

Directing Telepresent Actors for the Stage

Sean Christopher Byrne

MA by Research

University of York

Theatre, Film, Television and Interactive Media

January 2022

Abstract

This research project *Directing Telepresent Actors for the Stage* investigates how the theatre director can aid the telematic actor in their performance, through detailed exploration into actors monitoring their performances, the blocking of scenes and rehearsing instances of virtual touch. Through a four week rehearsal period that draws on existing telematic performances and the directing methodology of director Katie Mitchell and the theatre company Imitating the Dog, a cast of five undergraduate actors learn how to perform on the telematic stage, culminating in a production of Jennifer Haley's *The Nether* which was performed across two separate theatre venues connected via the internet at the University of York, 29 September 2021.

List of Contents

Abstract	2
List of Contents	3
List of Figures	4
List of Accompanying Material	5
Author's Declaration	6
Introduction	7
Chapter 1 - Research Context	11
Telematic Performance	11
Satellite Performances	11
Telepresence and the World Wide Web	12
Telematic Dreaming	13
Telematic Visionaries	14
Telepresence in the wake of the coronavirus pandemic	17
Directing Technology and the Telepresent Performer	18
The Telepresent Performer	18
Katie Mitchell	18
Imitating the Dog	19
Chapter 2 - Methodology	21
The Telepresence System	22
Play Selection - Jennifer Haley's The Nether	23
Chapter 3 - Discussion	26
Preparing for Rehearsals	26
Introducing the actors to the telepresence system	26
Exploring the use of monitoring for Telematic Performance	29
Rehearsing Scenes and the challenge of blocking	32
Establishing the stage space	32
Preparing the Script and Blocking Scenes	33
In person rehearsal method	34
Limitations of space	34
Limitations of Monitoring	35
Communicating direction across two spaces	35
'The [telematic] Book' Devising rehearsal documents	36
Explorations with Virtual Touch	38
Chapter 4 - Limitations	42
Conclusion and Further Study	43

List of Figures

Figure 1. Galloway, K. and Rabinowitz, S., 1980. *A Hole in Space (1980)*. [image] Available at: <<http://www.medienkunstnetz.de/works/hole-in-space/>> [Accessed 1 November 2021].

Figure 2. Station House Opera, 2014. *Dissolved (2014)*. [image] Available at: <<http://www.stationhouseopera.com/project/6194/#2>> [Accessed 26 October 2021].

Figure 3. The Telepresence System.

Figure 4. Sketch depicting false proscenium set.

Figure 5. Sketch depicting 'top down' perspective of false proscenium set.

Figure 6. Two cast members monitor themselves via the above projection screen.

Figure 7. An actor monitoring their performance via a television screen.

Figure 8. The Scene Breakdown Document.

Figure 9. Two actors experiment with virtual touch.

Figure 10. Two actors rehearse virtual touch for Jennifer Haley's *The Nether*.

Figure 11. The cast and director for the telematic production of *The Nether*.

List of Accompanying Material

1. Recording of the full performance of Jennifer Haley's *The Nether* from the audience's perspective - Byrne_201020301_VideoFile.mp4_1
2. Recording of the full performance of Jennifer Haley's *The Nether* from both the audience and remote actors' perspective - Byrne_201020301_VideoFile.mp4_2

Author's Declaration

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged as References.

Introduction

Telematic Performance is the creation of a shared space through the connection of two or more spaces which are physically separate. Cameras transmit the image of each persons' body from one space to the other which allows interaction between the physical and virtual body in each space. Telematic Performance and Telepresence are the most widely used terms to describe this form of experimental theatre, however, it has also been defined as Distributed Theatre, Networked Performance and Internet Performance. Telepresence in performance is a well established medium, however, up until recently has remained outside of mainstream theatre and more successful practice has focused on installations and performance art. This research project aims to situate itself within current examples of telematic theatre, particularly the rehearsal practice and production of full length published plays of which there are fewer examples. Telematic theatre has the ability to provide a way of freeing the remote actor, enabling them to interact with another performer in a shared space, and liberating them from the confines of a video conferencing box and web camera.

The first examples of telematic art were made possible by the use of satellite technology. Telecommunication artists Kit Galloway and Sherrie Rabinowitz successfully connected dancers from two geographically separate places together using satellites in their performance the *Satellite Arts Project 1977 "A Space With No Geographical Boundaries"* (1977). The introduction of the internet led to an increased amount of telematic performances. Early video conferencing software such as the open access programme CU-SeeME developed by Cornell University in 1992 for both Macintosh and Windows PC, gave artists the opportunity to experiment and create telematic performances online with the use of early web cameras and monitors. The CU-SeeME platform connected users over the world in real time via video only, however, in 1994 audio was introduced onto the platform, so users could hear and see each other (CU-SeeMe Development Team, 1998). An example of a production that used this software is Lisa Naugle's *Cassandra Project* (1996-2002) where performers were connected from the United States, Canada and various countries in Europe. In a 1997 production at The Western Front Gallery, Vancouver,

images of performers from New York and the Netherlands were projected onto large screens in the performance space. Naugle danced, performed poetry and made music with the telepresent performers in real time (Naugle,1997). The fast development of the internet and software such as CU-SeeME meant that there was greater access for theatre makers to experiment with telepresence as an art form and more importantly provided a cheaper alternative to the use of satellites. Recent examples of Telematic Theatre such as Julian Maynard Smith's *Happy Days* (2020) utilises the latest developments in camera, videoconferencing and streaming technologies as well as bespoke telepresence systems such as the *Video Communications for Networked Communities project* (2011-14), which developed intricate video, camera and streaming software for telematic performance via a high speed consumer grade internet connection.

