was

no reason for alarm, yet the masked intruder published a mocking recording of the event on a widely used video platform. Within a day, the footage went viral, garnering over one million views and unwittingly exposing the lecturer's and students' identities. Although the footage has since been removed, the potential for harm in such situations is alarmingly swift. This example illustrates how fragile identities can be in online environments, leaving individuals vulnerable to abuse. It was later revealed that students enrolled in the course shared the lecture link with unauthorised individuals.

In response to the rising threats posed by Zoombombing, technology companies have enhanced their applications' security features by introducing options like waiting rooms, advanced sharing capabilities, and locking functionalities. Recently, videoconferencing platforms have begun to market their enhanced encryption and control features to cultivate user trust and confidence. Awareness of privacy and proxy settings is the first step toward creating a safer digital environment. When telematic practitioners utilise platforms like Zoom as collaborative performance spaces, they should implement structured invitation processes and booking systems instead of casually sharing links. Such caution is essential unless the session is conducted within a webinar format, which conceals the identities of audience members while still allowing access to chat functions.

Ultimately, while Zoom may or may not be the ideal platform for telematic art, it does offer a cost-effective and accessible means to enhance participation and facilitate swift set-ups for new collaborations or research and development initiatives.

5.4.6: *Trust and Consent*

Boddington *et al.* (2021b) emphasise that 'Trust and Consent' are critical in protecting online activities. In today's collaborative digital landscape, users and participants on the Internet depend on one another. However, 'Consent' is a term often subject to misinterpretation and misuse. Stephanie Alys, a specialist in creating online dating platforms, states, 'we are currently living in a time where we are not valuing or advocating enough time for consent when dealing with corporate and customer agreements. Consent is important- it must be informed and enthusiastic' (Boddington *et al.,* 2021b).

She further elaborated on the distinction between agreements and consent, noting that lengthy policies, often spanning thousands of words, can be cumbersome to read and fully grasp. The complexity hinders the ability to provide informed consent (Boddington *et al.,* 2021b). Alys further provocatively questioned the distribution of responsibility, asking how much falls on individuals versus our expectations of corporations regarding data protection. The notion may need to be further explored, however, it provides scope for an entirely different research project beyond the aims of this thesis.

There remain many ambiguities concerning how our data is handled. This challenge is often compounded by an innocent ignorance surrounding online collaboration. Both governments and corporations must promote and monitor education and transparency in these matters.

New technologies are actively employed to track and monitor individuals, such as collecting fingerprints and iris scans commonly used at airport security and immigration (Boddington *et al.,* 2021a). More intrusive systems, such as Advanced Facial Recognition (AFR), are being trialled in various countries to enhance public

surveillance. Nonetheless, these technologies introduce even more complex ethical dilemmas, particularly as they often fail to eliminate unacceptable biases related to race or gender, thus perpetuating discrimination (Kwan, 2020).

To conclude, a clear and accessible legislative framework would significantly enhance public understanding of digital activities. Online collaborators and audiences alike may need more detailed information regarding how online interactions affect their privacy. Furthermore, future frameworks must empower individuals to choose what information is shared with third-party companies. Boddington (2021a) further asserted, 'If we owned our data, each Internet user would be around £50000-100000 richer per year.' This figure is noteworthy and undeniably appealing to the corporate sector. Thus, transparency and simplification in exposing the full extent of data usage is a necessary commitment from firms to protect users from exploitation. However, how such measures would align with corporate financial interests remains questionable.

The public's understanding of primary, honest, lawful, and principled conduct may falter. Much of the complexity may be obscured, potentially influencing political decisions and capital gains. As an educator, I often grapple with the apparent lack of ethical foundations students should have developed throughout their educational journeys. Particularly, as hybrid environments become the 'new normal' across various sectors, we must acknowledge the profound impact this has on our data.

5.4.7: *Notes on Ethical Conclusions within Inclusive and Sustainable Hybrid Environments*

The emerging metaverse in performance making must embrace the evolution of new vocabularies and integrate ethical and moral considerations to foster safe and inclusive environments that prioritise sustainability and diversity. Throughout my involvement in various projects, including EPI 2.0, I learnt to consider elements that reflect upon these vital notions. While my thesis primarily focuses on the creation and experiences of participants and audiences, discussions surrounding the work have illuminated the growing necessity for these ethical considerations to guide the future of hybrid spaces.

The study of ethics necessitates carefully examining what is right and wrong, leading to informed moral judgments. Vesna and Niveditha (2012) define ethics as 'an action that does not have a damaging impact on oneself, other individuals, or on society' (p. 58).

In the context of telematic performance, the digital creative landscape has witnessed remarkable technological advancements, incorporating elements such as VR, 360-degree video, and motion capture. The increasing sophistication of these technologies amplifies the need for complex and robust security measures. Ultimately, the effectiveness of these measures hinges on the users' awareness and behaviour. Joyce G. Webb (2015) comments on the importance of an ethical foundation in interpersonal relations, stating that 'much of what renders the teaching of interpersonal relations ineffective is the lack of ethical foundation upon which the theories of interpersonal communication can be built.' Enhanced self-awareness leads to a deeper understanding of others' actions, improving interpersonal relations. Thus, clarifying acceptable behaviours and procedures is essential, with discussions to

ensure informed consent from all participants. Although collaborating online may provide safety within our homes, participants remain 'present' in both physical and digital realms. Adhering to established rules and responsibilities is crucial. As H. Tristram Engelhardt (2002) asserts, ethics should always play a role in interpersonal relationships, whether with friends, romantic partners, family, colleagues, or within social groups (p. 105).

As noted earlier, the digital space can create a 'safety distance' that sometimes leads individuals to evade accountability. When participants are not physically present, the potential consequences of their actions, especially verbal communication, may appear diminished. Such blurring of ethical boundaries necessitates that telematic collaborators establish clear ground rules akin to those used in other online interactions, such as dating. For example, Shakespeare famously said, 'Eyes are the windows to our soul' (Benjamin, 2014). In a telematic context, the digital connection between computers can be likened to this idea, a window to our individual experiences. The camera and microphone are vital for transmitting audio-visual signals that others can interpret. However, the distinctive aspect of human-computer interaction lies in the user's ability to turn off their camera and microphone, use avatars to obscure their identity or exit the space with a simple click. Unlike physical spaces where attendees can be followed, in digital spaces, participants can vanish without a trace unless their identity is easily retrievable.

Ethical awareness is crucial for fostering a new digital emotional intelligence. Webb (2015) emphasises this as well, arguing that it is essential for individuals to recognise their ethical frameworks while acknowledging the unequal dynamics present in various interpersonal, public, or group situations. Acknowledging ethics

forms a foundational element for developing a critical and theoretical framework within telematic art.

However, cyberspace's distinct challenges introduce further complications that can impede a fully functional online performance environment. Tine Munk (2018) notes that managing the global Internet infrastructure is complex and challenging. Policing cyberspace becomes particularly daunting because the virtual realm is 'extra-territorial' and lacks the concrete boundaries that typically govern real-time crimes (p. 228). The complexity complicates how legal and illegal activities manifest in online environments (p. 229). Ongoing research and publications in this field ultimately contribute to a heightened awareness and understanding of these ethical dynamics. They underscore the necessity of navigating telematic art with a keen eye toward its evolving context. Integrating themes from my participation in various projects discussed in this thesis, as well as work on EPI 2.0, allowed me to explore not only the technologically mediated spaces and art but also to understand potential ethical implications that emerge alongside such a new frontier of performance art.

Therefore, discussions on ethics and online behaviour should manifest and challenge an understanding of rules in online spaces, which are equally crucial for telematic practitioners, as it is for individuals, groups, and larger corporations. To conclude, I summarise some fundamental propositions below. Telematic practitioners can avoid or at least minimise ethical problems arising through their work if they can ensure the following:

- Systems on all remote sites are vetted and checked for up-to-date security
- Ensuring ground rules and boundaries that are embedded and clearly communicated to participants and audiences alike

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- Understanding the implications of online use including issues with anonymity, data protection and freedom of speech

- Informing participants on the appropriate handling of haptic equipment

- Communicating the importance of consent

- Understanding how to identify potential threats and how to deal with inappropriate or suspicious behaviour or capacities

- Getting to know the real identity of active participants and developing a model for monitoring actions

The telematic metaverse space is marked by several crucial challenges that must be addressed. Participants often encounter risks beyond simplistic management, highlighting the need for ethical awareness and proactive measures. The complexities of data protection, diversity, inclusivity, performance rights, carbon footprint, and financial viability are increasingly apparent. For instance, questions arise about how individuals with audio-visual impairments might benefit from the digital metaverse, alongside concerns about access to technology in different countries.

Furthermore, Joanie Lemercier pointed out, 'If we want to have a TV screen, a computer, a laptop, two internet connections, etc., we need to burn coal, and that is going to cause the extinction of the living world.' (Lemercier *et al.*, 2020) (for more information: footage to full Seeing Sound symposium available in Appendix 2, p. 323). This underscores further the potential environmental implications of digital practices, which can mirror the negative impacts of physical travel.

For example, statistics indicate that '53.6% of the global population use [digital systems that] contribute to 3.7% of greenhouse emissions, similar to those of the airline industry' (Griffiths, 2021). Hence, it becomes essential for telematic

practitioners to integrate these important aspects into their work. Public performances incorporating online elements must acknowledge the implications and opportunities of mediated environments.

To conclude, ethical considerations significantly influence the future of telematic performance making by shaping the frameworks within which technologies operate. Data privacy, security, and user consent concerns necessitate transparent practices and robust regulations. As more practitioners collaborate in intermedial and hybrid environments, they must prioritise ethical standards to build trust with consumers and stakeholders. This approach can mitigate potential problems and foster innovation through collaborative efforts. Hybrid performance making will likely evolve to incorporate ethical design principles, ensuring technology enhances user wellbeing while advancing creative pursuits.

Furthermore, the future holds great promise for integrating telematic performance and technology to enhance creative collaboration for individuals with disabilities and neurodivergence. As technological advancements continue, there is a growing interest in harnessing these tools to foster inclusivity, creativity, and connection, paving the way for innovative solutions that empower diverse voices and talents. Ultimately, embedding ethics in telematics can lead to more sustainable and socially responsible advancements in the field.

Lastly, developing a new emotional vocabulary that combines the authentic and digital selves helps to navigate the hybrid space. Moving forward, it is vital to keep the focus on developing frameworks that emphasise cost, accessibility, sustainability, inclusivity, and cultural diversity in hybrid spaces, paving the way for a new era of digital art that resonates globally.

5.5: The Future of the Telematic Space: A Model for Intercultural Exchange

The Hypothesis

As expected with a research project of this size, new discoveries evolved throughout the research phase. The crucial observations that matter towards telematic research in the future include the recognition that the digital hybrid space is split into two different categories:

1) A decentralised space (independent from localised norms) navigated by global interactivity that is void of any geocentric dimension and timeframe. A new hybrid 'planet' that could potentially allow a unique new and universal culture to flourish as a model facilitating intercontinental living, socialising, educating, and working.

2) A space of deculturisation, where the self becomes a filtered or avatar version of reality within a predominately virtual world that is void of or blurs the lines of real physical traits including ethnicity, gender, sexual orientation and disability.

The analysis below will look at each scenario outlined above, discussing the positive and negative sides of each possibility. It further aims to identify potential options that would improve the use of peoples' emotional intelligence in the mediated space to allow for better collaborative experiences.

A new place

A decentralised place is usually described as a country that transferred its authority from a centralised government to a sub-national entity (Boko, 2002, p. 1).

But beyond a general definition, the process of decentralisation is a complex undertaking, taking on different meanings in different contexts and according to the desires and plans of those in charge of its design and implementation (Boko, 2002, p. 1). On the other hand, deculturalisation is described as 'the destruction of the culture of a dominated group and its replacement by the culture of the dominating group' (Banks, 2022, p. 610).

Consequently, the technologically mediated environment is undoubtedly a space where new rules need to be established. It means that despite decentralisation of locality, a new 'central' space would need to be formed in order to help to navigate it productively and safely for all involved. At the same time, this can naturally form a new culture that is dominated by ever evolving trends and possibilities (for example, new technological inventions). The hybrid space inevitably provides many positive opportunities; including enabling intercultural communication without the need to travel or even acquire visas. Albeit, such social interaction has become the norm rather than a choice in recent years, and without doubt provided a new challenge for everyday life (Jørgensen, *et al.*, 2020). The 'new normal' mediated a new version of life, creating the possibility for a new continent or even planet hosting hybrid living, which could turn to be a wonderful new model for leading a life on a global scale. Creating and growing such a harmonious community may be a utopian fantasy at the moment. However, if the telematic community could be managed through a more centralised system, it would provide better scope for stronger collaborative processes that would follow clear regulations and frameworks. Therefore, this would not only make the work more accessible, but also allow for more efficient monitoring of the issues discussed in the previous section of this chapter. I argue that telematic research is currently still very much disjointed as a large majority of researchers in

the field claim to have invented the concept without acknowledging previous works

or crediting other practitioners. If it is possible to create and publish a coherent

historical overview of the genre as well as guidance on the possibilities already

discovered, it could also provide a better legal structure to ensure the property rights

for old and new work.

Language

The hybrid space has already instigated changes in communication needs that could

further the need for a new global language. This is comparable to the efforts of

Ludovic Zamenhof, who made an attempt at such through developing the language

called 'Esperanto' in 1887, with the aim to facilitate better communication between

people from different countries, which he believed to be the key for world peace

(Newnham, 2020). However, currently most international collaborations such as

symposiums, conferences or international work are predominately conducted in

English, which is becoming the business language of the world striving 'to facilitate

communication and performance across geographically diverse functions and

business endeavours' (Neeley, 2012).

   The problem with that is that communicating in the hybrid space is already a

complex issue due to the limitations of clear physical cues. International collaboration

often results in participants dealing with another language or accents and dialects,

which can confuse the meaning of conversations and intentions even more, unless

participants are fluid and confident in speaking in a foreign language. On top of this,

participants trying to create a connection to each other need to adjust their body

language and the visual focus adjusting to the 'actual bodies' in the mediated space.

Neeley further mentioned that language differences are often the cause of a 'bottleneck' that is caused when globally dispersed workers have to meet their companies' individual corporate goals that are impossible to achieve without good communication in place. 'There's no question that unrestricted multilingualism is inefficient and can prevent important interactions from taking place and get in the way of achieving key goals' (Neeley, 2012). Key to this is that language is used in a way that can serve the communication effectively.

Critical intercultural skills and education

Critical intercultural skills are vital in order to build the foundation for effective collaborative environments in the hybrid space. Some models, such as those used in Higher Education settings for example, could be applied to set an example. International experiences and exchanges have long been a common model towards achieving graduate attributes as a global citizen. Higher Education providers need to ensure that this is effectively embedded into the curriculum; they need to make certain to communicate 'what critical intercultural skills are, so that they can create interdisciplinary teams and ensure that not only are appropriate learning outcomes built into international projects but also that partners in the exchange have aligned goals' (Jørgensen *et al.,* 2020). Therefore, education may need to adapt on a global scale in order to configure a digital future that is fit for purpose and will serve international communities to grow acceptance and understanding of diverse backgrounds and ethnicities. This would not only impact on general hybrid working and communication, but also help to develop a more detailed framework for telematic performance collaborations.

The embodied mind

As already established in this study, performance making in general applies a range of vocabularies and does not necessarily just rely on spoken words, natural body language and physical interpretation. Finding a common ground depends on whether the collaboration involves objects including, but not limited to, instruments, props, special effects such as lights, etc.

Movements and music can be either fixed or free and improvised, thus interaction within a performative concept can chose to be structured, or freely interpreted. As Petralia (2010) noted, a lot more work needs to be done to understand the full relationship between cognitive science in relation to telepresence applications in a hybrid space. The embodied mind and the perception of performance work form a complex relationship; performers and creative artists usually engage with space by physically altering the elements in it to create some kind of a response for audience members (Petralia, 2010, p. 186). Other practitioners who focus on perception theories such as Riva believe that the digital space offers different opportunities and produces presence according to its ability in supporting the users and their intentions (Riva, 2009, p. 160). Without doubt, experience and perception of self and others will vary greatly amongst participants or audiences.

Digital technology is a perpetrator of the social transformation that has been gradually built upon the rise of the World Wide Web (Jordan, 2009, p. 181). Attempts to merge the present self into a fully embodied telepresence experience that aims to blur the cognitive boundaries of 'real' will require technologies that are very close to displaying the same emotional intelligence than the human being. However, despite its rapid growth, AI is not quite there yet. The developments of completely autonomous machines that can be seen as intelligent in their own right do not exist at

the moment. According to Varela, Thompson and Rosch (2016), research in the field of cognitive science does not provide immediate results and will need continuous refinement over time, although a lot of progress is notable. 'The future development of cognitive science is therefore far from clear, but what has already been produced has had a distinct impact, and this may well continue to be the case' (p. 5). Whereas some VR experiences can leave people temporarily under an illusion of being present in another parallel universe, the conscious of self and cognitive reasoning will always be a hindrance for being fully 'present' in the virtual space. Allen and Friston (2018) noted that 'predictive coding suggests that information is embodied in a contextualising sense' (p.2471). This could mean that we interpret signals through sensory perception in line with what we understand of the world, society, emotions etc. The interpretation of interoceptive and exteroceptive signals is represented then by what is in our heads (*ibid*).

Telematic artefacts are more often than not designed to deliberately reveal the part we play as individuals in space and time. It may therefore not be the aim of practitioners to completely remove awareness of the physical distance to our partners. Nonetheless, AI and VR could become so sophisticated in the future that the virtual worlds one day become part of daily lives. Potentially, we could create a world where holograms, robots and other machine artefacts could become so intertwined that humans will start to treat the machine just like any other biological being. It may at this moment in time read like what we are already confronted with this through the world of science fiction. Although it may seem a long time away, there is no ultimate ground to prescribe the steps we take.
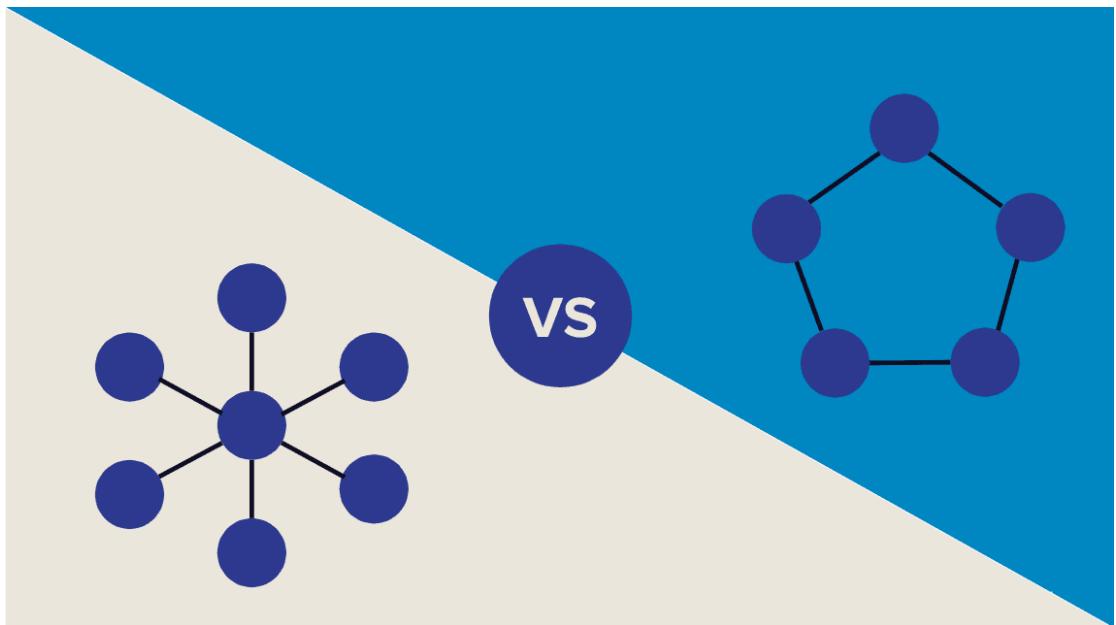
Figure 28: Showing a centralised vs. a decentralised model (Pelletier, 2022)

In order to function properly and effectively, the telematic performance space should operate with both systems. This can be copied from operational strategies as for example those applied by marketing firms, which often have a hybrid model as a necessity for businesses to be successful. As Pelletier (2022) further noted:

Organizations that are sticking to a centralized model are going to be limited in their ability to expand and grow. Alternately, going [sic] completely decentralized is not responsible either, because you need some components of centralized operations to maintain control.