My inspiration for conducting this research project came as a result of the ongoing coronavirus pandemic (Covid-19) which resulted in the closure of performance venues and the physical isolation of Theatre makers and audiences worldwide. In response to this, many leading UK Theatre and Dance Companies, as well as museums and television broadcasters opted to output paid and free access subscriptions to their archive or past broadcasts, as well as sourcing new ways to create and respond creatively to the pandemic.

This prompted artists experimenting with the parameters and limitations of creativity found in videoconferencing and communications software such as Zoom which became arguably the main tool for the production of Theatre made online during the Covid-19 pandemic. In Creation Theatre's online production of *Grimm Tales for Fragile Times and Broken People* (2021), the remote actors' homes are transformed into miniature sets and the remote audience are encouraged to light a candle, to help immerse themselves in the dark and eerie production. The live performance switches between cameras in each location as the story unfolds.

Zoom was also utilised as a platform for television broadcasting, such as the UK's public broadcaster the BBC, who explored this platform with programmes such as the critically acclaimed *Staged* (2020), where actors Michael Sheen and David Tennant played fictional versions of themselves across a videoconferencing call. High

profile actors such as Olivia Coleman, Helena Bonham Carter and Daniel Craig, collaborated in a videoconferencing format to record a reading of the classic pantomime Cinderella, in *A Comic Relief Pantomime for Christmas* (2020).

The complications and resistance to creating theatre via a platform such as Zoom that was in no way intended or built for entertainment purposes, prompted theatre makers and researchers to converge in conferences and workshops such as *How to make Zoom Theatre*, Mercury Theatre, Colchester (2021).

Theatre companies started to experiment with alternative ways of producing theatre online with focuses on both the remote performers and remote audiences, such as the Royal Shakespeare Company's (RSC) *Dream* (2021). Set in a forest inspired by Shakespeare's *A Midsummer Night's Dream*, *Dream* used gaming technology and motion capture similar to the technique previously established in the RSC's *The Tempest* (2016). The performers' movements and facial expressions were captured and rendered in real time and manifested as virtual characters in the forest world, before an online audience who could access the performance via computers or mobile phones subject to software requirements.

In *To be a machine (Version 1.0)* (2021), Dead Centre adapted Mark O' Connell's book on transhumanism as part of the Dublin Theatre Festival. The remote audience were invited to upload pictures of their faces pulling different facial expressions and emotions. An audience was then made with Apple iPads in each seat of the auditorium the production was being streamed from. Each tablet displayed the images created by the remote audience pre-show and could be programmed to display different effects, such as the face of only one audience member.

The emergence of such productions and the potential to free the remote actor from the box-like confinements many theatre makers were experiencing through video conferencing platforms such as Zoom, led me to *Telematic Quarantine*, a live telematic video performance conducted online by Interactive Media Artist and academic, Paul Sermon, in response to the creative isolation caused by the global pandemic. In *Telematic Quarantine*, Sermon creates a 3D interactive version of his home and invites remote performers to join this telematic space. Participants were

sent an online invitation, to enter his home via video-link, either through a basic video-conferencing shoulders up portrait live-image or via a full head-toe length live-image. Streamed online, the performance was improvised between Sermon and his guests who entered the telematic space through his front door. This was the first instance where I had seen two performers meeting virtually online within the same space. This led me to imagine the possibilities of creating theatre in a shared virtual space merging multiple actors between two separate theatre venues.

This research project *Directing Telepresent Actors for the Stage*, investigates the research question, *How can the Director aid the telematic actor in their performance?* The project focuses on three separate components of the rehearsal process for telematic performance, comprising detailed exploration into actors monitoring their performances, the blocking of scenes and rehearsing instances of virtual touch. Building on the proposed practice by the *Immersive Telepresence in Theatre* project, the rehearsal process incorporates a blend of in-person and rehearsal in the telematic stage.

As part of the project I directed a production of Jennifer Haley's *The Nether* with a company of five undergraduate actors. The performance was cast across two performance spaces connected via the internet. Haley's play is set in the near future and examines the ethics of virtual reality through characters who meet in a hyper realistic virtual world. Through a rehearsal methodology that was drawn from previous telematic performances and the directing practice of renowned director Katie Mitchell and the theatre company *Imitating the Dog*, the actors learned to perform on the telematic stage. During a four week rehearsal period I investigated how the Director can aid the telematic actor in their performance, through detailed exploration into the three specific components, monitoring, the blocking of scenes and creation of virtual touch.

Chapter 1 - Research Context

Telematic Performance

Satellite Performances

The first telematic performances date back to the 1970s and the emergence of performance artists experimenting with satellite technology. Following a public announcement from the National Aeronautics and Space Administration (NASA) in 1975, artists were invited to explore the potential of their American-Canadian CTS satellites (Paulsen, 2013). This led to arguably the most notable of these early satellite works, Kit Galloway and Sherrie Rabinowitz's *Satellite Arts Project 1977 "A Space With No Geographical Boundaries"* (1977) and *Hole-In-Space* (1980).

In *Satellite Arts 77* two sets of performers from the Mobilus Dance Troupe appeared dancing together on a screen, despite being 3,000 miles apart at respective NASA sites in Maryland and California. This was one of the first examples of telematic art achieved via satellite. In *Hole-In-Space*, Galloway and Rabinovitz connected the Lincoln Center for the Performing Arts in New York City, to the Broadway department store in Los Angeles via satellite link. Over an unannounced three-day period, the public in both spaces could see, hear and communicate with passers-by on large screens. Dixon writes that "relationships were struck up and developed" by participants in the two cities, many of whom returned to the installation daily, "using the artwork as a medium to re-establish contact" (Dixon, 2007, p.420). Archival documentary footage from the installation is available online and is a delight to watch, Larry Press describes it as "the mother of all video chats!" (Press, 2013). During a time before mobile phones and video calling this installation would have engaged its audience through a form of technology previously unseen. Figure (1) shows a still from the documentary footage of *Hole in Space*.



Figure 1. Hole in Space (Galloway and Rabinowitz, 1980)

Telepresence and the World Wide Web

With the introduction of the internet, the early 1990s saw numerous performance art and installation pieces which experimented with telepresence, as early video conferencing tools provided a more affordable way of exploring telematics than its predecessor, the satellite. These telematic works are documented in detail in Steve Dixon's book *Digital Performance: A History of New Media in Theater, Dance, Performance Art, and Installation* and Dixon names The Gertrude Stein Repertory Theatre (GSRT) amongst the most important pioneers (Dixon, 2007). GSRT's key works include *An Epidog* (1996) and *The UBU Project* (1998-99). Their 2001 article *Toward a Digital Stage Architecture* imagines the future of telepresence in performance.

“Live digital theater might include performers and audiences interacting simultaneously in multiple locations around the world. Digitally enhanced production processes (rehearsal, training, and artistic collaboration) would make true global, multicultural performances possible.” (Faver, 2001, p.6).

Their research made strides towards this means of collaboration when *The Crucible Project* (2001) linked children from England, Australia, Italy and the United States, this marked one of the first examples of telepresence being used for education. The GSRT rehearsed scenes from Arthur Miller's *The Crucible* remotely and Miller

himself joined the network to discuss the children's work on the play. (Dixon, 2007, p.423).

Telematic Dreaming

By the turn of the century telepresence projects came to the fore, "During the years 1999 and 2000, with the sole exception of stage productions using digital projections, *The Digital Performance Archive* recorded more telematically related events than any other form of digital performance" (Dixon, 2007, p.423). Many of these works drew inspiration from a key installation, Paul Sermon's seminal work *Telematic Dreaming* (1992), which was originally produced for the Kajaani Art Museum, Finland. *Telematic Dreaming* was made possible through the ISDN digital telephone network. In the building which houses the installation there are two internal, separate rooms (Room 1 and Room 2), both internal rooms contain an identical double bed. In Room 1 a live camera is positioned above the bed, filming the performer on the bed. This image is sent via an ISDN line and projected onto the bed in Room 2, via a projector rigged to the ceiling. A camera positioned next to the projector captures the combined image of the performer in Room 1 alongside the performer in Room 2. This image is fed back to Room 1 and broadcast to three monitors positioned around the bed. This allows the performer in Room 1 to monitor themselves through the telepresent image created while virtually interacting with the performer in Room 2.

Telematic Dreaming has frequently been exhibited around the world over the last 30 years, but perhaps its most notable exhibit is the Ik + de Ander 1994 exhibition in Amsterdam where Susan Kozel performed on one of the beds. In her 1994 essay, *Spacemaking: Experiences of a virtual body*, Kozel describes her experiences of performing for four weeks in Sermon's piece opposite visitors to the installation in the other bed (Kozel, 1994). In her essay she recounts a variety of encounters, some of which she describes as violent and some sensual. Kozel reports one moment in which she was elbowed in the stomach by a member of the public and recounts physically feeling this action. She describes feelings of emotional connection with another participant, a virtual lover, who visited her several times via the installation (Kozel, 1994). Kozel's relationship between her physical and virtual body and exploration into virtual touching has been the subject of many works since and

prompted Roy Ascott's essay "*Is There Love in the Telematic Embrace?*" (Ascot, 1990). Kozel's essay is the most detailed account of telematic performance from the performer's perspective and prompted pioneering discussions regarding the relationship between the virtual and physical body, an essay which can retrospectively be described as being ahead of its time. Ghislaine Boddington discusses her research into the virtual body in her essay *The Internet of Bodies—alive, connected and collective* (2021). Boddington's work with arts company body>data>space includes *CellBytes* (2000-1) and *Me and My Shadow* (2012) which premiered at the National Theatre, UK. The installation brought participants from London, Paris, Istanbul and Brussels together online via the internet. Using motion sensors in individual booths, participants' movements were captured and their figure manifested as a colourful shadow. Archival footage shows dancers from the four locations inhabiting this virtual space, performing movements which evoke a colourful electric dream. *Me and My Shadow* was one of the most ambitious telepresence projects of this time, having been produced at the National Theatre and including countries from across the globe.