Telematic practitioners can inevitably gain knowledge from the tactics of commercial firms that could aid the process of creation. Scott Brinker, a very prominent

marketing analyst, developed the model below to put the hybrid space into a new

perspective, giving equal importance and power to each of the individual elements:

[Figure 29 has been removed from the digital version of the thesis at the author's request]

Figure 29: Model of a hybrid space (Brinker, 2018)

In terms of the telematic space, the human element can be described as the central

scale, with the machine driving the agility through a decentralised innovative

medium. It may be worth considering though that, due to the fact that these

collaborations take place in two or more, even multiple different locations, neither

the centralised nor decentralised location can be determined in one particular

location. In short, participants will be located in their own unique space (centralised),

connected with their own individual interface medium (decentralised). This could

mean that each place is self-governed to a certain extent, with individual goals and

rules. However, even the decentralised place of cyberspace has a set of rules

manifested by authorities that apply to servers, software and general use of the

Internet. Elinor Ostrom, an American political economist, stated that:

Until a theoretical explanation-based on human choice for self-organized and self-governed enterprises is fully developed and accepted, major policy decisions will continue to be undertaken with a presumption that individuals cannot organize themselves and always need to be organized by external authorities (Ostrom, 1990, p.90).

However, the assumption that individuals are incapable of self-organisation overlooks numerous examples in history and contemporary society where communities successfully govern themselves without external authorities. Furthermore, such a perspective undermines the potential for innovation and adaptability that emerges when individuals are empowered to make collective decisions.

Accountability

Other factors that challenge in the blended environment include the question of who is accountable for what is happening in the space. This is particularly tricky if AI is used.

While it may seem unlikely that AIs will be deemed to have sufficient autonomy and moral sense to be held liable themselves, 'they do raise questions about who is liable for which crime (or indeed if human agents can avoid liability by claiming they did not know the AI could or would do such a thing)' (Bird *et al.,* 2020).

Like in 'real' life, accountability comes with an individual's compliance of rules. As long as the virtual world is still governed by humans, it will have to obey to the rules of the central government of a person's physical location. There are however quite a few grey areas, which grow with the expansion of the virtual space. This applies

similarly to telematic practitioners: the ground rules for exploration and collaboration need to either stem from a central point, which could be the leading creative or producer of a particular piece. However, this should be treated with the 'one glove does not fit all' approach. Particularly if the projects include multiple spaces in different locations, decentralisation could become too complicated to control and rule the new realm. It is certainly an area that offers further investigation through multiple lenses.

Lastly, the term 'hybridity' does not only apply to the technologically mediated space, but is also used as a term to describe the cultural changes resulting from the convergence of two differing cultures (Spring, 2016). The idiosyncrasy of culture in the virtual realm can be looked at from different perspectives: firstly, there is the cultural background of the participants which is defined by location, education, socio-economic and socio-political factors as well as their views of the world as an individual being. Furthermore, there is the *culture* of the virtual domain to be considered, which could include VR, VWs and AI where people can take on an entire new identity. As Borggreen and Johannesen (2017) note, new social relations and social coding in the telematic space are formed through the communication between bodies. This can be further challenged by the use of filters, virtual backgrounds or even avatars. Therefore, creating a new culture designed for the hybrid space can be challenging in many ways due to the variant aspects of interdisciplinarity.

Are we ready for a new digital planet?

Accessibility may also be the cause for slow acceleration of the creation of such a new virtually dominated new 'planet' where technologically enhanced cultures create new rules. Although VR, VWs and AI have huge potential to be integrated into everyday

lives, including education, vocational training and research, they are still less accessible (mainly due to cost) compared to the more popular and widespread use of 2D technologies, such as the smart phone. The main reason for this is the need for complex and costly investments, which is particularly challenging for developing countries (*Toolkit Digitalisierung*, 2022).

In the fields of training and education, virtual realms are particularly useful to minimise materials or risks (for example, aviation or medical practical applications). Nonetheless, people need to be motivated and trained in order to accept the new technical opportunities (*Toolkit Digitalisierung*, 2022). There is also a small issue with some people linking prolonged use of digital technologies with discomforts such as eye strain and screen fatigue. VR settings that include devices like headsets can cause further irritations such as dizziness, headaches and extreme discomfort (Wuttke, 2022). It could make it more difficult for some people to embrace the digital environment as a new habitat.

Although technology has rapidly expanded efficiency over the last couple of decades, it may be a good ten to twenty years away from the new worlds as predicted by science fiction such as the worlds of Star Trek. Nonetheless, telematic performance spaces provide the ability for artists and technologists to experiment together in order to accelerate the construction of a new virtually integrated new planet. Scientists researching the fields of VR and AI in particular must firstly focus on making the technologies more user friendly, accessible, and less costly. AI also needs to become better at emotional choices in order to be able to fully integrate with life:

> If you want your robot to be autonomous and to be able to make complex
> decisions, then it needs to be intelligent. But it also needs emotions. Emotions

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motivate us, set priorities, guide our reasoning, and help us cope with

adversity. So robots who need to make decisions would need both, intellect

and emotion (Ford, 2016).

Finally, governments would need to work together to redefine these new policies and

rules in line with the creation of a new digital, diverse and global culture in mind. A

new technologically enhanced and virtually integrated future is inevitable, but this

will require research in various areas in order to fully function. However, it has the

potential to become a better world, which is not only more sustainable and

environmentally friendly, but could potentially include a better culturally diverse and

ethical model of education that would benefit society and the economy.

Potential problems

In the worst-case, Utopian scenario, technology could create a disaster that would

erase the acceptance of any natural existence. The future of technological invention is

difficult to predict, and often based on assumptions. Hern (2020) noted that:

'Futurism is a mug's game: if you're right, it seems banal; if you're wrong, you look

like the founder of IBM, Thomas Watson, when he declared in 1943 that there is room

in the world 'for maybe five computers'.

At the moment, scientists seem more concerned with the issues of how people can

live effectively alongside the machine. The dystopian belief that one day machines

could take over the world from humans is maybe scary, but far from reality as robots

still have difficulties creating emotions, as stated in earlier chapters of this study.

Nonetheless, the laws governing a world that coexists with VR, VWs and AI need to

be carefully considered in line with human accountability. The potential impacts of AI

are far-reaching, but they also require trust from society. AI will need to be introduced in ways that build trust and understanding, and respect human and civil rights. Such requires transparency, accountability, fairness and regulation (Bird *et al.,* 2020). Long term planning is necessary to be able to create an accessible and sustainable community. However, as Holly Jean Buck (2020) is referenced to in Hern (2020):

> Right now, we're in this era of stopgaps. Society used to be able to make a long-term plan: people built long-term infrastructure and thought a bit further out. That's not something that happens now: we go to quick fixes. We need a cultural change in values, to enable more deliberate decision-making.

In conclusion, telematic performance research emerges as a pivotal avenue for fostering an harmonious hybrid coexistence in our increasingly digital world. By investigating the intersections of technology, collaboration, and interdisciplinary practices, this research not only addresses immediate challenges but also paves the way for sustainable, long-term solutions. The insights gained from the research hold the potential to reshape traditional paradigms and create innovative frameworks that guide individuals and organisations as they navigate the complexities of technologically mediated environments. Ultimately, embracing these new models of thinking could lead to enriched collaborative experiences and a deeper understanding of the dynamics at play in our interconnected global landscape. This eventually leads to the creation of a new emotional intelligence fit for the digital realm.

Chapter 6: Final Conclusions

The final chapter of this thesis provides an integrated overview of the findings, articulating both the practical and theoretical implications that emerged throughout my research. The following section summarises my contributions to the design of interdisciplinary collaboration within the telematic performance field, an area that, while still in various stages of development, holds immense potential for redefining artistic practices in the digital age.

At the core of the exploration lies a structured analysis of three pivotal research questions that guided my inquiry. First, how might emotional intelligence, traditionally predicated on being in a shared physical space, function within the context of telematic performance? Through theoretical investigation and the practical application embodied through my exploration of other practitioners' practice and my project Exploding Plastic Inevitable 2.0 I addressed this question by examining the nuances of emotional engagement in virtual environments. I found that while physical proximity naturally facilitates emotional connections, telematic performance *can* cultivate its own forms of emotional intelligence by leveraging a more cognitive connection through digital tools that foster intimacy and presence, even across distances.

Secondly, the question of how telematic performance could create new opportunities for rethinking 'shared space' and 'location' was instrumental to my research. The practical experiments undertaken in EPI 2.0 provided valuable insights, demonstrating that these performances can transcend traditional notions of space and location, allowing participants to negotiate and redefine their sense of presence. EPI 2.0 and other projects studied for this thesis illustrated how blending diverse

technological platforms can facilitate a collective experience prioritising conceptual connectivity over physical proximity.

Lastly, I explored how telematic performance experimentation could contribute to a new hybrid performance vocabulary and illuminate the challenges within a technologically mediated immersive performance environment. My findings indicate that as artists engage with these digital platforms, they are not merely replicating traditional performance forms but are forging innovative terms and modalities that reflect the complexities of contemporary, digital culture. The insights gleaned from EPI 2.0 highlighted both the creative possibilities and the critical issues that arise in technologically mediated spaces, serving as a fertile ground for dialogue about the future of performance.

In synthesising these investigations, this chapter proposes a conceptual framework designed to support on going research in artistic endeavours and technological development. The models presented here aim to inform the creation of a new digitally integrated planet, one where the status of a global citizen is elevated within a sustainable, tolerant, and culturally diverse landscape. By weaving together theoretical insights and practical applications, this research therefore contributes to the academic discourse surrounding telematic and intermedial performance practice. It paves the way for future studies that embrace the complexities and nuances of a rapidly evolving and interconnected world.

6.1: Theoretical and Practical Implications

The study makes significant contributions to existing research by exploring several key areas. Firstly, it thoroughly reviews historical, scientific, and experimental developments alongside the philosophical foundations of telematic art. The review

culminates in a comprehensive analysis of the telematic space related to users and audiences, emphasising the intricate relationship between human beings and machines. It then identifies potential areas for future development and highlights the necessity of raising awareness about the implications of operating within a digitally mediated environment.

In the introductory chapters, significant theoretical and practice-led backgrounds are presented, tracing the evolution of telematic performance as an art form and its technical implications. Chapter 3 identifies and explains the methodologies used for this thesis. Chapter 4 provides an in-depth overview and evaluation of my latest practical project, EPI 2.0, which shapes the discussions in Chapter 5. The chapter offers insights into the future of a new *Metaverse* for hybrid performance and proposes new vocabularies more suitable for technologically mediated spaces. Additionally, it delves into pressing issues faced by telematic performance creators, including the urgent need for clear ethical frameworks and a renewed focus on inclusivity and sustainability.

Utilising cognitive science to explore the connection between mind and intelligence, alongside advancements in machine technology, has enhanced our understanding of how individuals react, interact, and adapt in technological environments. The insights gained from the examination have provided a valuable framework for future practices, summarised in this final chapter. Furthermore, the study suggests areas for further investigation that could guide designers of new technological innovations, illustrating how digital spaces challenge human interaction and behaviour. The first table outlined in this section depicts the theoretical and practical implications concerning the aims and objectives established in Chapter 1.

Further groundwork is then employed to formulate a theoretical framework in the concluding figure, outlining a summarised structure for future research in the field.

Aims and objectives and corresponding findings:

Aims and Objectives	Outcomes
1. Contribution to the evolving experimentation of theatre practitioners and academics merging traditional practice with digital technologies to establish a global platform for networked performance collaboration.	Practical participation in new performance concepts (*Distant Feelings, Generation 200, Remote Intimacy) and* previous performance collaboration (*Timelapse, Digital Dancing)* provided the base to explore the concepts of telepresence from different angles, using diverse technologies. This culminated in the creation a new hybrid immersive performance installation of EPI 2.0. An analysis in line with new emerging experiments, conference proceedings and discussions provided initial conclusions that cyberspace is a 'real' space where feelings can be explored. This is, however, reliant on a new hierarchical structure dependent on how individual contributors and participants realise telepresence.
2. Establishing how the concept of emotional intelligence works within the context of telematic performance whilst exploring and creating a new shared space.	During my experimentation within the telematic realm, I established how the concept of emotional intelligence operates by immersing participants in diverse digital environments that simulate shared experiences despite the physical distances involved. My project, EPI 2.0, heavily influenced this exploration, which served as both a

	practical application and a theoretical framework for understanding emotional engagement in virtual spaces.
3. Designing new interactive and immersive hybrid experiences	I created interactive segments within EPI 2.0 that encouraged participants to explore a shared hybrid experience with live interaction in a newly revised version of Warhol's intermedial collaborative art platform, the original EPI. The practice led experimentation fostered a sense of presence and connection similar to that found in physical immersive performances. By integrating live performers through video calls, I observed how participants adapted their emotional responses within a telematic setting. The discussions that followed the live performances gave fascinating insight and feedback for future consideration.

4. Exploring shared narratives through practical exploration showed that telematic performance creates opportunities for new ways of thinking about and experiencing 'shared space' and 'location'.	Telematic performance encourages participants to co-create physical narratives within the performance framework. The telematic shared space is a perfect setting for participants (performers and audiences) to become active contributors. This collaborative storytelling process worked even across a distance, creating this newly shared space and allowing for collective emotional experiences that transcend traditional boundaries. Throughout my experimentation, I emphasised the importance of digital intimacy. Digital platforms allow for intimate and direct interactions albeit omitting physical touch, which becomes he 'virtual touch'. I demonstrated that emotional intelligence in telematic performance can be fostered through intentional design choices. The research showed that when digital environments prioritise emotional connection, they can create a shared relational space comparable to one with physical interactions.
6. Telematic performance experimentation contributes to ongoing exploration towards creating new hybrid performance vocabularies whilst creating new frameworks towards ethical, inclusive and sustainable models.	Through theoretical and practical investigation, I demonstrated the significance of telematic performance experimentation, which created new and valuable vocabularies and guidelines. Through workshops, performance participation, conferences, interviews and collaborative sessions, I explored hybrid performance vocabularies as a way towards a more digital and connected future within a performative metaverse. Telematic performance can become a new

	and inclusive platform for exchanging ideas across geographical boundaries. This offers further opportunity to create an abundance of diversity within theatre making. Commitment to ethical and sustainable practices and the development of accessible technologies is needed, as well as a focus on minimising environmental impact. This approach not only enriched the possibilities of artistic expression but also paved the way for a more equitable dialogue within the performance community.

Through these methods, my experimentation illuminated the potential for emotional intelligence to thrive within telematic performance, allowing participants to negotiate their sense of shared space and connection. The findings highlight that while physical proximity offers a certain depth of emotional engagement, telematic platforms can cultivate unique forms of emotional intelligence that redefine interaction and vocabularies fit for the intermedial performance collaborations. This groundwork paves the way for continued exploration in a constant evolving field, moving towards a more interconnected artistic practice.

The following graph demonstrates suggested considerations to create an Intermedial Telematic Metaverse:


Figure 30: Suggested simple model to make the required considerations for the design of new projects (Lane, 2022)

The figure above demonstrates the factors involved in a telematic performance project and show the various factors that form the basis for telematic performance projects. What is new and original in this demonstration is the inclusion of giving equal considerations to the ethical and environmental factors that are currently not available from any literature (in relation to telematic performance). Hence one of the implications to be factored into the design of telematic performance should include a better understanding of how this can be tailored to a global and diverse audience with different backgrounds and needs.

Secondly, the sources powering the technology should be acknowledged as one of the main aims of remote performance collaboration. Only greener energy resources can substitute the emissions of physical travel where a large carbon footprint is

concerned. Therefore (as discussed in Chapter 5) power resources need to demonstrate an effective sustainability agenda to win argument that online transnational collaboration is better for the planet. If it is possible for technology to be more reliable and greener at the same time, there is no need for some (not all) productions to 'fly in' international artists.

Furthermore, the research revealed that it is necessary to recommend considerations to make the content as well as potential participation more accessible. Hence, practitioners should consider ways to enable widening participation including persons with audio-visual impairments as well as other disabilities. Another important new aspect is that better understanding of a new 'digital self' can vastly improve how people collaborate and communicate in a technologically mediated environment. The following graph provides an overview of the building blocks that define a new version of our online presence:
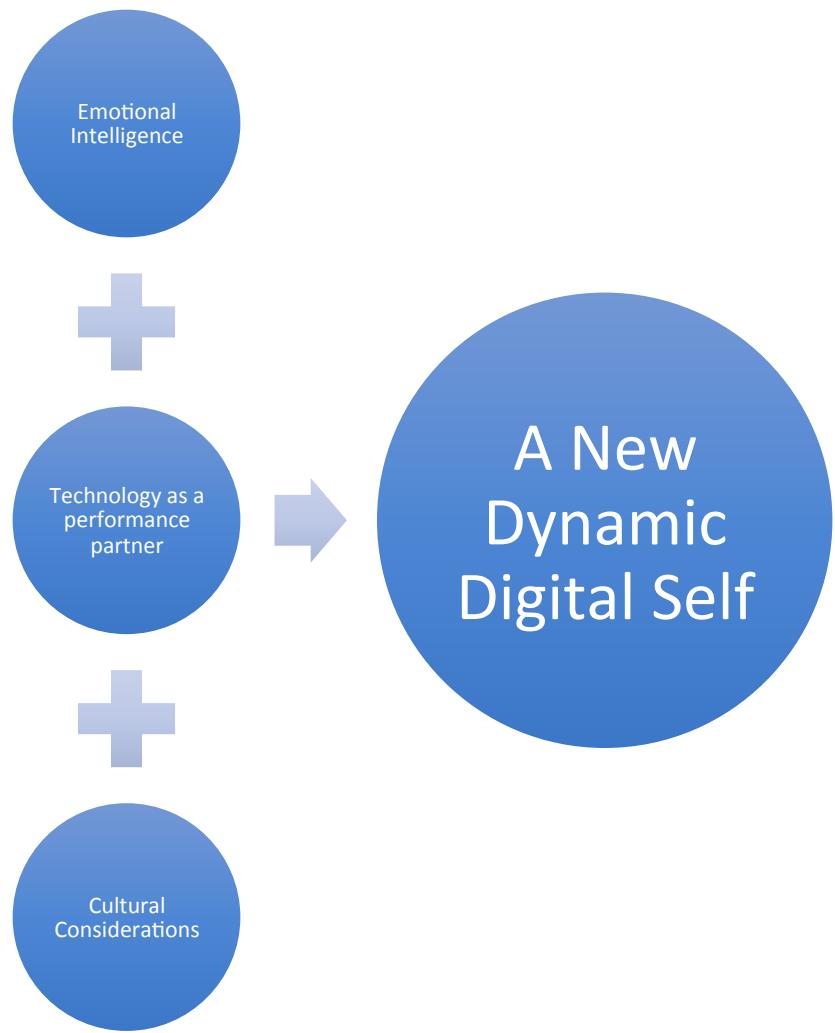
Figure 31: Model depicting how we can form better relationships in the hybrid space (Lane, 2022)

Telematic performance planning necessitates a holistic consideration of multiple interconnected elements to enhance efficacy. Extending beyond rudimentary concepts of spatiality and temporality is essential to foster a more nuanced understanding of the digital hybrid space. An important step in this direction involves educating creatives and performers to engage with virtual environments as if they were 'real,' thereby facilitating richer emotional connections and more impactful outcomes.