Telematic Visionaries

There is a selection of artists whose work has been particularly influential in modern telepresence projects, among these are Paul Sermon, Station House Opera, The Video Communications for Networked Communities project and The *Immersive Telepresence in Theatre* project. The range of work produced by these artists showcases their individual interests and expertise. Paul Sermon's *Telematic Vision* (1993) is a variation on *Telematic Dreaming* (1992), where the bed is replaced by a sofa and the participants telematically meet on screen via television sets in front of them. Carefully placed cushions which act like a green screen cloth encourage the participants to experiment with their telepresent bodies. Sermon collaborated with Andrea Zapp for *A body of Water* (1999). In an original 19th century shower room at the Ewald Colliery, Germany, Sermon and Zapp installed a screen made of water flowing at high pressure which was projected on from both sides, creating two powerful juxtaposing images. On one side visitors from the Lehmbruck Museum in Duisburg, Germany, were composited together with visitors at the disused colliery in a telematic space created via the use of chroma key techniques. The projected

image creates the illusion the visitors are in the shower together as the miners once were. On the other side of the water, archival footage was projected showing miners showering as they would everyday. In *Peace Talks* (2003) two participants sit at a desk in separate rooms which are connected via the internet. The rooms are chroma keyed together to create the telepresent image of being sat either side of a table. The virtual room is made to look as if it is a United Nations negotiation room and so the participants take on the characters of world leaders negotiating peacefully, or not at all! These works are amongst the first to engage with modern technology in a meaningful, creative and semi-scripted way. They take inspiration from their surroundings, be that physical surroundings as in *A Body of Water* or virtual surroundings, as in *Peace Talks*.

Station House Opera, founded by Julian Maynard Smith, creates some of the most significant productions of modern telepresent theatre. Maynard Smith has been producing telematic performances as Director of Station House Opera since the 1990s. His earlier works connected performers across Europe using video conferencing techniques, however, his practice has continued to evolve as new technologies have presented themselves. In 2010 an AHRC fellowship with the Royal Central School of Speech and Drama saw the development of camera technology and superimposing techniques. In *Nowhere* (2010), a video projection panned across the walls of one performance venue, superimposing two separate spaces. “A video projection revolves around the walls in one location, showing a glimpse of another remote location, like a torch sweeping around an imaginary room. Moving back and forth, the projection reveals on the wall progressive sections of a distant space.” (Maynard Smith, 2010). *Nowhere* can be seen as a stepping stone to the two more ambitious projects which followed. In *Dissolved* (2014) and *At home in Gaza and London* (2018) the two remote spaces are superimposed on top of each other, the telepresent image in both pieces is a blur between both remote spaces. Maynard Smith champions this technique in his latter productions, creating uncanny images to great effect. Figure (2) shows a still from *Dissolved* (2014).



Figure 2. Station House Opera's *Dissolved* (Station House Opera, 2014)

The Video Communications for Networked Communities project in collaboration with Miracle Theatre (2011-14) and *The Immersive Telepresence in Theatre project* between Coventry University, UK and Tampere University, Finland (2015-22), both conducted their research into telepresent theatre using William Shakespeare's plays.

The 2014 Miracle Theatre production of *The Tempest* was performed between two performance venues in Cornwall, UK. The project which spanned three years also included a production showcasing excerpts of Beckett's *Waiting for Godot* from Cornwall to Vilnius, Lithuania. The project developed an intricate video system for telematic theatre with video conferencing cameras that were programmed to move, reframe and cut between shots automatically in time with the script of the play. The camera shots were predetermined according to the Director using software they had invented and the cameras captured the actors performance accordingly. Development of a streaming software for remote audiences was also created as well as a sensory system to monitor and model audience engagement. While the camera technology was an expensive endeavour, making use of consumer-grade fibre optic broadband ensured the project succeeded in creating a system which could be utilised by telepresent theatre makers with all budgets.

The *Immersive Telepresence in Theatre* project is an ongoing project which started in 2015 with the collaboration of researchers from Coventry University, UK and Tampere University, Finland. The project, like GSRT's *Crucible Project*, connects students in a telematic space. The project started with students rehearsing lines from Shakespeare's *Coriolanus* in both Finnish and English and has over time developed into an enriching pedagogy which promotes multiculturalism, collaboration and performing in different languages. In March 2020 the students began a project on Beckett's *Waiting for Godot*, the plan to part-rehearse telepresentally and in person was marred by the coronavirus pandemic - and as of December 2021, they are still yet to meet! (Gorman, T. et al., 2020). This project is groundbreaking in its utilisation of telepresence systems to enrich education but also provide a eco positive model, by predominantly rehearsing in a telematic space as opposed to frequent long distance travel between the universities.

Telepresence in the wake of the coronavirus pandemic

Artist Ankie Krijbolde and Julian Maynard Smith of Station House Opera produced *Happy Days* (2020) whilst both self isolating during the Covid-19 pandemic in the UK. In the piece Maynard Smith interacts with 9 versions of himself via the superimposing techniques previously mentioned in his most recent works. This performance was posted online, where other telepresence specialists also converged for an online panel discussion titled *@ the crossroads - where do our bodies go from here?* (Telematic LASER, 2021). During this panel it was announced that Paul Sermon, Steve Dixon and Sita Popat-Taylor are currently embarking on an AHRC funded project *Telematic Stage* as part of UKRI's COVID-19 Rapid Response Programme. The 18 month study which will culminate in May 2022 aims to explore conceptual and technical solutions for producing telematic theatre online, using communication tools such as Skype and Google Chrome and video compositing with Resolume, VDMX and vMix. The team will collaborate with different artists in online residencies and their findings will be published in a '*Telepresence Stage Handbook*', a complete multimedia toolkit for online performance in the wake of COVID-19 (Telepresence Stage, 2021). The need for this handbook has emerged from a recent

surge in interest in telematic performances as a result of the Covid-19 pandemic which resulted in the physical isolation of theatre makers worldwide.

Directing Technology and the Telepresent Performer

The Telepresent Performer

In their co-authored chapter titled *The Performer in Intermedial Theatre*, Joanne Scott and Bruce Barton point out the primary actions/interactions the actor could encounter in an intermedial theatre production and make reference to telepresent works such as Troika Ranch's [R]evolutions (2006) as case studies. They discuss the challenges the intermedial actor is presented with and make suggestions for the skills required to succeed in producing intermedial theatre. They conclude that they hope for training in such skills to emerge as part of professional acting education (Scott and Barton, 2019). This is a view shared by researchers from INSA de Rennes whose study *Virtual Reality Rehearsals for Acting with Visual Effects* aims to improve the actors ability to perform remotely on green screen sets through spending rehearsal periods with the Director in a computer rendered virtual reality environment (Bouville, et al. 2016).

Katie Mitchell

In her book *The Director's Craft*, acclaimed theatre director Katie Mitchell provides an intricate step-by-step guide through her Directing process; the book acts as a toolkit for aspiring directors and provides case studies from her productions. Mitchell's directing practice draws from Stanislavskian techniques and she has directed widely across Opera and Theatre, often adapting works of key playwrights such as Chekhov, Strindberg and the adaptations of novels such as Virginia Woolf's *The Waves*. It was for her 2006 National Theatre production of *Waves* that Mitchell first used video as part of her practice. "When I first thought about using video I was rather naive: I thought I could just plug my little home video into some socket and generate live images on a screen" (Mitchell, 2008, p.91). This lack of experience marked the introduction of frequent collaborations with video designer Leo Warner of

59 Productions and sound designer Gareth Fry, whose work included the innovative binaural sound design for Simon McBurney and Complicite's *The Encounter* (2015).

In *Waves*, six monologues are told through a film made live before the audience. The actors performed to cameras, created foley sound effects and filmed their fellow cast members' performances during the production that comprised over 100 separately framed camera shots (Mitchell, 2008, p.91). *Attempts on her Life* (2007) and *...some trace of her* (2008), both premiered at the National Theatre, UK, were also performed in this same style. Scott and Barton argue the actors in this production should be described as 'performer-technicians', as the performers are not only performing in front of and using technologies in their performance but they have to specifically activate the media device as part of the experience (Scott and Barton, 2019, p.85).

Mitchell's subsequent multimedia productions such as *Miss Julie* (2011) and *The Forbidden Zone* (2014) departed from the methodology of *Waves* and adopted a different style which Mitchell coined *Live Cinema*. Here the actors are filmed by on-stage camera operators against the backdrop of intricate studio sets. The camera footage is live cut to a projection screen suspended high above the actors.