Future research projects should develop a comprehensive toolkit and a robust policy framework that addresses the unique methodologies required for effective work in hybrid spaces. By doing so, scholars and practitioners can create a structured approach to navigating the complexities inherent in telematic performances.

Additionally, formulating well-conceived telematic performance concepts, coupled with a new paradigm for fostering emotional intelligence, could significantly enhance the design of emerging technologies, particularly in artificial intelligence. The insights derived from this study may be crucial in informing the future programming of 'intelligent machines', guiding their ability to interact meaningfully with humans.

This research may provide a foundational basis for technologists to understand the critical considerations for developing machines that engage in more empathetic and nuanced interactions with users. By aligning technological advancements with individuals' emotional and experiential needs, we can pave the way for a more integrated and human-centric digital future. The final graph shows what factors should filter into the creation of new technological inventions.
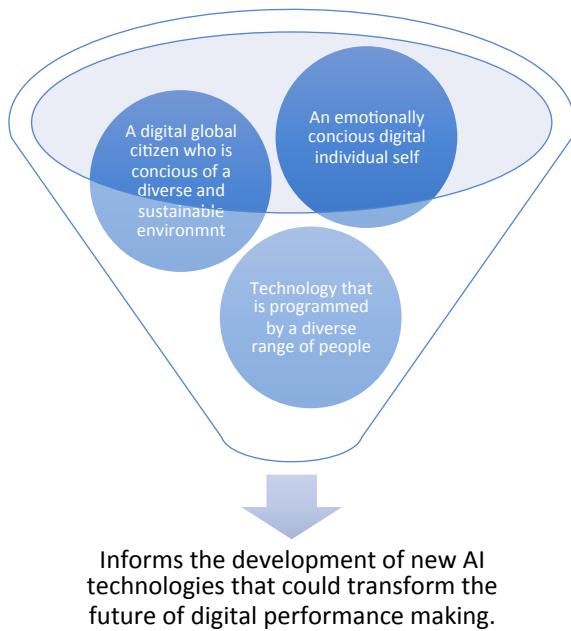
Figure 32: A 'recipe' for technical programmers (Lane, 2022)

I therefore recommend that practical experiments should focus more on developing clearer definitions for actions within the hybrid space. Such efforts should involve collaboration between scientists and creative practitioners. Currently, most work focuses on the technology itself, often resulting in experimental outcomes rather than commercially viable products.

Hybrid performance making offers increased freedom of movement and better opportunities for quick connections, eliminating the need for lengthy travel. Research into telematic art can enhance the effectiveness of telecommunications across various fields. For instance, these advancements have already benefited remote surgery and education.

6.2: Limitations

Despite referencing various works and case studies, this thesis only encompasses some of the significant contributions made by practitioners within the field. However,

many of the designs in telematic performance share similar characteristics, leading to the conclusion that the concepts of telematic art presented in this thesis provide substantial knowledge and advice for future practice in the field.

New telematic works alongside inspiring technological advancements will shape further innovation within hybrid collaborations. Despite the restrictions during the COVID-19 pandemic for theatre practitioners, this relatively short era presented unique opportunities to explore new avenues within digitally mediated spaces, fostering innovative designs and research that emerged from the crisis. The extended periods of online engagement experienced during lockdowns further enhanced my understanding of the psychological effects associated with collaboration and communication in a continuous telepresence environment.

Looking ahead, practitioners might aspire to initiate additional projects incorporating new technologies, particularly with an emphasis on creating more diverse and sustainable models. The study has elucidated how new designs should be informed to contribute meaningfully to the broader research community. Further investigation into the impacts of virtual worlds (VWs), artificial intelligence (AI), and virtual reality (VR) on telepresence has highlighted areas for enhancement, ultimately aiming to strengthen the relationship between humans and machines.

As noted by Tuli, Terefe, and Rashid (2021), 'machines such as robots in particular need more human-like designs and should be developed only to benefit humanity'. Achieving this goal necessitates implementing robust and comprehensive ethical frameworks. Ethical input is vital at the design and execution stages of several modern-day technologies. Human-like interfaces, exploitation of human affective responses, robots, and other systems with intimate roles fall into this category (Tuli, Terefe, and Rashid, 2021).

The future is poised to witness the integration of increasingly lifelike robots capable of expressing more realistic emotions. Moreover, advancements in digital objects may facilitate their incorporation into telematic art. For example, concepts such as 3D, 4D and holographic technologies hold promise for enhancing experiences that bridge virtual worlds (VWs) and physical spaces. Nonetheless, the prohibitive costs associated with software and hardware may impede individuals and organisations from realising these aspirations (Barras, 2009). Pursuing machines with enhanced emotional intelligence does not necessitate an endowment of emotions to these systems. Instead, it suggests that improved emotional intelligence can address several contemporary challenges while paving the way for superior technologies in the future. As Picard Vyzas and Healey (2001) articulate, 'Instead, it is about how emotional intelligence could address several problems that exist today while enabling better technologies for the future' (p. 2). They further confirm that a foundational step toward developing better emotional intelligence in machines is to enhance their ability to respond effectively to human emotions.

According to Makhluf (2021), emotional intelligence, denoted as 'EQ', is increasingly recognised as a competitive differentiator in advancing new technologies. He asserts that 'EQ will become a more critical skill set for executing higher-order tasks and innovative thinking' (Makhluf, 2021). Despite efforts within the realm of telematic art to minimise the conscious 'presence' of machines, achieving a seamless integration where all spaces converge remains elusive. Currently, most technologies still exhibit a 'clunky' nature, characterised by their visibility and unpredictability, alongside flat visuals and disrupted audio signals.

Further qualitative research methodologies could be implemented to enhance the telematic space, especially in contexts with limited budgets or when utilising

everyday technologies. Projects may also benefit from extensive quantitative surveys designed to ascertain the public's expectations regarding the future functionalities of technology. Such an approach would shift the focus beyond performers and creative artists to include broader demographic perspectives. Additionally, comparative studies involving diverse media types could be instrumental in cultivating technologies that promote a deeper understanding of emerging concepts.

6.3: Concluding Remarks

Is there love in the Telematic Embrace?

In conclusion, exploring love within the Telematic Embrace reveals that genuine emotions can thrive even in digitally mediated environments. While the absence of physical touch presents limitations, advancements in technology can enhance the sense of presence and connection among individuals. Embracing the virtual space as a legitimate setting for interaction is vital, allowing participants to recognise each other's presence despite geographical distances.

Moreover, it is essential to remember that technology should serve as a tool to enrich human experiences rather than replace human connections. As we navigate the complexities of human-computer interaction (HCI), the ongoing development of emotional intelligence in AI will undoubtedly shape future interactions, even as it raises questions about the authenticity of machine-generated feelings (Bharath, 2021).

Reflecting on technologies through the lens of philosophical insights, such as those offered by Heidegger, underscores the importance of using technology to foster a better world while maintaining our autonomy. Through Heidegger's framework, we recognise that technology is not a mere instrument; it shapes our understanding of

existence and poses the risk of narrowing our worldview to a purely technological perspective (University of Twente, 2022). The potential dangers of dependency on technology, including resource depletion and loss of human agency, necessitate a conscientious approach to development.

Informed by various fields, including practice-led research, we can contextualise these discussions within performance art, exemplified by projects like Exploding Plastic Inevitable 2.0. This performance work reflects the transformative power of technology and art in creating immersive experiences that challenge perceptions and foster connections as well as unique experiences. Such projects highlight the potential of technology to amplify human expression while also serving as a cautionary reference point in our relationship with machines.

Overall, further research is warranted to explore the specific technological needs and implications of innovations that could enhance artistic creations and personal interactions. Such pursuits will contribute to a future where technology, art, and human experience coexist symbiotically, enriching our cultural landscape and societal communication.

References and Bibliography:

120 Years of Electronic Music (2019) *The 'Telharmonium' or 'Dynamophone' Thaddeus Cahill, USA 1897*.

Abrahams, A. (2008) *The Big Kiss*, *Bram*.org. Available at: https://bram.org/ (Accessed: 31 May 2022).

Abrahams, A. (2020) *Distant Feelings*, *Bram*. org. Available at: https://bram.org/ (Accessed: 31 May 2022).

Abrahams, A. *et al* (2020) 'Embodiment and Social Distancing: Projects', *Journal of Embodied Research*, 3(2). Available at: doi: 10.16995/jer.67.

Abrahams, A. (2021) Interview by S. Lane, Online Zoom, 4 January

Adams, A., Lunt, P. and Cairns, P. (2016) 'A qualitative approach to HCI research', in *Research Methods for Human–Computer Interaction*. Available at: doi: 10.1017/cbo9780511814570.008.

Alarcón Díaz, X. (2019) *About – INTIMAL: Interfaces for Relational Listening*, *Intimal*. Available at: https://intimal.net/home/ (Accessed: 12 April 2022).

Alarcón Díaz, X. (2021) *Networked Migrations - CRiSAP, UAL: Creative Research into Sound Arts Practice.* Available at: https://www.crisap.org/research/projects/networked-migration/ (Accessed: 10 January 2022).

Allen, M. and Friston, K. J. (2018) 'From cognitivism to autopoiesis: towards a computational framework for the embodied mind on JSTOR', *Synthese*, 195(6), pp. 2459–2482. Available at: https://www-jstor-org.bathspa.idm.oclc.org/stable/26750414?seq=1 (Accessed: 13 April 2022).

Altenried, M. and Bojadzijev, M. (2016) *Virtual Migration, Racism and the Multiplication of Labour – spheres*, *Spheres- Journal for Digital Cultures.* Available at: https://spheres-journal.org/contribution/virtual-migration-racism-and-the-multiplication-of-labour/ (Accessed: 20 December 2021).

Anson (2017) 'Are Computers Truly Multitask?', *UNBX Tech.* Available at: https://www.unbxtech.com/2017/09/quickbite-cpu-multitasking.html (Accessed: 20 May 2021).

Arcass, C. (2001) *The men who really invented the GUI, Internet Archive.*

Ars Electronica 2020: Festival for Art, T. and S. (2020) 'The Women in Media Art: Telematic Performance', in. Available at: https://www.youtube.com/watch?v=n5tis2y0bZo (Accessed: 17 September 2021).

Ascott, R. (1990) 'Is There Love in the Telematic Embrace?', *Art Journal*. Available at: doi: 10.1080/00043249.1990.10792697.

Ascott, R. (2003) *Telematic Embrace: Visionary Theories of Art, Technology, and Consciousness*. Edited by E. A. Shanken. London: University of California Press.

Asenbaum, H. (2021) 'Rethinking Digital Democracy: From the Disembodied Discursive Self to New Materialist Corporealities', *Communication Theory*, 31(3). Available at: doi: 10.1093/ct/qtz033.

Assistive technology (2022) *World Health Organisation*. Available at: https://www.who.int/news-room/fact-sheets/detail/assistive-technology (Accessed: 7 April 2022).

Athique, A. (2015) *Digital Media and Society*. 2nd edn. Cambridge: Polity Press.

Baca, M. C. (2019) *Why emoji are — finally — becoming more diverse - The Washington Post*, *Washington Post*. Available at: https://www.washingtonpost.com/technology/2019/07/18/why-emoji-are-finally-becoming-more-diverse/ (Accessed: 7 April 2022).

Bach, B. (2018) 'The Hologram in My Hand: How Effective is Interactive Exploration of 3D Visualizations in Immersive Tangible Augmented Reality?'.
IEEE Transactions on Visualization and Computer Graphics, 24(1), pp. 457–467. Available at: doi: 10.1109/TVCG.2017.2745941.

Baetens, J. (2004) 'The connectivist turn. Roy Ascott, Telematic Embrace. Visionary Theories of Art, Technology, and Consciousness', *Image and Narrative*, (8). Available at: http://www.imageandnarrative.be/inarchive/issue08/janbaetens_ascott.htm (Accessed: 4 April 2021).

Baird, M. (ed.) (2020). *Television and Me: The Memoirs of John Logie Baird* Edinburgh: Birlinn ltd.

Baker, C. C. (2016) *New Directions in Mobile Media and Performance.* 1st edn. Oxon: Routledge.

Banks, J. A. (2022) *SAGE Reference - Encyclopedia of Diversity in Education*, *Sagepub*. Available at: https://sk.sagepub.com/reference/diversityineducation/n190.xml (Accessed: 13 April 2022).

Baradaran Rahimi, F., Levy, R. M., & Boyd, J. E. (2021) Hybrid Space: An Emerging Opportunity That Alternative Reality Technologies Offer to the Museums. Space and Culture, 24(1), 83–96. Available at: https://doi.org/10.1177/1206331218793065

Barras, C. (2009) '"Holographic" Videoconferencing Moves Nearer to Market', *New Scientist*, p. 23. Available at: https://www.newscientist.com/article/dn18169-holographic-videoconferencing-moves-nearer-to-market.html (Accessed: 2 May 2022).

Bay-Cheng, S., Kattenbelt, C., Lavender, A., & Nelson, R. (Eds.). (2010). Front Matter. In *Mapping Intermediality in Performance* (pp. 1–4). Amsterdam University Press. Available from: http://www.jstor.org/stable/j.ctt46mwjd.1 (Accessed: 6 December 2024).

Beaven, K. (2025) *Performance Art-The Happening*, *The Tate*. Available at: https://www.tate.org.uk/art/art-terms/h/happening/happening (Accessed: 17 April 2020)

Benayoun, M. (2016) *Just Dig It*, *Moben*. Available at: https://benayoun.com/moben/2016/04/20/just-digit/ (Accessed: 23 June 2020).

Benjamin, J. (2014) *William Shakespeare once said "The Eyes are the window to your soul"*, *Linkedin*. Available at: https://www.linkedin.com/pulse/20141021062211-151652777-william-shakespeare-once-aid-the-eyes-are-the-window-to-your-soul (Accessed: 4 April 2022).

Bennett, N. P. (2020) 'Telematic connections: sensing, feeling, being in space together'. Available at: doi: 10.1080/14794713.2020.1827531.

Benski, T. and Fisher, E. (eds) (2013) *Internet and Emotions*. Routledge. Available at: doi: 10.4324/9780203427408.

Broadcasting: The History Of Radio, The History Of Television, The Future Of Radio And Television, Cable Television (2020) Available At:

https://law.jrank.org/pages/4884/Broadcasting.html (Accessed: 12 December 2020)

Bernstein, C. (2021) *What is Zoombombing? Definition from SearchSecurity*, *Tech Target*. Available at:

https://www.techtarget.com/searchsecurity/definition/Zoombombing (Accessed: 4 April 2022).

Bhandari, P. (2022) *What Is Qualitative Research? | Methods & Examples*, *Scribbr*. Available at: https://www.scribbr.co.uk/research-methods/introduction-to-qualitative-research/ (Accessed: 3 May 2022).

Bharath, K. (2021) *Can Your AI Have Emotions?. Is it possible for you to program your… | by Bharath K | Towards Data Science*, *Towards Data Science*. Available at: https://towardsdatascience.com/can-your-ai-have-emotions-7efc35721e12 (Accessed: 2 May 2022).

Bhosale, U. (2021) *Top 5 Key Differences Between Methods and Methodology - Enago Academy*, *Enago Academy*. Available at: https://www.enago.com/academy/difference-methods-and-methodology/ (Accessed: 5 May 2022).

Biggin, R. (2017) *Immersive Theatre and Audience Experience: Space, Game and Story in the Work of Punchdrunk.* London: Palgrave Macmillan

Bird, E. Fox-Skelly, J. Jenner, N. Larbey, R. Weitkamp, E. and Winfield, A. (2020) 'The ethics of artificial intelligence: Issues and initiatives', *EPRS European Parliamentary Research Service.* doi: 10.2861/6644.

Birringer, J. (2004) 'Dance and Interactivity', *Dance Research Journal. 36*(1), 88-111. doi: 10.1017/S0149767700007580.

Birringer, J. (2019) 'Tele-Encounters: Telepresence and Migration International Symposium', in *Claiming Common Spaces.* Bucharest.

Birringer, J. (2020) Interview by S. Lane, Online Zoom. 16 December

Blast Theory. (2024). *Our Work | Blast Theory*. [online] Available at: https://www.blasttheory.co.uk/our-work/#online (Accessed: 15 December 2024).

Boddington, G. (2018) *How Will Artificial Intelligence Affect Artists and Designers?*, *TechX365*. doi: https://www.nesta.org.uk/feature/futurefest-forward/ (Accessed: 12 June 2021).

Boddington, G. (2021a) Interview by S.Lane. Online Zoom: 24 July

Boddington, G. *et al* (2021b) 'Remote Intimacy in Times of Social Distancing', in *Nudgepush21*. London: University of Greenwich. Available at:

https://www.youtube.com/watch?v=SAp_2KW0cq0&t=1825s (Accessed: 28 April 2021).

Boddington, G. (2021b) 'The Internet of Bodies—alive, connected and collective: the virtual physical future of our bodies and our senses', *AI & SOCIETY*. Available at: doi: 10.1007/s00146-020-01137-1.

Boddinton, G. (2019) 'The Internet of Bodies, Body Data and Ethical Futures', in *Beyond 2019-Women Shift Digital*. Edinburgh: R&D Conference for the Creative Industries

Boddinton, G. (2021) *Body>Data>Space*. Available at: http://www.bodydataspace.net/who-we-are/core-team/ghislaine/. (Accessed: 7 July 2021).

Bohman, J. (2022) *Critical Theory (Stanford Encyclopedia of Philosophy)*, *Stanford Encyclopedia of Philosophy*. Available at: https://plato.stanford.edu/entries/critical-theory/ (Accessed: 3 May 2022).

Boko, S. H. (2002) 'Decentralization: Definitions, Theories and Debate', in *Decentralization and Reform in Africa*. Boston, MA: Springer US, pp. 1–10. Available at: doi: 10.1007/978-1-4615-1111-3_1.

Borggreen, G. and Johannesen, H.-L. (2017) 'Misperforming Telematics: New Modes of Conferencing Across Distances', *Global Performance Studies*, 1(1). Available at: doi: 10.33303/gpsv1n1a6.

Botkin, G. (2020) *How Much It Costs to Develop a Hologram of a Person – Phoenixite*, *Phoenixite.* Available at: https://phoenixite.com/how-much-it-costs-to-develop-a-hologram-of-a-person/ (Accessed: 3 March 2022).

Bouchard, S. Talbot, J. Ledoux, A. Phillips, J. Cantamasse, M. Robillard*, G* (2009) 'The Meaning of Being There is Related to a Specific Activation in the Brain Located in the Parahypocampus'. University of Quebec.

Bouchard, S. Dumoulin, S. Talbot, J. Ledoux, A. Phillips, J. Monthuy-Blanc, J. Labonté-Chartrand, G. Robillard, G. Cantamesse, M. Renaud, P. (2012) 'Manipulating subjective realism and its impact on presence: Preliminary results on feasibility and neuroanatomical correlates', *Interacting with Computers*, 24(4). Available at: doi: 10.1016/j.intcom.2012.04.011.

Boundless Creativity Report (2021). London. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005410/Boundless_Creativity_v1.pdf (Accessed: 11 November 2021).

Braddock, C. and Webb, O. (2018) 'Rehearsing Practice as Research', *DATJournal Design, Art and Technology*, 3(2), pp. 325–352.

Braun, C.-A. and Gentes, A. (2005) 'Between representation and social interaction: Fluxus intermedia and dialogic form on the Internet', *Post Identity*, 4(2).

Briggs, A., Coleman, M. and Morrison, M. (2012) *Research Methods in Educational Leadership & Management*. 1 Oliver's Yard, 55 City Road, London EC1Y 1SP United Kingdom: SAGE Publications Ltd. Available at: doi: 10.4135/9781473957695.

Brinker, S. (2018) *The New Rules of Marketing Technology & Operations - Chief Marketing Technologist*, *Chiefmartec*. Available at: https://chiefmartec.com/2018/10/new-rules-marketing-technology-operations/ (Accessed: 12 April 2022).

Broadhurst, S. (2012) *Identity, performance and technology: practices of empowerment, embodiment and technicity*. Palgrave Macmillan.

Bromberg, E. (2010) *Adapt*. USA. Available at: https://www.youtube.com/watch?v=ucNM0ax3Sik (Accessed: 16 July 2019).

Buckham, J. W. (1942) 'Idealism and Realism', *Journal of Philosophy*, 39(15), pp. 402–414. Available at: doi: 10.2307/2017479.

Burkitt, I. (2014) *Emotions and Social Relations*. London: Sage.

Burkus, D. (2018) 'Why You Can't Multi-Task', *Psychology Today*. Available at:

https://www.psychologytoday.com/us/blog/creative-leadership/201811/why-you-

can-t-multi-task (Accessed: 6 September 2021).

Burnham, K. (2016) *5 videoconferencing fears (and how to overcome them)*, *CIO*.

Available at: https://www.cio.com/article/240984/5-videoconferencing-fears-and-

how-to-overcome-them.html (Accessed: 31 March 2022).

Burr, C. (2016) *Embodied Decisions and the Predictive Brain*. University of Bristol.

Butz, D. and Besio, K. (2004) *Commentary on The Value of Autoethnography in Field

Research. The Professional Geographer, 56*, 350 - 360.

Cage, J. (1961) *Silence*: *Composition to Describe the Process of Composition Used in

Music of Changes and Imaginary Landscape No. 4*. Hanover, NH. Available at:

https://monoskop.org/images/b/b5/Cage_John_Silence_Lectures_and_Writings.pdf.

(Accessed: 20 September 2021)

Can computers make decisions like humans? A new study may have the answer (2019)

Chinese Association of Automation. Available at: https://phys.org/news/2019-06-

decisions-humans.html. (Accessed: 25 September 2021).

Candy, L. and Edmonds, E.A. (2018). Practice-Based Research in the Creative Arts:

Foundations and Futures from the Front Line, *Leonardo,* Volume 51, Issue 1,

February, pp. 63-69.

Carassa, A., Morganti, F. and Tirassa, M. (2004) 'Movement, Action, and Situation: Presence in Virtual Environments', *Movement, Action, and Situation: Presence in Virtual Environments*, pp. 7–12. Available at: https://www.academia.edu/2889251/Creative_presence_Supporting_artistic_collabo rations?email_work_card=view-paper. (Accessed: 12 July 2020).

Causey, M. (2016). Postdigital Performance. *Theatre Journal* 68(3), 427-441. Available at: doi:10.1353/tj.2016.0074.

Ch'ng, E. (2009) 'Experiential Archaeology: Is Virtual Time Travel Possible?', *Journal of Cultural Heritage*, 10(4):458-470.

Chakraborty, B. Sarma, D. Bhuyan, M. MacDorman, K. (2017). A Review of Constraints on Vision-based Gesture Recognition for Human-Computer Interaction. IET Computer Vision. 12. 10.1049/iet-cvi.2017.0052.

Charmaz, K. (2001) 'Grounded Theory: Methodology and Theory Construction', *International Encyclopedia of the Social & Behavioral Sciences*. Elsevier, pp. 6396–6399. Available at: doi: 10.1016/B0-08-043076-7/00775-0.

Chatel, M. (2018) *New Media Precursor: Roy Ascott*, *Digital Art Weekly*. Available at: https://medium.com/digital-art-weekly/new-media-precursors-roy-ascott-fcc0e17219c1 (Accessed: 28 July 2020).

Chatzichristodoulou, M. (2011) 'Mapping Intermediality in Performance',

Contemporary Theatre Review. Available at: doi: 10.1080/10486801.2011.562056.

Chatzichristodoulou, M. (no date) *Annie Abrahams. Allergic to Utopia*, *Digicult*.

Available at: http://digicult.it/digimag/issue-058/annie-abrahams-allergic-to-

utopias/ (Accessed: 8 June 2021).

Chatzichristodoulou, M. and Zerihan, R. (2012) *Intimacy: Across visceral and digital*

performance. Basingstoke: Palgrave Macmillan.

Cho, D. and Kwon, K. H. (2015) 'The impacts of identity verification and disclosure of

social cues on flaming in online user comments'. Available at: doi:

10.1016/j.chb.2015.04.046.

Christopherson, K. M. (2007) 'The positive and negative implications of anonymity in

Internet social interactions: "On the Internet, Nobody Knows

You're a Dog"', *Computers in Human Behavior*. Pergamon, 23(6), pp. 3038–3056.

Available at: doi: 10.1016/J.CHB.2006.09.001.

Chudler, E. H. (2008) *The Brain vs. The Computer*, *Neuroscience fo Kids*. ODYSSEY

magazine, 10:6-7, 2001 (March), Cobblestone Publishing Co.

Clark, N. (2015) *Royal Shakespeare Company to take A Midsummer Night's Dream on*

the road for one of its biggest ever projects. 29 November. Available at:

https://www.independent.co.uk/arts-entertainment/theatre-dance/news/royal-

shakespeare-company-to-take-a-midsummer-night-s-dream-on-the-road-for-one-of-its-biggest-ever-projects-a6753586.html (Accessed: 12 September 2019).

Clemm, A. Torres Vega, M. Ravuri, H. Wauters, T. De Turck, F. (2019). Toward Truly Immersive Holographic-Type Communication: Challenges and Solutions. IEEE Communications Magazine. 58. 1. 10.1109/MCOM.001.1900272.

Cohen, L. (2002) *Research Methods in Education*, *Research Methods in Education*. Available at: doi: 10.4324/9780203224342.

Collins, C. S. and Stockton, C. M. (2018) 'The Central Role of Theory in Qualitative Research', *International Journal of Qualitative Methods*, 17(1). Available at: doi: 10.1177/1609406918797475.

Collins Dictionary (2022). Online. Available at: https://www.collinsdictionary.com/submission/10957/Autoethnography (Accessed: 3 May 2022).

Colson, E. (2019) *What AI-Driven Decision Making Looks Like*, *Harvard Business Review*.

Condie, J., Lean, G. and Wilcockson, B. (2017) 'Chapter 6: The Trouble with Tinder: The Ethical Complexities of Researching Location-Aware Social Discovery Apps'. Available at: doi: 10.1108/S2398-601820180000002006.

Cook, M. (2015) 'Telematic Music: History and Development of the Medium and Current Technologies Related to Performance'. *Doctor of Musical Arts Dissertations*. 23. Available at: https://scholarworks.bgsu.edu/dma_diss/23 (Accessed: 2 July 2021).

Copeland, B. J. (2021) *Artificial Intelligence | Definition, Examples, Types, Applications, Companies, & Facts | Britannica*, *Britannica*. Available at: https://www.britannica.com/technology/artificial-intelligence (Accessed: 16 March 2022).

Corwin, H. L. (2016) 'The Interwoven Characteristics of Emotional Intelligence and Sanford Meisner Actor Training'. Chicago: Roosevelt University.

Costin, M. (2011) 'Cognitive aspects of multiple tasks and perception: Overview and discussion on recent studies', in *5th International Symposium on Computational Intelligence and Intelligent Informatics (ISCIII)*. Iasi: Romanian Academy.

Craig, H. (2019) *Emotional Intelligence Theories & Components Explained.* Available at: https://positivepsychology.com/emotional-intelligence-theories/. (Accessed: 27 July 2025)

Creswell, J. Hanson, W. Plano, V. Morales, A. (2007). Qualitative Research Designs Selection and Implementation. The Counseling Psychologist. 35. 236-264. 10.1177/0011000006287390.

Curtis, S. and Coulter, M. (2019) *Why do people attend conferences? 5 key reasons*, *Curtis & Coulter*. Available at: https://curtiscoulter.com/why-do-people-attend-conferences-5-key-reasons-for-attendees-and-event-organizers/ (Accessed: 10 May 2022).

Davis, D. Z. and Boellstorff, T. (2016) 'Compulsive Creativity: Virtual Worlds, Disability, and Digital Capital', *International Journal of Communication*, 10, pp. 2096–2118. Available at: http://ijoc.org. (Accessed: 13 October 2021).

Deal, S. (2006) 'The Student Telematic Ensemble', in *ATMI/CMS National Conference*. Fairbanks: University of Alaska Fairbanks.

Debaig, C. (2018) *Towards a framework to fix AI's bias issues [Research & Theory]*, *Data Driven*. 11 November. Available at: https://medium.datadriveninvestor.com/week-4-towards-a-framework-to-fix-ai-bias-issues-research-theory-a6146efe7777 (Accessed: 5 January 2021).

Debaig, C. (2021a) *Instagram Profile*, *Instagram*. Available at: https://www.instagram.com/clemencedebaig_art/. (Accessed 11 November 2020).

Debaig, C. (2021b) Interview by S. Lane. Zoom Online. 13 May

Delanty, G., & Harris, N. (2021) 'Critical theory and the question of technology: The Frankfurt School revisited.' Thesis Eleven, 166(1), 88-108.

Demetriou (Yiota), P. A. (2018) 'Imagineering" mixed reality (MR) immersive experiences in the postdigital revolution: innovation, collectivity, participation and ethics in staging experiments as performances', *International Journal of Performance Arts and Digital Media*, 14(2), pp. 169–186. Available at: doi: 10.1080/14794713.2018.1511138.

Department for Digital Culture Media and Sport (2021) *Draft Online Safety Bill*. Available at: www.gov.uk/official-documents. (Accessed: 6 July 2021).

Dickson, B. (2021) *This new robotics challenge could bring us closer to human-level AI*, *TNW*. Available at: https://thenextweb.com/news/this-new-robotics-challenge-could-bring-us-closer-to-human-level-ai-syndication (Accessed 7 January 2022).

Dmytryk, E. (2019) *On screen acting: an introduction to the art of acting for the screen*. New York: Routledge.

Dong, Y. Hou, J. Zhang, N. Zhang, M. (2020). Research on How Human Intelligence, Consciousness, and Cognitive Computing Affect the Development of Artificial Intelligence. Complexity. 2020. 1-10. 10.1155/2020/1680845.

Dresser, M. (2006) *Tele-social Music Making*. San Diego. Available at: https://mark-dresser.com/wp-content/uploads/2017/07/TelematicsByMarkDresser.pdf (Accessed: 2September 2021).

Duncan, R. D. (2020) 'Can Machines Have Emotions? Smile If You Think So', *Forbes*,

July. Available at:

https://www.forbes.com/sites/rodgerdeanduncan/2020/07/02/can-machines-

have-emotions-smile-if-you-think-so/?sh=196e2cdd4593. (Accessed 21 September

2021).

Dwivedi, Y. K., Hughes, L., Baabdullah, A. M., Ribeiro-Navarrete, S., Giannakis, M., Al-

Debei, M. M., Dennehy, D., Metri, B., Buhalis, D., Cheung, C. M. K., Conboy, K., Doyle, R.,

Dubey, R., Dutot, V., Felix, R., Goyal, D. P., Gustafsson, A., Hinsch, C., Jebabli, I., . . .

Wamba, S. F. (2022). 'Metaverse beyond the hype: Multidisciplinary perspectives on

emerging challenges, opportunities, and agenda for research, practice and

policy. *International Journal of Information Management, 66,* 1–55. Available

at: https://doi.org/10.1016/j.ijinfomgt.2022.102542

Ed, D. D. (2011) 'Methdological approaches to the study of virtual environments and

online social networks', *Graduate Journal of Social Science*, 8(3), p. 3. Available at:

http://gjss.org. (Accessed: 3 June 2020).

Elleström, L. (2021). *The Modalities of Media II: An Expanded Model for Understanding*

Intermedial Relations. In: Elleström, L. (eds) Beyond Media Borders, Volume 1.

Palgrave Macmillan, Cham. Available at: https://doi.org/10.1007/978-3-030-49679-

1_1

Engelhardt, H.T., Jr. (2002). 'Medicine, philosophy, and theology: Christian bioethics reconsidered'. *Christian Bioethics,* 8(2), 105–117.

Epistemology | Philosophy | The University of Sheffield (2022) *The University of Sheffield, Department of Philosophy*. Available at: https://www.sheffield.ac.uk/philosophy/research/themes/epistemology (Accessed: 5 May 2022).

Euronews (2020) *Virtuelles Theatre dank immersiver Telepräsenz*. Berlin. 27 December. Available at: https://de.euronews.com/kultur/2020/10/27/virtuelles-theater-dank-immersiver-teleprasenz. (Accessed: 31 March 2021).

Evans, D. (2001) *Emotion: The Science of Sentiment*. Oxford University Press.

Faulkner, D. (2021) *How to Copyright a Dance | legalzoom.com*, *LegalZoom*. Available at: https://www.legalzoom.com/articles/how-to-copyright-a-dance (Accessed: 6 April 2022).

Fenemore, A. (2007) 'Dialogical interaction and social participation in physical and virtual performance space', *International Journal of Performance Arts and Digital Media,* 3(1).

Felton-Dansky, M., Ilter, S., Mosse, R., Tecklenburg, N., & Vrolijk, C. G. (2023). Framing hybrid futures in the Anthropocene. *International Journal of Performance Arts and Digital Media*, *19*(1), 1–11. Available at: https://doi.org/10.1080/14794713.2023.2180342 (Accessed: 17 October 2024).

Ferdman and A., R. (2016) *How well online dating works, according to someone who has been studying it for years - The Washington Post, Washington Post*. Available at: https://www.washingtonpost.com/news/wonk/wp/2016/03/23/the-truth-about-online-dating-according-to-someone-who-has-been-studying-it-for-years/ (Accessed: 6 April 2022).

Ferreira, J. J. and Monteiro, M. (2021) *The human-AI relationship in decision-making: AI explanation to support people on justifying their decisions*. Available at: https://doi.org/10.48550/arXiv.2102.05460 (Accessed: 2 Septmber 2021).

Fizek, S. and Wasilewska, M. (2011) *Embodiment and gender identity in virtual worlds: Reconfiguring our 'volatile bodies', Creating Second Lives: Community, Identity and Spatiality as Constructions of the Virtual*. Available at: doi: 10.4324/9780203828571.

Florida Atlantic University (2020) *What are you looking at? 'Virtual' communication in the age of social distancing: First-of-its-kind study explores phenomenon of visual cues and live video interactions., Science Daily*.
Fokkema, D. W. (2011). Intermediality and Literature: Theory and Method. Rodopi.

Ford, T. M. (2016) *Is Star Wars Scientifically Possible? | The Journal | MR PORTER, Mr Porter*. Available at: https://www.mrporter.com/en-us/journal/lifestyle/is-star-wars-scientifically-possible-701574 (Accessed: 17 April 2022).

Fouda, R. (2016) *Virtual Bodies: Representations of Gender & Sexuality in the Virtual Space*.

Fowler, C. J. H. and Mayes, T. (1997) 'Applying Telepresence to Education', *BT Technology Journal*, 15(4). Available at: doi: 10.1023/A:1018652017337.

Frankenfield, J., Khartit, K. and Kazel, M. (2022) *Turing Test, Investopedia*. Available at: https://www.investopedia.com/terms/t/turing-test.asp (Accessed: 15 March 2022).

Fuchs, M. (2009) *Cyberprovincialism*. Coded Culture: Yokohama. Available from: https://creativegames.org.uk/publications/pdf_files/Cyberprovincialism-2009.pdf. (Accessed: 3 December 2021)

Gaggioli, A. Ferscha, A. Riva, G. Dunne, S. Viaud-Delmon, I. (2016). Human Computer Confluence: Transforming Human Experience Through Symbiotic Technologies. Warsaw, Poland: De Gruyter Open Poland. Available at: https://doi.org/10.1515/9783110471137

Gallagher, S. and Zahavi, D. (2013) *The Phenomenological Mind*. 2nd Editio. Oxon: Routledge.

Garibaldi, J. M. (2019) 'The need for fuzzy AI', *IEEE/CAA Journal of Automatica Sinica*, 6(3).

Gelinas, J.P. (2021) *It Happened in 1966: Andy Warhol's Plastic Exploding Inevitable.* Mind Smoke Records. Available at: https://msmokemusic.com/blogs/mind-smoke-

blog/posts/6563673/1966-any-warhol-s-plastic-exploding-inevitable (Accessed: 20 December 2022).

George Ciprian Theatre (2020) 'Generation 200'. Buzau. Available at: https://www.teatrulgeorgeciprian.ro/teatrul-george-ciprian-pune-buzaul-pe-harta-internationala-a-artelor-performative/ (Accessed: 3 December 2021).

Georgievska, M. (2017) *The Telharmonium is considered to be the first significant electronic musical instrument*, *The Vintage News*. Available at: https://www.thevintagenews.com/2017/01/05/the-telharmonium-is-considered-to-be-the-first-significant-electronic-musical-instrument/?chrome=1 (Accessed: 2 February 2019).