Imitating the Dog

Imitating the Dog, founded in 1998, is led by co-artistic directors, Andrew Quick, Pete Brooks and Simon Wainwright. Together they work to create original productions where technology is always at the forefront. "Our interest resides in exploring the relationship between the screened image and the live body, how live bodies somehow realign our relationship with the screened body, and vice versa, when they occupy the same space" (Crossley, 2019, p.176). Their work often contains live and pre-recorded film, projections, projection mapping, chroma keying and virtual backgrounds. Imitating the Dog's earlier works such as *Hotel Methuselah* (2009) and *Kellerman* (2010) required the actors to move, react and interact in perfect synchronisations to pre-recorded backgrounds and footage of themselves projected on the set. This required a great deal of accuracy and compromise on the performer, as described by actor Anna Wilson "there's no space at all for playing the moment -

you really are a kind of servant to the projection - to the technology - and the more you can completely sync up, the more effective it is" (Crossley, 2019, p.70). In Imitating the Dog's more recent work the actors become the 'performer-technicians' as described by Scott and Barton (Scott and Barton, 2019). In *Heart of Darkness* (2018), based on Joseph Conrad's novella of the same name, Imitating the Dog utilises the use of chroma keying techniques on the stage to great effect. The actors in this production perform on a raised steel decking in front of a green cyclorama that fills the back of the stage. The actors are being filmed by their fellow cast members, evocative of Mitchell's earlier work. The footage from both cameras is chroma keyed and with visceral layering of backgrounds, a projected image of both performers is presented before the audience. This creates a telematic space on the stage which is used to great effect.

In 2019 Imitating the Dog were one of 20 groups selected to take part in rehearsal and development for a new piece of immersive theatre with the Creative XR programme. Under the working title *Europe After The Rain*, the team explored performing in green screen sets, filming the action and mixing it with virtual environments. I used the monitoring methods developed in *Europe After The Rain* in my practice as they were the most well documented of recent rehearsal and development in performing in virtual environments. *Night of the Living Dead-Remix* (2020) is a shot by shot retelling of George A. Romero's 1968 cult classic horror movie of the same name. Two screens are suspended high in the auditorium. One screen plays the original film from opening to end credits whilst the other shows the live film being created by the actors beneath, recreating every shot of the film in real-time before the audience. The stakes are high and at times the audience gasp as the actors hurriedly race around the stage with cameras in tow, filming one shot and appearing in the next.

Chapter 2 - Methodology

This research project was rehearsed and performed over four weeks between two separate performance spaces based in the Department of Theatre, Film, Television and Interactive Media building, University of York. The first venue (Venue A) a large black box studio and the second (Venue B) a large rehearsal room, equipped as a smaller theatre venue. The audience were situated in Venue A for the performance whereas there was no audience present in Venue B. The project culminated in a single performance of Jennifer Haley's *The Nether* on the 29th September 2021. The five actors that made up the cast were all second year undergraduate students at the University of York. Four of the students were enrolled on the Theatre course whereas one actor studied Film and Television. Figure (3) shows the telepresence system, stage space and audience seating in Venue A.



Figure 3. The Telepresence System.

The Telepresence System

Using a desktop computer in each venue both running the software vision mixer vMix, I connected the two spaces via a Network Device Interface (NDI). Using the chroma key tools in vMix, camera footage of the performers against green screen backdrops are keyed together to create the telepresence space that was projected onto a screen above the performers in Venue A. The Telepresence System in both venues were identical in the equipment used other than Venue A had the addition of the suspended screen that projected the telematic space to the audience as well as a speaker system which relayed the sound from Venue B. Lanterns, desktop, cameras, microphones and staging, as well as the stage space available for the actors to perform in and distance between cameras, monitors and microphones were all identical. The exception to this is the lighting grid in space B being significantly lower and closer to the performance space to that in A which caused difficulty in matching the lighting in both spaces to appear the same when chroma-keyed.

The telepresence system was devised by myself and built prior to rehearsals, however, it was adapted during rehearsals, some of which were expected challenges anticipated prior to rehearsal, such as the sound setup to reduce the amount of audio and video latency and others which came out of rehearsing the production, such as the positioning and amount of television monitors required by the actors to monitor each other during the performance, camera height and positioning due to a last-minute change in actor.

When choosing the venues for this project I had to consider practicalities such as both spaces having internet connectivity, the ability to create a similarly sized stage area in each venue and room for the equipment needed that made up the telepresence system. In Venue A I needed to make sure there was enough space to provide room for a live audience. In order to achieve my research aims, it was important to have the ability to easily migrate between both venues and update the equipment and brief the actors when needed.

During the performance itself, the devised telepresence system worked effectively. The mixing desk was visible to the audience as they entered Venue A, although this remained behind the audience throughout the performance itself. The equipment that

made up the telepresence system and the operation of the show, was visible to the audience during the performance. The audience were invited to experiment with the system and visit the remote space (Venue B) post performance. In future practice, a functional telepresence system contained behind a false proscenium could create a more traditional theatre environment where technical equipment is out of view of the audience. Figures 4 and 5 show initial sketches of how this setup could be realised.