Giannachi, G. (2004) *Virtual theatres: An introduction*, *Virtual Theatres: An Introduction*. Available at: doi: 10.4324/9780203500033.

Giges, B. and Warburton, E. C. (2010) 'From Router to Front Row':, *Leonardo*, 43(1), pp. 24–32.

Gladd, I. (2017) *How To Build An Emotional Connection*, *Everyday Health*. Available at: https://www.everydayhealth.com/emotional-health/how-build-emotional-connection/#:~:text=An emotional connection is a,of emotions that humans experience. (Accessed: 1 November 2020).

Glesner, J. (no date) *Internet Performance as Site Specific Art*. Available at:

http://people.brunel.ac.uk/bst/vol0301/juliaglesner.html (Accessed: 15 July 2019).

Goldstein, T. R. and Bloom, P. (2011) 'The mind on stage: Why cognitive scientists

should study acting', *Trends in Cognitive Sciences*. Available at: doi:

10.1016/j.tics.2011.02.003.

Gorman, T. (2020a) *Godot Online*, *Youtube*. Available from:

https://www.youtube.com/watch?v=e6_81P43-qg&t=516s (Accessed: 4 April 2021).

Gorman, T. (2020b) Interview with S. Lane. Online Zoom. 16 December.

Gorman, T., Syrja, T. and Kanninen, M. (2019) 'Immersive Telepresence: A framework

for training and rehearsal in a postdigital age', in *Blended and Online Education within*

European University Networks. Madrid, pp. 237–252.

Gorman, T., Syrja, T. and Kanninen, M. (2020) 'Immersive telepresence in theatre:

performing arts education in digital spaces ', in F Helm & A Beaven (eds), *Designing*

and implementing virtual exchange: a collection of case studies. RESEARCH-

PUBLISHING.NET, pp. 23-35. Available at:

https://doi.org/10.14705/rpnet.2020.45.9782490057726

Green, B. (2021) *Where are we now in terms of contracting for digital rights?*, *The*

Space. Available at: https://www.thespace.org/resource/contracting-digital-rights

(Accessed: 10 October 2021).

Green, S., Pullinger, S. and White, C. (2020) *Making the screen your stage: Understand your IP rights when using online streaming services*, *Lexology*. Available at: https://www.lexology.com/library/detail.aspx?g=a76c97f1-a7b1-4f4b-b911-3b1d48fdedb8. (Accessed: 10 October 2021).

Griffiths, S. (2021) *Why your internet habits are not as clean as you think - BBC Future*. Available at: https://www.bbc.com/future/article/20200305-why-your-internet-habits-are-not-as-clean-as-you-think (Accessed: 27 October 2021).

Ha, V. K. L. (2017) *Development of a Telepresence Wheelchair Using Advanced Wireless Video Streaming*. University of Technology. Available at: https://opus.lib.uts.edu.au/bitstream/10453/123175/2/02whole.pdf (Accessed: 7 October 2021).

Hales, K. (2009) 'Ethical issues in relational maintenance via computer-mediated communication', *Journal of Information, Communication and Ethics in Society*, 7(1). Available at: doi: 10.1108/14779960910938061.

Hamilton, R. Caceres, J.P. Nanou, C. Platz, C.. (2011). Multi-modal musical environments for mixed-reality performance. Journal on Multimodal User Interfaces. 4. 10.1007/s12193-011-0069-1.

Hanganu, M. (2019) *Tele-Encounters: Telepresence and Migration*. Bucharest: UNATC Press.

Hanganu, M. (2020) *Theatre in Force Majeure*. Bucharest. Unpublished.

Harvey, R. J. (1995) 'Can computers think? Differences and similarities between computers and brains', *Progress in Neurobiology*, 45(2); pp.99-127. Available at: doi: 10.1016/0301-0082(93)E0002-K.

Hawkins, J. (2020) *How do you make an online choir work? • James Hawkins Music*. Available at: https://jameshawkinsmusic.com/how-do-you-make-an-online-choir-work/ (Accessed: 15 March 2022).

He, K. (2020) 'Improvements in Accessibility of People with Disabilities using Telepresence Robots to Participate in Social Activities'. Available at: https://scholarworks.calstate.edu/concern/theses/2r36v1830?locale=en (Accessed: 7 October 2021).

Heidegger, M. (1977) 'The Question Concerning Technology and Other Essays', in *The Question Concerning Technology*. Available at: doi: 10.1007/BF01252376.

Hemmati, M. (2022) 'The Metaverse: An Urban Revolution', *Researchgate.Net*, (January), pp. 53–60. Available at: doi: 10.22034/TOC.2022.323276.1067.

Herbelin, B. Salomon, R. Serino, A. Blanke, O. (2016). Neural Mechanisms of Bodily Self-Consciousness and the Experience of Presence in Virtual Reality. 10.1515/9783110471137-005.

Hern, A. (2020) *Technology in 2050: will it save humanity – or destroy us? | Technology | The Guardian*, The Guardian. Available at: https://www.theguardian.com/technology/2020/jan/03/technology-2050-save-humanity-or-destroy-us (Accessed: 24 May 2022).

Hobson, J. A., Hong, C. C.-H. and Friston, K. J. (2014) 'Virtual reality and consciousness inference in dreaming', *Frontiers in Psychology*, 5. Available at: doi: 10.3389/fpsyg.2014.01133.

Hoelscher, V. and Chatzidakis, A. (2021) 'Ethical Consumption Communities Across Physical and Digital Spaces: An Exploration of Their Complementary and Synergistic Affordances', *Journal of Business Ethics*, 172(2). doi: 10.1007/s10551-020-04477-6.

Hofweber, T. (2004) 'Logic and Ontology', *The Stanford Encyclopedia of Philosophy* . Spring 2021. Edited by E. N. Zalda. Stanford Encyclopedia of Philosophy.

Hofweber, T. (2017) *Logic and Ontology*, *Stanford Encyclopedia of Philosophy*.
Holograms: The Future of Video Conferencing in the Era of 2020 (2022) *Likeable STEM*. Available at: https://www.likeablestem.com/single-post/2020/08/31/holograms-the-future-of-video-conferencing-in-the-era-of-2020 (Accessed: 7 March 2022).

Holmes, O. (2018) *At Home in Gaza and in London: One Show on Two Stages-2000 Miles Apart.* Available at: https://www.theguardian.com/stage/2018/jun/13/at-home-in-london-and-gaza-live-streamed-theatre-station-house-opera (Accessed: 17 May 2023).

Holtz, M. (2019) *Emotional Intellingence The Secret Sauce to Social Media Marketing*.

Available at: https://socialmediaclub.org/blog/tips-and-tricks/social-

media/emotional-intelligence-the-secret-sauce-to-great-social-media-marketing

(Accessed: 16 July 2019).

Horst, H. A. and Miller, D. (eds) (2020) *Digital Anthropology*. Routledge. Available at:

doi: 10.4324/9781003085201.

Hossain, M.M. Georges, J.P. Rondeau, E. Divoux, T. (2020) ' Using SDN for Controlling

the Carbon Footprint of The Internet'. Available at: doi:

10.1016/j.ifacol.2020.12.1905.

Hou, F. (2021) *How to join the metaverse and what it is | Fortune*, *Fortune*. Available at:

https://fortune.com/2021/12/07/how-i-signed-up-metaverse/ (Accessed: 11 April

2022).

How to Self-Tape (2022) *Spotlight*. Available at: https://www.spotlight.com/news-

and-advice/tips-and-advice/how-to-self-tape/ (Accessed: 11 April 2022).

Howell, E. and Harvey, A. (2022) *Albert Einstein: His life, theories and impact on

science | Space*, *Space*. Available at: https://www.space.com/15524-albert-

einstein.html (Accessed: 15 March 2022).

Interpretivism in Sociology: Definition & Origin - Video & Lesson Transcript | Study.com (2022) *Study.com*. Available at: https://study.com/academy/lesson/interpretivism-in-sociology-definition-and-lesson.html (Accessed: 3 May 2022).

Irwin, K. (2011) 'Crossing Over', 2, pp. 207–222.

JamarGig: The Ultimate Casting Platform (2021). Available at: https://www.jamargig.com/ (Accessed: 7 February 2022).

Jamshed, S. (2014) 'Qualitative research method-interviewing and observation', *J Basic Clin Pharm*, 5(4), pp. 87–88.

Jensen, K.B. (2016). Intermediality. In The International Encyclopedia of Communication Theory and Philosophy (eds K.B. Jensen, E.W. Rothenbuhler, J.D. Pooley and R.T. Craig). Available at: https://doi.org/10.1002/9781118766804.wbiect170

Johanson, M. and Brunnström, K. (2012) *Immersive Autostereoscopic Telepresence*. Mölndal.

Johnson, J. (2020) *Designing with the Mind in Mind Simple Guide to Understanding User Interface Design Guidelines*. 3rd edition. Elsevier. Available at: doi: 10.1016/C2018-0-02561-X.

Johnston, S. F. (2008) 'A Cultural History of the Hologram', *Leonardo*. The MIT Press, 41(3), pp. 221–223. Available at: http://www.jstor.org/stable/20206585.

Johnston, S. F. (2021) *Whatever Became of Holography? | American Scientist, American Scientist*. Available at: https://www.americanscientist.org/article/whatever-became-of-holography (Accessed: 9 February 2022).

Jones, A. Lang, M. Fyffe, G. Yu, X. Busch, J. McDowall, I. Bolas, M. Debevec, P. (2009). Achieving Eye Contact in a One-to-Many 3D Video Teleconferencing System. ACM Trans. Graph.. 28. 10.1145/1531326.1531370. (Accessed: 7 March 2022).

Jordan, B. (2009) 'Introduction: Blurring boundaries: The "real" and the "virtual" in hybrid spaces', *Human Organization*, 68(2), pp. 181–193. Available at: doi: 10.17730/humo.68.2.7x4406g270801284.

Jørgensen, M. Mason, A. Pedersen, R. Harrison, R. (2020). The Transformative Learning Potential in the Hybrid Space Between Technology and Intercultural Encounters. *Journal of Studies in International Education*, 26 (3). Available at: https://journals.sagepub.com/doi/epub/10.1177/1028315320976030 (Accessed: 10 May 2021)

Kellehear, A. (2020) *The unobtrusive Researcher*. Oxon: Routledge.

Kelly, J. (2019) 'The Palimpsestic Pop Music Video: Intermediality and Hypermedia' in Eds. Burns, L & Hawkins, S. The Bloomsbury Handbook of Popular Music Video Analysis (London & New York: Bloomsbury)

Killgore, W. Smith, R. Olson, E. Weber, M. Rauch, S. Nickerson, L. (2017). Emotional intelligence is associated with connectivity within and between resting state networks. Social cognitive and affective neuroscience. 12. 10.1093/scan/nsx088.

Kirschner, P. A. and De Bruyckere, P. (2017) 'The myths of the digital native and the multitasker', *Teaching and Teacher Education*, 67, pp. 135–142. Available at: doi: 10.1016/j.tate.2017.06.001.

Kluszczyński, R. W. (2011) 'Nomadic images. Transmediality and hybridity in contemporary media art', *Recherches Sur les Arts*, 13, pp. 199–134.

Knotts, M. A. (2018) *Social Systems for Improvisation in Live Computer Music*. Durham University. Available at: http://etheses.dur.ac.uk/13151/ (Accessed: 4 April 2020).

Körding, K. P. and Wolpert, D. M. (2006) 'Bayesian decision theory in sensorimotor control', *Trends in Cognitive Sciences*, 10(7), 319-326. Available at: doi: 10.1016/j.tics.2006.05.003.

Kwan, M. (2020) *Ensuring the lawfulness of automated facial recognition surveillance in the UK*, *Oxford Human Rights Club*. Available at: https://ohrh.law.ox.ac.uk/ensuring-the-lawfulness-of-automated-facial-recognition-surveillance-in-the-uk/ (Accessed: 7 September 2021).

Lacerda, I. and Ribeiro de Mattos, T. (2020) 'Marjorie Prime: The Question of Alterity between Holograms and Humans', *Glimpse*, 21, pp. 85–96. Available at: doi: 10.5840/glimpse20202110.

Ladly, M. (2007) 'Being there: Heidegger and the phenomenon of presence in telematic performance', *International Journal of Performance Arts and Digital Media*. Available at: doi: 10.1386/padm.3.2.

Lamenico, E. (2015) *Being in and towards the World An aesthesiological analysis of perception*. UNIVERSITÀ DEGLI STUDI DI URBINO CARLO BO.

Lamont, A. (2012) 'Emotion, engagement and meaning in strong experiences of music performance', *Sempre: Society for Education, Music and Psychology Research*. Keele, pp. 574–594.

Lane, S. (2015) *Ultra Grid Technology and Transatlantic Collaboration: The Discovery of the Possibilities of Parallel Digital Performance for Educational and Artistic Investigation through Project "Time Lapse"*. Master's Dissertation: Bath Spa University

Lavender, A. (2019) *Intermedial Acting for Hybrid Performance Environments*, *Archee*. 19 November. Available at: http://archee.qc.ca/wordpress/intermedial-acting-for-hybrid-performance-environments/ (Accessed: 12 May 2020).

Lazzaro, J. and Wawrzynek, J. (2001) 'No Title', in *A case for network musical performance*. New York: ACM Press, pp. 157–166.

Lee, J. (2020) 'A Neuropsychological Exploration of Zoom Fatigue', *Psychiatric Times*. 17 November. Available at: https://www.psychiatrictimes.com/view/psychological-exploration-zoom-fatigue (Accessed: 2 June 2021).

Lee, K. M. (2004) 'Presence, Explicated', *Communication Theory*, 14(1). Available at: doi: 10.1111/j.1468-2885.2004.tb00302.x.

Lemercier, J. *et al.* (2020) 'New Spaces', in *Seeing Sound*. Online Zoom Webinar: Bath Spa University. Available at:
https://www.youtube.com/watch?v=IgboTj_JBYA&t=1339s. (Accessed: 4 April 2021).

Lemmon, E. C. (2019) 'Telematic Music vs. Networked Music: Distinguishing Between Cybernetic Aspirations and Technological Music-Making', *Journal of Network Music and Arts*, 1(1).

Lennhede, E. (2020) 'How Green is your Data Center?-DigiPlex Publishes Guide and Checklist to Help Businesses Survive Sustainability Audits', *DigiPlex*.
Available at: https://www.datacenterdynamics.com/en/news/eu-wants-data-centers-be-carbon-neutral-2030/ (Accessed: 8 November 2021).

Lombardo, G. (2020) *Meet the Humans of the Future: Holograms, Digital Humans, and Deep Fakes | by Giorgia Lombardo | DeMagSign | Medium*. Available at: https://medium.com/demagsign/meet-the-humans-of-the-future-holograms-digital-humans-and-deep-fakes-35024b881545 (Accessed: 7 February 2022).

Looi, M. K. (2016) *A deep flaw has been discovered in thousands of neuroscience studies. So why aren't neuroscientists freaking out?*, *Quartz*. Available at: https://qz.com/725746/a-deep-flaw-has-been-discovered-in-thousands-of-neuroscience-studies-so-why-arent-neuroscientists-freaking-out/ (Accessed: 2 May 2020).

Lopes, P. Nezlek, J. Extremera, N. Hertel, J. Fernández-Berrocal, P. Schuetz, A. Salovey, P. (2011). Emotion Regulation and the Quality of Social Interaction: Does the Ability to Evaluate Emotional Situations and Identify Effective Responses Matter?. Journal of personality. 79. 429-67. 10.1111/j.1467-6494.2010.00689.x.

Lue, K. (2014) *My Mind Was Blown: Experiencing the Warhol's EPI Gallery.* Available at: https://www.warhol.org/my-mind-was-blown-experiencing-the-warhols-epi-gallery/. (Accessed: 1 August 2025).

Lutkevich, B. (2021) *What is Social Media?*, *TechTarget*. Available at: https://www.techtarget.com/whatis/definition/social-media (Accessed: 30 May 2022).

Maharaj, C. (2017) *Embodiment and the Boundaries Between Us in Virtual Reality - A critical analysis of inclusivity in social virtual reality environments*. Malmö University. Available at: https://www.researchgate.net/publication/321489675_Embodiment_and_the_Boundaries_Between_Us_in_Virtual_Reality_-

_a_critical_analysis_of_inclusivity_in_virtual_reality_social_environments (Accessed:
21 September 2021).

Makhluf, J. (2021) *The Future of Conversational AI (5 Things To Expect) | Cogito*,
Cognito Blog. Available at: https://cogitocorp.com/blog/the-future-of-conversational-
ai/ (Accessed: 2 May 2022).

Mallett, A. (2018) 'You will grow to hate emails from me: composing in a remote
[digital] collaboration', in *Nova Contemporary Music Meeting*. Lisbon: Academia.Edu.

Malloy, J. (2016) Social Media Archeology and Poetics. Massachusetts: MIT Press

Mangold, M. (2021) *Pepper's Ghost: The Innovation from the 19th Century*, *Magic Holo*.
Available at: https://magic-holo.com/en/peppers-ghost-the-innovation-from-the-
19th-century/ (Accessed: 12 February 2022).

Mc Monigle, P. (2024) *Conference Proceedings.* Available from:
https://guides.libraries.psu.edu/conferenceproceedings (Accessed: 24 June 2025)

Manwell, R. (1999) *Broadcasting*, *Britannica*. Available from:
https://www.britannica.com/technology/broadcasting (Accessed: 21 September
2020).

Marks, P. (2020) 'In the midst of the virus, theater migrates to the web. The results
are spotty.', *The Washington Post*, 10 April.

Marlow, J. Borrelli, C. Jungbluth, S. Hoffman, C. Marlow, J. Girguis, P. Team, AT. (2017).

Opinion: Telepresence is a potentially transformative tool for field science.

Proceedings of the National Academy of Sciences. 114. 4841-4844.

10.1073/pnas.1703514114.

Marr, B. (2017) *A Short History Of Bitcoin And Crypto Currency Everyone Should Read*,

Forbes. Available at: https://www.forbes.com/sites/bernardmarr/2017/12/06/a-

short-history-of-bitcoin-and-crypto-currency-everyone-should-read/ (Accessed: 27

October 2021).

Mason, C. (2020) *Digital and networked art in lockdown: how can we be creative in new*

ways?, *Studio International*. Available at:

https://www.studiointernational.com/index.php/digital-and-networked-art-in-

lockdown-how-can-we-be-creative-in-new-ways (Accessed: 30 November 2021).

Mc Leod, S. (2018) *Cognitive Dissonance*, *Simply Psychology*. Available at:

https://www.simplypsychology.org/cognitive-dissonance.html (Accessed: 6 May

2020).

Meakin, J. (1999) *A 20th-Century Retrospective*, *Vision*. Available at:

https://www.vision.org/vision-premier-issue-775 (Accessed: 7 March 2020).

Medienkunstnetz (1983) *La Plissure de Texte*. Available at:

http://www.medienkunstnetz.de/werke/la-plissure-du-texte/ (Accessed: 6 February

2020).

Mehmet, M. I., Clarke, R. J. and Kautz, K. (2014) 'Social media semantics: Analysing meanings in multimodal online conversations', in *35th International Conference on Information Systems 'Building a Better World Through Information Systems', ICIS 2014*.

Mèndez, M. G. (2013) 'Autoethnography as a research method: Advantages, limitations and criticisms', *Colombian Applied Linguistics Journal*, 15(2), pp. 279–287.

Metev, D. (2021) *How Much Time Do People Spend on Social Media?, Review 42*. Available at: https://www.slideshare.net/Libbysteer/assignment-two-242581625 (Accessed: 13 May 2021).

Mills, R. (2014). *Tele-Improvisation: A Multimodal Analysis of Intercultural Improvisation in Networked Music Performance* (University of Technology, Sydney PhD thesis) pdf Available at: https://telemidi.org/wp-content/uploads/2018/04/R.MILS_THESIS.pdf (Accessed: 30 May 2023)

Mills, R. (2019). Tele-Improvisation: Intercultural Interaction in the Online Global Music Jam Session. Springer Series on Cultural Computing.

Minns, D. (2020) 'Connective Matrix: Embodiment in the Physical Space', in. Online Zoom Conference: IJAD Dance Company.

Minns, D. and Mourad, J. (2020) 'Connective Matrix', in *A New Intimacy*. Online Zoom
Conference: IJAD Dance Company and Open Online Theatre.

Minsky, M. (2007) 'The Emotion Machine: Commonsense Thinking, Artificial
Intelligence, and the Future of the Human Mind'. New York: Simon and Schuster.

Mitchell, G. and Boddington, G. (2021) *How Green is our Data?, BBC Digital Planet*.
Available at: https://www.bbc.co.uk/programmes/w3ct1lsx (Accessed: 12 November
2021).

Morris, E. (2017) *Rhythm in Acting and Performance*, *Rhythm in Acting and
Performance*. Available at: doi: 10.5040/9781472589842.

Morrison-Smith, S. and Ruiz, J. (2020) 'Challenges and barriers in virtual teams: a
literature review', *SN Applied Sciences*, 2(6). Available at: doi: 10.1007/s42452-020-
2801-5.

Morton, E. (2015) 'The Telharmonium Was the Spotify of 1906', *Atlas Obscura*.
Available at: https://www.atlasobscura.com/articles/the-telharmonium-was-the-
spotify-of-1906. (Accessed: 13 September 2020).

Müller, P., Schütt, J. and Ziegler, M. (2019) 'Towards a Telematic Dimension Space:
NIME', in *NIME*, pp. 393–400. Available at:
https://www.nime.org/proceedings/2019/nime2019_paper076.pdf. (Accessed: 21
September 2021).

Munk, T. (2018) 'Policing virtual spaces: public and private online challenges in a legal perspective', in: Den Boer, M. (ed.) *Comparative Policing from a Legal Perspective Bristol*, UK Edwin Edgar Publishing. pp. 228-254

Munro, M., Pretorius, M. and Munro, A. (2008) 'Creativity, emotional intelligence and emotional creativity in student actors: a pilot study', *South African Theatre Journal*, 22.

Myles, R. (2020) *The Show Must Go Online*. Available at: https://robmyles.co.uk/theshowmustgoonline/ (Accessed: 23 November 2021).

Naugle, L. (1998) 'Digital Dancing', *IEEE Multimedia*, 5(4), pp. 8–12.

Naugle, L. and Crawford, J. (2012) 'Reflections on Heidegger: Performing Translations in Active Space Environments', *The International Journal of Screendance*, 2.

Naugle, L. and Crawford, J. (2014) 'Dance and Digital Media Performance with Telepresence and Telematic Methods', *Revista Eletrônica MAPA D2 - Mapa e Programa de Artes em Dança (e Performance) Digital*.

Neeley, T. (2012) *Global Business Speaks English*, *Harvard Business Review*. Available at: https://hbr.org/2012/05/global-business-speaks-english (Accessed: 9 March 2022).

Newnham, D. (2020) *A beginners guide to Esperanto | Life and style | The Guardian*, *The Guardian*. Available at:

https://www.theguardian.com/lifeandstyle/2003/jul/12/weekend.davidnewnham

(Accessed: 8 March 2022).

Nicholls, D. (2002) 'Towards infinity: Cage in the 1950s and 1960s', in D. Nicholls (ed.) *The Cambridge Companion to John Cage*. Cambridge: Cambridge University Press (Cambridge Companions to Music), pp. 100–108.

Nicholls, J. (2017) *The Biodigital Citizen: Exploring privacy, security and safety in a rapidly evolving digital world | MSc in Digital Education*, *The University of Edinburgh*. Available at: https://digital.education.ed.ac.uk/showcase/biodigital-citizen-exploring-privacy-security-and-safety-rapidly-evolving-digital-world (Accessed: 4 April 2022).

Norvic, P. and Russell, S. J. (2021) *Artificial intelligence : a modern approach* . 4th edn. Hoboken: Pearson.

Okereafor, K. Manny, P. and Okereafor, K. (2020) 'Understanding Cybersecurity Challenges of Telecommuting and Video Conferencing Applications in the COVID-19 Pandemic' *International Journal in IT & Engineering (IJITE), 8(6), p. 13-23*

Olsen Bedford, H. and Say, M. (2020) *UKA launches 'How Green is our Digital' report | UKAuthority*, *UKAuthority*. Available at: https://www.ukauthority.com/articles/uka-launches-how-green-is-our-digital-report/ (Accessed: 7 November 2021).

Orzechowska, A. (2020) *The Five Components of Emotional Intelligence & How to Implement Them In Your Digital Workplace - Valo Solutions*, *Valo*. Available at: https://www.valosolutions.com/blog/emotional-intelligence-in-the-digital-workplace/ (Accessed: 12 April 2022).

Ostrom, E. (1990) 'Governing the Commons'. Cambridge University Press. Available at: doi: 10.1017/CBO9780511807763.

Owens, J. C. and Swartz, J. (2020) *Zoom Video Earnings and Sales blow away Expectations, Stock rises toward more Records*, *Market Watch*. Available at: https://www.marketwatch.com/story/zoom-video-earnings-and-sales-blow-away-expectations-stock-rises-toward-more-records-2020-06-02 (Accessed: 2 March 2021).

Oxford English Dictionary (2017) *Oxford English Dictionary Online*, *Oxford English Dictionary*. Available at: https://www.oed.com/ (Accessed: 6 April 2022).

Packer, R. (2020) *Collapsing Six Feet of Separation*, *Reportage form the Aesthetic Edge*. Available at: https://randallpacker.com/collapsing-six-feet-of-separation/ (Accessed: 12 May 2022).

Pala, S. (2019) *Why It's Important to Have an Emotional Connection With Your Audience*, *INC.* Available at: https://www.inc.com/serhat-pala/3-ways-to-use-emotion-to-connect-to-your-audience.html (Accessed: 23 November 2021).

Palusius, K. L. (2017) *Expression and Emotion in Music: How Expression and Emotion Affect the audience's Perception of Performance*. Southeastern University. Available at: https://firescholars.seu.edu/cgi/viewcontent.cgi?article=1059&context=honors (Accessed: 31 May 2021).

Pandilovski, M. (2018) 'Interview with Roy Ascott'. Bath Spa: Researchgate.

Papacharissi, Z. and Gibson, P. L. (2011) 'Fifteen Minutes of Privacy: Privacy, Sociality, and Publicity on Social Network Sites', in *Privacy Online*. Availale at: doi: 10.1007/978-3-642-21521-6_7.

Papagiannouli, C. (2011) 'Cyberformance and the Cyberstage', *The International Journal of the Arts in Society*. Vol. 6, No. 4. pp. 273-282.

Paulsen, K. (2017) *Here/There: Telepresence, Touch, and Art at the Interface*. Cambridge, MA: MIT Press.

Pelletier, A. (2022) *Centralization v. Decentralization: Why You Need A Hybrid Model | Perkuto*. Available at: https://perkuto.com/blog/centralization-vs-decentralization-why-you-need-a-hybrid-model-more-now-than-ever/ (Accessed: 12 April 2022).

Pérez, E. (2014) 'The Expansion of Theatrical Space and the Role of the Spectator', *Nordic Theatre Studies*, 26(2), pp. 34–44.

Pérez, E. (2014a) 'Meaningful connections: Exploring the uses of telematic technology in performance', *Liminalities.Net*, 10(1), pp. 1–17.

Perkis, T. (1989) *The Hub*, *bandcamp*. Available at: https://artifactrecordings.bandcamp.com/ (Accessed: 2 February 2022).

Peters, M. A., Jandrić, P. and Hayes, S. (2021) 'Postdigital-biodigital: An emerging configuration', *Educational Philosophy and Theory*. Available at: doi: 10.1080/00131857.2020.1867108.

Peterson, K. Y. (2007) 'Extended theatre – composition in telematized environments', *Technoetic Arts: A Journal of Speculative Research*, 5(3).

Petralia, P. (2011). Here, There and In-Between: Rehearsing over Skype. *Performance Research*, *16*(3), 113–116. https://doi.org/10.1080/13528165.2011.606036

Petralia, P. S. (2010) *Reshaping Spatiality : cognitive perception and the fracturing of theatrical space*. Lancaster University. PhD dissertation
Available at:
https://www.academia.edu/2859169/Reshaping_Spatiality_Cognitive_perception_and_the_fracturing_of_theatrical_space (Accessed: 22 March 2020).

Petticrew, M. Semple, S. Hilton, S. Creely, K. Eadie, D. Ritchie, D. Ferrell, C. Christopher-de Vries, Y. Hurley, F. (2007). Covert observation in practice: Lessons

from the evaluation of the prohibition of smoking in public places in Scotland. BMC public health. Available at: doi: 7. 204. 10.1186/1471-2458-7-204.

Phillips-Wren, G. and Jain, L. (2006) 'Artificial Intelligence for Decision Making'. Available at: doi: 10.1007/11893004_69.

Picard, R.W., Vyzas, E. and Healey J. (2001), Toward machine emotional intelligence: analysis of affective physiological state. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 23, no. 10, pp. 1175-1191, Oct. 2001. Available at: doi: 10.1109/34.954607.

Pierce-Bohen, K. (2019) *Star Trek: 10 Times The Show Predicted The Future*, *Screenrant*. Available at: https://screenrant.com/star-trek-show-predicted-future/ (Accessed: 5 April 2020).

Pitsillides, S. and Jefferies, J. (2016) 'Intimate Technologies: The Ethics of Simulated Relationships', *Proceedings of the 22nd International Symposium on Electronic Art ISEA2016 Hong Kong* Hong Kong, 2016, pp. 144–151

Podder, S. Burden, A. Kumar Singh, A. Maruca, R. (2020) *How Green Is Your Software?*, *Harvard Business Review*. Available at: https://hbr.org/2020/09/how-green-is-your-software (Accessed: 8 November 2021).

Poulsen, S. V. and Kvåle, G. (2018) 'Studying social media as semiotic technology: a social semiotic multimodal framework', *Social Semiotics*. Available at: doi: 10.1080/10350330.2018.1505689.

Powell, E. (2017) *Einstein's Theory of Special Relativity*, *Space*.

Prior, Y. (2014) 'Impossible Triangles, Flat Actors in Telematic Theatre', *Adsa, 65.* 1 October

Rehman, A. A. and Alharthi, K. (2016) 'An Introduction to Research Paradigms', *International Journal of Educational Investigations*, 3(8), pp. 51–59.

Renaud, A. B., Carôt, A. and Rebelo, P. (2007) 'Networked Music Performance: State of the Art', *Media*.

Riva, G. (2009) 'Is presence a technology issue? Some insights from cognitive sciences', *Virtual Reality*, 13(3), pp. 159–169. Available at: doi: 10.1007/s10055-009-0121-6.

Riva, G. (2018) 'The neuroscience of body memory: From the self through the space to the others', *Cortex*, 104.

Robson, D. (2013) *The Trouble with Neuroscience*, *New Scientist*. Available at: https://www.newscientist.com/article/mg21829192-600-the-trouble-with-neuroscience/ (Accessed: 30 May 2021).

RodriguezRamos, J. (2018) *Brain vs Computers*, *becominghuman*. Available at: https://becominghuman.ai/brains-vs-computers-f769548010f1 (Accessed: 2 May 2021).

Roe, P. (2007) 'A phenomenology of collaboration in contemporary composition and performance'. Ph.D. University of York.

Rofe, M. (2015) *Online Orchestra*, *Falmouth University*. Availabe at: http://repository.falmouth.ac.uk/2791/11/s2%20Connecting%20remote%20comm unities.pdf (Accessed: 4 May 2020).

Rofe, M. and Reuben, F. (2017) *Telematic performance and the challenge of latency*, *Journal of Music, Technology and Education*. Available at: doi: 10.1386/jmte.10.2-3.167_1.

Rose, G. (2012) *Visual Methodologies: An Introduction to Researching With Visual Materials*. London: Sage.

Rosenbaun, L., Rafaeli, S. and Kurzon, D. (2016) 'Blurring the boundaries between domestic and digital spheres', *Pragmatics. Quarterly Publication of the International Pragmatics Association (IPrA)*, 26(2), pp. 291–304.

Ryan, J. (2011) *A History of the Internet and the Digital Future*. London: Reaktion Books.

Salovey, P., & Mayer, J. D. (1990). Emotional intelligence. *Imagination, Cognition, and Personality*, 9, pp. 185–211.

Salvucci, D. D., & Taatgen, N. A. (2008). Threaded cognition: An integrated theory of concurrent multitasking. *Psychological Review, 115*(1), 101–130. Available at: https://doi.org/10.1037/0033-295X.115.1.101

Santana, I. (2015) 'Moist art as telematic dance: Connecting wet and dry bodies.', *Technoetic Arts: A Journal of Speculative Research*, 13(1/2), pp. 187–201.

Saunders, C., Rutkowski, A., Genuchten, M., Vogel, D., Orrego, J., (2011). Virtual Space and Place: Theory And Test. MIS Quarterly. 35. 1079-1098. 10.2307/41409974.

Sawchuk, A. A., Chew, E., Zimmermann, E., Papadopoulos, C., Kyriakakis C., (2004) 'From remote media immersion to Distributed Immersive Performance', in. Available at: doi: 10.1145/982484.982506.

Schultze, U. (2014) 'Performing embodied identity in virtual worlds', *European Journal of Information Systems*, 23(1), pp. 84–95.

Scott, L.T.D. (2021) Online opera: an applied collision of opera and web creativity. PhD thesis, Bath Spa University.

Sell, S. (2010) *Structure and Dynamics of the Telematic Society: Reinventing Vilém Flusser's Communicology*. Berlin. Available at:

https://saskiasell.de/publication/flusser-telematicsociety/ (Accessed: 23 February 2022).

Senft, T. M. (2016) 'Videoconferencing', *Encyclopedia Britannica*.

Sermon, P. (2000) 'Telematic Dreaming', *Leonardo*. Available at: doi: 10.1162/leon.2000.33.2.90.

Sermon, P. (2009) *Telematic Vision*. Germany: Imagining Media@ZKM.

Sermon, P. (2016) *Stop Thinking About Art Works As Objects*, *University of Brighton*. Available at: https://www.brighton.ac.uk/about-us/news-and-events/news/2016/03-02-stop-thinking-about-art-works-as-objects.aspx (Accessed: 20 May 2020).

Sermon, P. (2020a) *Be creative with your videoconferencing, make it memorable, it makes a difference*, *Edublog, Creative Futures*. Available at: https://www.tandfonline.com/doi/full/10.1080/14794713.2021.2015562 (Accessed: 20 May 2022).

Sermon, P. (2020b) *Telematic Quarantine*. Available at: https://research.brighton.ac.uk/en/publications/telematic-quarantine-telepresent-stories-of-self-isolation (Accessed: 20 November 2021).

Sermon, P. (2021) Interview by S. Lane. Online Zoom. 1 February.

Siegel, E. (2019) 'This Is Why Time Has To Be A Dimension', *Forbes*, 27 August.

Simons, P. (2015) *ontology | metaphysics | Britannica*, *Encyclopedia Britannica*.
Available at: https://www.britannica.com/topic/ontology-metaphysics (Accessed: 5
May 2022).

Sinclair, C. (2021) 'Review of Sarah Hayes (2021). Postdigital Positionality:
Developing Powerful Inclusive Narratives for Learning, Teaching, Research and Policy
in Higher Education', *Postdigital Science and Education*, 3(3), pp. 1051–1055.

Smith, A. D. (2005) 'Exploring online dating and customer relationship management',
Online Information Review, 29(1).

Smith, K. (2010) 'Universal Life: Multi-User Virtual Environments for People with
Disabilities', *User Experience Magazine*, 9(2).

Smith, J. (2010). Intermediality: The Intersection of Literature, Film and Digital Media.
Routledge.

Soegaard, M. and Friis Dam, R. (2014) *The Encyclopedia of Human-Computer
Interaction, 2nd Ed.* Online: The Interaction Foundation. Available at:
https://www.interaction-design.org/literature/book/the-encyclopedia-of-human-
computer-interaction-2nd-ed?srsltid=AfmBOopS0KC45HzQ6_WyM-
MvFQadeVK4E7X5C71e8N8t9UsXe91GXx. (Accessed: 5 May 2020)

Spring, J. (2016) *Deculturalization and the Struggle for Equality: A Brief History of the Education of Dominated Cultures in the United States (Sociocultural, Political, and Historical Studies in Education)*. 8th edition. Routledge.

Station House Opera (2020) Home; Available at: https://www.stationhouseopera.com/ (Accessed: 17 May 2023)

Stary, C. and Peschl, M. F. (1998) 'Representation still matters: Cognitive engineering and user interface design', *Behaviour & Information Technology*, 17(6), pp. 338–360.

Stiefel, M. (2021) *The Brain is Neither a Neural Network Nor a Computer: Book Review of The Biological Mind*, *InfoQ*. Available at: https://www.infoq.com/articles/brain-not-computer/. (Accessed: 20 January 2022).

Stolz, S. and Jungblut, S.-I. (2019) *Our Digital Carbon Footprint: What's the Environmental Impact of the Online World? | Green Living | RESET.org*, *Reset*. Available at: https://en.reset.org/knowledge/our-digital-carbon-footprint-whats-the-environmental-impact-online-world-12302019 (Accessed: 27 October 2021).

Stroll, A. and Martinich, A. P. (2021) *epistemology | Definition, History, Types, Examples, Philosophers, & Facts | Britannica*, *Encyclopedia Britannica*. Available at: https://www.britannica.com/topic/epistemology (Accessed: 5 May 2022).

Stuart, K. (2009) 'Roy Ascott An interview with the pioneering teacher and cybernetic artist to coincide with his first UK retrospective', *Frieze*, April.

Suh, I.-S. and Brenner, P. R. (2011) 'Sustainable Science in the Green Cloud via Environmentally Opportunistic Computing', in *Green IT: Technologies and Applications*. Berlin, Heidelberg: Springer Berlin Heidelberg, pp. 311–318.

T. Editors of Encyclopaedia (2019) *World Wide Web (WWW) | History, Definition, & Facts | Britannica*, *Britannica*. Available at:

https://www.britannica.com/topic/World-Wide-Web (Accessed: 26 May 2022).