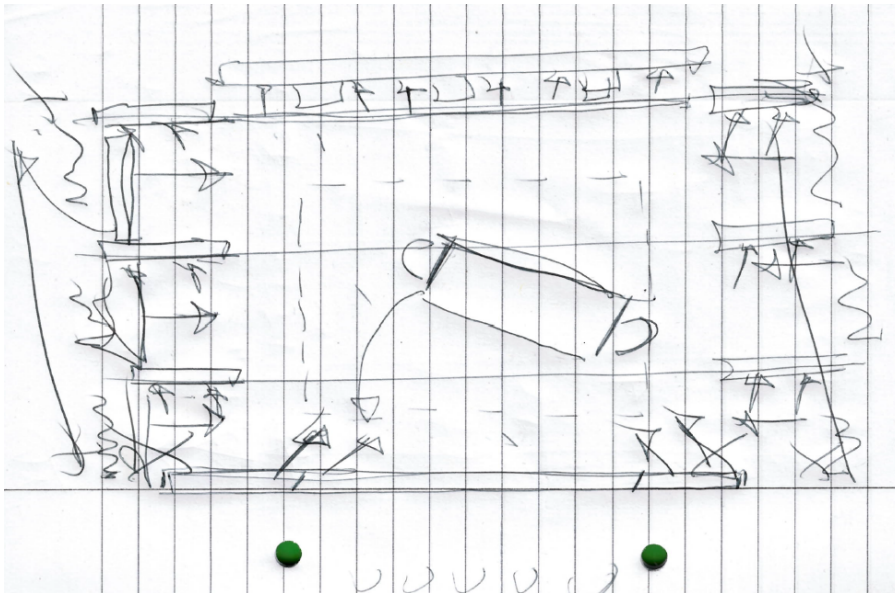


Figure 4. Sketch depicting false proscenium set.

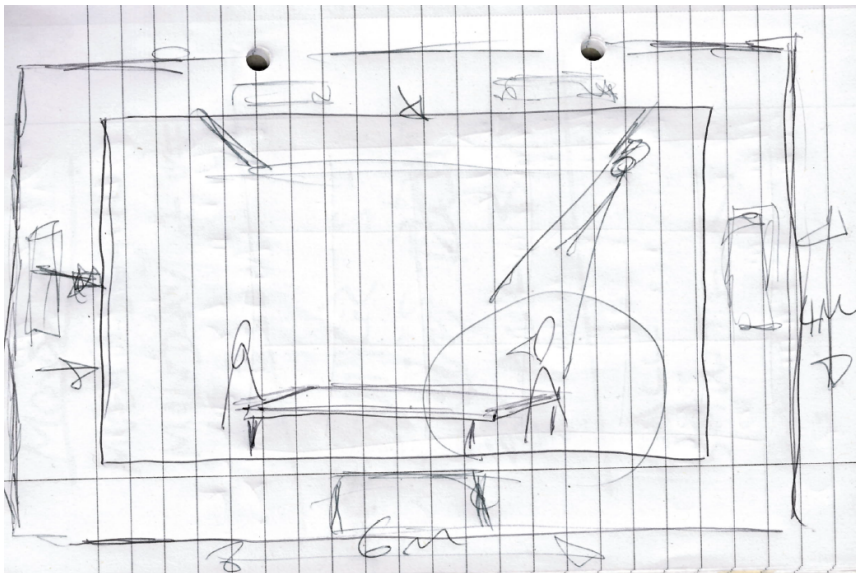


Figure 5. Sketch depicting 'top down' perspective of false proscenium set.

Play Selection - Jennifer Haley's The Nether

This research project situates itself in the context of directing an existing text. Telematic projects are usually performed as part of improvised installations such as Galloway and Rabinovitz's *Hole in Space* (1980) or as collaboratively devised pieces such as Station House Opera's *Dissolved* (2014). Performances directed using existing texts are far less common in current practice, as a result this research lends itself to a smaller sub genre of research. *The Video Communications for Networked Communities Project*, a telepresence project staged from 2011-14 concluded "there is a need to develop, from scratch, stories that are needed to be performed or rehearsed from split locations" (Williams et al., 2015). Although these specifically developed plays would be beneficial in order to continue to explore the capabilities of telematic theatre, I'd argue that there are many published plays with narratives which can lend themselves effectively within this form.

When researching plays I searched for key themes or identifiers, such as characters being physically or virtually separated, two-handers, and plays with settings which invited creative interpretations. Having explored several existing plays, from modern to classical, I came across a production of Jennifer Haley's *The Nether* performed by Headlong and the Royal Court Theatre, London. The play had its world premiere in 2013 at the Kirk Douglas Theatre, LA and is a full length play made up of 16 scenes and an epilogue, running for an average of 80 minutes.

Haley's work to date explores characters' relationships with, and the ethics of interactive media technologies such as virtual reality and video games. *The Nether* is set across two worlds, an Interrogation Room in the real world, and a totally immersive and sensory virtual reality known as the Nether. "Just log in, choose an identity and indulge your every desire" (Haley, 2014). The play deals with themes of connection and disconnect through the medium of virtual reality, particularly from a moral and ethical standpoint. It deals with themes of paedophilia and violence and real-world implications of decisions taken in a disconnected virtual reality.

In my production, the child character of Iris was played by an adult, while this character's age is central to the challenging themes of the narrative, the focus of my

work is on telepresence. Content warning posters were displayed outside the auditorium, to alert the audience to the themes of paedophilia and violence explicit in the play.