Taiwo, O. (2021) 'Co-design and Intercultural, Metabolic Processes', in *Re-embodiment and Dis/abilities: Disability Tech*. Online Zoom Symposium: Brunel University.

Tanaka, A. (2024). Telematic music transmission, resistance and touch. *International Journal of Performance Arts and Digital Media*, 1–19. https://doi.org/10.1080/14794713.2024.2329836

Taylor, J. (2011) 'Technology: Myth of Multitasking Is multitasking really more efficient?', *Psychology Today*. Available at:

https://www.psychologytoday.com/gb/blog/the-power-prime/201103/technology-myth-multitasking#:~:text=The fact is that multitasking,people feel productive and efficient.&text=Multitasking involves engaging in two tasks simultaneously. (Accessed: 20 March 2022).

Telepresence - Wikipedia (no date). Available at:

https://en.wikipedia.org/wiki/Telepresence (Accessed: 2 May 2022).

Timmermans, S. and Tavory, I. (2012) 'Theory Construction in Qualitative Research',

Sociological Theory, 30(3).

Tjia, R. (2019) 'The Casting Process'. *Lecture at University Centre Weston.* Weston

Super Mare. 15 March.

Tom Gorman — Coventry University (no date). Available at:

https://pureportal.coventry.ac.uk/en/persons/tom-gorman (Accessed: 27 May

2022).

Trendafilov, D. (2017) *An information-theoretic account of human-computer*

interaction. University of Glasgow. Available at:

http://www.dcs.gla.ac.uk/~rod/publications/Tre17.pdf (Accessed: 28 May 2022).

Trendafilov, D., Murray-Smith, R. and Polani, D. (2015) 'Empowerment as a metric for

Optimization in HCI'. Seoul: University of Hertfordshire.

Trunk, A., Birkel, H. and Hartmann, E. (2020) 'On the current state of combining

human and artificial intelligence for strategic organizational decision making',

Business Research, 13(3).

Tuli, T. B., Terefe, T. O. and Rashid, M. M. U. (2021) 'Telepresence Mobile Robots Design and Control for Social Interaction', *International Journal of Social Robotics.* Springer Science and Business Media B.V., 13(5), pp. 877–886.

Turkle, S. (2011) *Alone together : why we expect more from technology and less from each other.* New York :Basic Books

Turner, J. H. (2001) 'Positivism: Sociological', *International Encyclopedia of the Social & Behavioral Sciences.* Elsevier, pp. 11827–11831. Available at: doi: 10.1016/B0-08-043076-7/01941-0.

Twemlow, A. (2009) 'I can't talk to you if you say that: An ideological collision at the International Design Conference at Aspen, 1970', in. Aspen: Design and Culture, pp. 23–29.

Ugoretz, K. (2017) 'A Guide to Unobtrusive Methods in Digital Ethnography', *Digital and Global Movements in Shinto.* Santa Barbara: University of California.
UltraGrid (no date). Available at: http://www.ultragrid.cz/specification/ (Accessed: 15 March 2022).

Unknown (2021) *Here for music and its makers*, *PRS for Music.* Available at: https://www.prsformusic.com/ (Accessed: 20 February 2022).

Valeriani, D. (2019) *Humans and machines can improve accuracy when they work together*, *The Conversation*. Available at: https://phys.org/news/2019-03-humans-machines-accuracy.html. (Accessed: 23 February 2022).

Varela, F. J. Thompson, E. Rosch E. (2016) 'The embodied mind: Cognitive science and human experience': Revised edition. The MIT Press, pp. 1–322.

Varga, S. (2021) *What Copyright Protections Do Choreographers Have Over Their Work?*, *Dance Magazine*. Available at: https://www.dancemagazine.com/choreography-copyright/ (Accessed: 6 April 2022).

Vasudevan, R. *et al.* (2010) 'A methodology for remote virtual interaction in teleimmersive environments', *MMSys'10 - Proceedings of the 2010 ACM SIGMM Conference on Multimedia Systems*, pp. 281–291. Available at: doi: 10.1145/1730836.1730871.

Velluti, R. A. (1997) 'Interactions between sleep and sensory physiology', *J. Sleep Res*, 6, pp. 61–77.

Vempala, N. N. and Russo, F. A. (2013) 'Exploring Cognitivist and Emotivist Positions of Musical Emotion Using Neural Network Models', *Proceedings of the International Conference on Cognitive Modelling*.

Verbeek, P.-P. (2005) *What Things Do: Philosophical Reflections on Technology, Agency and Design*, *Pennsylvania State University Press*. Pennsylvania: Springer.

Verrent, J. *et al* (2021) 'Connective Matrix: Tech for Disabled Artists', in. Online Zoom Webinar: IJAD and Open Online Theatre.

Vesna, J. Lourdu and Niveditha, D. (2012) *Ethics in cyberspace- a philosophical approach, International Journal of Advancements in Research & Technology (1)3 pages 58-62*

Virtual reality and augmented reality - Toolkit Digitalisierung (2022) *Toolkit Digitalisierung*. Available at: https://toolkit-digitalisierung.de/en/practice/digital-tools/virtual-reality-and-augmented-reality/ (Accessed: 17 April 2022).

de Vries, A. (2020) 'Bitcoin's energy consumption is underestimated: A market dynamics approach', *Energy Research and Social Science*. Elsevier Ltd, 70. Available at: doi: 10.1016/J.ERSS.2020.101721.

VU Faculty of Communication (2021) 'New Spectatorship in Post Covid Times: Theatre and the Digital', in *EASTAP Conference 2021*. Lithuania. *Online*

Waikar, S. (2021) 'Artists' Perspective: How AI Enhances Creativity and Reimagines Meaning'. HAI Spring Conference 2021. Available at: https://hai.stanford.edu/news/artists-perspective-how-ai-enhances-creativity-and-reimagines-meaning. (Accessed: 6 December 2024).

Walder Laso, P. (2011) *Extimidad. Arte, intimidad y tecnología, Arteinformado.* Available at: https://www.arteinformado.com/agenda/f/extimidad-arte-intimidad-y-tecnologia-43826 (Accessed: 20 September 2025)

Wake, C. (2018) 'Two decades of digital pedagogies in the performing arts: a comparative survey of theatre, performance, and dance', *International Journal of Performance Arts and Digital Media*, 14(1), pp. 52–69.

Connected- The Hidden Science of Everything: Clouds. (2020) USA. Available at: Netflix (Accessed: 24 November 2021).

Walsham, G. (2006) 'Doing interpretive research', *European Journal of Information Systems*. Available at: doi: 10.1057/palgrave.ejis.3000589.

Webb, J. G. (2015) *Exploring Ethics with Contemporary Communications*, *Forum on Public Policy Online*. Available at: https://search-ebscohost-com.bathspa.idm.oclc.org/login.aspx?direct=true&db=eric&AN=EJ1091589&site=eds-live&scope=site (Accessed: 16 August 2021).

Weinelt, S. (2020) *Which Licenses Do I Need for My Livestream as a Musician or DJ?*, *iMusician*. Available at: https://imusician.pro/en/resources/blog/which-license-do-i-need-for-my-livestream-as-a-musician-or-dj (Accessed: 20 August 2021).

Whipple, T. (2020) 'Scientists devise prosthetic arm controlled by mind', *The Times*. 5 March. Available at: https://www.thetimes.co.uk/article/scientists-devise-prosthetic-arm-controlled-by-mind-89532xsvn (Accessed: 20 December 2021).

Whitney, O. (2015) *With a Polaroid Camera, Andy Warhol was 'The Original Instagrammer'*, *Huffpost*. Available at: https://www.huffpost.com/entry/andy-warhol-polaroids-instagram_n_55e0c19fe4b0c818f617ef16 (Accessed: 20 December 2021).

Whitworth, B. and Ryu, H. (2009) 'A Comparison of Human and Computer Information Processing', *Encyclopedia of Multimedia Technology and Networking*, Second Edition (pp. 230–239). IGI Global.

Winimy, A. (2019) *Challenges in bringing Holographic Telepresence Technology to the masses | by Winimy AI | Becoming Human: Artificial Intelligence Magazine*, *Becoming Human*. Available at: https://becominghuman.ai/challenges-in-bringing-holographic-telepresence-technology-to-the-masses-91e5742d7faf (Accessed: 7 March 2022).

Winship, L. (2021) 'Masked moves and ballet in the bath: a year of digital dance', *The Guardian*, 16 March.

Wolfe, E. (2019) *The History of video Conferencing from 1870 to Today*, *Lifesize*. Availabe at: https://www.huffpost.com/entry/andy-warhol-polaroids-instagram_n_55e0c19fe4b0c818f617ef16 (Accessed: 20 March 2020).

Wolfensberger, R. (2008) 'Interactive telematic art defies a means of mechanical reproduction'. Manchester: University of Salford.

Wood, M. A., Bukowski, W. M. and Lis, E. (2016) 'The Digital Self: How Social Media Serves as a Setting that Shapes Youth's Emotional Experiences', *Adolescent Research Review*. Available at: doi: 10.1007/s40894-015-0014-8.

Wu, X. (2018) 'Scholar Commons The Design, Development, And Evaluation Of A Usable And Privacy-Enhanced Telepresence Interface For Older Adults'. Available at: https://scholarcommons.sc.edu/etd (Accessed: 18 October 2021).

Wuttke, D. (2022) Insights from Vritual Reality- Enhanced Teaching in Higher Education. TUM. Munich. Available at: https://www.wi.tum.de/insights-from-virtual-reality-enhanced-teaching-at-tum-campus-heilbronn/ (Accessed: 2 February 2022).

Xygalatas, D. (2010) 'Review: Nickolas A. Christakis and James H. Fowler (2009), Connected: The Surprising Power of our Social Networks and How they Shape our Lives', *Journal of Cognition and Culture*, 10, pp. 401–407.

Yüksel, P. and Yıldırım, S. (2015) 'Theoretical Frameworks, Methods, and Procedures for Conducting Phenomenological Studies in Educational Settings', *Turkish Online Journal of Qualitative Inquiry*, 6(1).

Zambetta, F. (2021) *Star Trek's Holodeck: from science fiction to a new reality*, *The Conversation*. Available at: https://theconversation.com/star-treks-holodeck-from-science-fiction-to-a-new-reality-74839 (Accessed: 14 February 2022).

Zantal-Wiener, A. (2017) *From the Phonograph to Spotify: The History of Streaming Music*, *Hubspot*. Available at: https://blog.hubspot.com/marketing/history-of-internet-radio (Accessed: 23 MArch 2020).

Zhang, D. (2018) *Exploring Telepresence in Virtual Worlds*. University of New South Wales. Available at: https://unsworks.unsw.edu.au/bitstreams/ca28f698-46d1-4ece-9209-e3c6ec4a8de5/download (Accessed: 25 February 2021).

Zytko, D., Lingel, J., Birnholtz, J., Ellison, N., Hancock, J., (2015). Online Dating as Pandora's Box: Methodological Issues for the CSCW Community. Proceedings of the ACM Conference on Computer Supported Cooperative Work, CSCW. 2015. 131-134. 10.1145/2685553.2699335.

Appendices:

Appendix 1. Links to EPI 2.0 Materials:

Dropbox Folder With Rehearsal and Show Materials:

https://www.dropbox.com/scl/fo/ftfq7f99drl1c6vkthv3p/h?rlkey=xucjsldkt7vyvfgg5o8gwcagb&st=sio0317f&dl=0

Video Credit for Show Materials: Tristan Shipley

OneDrive for Scripts and visuals:

PHD Resubmission

Appendix 2. Links to Conference and Symposium Participation and Previous Works:

'The Future is Creative Symposium' UCW, 10. February 2023, chaired by Sylvia Lane

https://www.ucw.ac.uk/symposium-the-future-is-creative/

'Telepresence Symposium' (Online Zoom Webinar) 10. June 2021 chaired by Sylvia Lane:

Available from: https://youtu.be/lcbWtWMfKHI

'Seeing Sound' Symposium (Online Zoom Webinar) 13. December 2020 Panel 3 *New Spaces* chaired by Sylvia Lane

Available from: http://www.seeingsound.co.uk/seeing-sound-2020/2020-panels/

'Tele-encounters' Conference (Live at CINETic, UNATC "I.L.Caragiale", Bucharest, Romania) 30. May 2019

Link to entire event: part I: https://youtu.be/WTr7zse3mao

part II: https://youtu.be/p6xAAc-DnyM

<u>Link to my personal interview during Tele-encounters:</u>

https://youtu.be/1CdTLdBJIv0

<u>Link to Podcast with Johannes Birringer:</u>

http://people.brunel.ac.uk/dap/ResearchSeminarSeries.html

'Digital Dancing'- A Telematic Performance between In Studio HCLA and UCW at Weston College in April 2017: https://digitaldancing.wixsite.com/ucw-relschool

Documentary on Telematic Performance work (2017):

https://www.youtube.com/watch?v=h-2PzMdDPjY

'Timelapse' -A Telematic Performance between the University of Nevada, Las Vegas and UCW at Weston College (2015): https://westonunlv.wixsite.com/timelapse

Appendix 3. Other Notable Conferences and Symposiums attended:

'Remote Intimacy in Times of Social Distancing- A Nudge and a Push':

https://www.youtube.com/watch?v=SAp_2KW0cq0

'Ars Electronica' 2021:

https://www.youtube.com/c/arselectronica

'EASTAP 2021: New spectatorship in post-covid times: theatre and the digital':

https://eastap.com/2021/04/10/eastap-2021-new-spectatorship-in-post-covid-timestheatre-and-the-digital/

Various Events from Open Online Theatre:

https://openonlinetheatre.org/

Appendix 4. EPI 2.0 Script:

Exploding Plastic Inevitable Breakdown/Script:
On screen characters will include: Andy Warhol, Edie Sedgwick, Nico, Igrid Superstar, Lou Reed, Gerrard Malanga etc. Actors will have some script, and interact in their character with audience members- as if they were brought back from the dead. Aim is to create an immersive experience for the audience and to take part in 'the world's biggest discotheque. The music is chosen to progress from 'old' to 'new'.
Background information on the original:
https://msmokemusic.com/blog/blog/1966-any-warhol-s-plastic-exploding-inevitable
In room dancers in psychedelic outfits and make up- no characters. Will be choreographed
Audience will be guided into eerily lit room. Screens are blank to begin with and in room performers are frozen in position in various locations, like an art gallery. There is the potential that they will cover their faces with pop art print.
Audience will be instructed to walk around freely like a gallery. Sound effect as below:
https://www.youtube.com/watch?v=DHotGym0Lb4
(exact timings tba)
Transition sound effect: https://www.youtube.com/watch?v=JwidpLkl3hc

Screens will be blank and main characters appear after a snippet of the following film- prompt is
'The world's biggest discotheque'.
Main screen will start with documentary of original AW interview, then move to focus on live screen actor. Soundscape that will trigger the appearance of characters on screen:
https://www.youtube.com/watch?v=7bVvB0xS280

ANDY WARHOL: Ladies and gentlemen, welcome to the Factory! Tonight, we're going to create something truly revolutionary – an experience unlike any other. We'll call it the "Exploding Plastic Inevitable."

Music underscore (starting at 1:46 fade at 3 minutes):

https://www.youtube.com/watch?v=HsR4ghMfq0U

You know, I've always believed that art is what you can get away with. Life is a canvas, and each of us an artist, painting our own stories with every brushstroke of

existence. The world is full of colour, vibrant and vivid, yet people often choose to see it in shades of black and white.

The plastic dream explodes, revealing the raw beauty of the mundane.

The inevitable shatters our illusions, exposing the reality of our existence. Don't think about making art, just get it done. Let everyone else decide if it's good or bad, whether they love it or hate it. While they are deciding, make even more art.

The idea is not to live forever; it is to create something that will.

In the future, everyone will be world famous for 15 minutes.

Play Venus in furs:

 https://www.youtube.com/watch?v=AwzaifhSw2c

EDIE SEDGWICK: Look at you, Edie. The world sees a girl dancing on the edge of fame and folly, but they don't know the real me. They don't know what it's like, living inside a whirlwind of lights, art, and chaos.

When I first stepped into Andy's Factory, I thought I had found my place – a world where my dreams could bloom and my spirit could soar. I was Edie, the It Girl, the muse of the avant-garde, wrapped in silver and gold, and drowning in stardust.

But oh, the darkness that lingered beneath the surface. I was running away from the shadows of my past, but they were catching up to me. I thought I could outrun them with parties, pills, and reckless abandon, but they followed me like a relentless storm.

The spotlight was dazzling, intoxicating, but it couldn't fill the void in my heart. I was a fragile bird, easily broken by the world's expectations, torn between wanting

to please everyone and finding my own voice. I craved love, acceptance, but sometimes, I pushed it away when it got too close.

I became trapped in a whirlpool of art and madness, losing sight of the real Edie along the way. Andy was my friend, my confidant, but even he couldn't save me from myself. The cameras kept rolling, the lights kept flashing, but behind those eyes, I was unravelling.

Fame – it's a seductive beast. It grants you everything you ever desired but demands a piece of your soul in return. It chewed me up, spat me out, and left me to pick up the pieces. The headlines painted me as a tragic figure, a beautiful disaster, but they didn't see the woman desperate to find her place in this chaotic world.

But amidst the chaos, I found moments of clarity. I realized I had to heal, to break free from the vices that held me captive. It was a long, painful journey, but I fought to reclaim my identity, to find the girl I once was before the fame swallowed me whole.

I'm still on a journey, learning to embrace my imperfections and cherish my vulnerability. Maybe my story will be a cautionary tale, or perhaps it will inspire others to navigate their own paths with grace and courage.

I refuse to be just a memory, a footnote in someone else's tale. I am Edie Sedgwick, flawed and human, but uniquely me. And I'll keep dancing, keep searching, and keep striving to find my true self, even in the midst of this Exploding Plastic Inevitable.

The lights may dim, the fame may fade, but I will remain Edie Sedgwick – an enigma, an artist, a survivor.

Play 'Heroin':

NICO: They call me Nico, the Veil of Mystery. They see the exterior, the façade – the icy appearance, the striking features. But they don't know what lies beneath the surface, behind this curtain of enigma.

When I sing, I feel like I can peel back that veil, if only for a moment. Music is my sanctuary, my refuge from a world that tries to confine me to mere appearances. My voice is a thread connecting me to the depths of my soul, where emotions flow like a turbulent river.

My path has been one of shadows and light, of sorrow and beauty. From the Warhol Factory to the embrace of the Velvet Underground, I sought solace in art, in expression. But as I stood alongside Lou and the others, the shadow of my past always lingered.

They say my voice is cold, distant, like the frozen winds that sweep through an abandoned city. Perhaps it's true, for I've walked through the darkest alleys of life. I've embraced the night and its secrets, finding comfort in the melancholy.

But behind the cold façade, there's a longing for freedom, for release. I yearn to break free from the chains that tie me to my past, to explore uncharted territories, to be known not just for my exterior beauty, but for the soul that dwells within.

I am a paradox, a puzzle that even I struggle to decipher. I am both fragile and fierce, a contradiction of emotions. And perhaps, that's what draws people to me – the allure of unravelling the complexities of Nico, the woman behind the veil.

In the arms of music, I find redemption. It's a canvas where I paint my emotions, raw and unfiltered. Through every note I sing, every word I utter, I lay bare a part of myself, hoping that someone out there might see me, really see me, beyond the veil.

So, I'll continue this dance of light and shadows, of revealing and concealing. The stage is my sanctuary, and through music, I'll journey closer to my true self, even if it remains a mystery to most.

Play 'All tomorrow's parties' https://www.youtube.com/watch?v=8vquoQkoeqc

INGRID SPERSTAR: Darling, they called me Ingrid Superstar. The name itself was an embodiment of my destiny – destined to shine brightly, to radiate across the firmament of Andy's Factory. I was a star, and the world was my stage.

Oh, the Factory! The epicentre of creativity, where we lived on the edge of madness and genius. It was a world where art, music, and life collided in a kaleidoscope of colours. We were misfits, dreamers, and rebels, united under the wings of Andy Warhol.

Andy saw me like no one else did. He saw the fire within, the unfiltered spirit that craved liberation. The Factory was our canvas, and together, we painted a portrait of rebellion, a defiance against conformity.

But it wasn't just about the fame or the parties. No, darling, it was about breaking free from the shackles of a society that tried to mould us into clones of conventionality. We embraced our quirks, our flaws, and wore them like badges of honour.

The Factory was our sanctuary, where authenticity thrived. We weren't afraid to show the world our true selves – raw, unfiltered, and unapologetic. We knew that real beauty lay not in perfection but in the beauty of being real.

Time moved swiftly at the Factory, but the spirit of rebellion lingered on. We may have scattered like stardust into the vastness of time, but the legacy of the Factory lives on, inspiring generations to dare to be different, to dare to be themselves.

I may not be in the limelight anymore, but that's alright. The true superstar was never about the fame or the spotlight. It was about embracing the extraordinary within the ordinary, and that, my dear, is etched forever in the cosmos of our souls.

So, here I stand, Ingrid Superstar, an eternal rebel, an everlasting symbol of authenticity, in front of this mirror of memories. I may not be perfect, but I am real, and that, my darling, is the essence of my stardom.

Play 'The Wind' https://www.youtube.com/watch?v=npj4xs4Rris

LOU REED: The city was my muse, the beat that echoed in my heart. The streets of New York, a symphony of life, a cacophony of souls dancing to their own rhythm. It was in those alleys and avenues that I found my voice, my refuge, and my rebellion.

The world has a way of judging those who dare to be different, but I found solace in embracing the outcasts, the misfits, the ones who didn't fit the mold. Their stories were the songs I sang, their struggles etched in my lyrics, raw and unfiltered.

Music was my weapon, my way of unleashing the truth. I didn't sugarcoat the reality of life; I sang about the dark underbelly of society, the highs and lows, the

joys and despair. Through my songs, I painted a canvas of raw emotions, unafraid to expose the beauty in the ugliness.

New York City – my muse, my lover, my nemesis. I celebrated its gritty allure, the way it embraced the broken and the bold. It was a city of dreams and nightmares, where one could soar to unimaginable heights or plummet into the abyss.

But the streets weren't always kind. I faced my own demons, battled the darkness within. Music was my salvation, my way of confronting the shadows that haunted me. I sang not just for myself but for every lost soul, hoping that they, too, would find comfort in my melodies.

The Velvet Underground – we were a band of misfits, visionaries, and pioneers. We dared to venture into uncharted territory, crafting a sound that challenged conventions and inspired generations to come. Our music wasn't for the faint of heart; it was a reflection of the world we lived in.

And now, as I stand here, reflecting on the journey, I realize that my time on this stage is nearing its end. But my songs, my stories, they'll live on in the hearts of those who dared to listen, who dared to embrace the unfiltered truth.

So, let the music play, let the stories be told. I may be leaving the stage, but my spirit will forever be intertwined with the streets of New York – the city that shaped me, the city that breathed life into my music, the city that will forever hold a piece of my soul.

Deleted: GERARD MALANGA: The Beat Generation – a time of rebellion, of breaking free from societal norms. We were poets, artists, visionaries, seeking to peel back

the layers of reality and reveal the raw beauty beneath. In the heart of it all, I found my voice – a voice that would resonate through the ages

Poetry was my sanctuary, my refuge from the chaotic world around me. Each word was a brushstroke on the canvas of my soul, painting emotions that were often too profound to articulate. It was the rhythm of the Beat, the pulse of life, that coursed through my veins and found its expression in my verses.

The essence of life – that's what I sought to capture in my poetry. I delved into the darkest corners of the human experience, unearthing the fears, desires, and passions that lay dormant within. Through the ink on the page, I brought those emotions to life, infusing them with the energy of the Beat.

Words – such seemingly simple constructs, yet imbued with immense power. In the realm of the Beat, they were like electric currents, coursing through the minds and hearts of those who dared to listen. Through poetry, I sought to challenge perceptions, to awaken the dormant flames of creativity in others.

With the Velvet Underground, we combined the power of spoken word and music, creating a new tapestry of artistic expression. The fusion of our poetry and Lou Reed's haunting melodies birthed a symphony of emotions – a window into the soul of a generation hungry for truth and change.

The Beat Generation – it was more than just a moment in time; it was a spark that ignited a literary and artistic revolution. We inspired one another, challenged one another, and forever changed the landscape of creative expression.

And now, as the years have passed, the Beat still reverberates within me. It's not just a chapter of my life; it's the essence of my being, the soul of my art. The Beat lives on in every line I write, in every poem I recite, and in the hearts of those who feel its pulse.

So, let the rhythm of the Beat continue to echo through the corridors of time, inspiring poets and dreamers to seek truth, beauty, and meaning in every syllable, every word. For as long as there are hearts that yearn to express, the Beat will forever live on.

Play ''Out your window'
https://www.youtube.com/watch?v=4Y5jzTOCLbI&list=PLvsYXqtYjMYcPl25XlhoTQmueiPc4NE1Y&index=12
This section may be better choreographed- performers in room with online performers through simple mirroring movements like hand intertwining- like in the video above, flowing movements, pushing, pulling, trying to connect 'through the window' of the screen.

ANDY WARHOL: Thank you, everyone, for joining us tonight. The Exploding Plastic Inevitable is not just a performance; it's a celebration of life and art. Together, we've ventured into uncharted territories, and I hope you leave here tonight with your minds expanded.

Into Psychedelic Dance Section- dancers in space choreographed festival/dance video style/commercial/podium dancers, audiences encouraged to party and dance alongside. Online performers will be there, but silent and observing. They disappear as soon as the routine stops and the voice over comes on.

Mix:

https://www.youtube.com/watch?v=Zimt8PP2iNs&list=RD_ztL7uoaoC4&index=5

https://www.youtube.com/watch?v=_ztL7uoaoC4

https://www.youtube.com/watch?v=_bGCt_dBD8o   from 24.50

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The lights dim, dancers disappear, screens go blank and a voice over plays:

ANDY WARHOL's Exploding Plastic Inevitable left a profound impact on the world of art and performance. It challenged traditional notions of what art could be, blurring the lines between various forms of artistic expression. The show became a symbol of the 1960s counterculture movement, representing a rebellious and avant-garde spirit that continues to inspire artists to this day. The Factory remained a hotbed of creativity and experimentation, with Andy Warhol at the forefront of artistic innovation.

Appendix 5. Performance Concept Sent to Participants:

Exploding Plastic Inevitable 2.0- A Telematic Immersive Experience

Performance Concept:

Andy Warhol's 'Exploding Plastic Inevitable', also known as EPI'' was a series of multimedia events organized by the artist in 1966 and 1967, featuring musical performances by The Velvet Underground and Nico, screenings of Warhol's films, and dancing and performances by regulars of Warhol's Factory, especially Mary Woronov and Gerard Malanga.

Warhol was recently classed as 'The Original Instagrammer'. Without doubt, Warhol would have embraced social media and new technologies such as videoconferencing in our time.

EPI 2.0 is going to be a Fluxus immersive experience which will focus on identity within a telematic performance setting. The multi-media installation will include integration of art, dance, acting and music. Dancers and actors will be partially scripted and interact with the audiences who are encouraged to engage with the performers in both spaces, the physical and on the screen.

Performances are about 20 minutes in length and audiences in the physical space are encouraged to explore the space freely. There will be a central screen with an online audience which will be rotated by two performers to provide a 360˚ view.

Technology involved is deliberately simple and accessible through the use of smartboards, laptops and videoconferencing that is readily available. The reason for using smartboards is that this will provide the option to rotate and change the angles of the screens (please see the diagram in the other attachment). Remote performers can use laptops, tablets or phones.

Audience feedback will be captured in form of recorded interviews, questionnaires, and observation during the events.

The aim is to stimulate the performance and discussion on the following:

- What does identity and emotional intelligence mean in the Metaverse?
- How does telematic performance collaboration change the way we perceive audio-visual signals and an emotional connection to each other?
- How does intermediality in performance and the concept of telepresence change experiences for both, performers and audiences?
- How might Emotional Intelligence, traditionally predicated on being in a shared physical space, work in the context of Telematic Performance?
- How might Telematic Performance create opportunities for new ways of thinking about and experiencing 'shared space' and 'location'?
- How might Telematic Performance contribute new ways of thinking about and experiencing virtual immersive performance?

https://msmokemusic.com/blog/blog/1966-any-warhol-s-plastic-exploding-inevitable

Constructing Emotional Intelligence Through Technologically Mediated Interdisciplinary Collaboration in Telematics Performance

Consent to take part in research

I... voluntarily agree to participate in this
research study.

I understand that even if I agree to participate now, I can withdraw at
any time or refuse to answer any question without any
consequences of any kind.

I understand that I can withdraw permission to use data from my
interview within two weeks after the interview, in which case the
material will be deleted.

I have had the purpose and nature of the study explained to me in writing
and I have had the opportunity to ask questions about the study.

I understand that participation involves an open discussion and my
answers will be referenced.

I understand that I will not benefit directly from participating in this
research.

I agree to my interview being video or audio-recorded.

I understand that all information I provide for this study will be treated
with respect.

I understand that in any report on the results of this research will display
an accurate account of my remarks.

I understand that extracts from my interview may be quoted in general
terms and within quantitative and qualitative views of other
participants.

I understand that signed consent forms and original video-audio
recordings will be retained in the researcher's personal dropbox

folder.

- I understand that a transcript of my interview will either be retained in an archive or published for further research- whichever I will give consent to below.

- I understand that under freedom of information legalisation I am entitled to access the information I have provided at any time while it is in storage as specified above.

- I understand that I am free to contact any of the people involved in the research to seek further clarification and information. Sylvia Lane: PhD researcher, Bath Spa University

- I give consent for my answers to be published: Yes/No/Only anonymously (please delete as appropriate) *Signature of research participant* --- ---------------- Signature of participant Date *Signature of researcher* I believe the participant is giving informed consent to participate in this study --- ---------------------- Signature of researcher Date

Appendix 7. Notes on the Evolution of Technology to Explain the Origins of Telematic Performance:

Very early telecommunication can be traced back thousands of years when our ancestors used smoke signals and drums to communicate between villages and tribes. Furthermore, the word technology in itself is defined by interest in the shared etymology between art and technology (Petralia, 2011), which can be traced back to ancient Greek theatre, where the expression 'tekne' first emerged (Giannachi, 2004). More significantly for the telematic field though, it is worth noting that the industrial revolution in the 19th century provided the groundwork for the fast-developing fields of telecommunication and lens-based media. Technological evolution and inventions are thought to be the primary influence on social, cultural, and economic progress. The development of computers, the internet, telephones, radio, and videoconferencing has been intertwined over time, with each technology influencing and building upon the others.

For example, the telephone enabled humans to communicate verbally, regardless of distance, and analogue systems such as radio and moving pictures eventually merged into complex platforms, paving the way for videoconferencing and social networking. The world's first commercial radio service happened in 1898, instigated by Guglielmo Marconi, a 24-year-old Italian. This prompted a new abundance of entertainment options, and 'to broadcast' became a new verb meaning 'to transmit programs or signals intended to be received by the public through radio, television, or similar means' (*Broadcasting*, 2020).

Radio broadcasting progressed further in 1926 with the use of long-distance telephone lines. Broadcasting brought a lot of controversy into the world; issues with finances, relations with governments, network organisation and general order and

control were problematic, but at the same time commercially viable. During the 1920s, radio also expanded rapidly in other countries, resulting in transnational broadcasting like for example Radio Normandy in France, which telecast their programmes over to Britain (Manwell, 1999).

Morton (2015) believed that the first streaming device could be traced back to 1897. An invention by Thaddeus Cahill, the 'Telharmonium' or also known as 'Dynamophone', was able to transmit music via telephone networks to a central hub in midtown Manhattan to restaurants, hotels, and homes (Morton, 2015). She described that the device could be classed as the 'Spotify' of the Victorian era.

The Telharmonium is known to be the first electronic instrument, which transmitted electric signals through wires into distant auditoriums. Cahill's invention was very advanced and sophisticated for this time. Not only did it provide perfect accuracy of tone, but also managed to produce sounds from various instruments such as pipe organ, piano, strings, and wind instruments. Despite its uniqueness, Cahill based his research on previous experiments with 'telegraphic music'.

To summarise, more publicly well-known inventions, such as Edison's phonograph in 1877, the first record shops, the production of vinyl, cassette tapes and compact discs, as well as early MP3 file storage, determined audio entertainment for about 100 years. The regular use of the word 'streaming' did not appear until the mid-1990s, when the first online buying options revolutionised how people purchased music. This enabled people to buy music without having to leave the house, and the invention of the iPod in 1999 permanently changed the way we consume music (Zantal-Wiener, 2017).

Around 1925-1930, Scottish national John Logie Baird made some significant breakthroughs in transmitting images through radio signals. He developed a video recording system which he called 'phonovision' and later brought out the world's first mass produced television set named the 'televisor' (Baird, 2020). The British Broadcasting Company (BBC) began using Baird's system for the first public television service. Through continued research, Baird later developed high-definition colour and 3D television, and a system for sending messages very rapidly as television images (Baird, 2020).

Alongside these rapid advancements in broadcasting, scientists globally conceptualised early calculating machines into structures that would resemble the first electric programmable computer models during the Second World War. Originally designed as calculating machines, the move to electronic transmission demonstrated the potential to manage files and information (Cook, 2015). Vannevar Bush, an American engineer, believed that the computer had ability for personal organisation rather than just mathematics. It took another thirty years for this to become reality though. The first true multimedia computer, the 1973 Xerox Alto, used the first graphical user interface (GUI). Xerox devices were the first to demonstrate a GUI 'including icons and the first use of pop-up menus' (Arcass, 2001). Successional inventions such as the Apple Lisa and the Macintosh were the precursors to the personal computers used in modern times (Cook, 2015).

Ryan (2011, p. 8) stated that advancement of technology and the Internet freed 'communities for the first time in human history from the tyranny of geography'. The Internet is loosely defined as an arrangement of connected but independent network of devices. Tensions in the 1950s with a potential threat of a nuclear war between the USA and Russia challenged the reliability of command-and-control systems of

weapons, as well as the reliability of telephone masts in case of nuclear detonation in the ionosphere. The threat of the potential impact on radio transmissions led researcher Paul Baran to look into creating a network that would not rely on a central distribution point (Ryan, 2011). His theories were based on the neurological communication functions of the human brain, which is capable of coming up with synonyms in the case of forgetting original information. Baran's proposal to combine two separate technologies, communication and computers, in a combined digital set-up was very ambitious during times of analogue systems (Ryan, 2011). Baran outlined the idea of digital data being separated into small units; subsequently distributed through a network, and 'reassembled into a complete message on the receiving end' (Cook, 2015). Connecting discrete texts together eventually led to the creation of the expressions 'hyperlinks' and 'uniform resource locators', or URLs, coined by American technology pioneer Ted Nelson. The creation of the 'ARPANET' in 1969 eventually made emails possible. However, the original landline of the ARPANET was unsuitable for radio and satellite networking. The issue was not resolved until 1977, when a series of practical tests resulted in smooth transmissions between California, the east coast of the USA and Goonhilly Downs in the UK. A travelling packet radio van broadcast data to a gateway machine connected to the ARPANET. The packets sent transmissions via orbiting satellite to the UK and thereafter back to California (Ryan, 2011, p. 44). The APRANET and other networks across the globe continued to grow, and in 1983 the Internet was officially founded. The 'World Wide Web' was later introduced by English computer scientist Tim Berners-Lee at the 'Conseil Européen pour la Recherche Nucléaire' (CERN) in Switzerland in 1989 (T. Editors of Encyclopaedia, 2019).

The World Wide Web, for the first time, assisted the collaboration of a variety of different media to aid interactivity over the web, forming a new medium (Cook, 2015).

Concepts of transmitting audio and video over wired apparatus began alongside the progression of radio and television networks. Its early origins can once again be traced back to Bell's early inventions in 1870. According to Wolfe (2019), Bell Labs connected Washington DC officials and the president of AT&T in New York City via a two-way audio connection and one-way video connection in 1927. The first so-called picture phones emerged between 1956 and 1964, however, over the next three decades the purchase and call time for such devices was costly and somewhat 'clunky'. The first time the term 'video conferencing' was used happened shortly before AT&T's 'picture phone locations flopped and dropped' (Wolfe, 2019).

Its competitor Compression Labs brought out the CLI T1 as the first commercial videoconferencing tool in 1982. Initial start-up expenses were around $250,000 with call costs at $1,000 per hour. The cost of such calls greatly reduced with video calls becoming a reality in the 1990s. The first webcams made it possible for the general public to access interactive live web communications. Advancements in software such as Skype led to current videoconferencing options available for consumers and not just office boardrooms. Videoconferencing is now used in telemedicine, theatrical productions, distant education, political trials, and other circumstances in which the ability to "be here now" is desired (Senft, 2016). Through commonly well-known videoconferencing software, including so called 'low-tech' ready-to-use instant and affordable platforms like Skype, Facetime, Zoom and Facebook messenger, the possibilities of instant collaborations were opened regardless of physical location. Contrary to the high cost of original videoconferencing networks and tools, basic

prescriptions to these are free for download (providing a suitable device is available). All of these are usually expected to be easily available on smart phones and computers. In addition, 'high-tech' networks are predominantly developed for sophisticated videoconferencing, events and even remotely connected medical operating theatres; these are much more reliable, but complex in terms of set-up and often costly (Pérez, 2014a). Travel anxiety and restrictions following terrorist attacks such as September 11th, 2001, political turbulence and now the Covid-19 pandemic boosted market viability and therefore technological advancements. At the time of writing this part of the thesis, 'Zoom' sales were up by 169%; annual revenue forecast has nearly doubled and earnings for the company are expected to grow even more (Owens and Swartz, 2020).

Throughout history, these technologies have influenced and complemented each other. For example, the development of computers facilitated the creation of the internet, which in turn enabled the transmission of data, including audio and video, over networks. Telephones and radio were early forms of wireless communication that laid the groundwork for later advancements in wireless technologies. Moving pictures evolved alongside technological advancements, incorporating synchronized sound and color to enhance the cinematic experience. Today, these technologies continue to evolve, with computers and the internet serving as a platform for various forms of communication, including voice and video calls, streaming media, and online interactions.