The real and virtual world settings in *The Nether* run parallel with the premise of performing telematic theatre, where characters and performers are both physically and virtually present. The immersive world of *The Nether* is not far removed from the computer generated gameplay of our own present reality and three dimensional virtual backgrounds generated to depict the settings within the play. Set in the near dystopian future, the depiction of a telematic interrogation room is not far removed from the video-link court appearances of our own present reality. These links enable the audience to experience an emerging and experimental technical practice logically, without distraction from the play's narrative.

Chapter 3 - Discussion

Preparing for Rehearsals

Introducing the actors to the telepresence system

Before commencing rehearsals on the production of *The Nether* I ran a series of two hour workshops which aimed to give the actors a foundation for producing telematic theatre. The purpose of these workshops was to provide the actors with the familiarity, confidence and skills required to work with the telepresence system before engaging with any work on the play text. It is familiar for many practitioners that engage with intermedial theatre to collaborate with the same actors on their productions, as is the case with companies such as *Imitating the Dog* who have established lasting relationships with actors Matt Prendergast and Morven Macbeth to name a few. I'd argue the benefits of such a relationship are that the actors are already established in working with technology as a means of performance, which could well offer more confidence and a more efficient way of working in rehearsal through shared understanding between actor-director-creative. In rehearsals for Katie Mitchell's National Theatre production *...some trace of her* (2008), actor Helena Lymbery spoke of her experience of having already worked on a Katie Mitchell multimedia production, *Attempts on her Life* (2007):

"Practically it helped because it meant I had a familiarity with how to use cameras and lights. It means I have a degree of physical comfort and familiarity working with the technology, which gives confidence. Psychologically it helped because I had already made the journey as an actor." (Lymbery cited in, National Theatre Education, 2008).

As the cast for my production of *The Nether* had no prior experience of working with technology in performance, the workshops I devised became a core part of the rehearsal methodology and my research aims to aid the actors in their performances by becoming confident working in this form of theatre.

As well as the actors building a foundation on new skills working with technology, I'd argue that the actors' participation in such sessions enabled them to overcome any resistance to working with technology which may have gone against traditions of acting they had previously trained in such as Stanislavskian techniques. Whilst working on Brechtian scholar David Barnett's 2016 production of Patrick Marber's *Closer*, I witnessed the performers discomfort and resistance in rehearsal to the methods of Brechtian theatre which went against the Stanislavskian techniques they'd been trained in. In his article *Brecht in Practice*, Barnett reflects:

"The professional cast for *Closer* were mostly trained in Stanislavskian techniques and these proved difficult to overcome at times. While the actors' ability to deliver complex speeches and dialogue with conviction and presence was already in place, they found it difficult to negotiate the unnatural strictures of the prohibition on walking and talking, or the requirement to represent an emotion rather than fully to embody it." (Barnett, 2021).

With this in mind, it was important for me to consider how to remedy these occurrences happening during the rehearsal process, as well as how to overcome them.

At the beginning and end of each session throughout the rehearsal process, I invited the actors to give open feedback and reflections on their experiences of the given rehearsal. I used open-ended questions to encourage the actors to express their responses to workshops, individual exercises, dress rehearsals etc. Establishing these brief conversations at the beginning and end of each session gave me the opportunity to reflect on how the actors were adapting to telepresent rehearsals and informed the development of in-person and remote rehearsals and rehearsal material.

I initiated the workshops by showcasing to the actors previous works which have effectively performed telepresence via chroma key techniques such as archival footage of Paul Sermon's *Telematic Dreaming* (1992), *Telematic Quarantine* (2020) and telematic projects which situated themselves within a theatre with a live audience, such as Miracle Theatre's *The Tempest* (2014). With telematic theatre to

date currently outside of the mainstream, I could not assume my actors would have a background knowledge of such works and so this proved a positive introduction to what has come before and the possibilities of telematic theatre. On reflection, this introduction could have been placed at a later date, as the actors, though excited by past performances, grew apprehensive by how such technology could work without having experience of the telepresence system in place. One of the actors remarked that they were relieved post the first exploration with the telepresence system as they had little confidence in the possibility of two venues connecting in such a way.

The second workshop introduced the actors to both theatre venues and a demonstration of the telepresence system. This workshop was structured in two halves, the first involving a technical demonstration of the system structured with games to explore individual components of the technology and the second gave the actors free rein over their exploration in the form of improvised games. I'd purposely structured this workshop to not involve any themes or relation to *The Nether* in an effort to allow the actors to test the technology, potential and limitations of the telematic stage freely in a purely exploratory way.

The cast were introduced to working with chroma key techniques from the separate venues via games initiated by two and three dimensional images generated as virtual backgrounds in vMix. Whereas the cast were accustomed to green screen effects popularised by video conferencing software Zoom during the Covid-19 pandemic and in applications such as snapchat, the initial reaction to being physically separate but appearing in one image was one of amazement at the uncanny quality of being in a telematic space. The cast were presented with images depicting familiar locations such as London Bridge and invited to interact with the background image or perform in the space as if they were there. An example of this is when the actors worked with scale and size in relation to the camera by being challenged to pose next to famous landmarks. Figure (4) below, shows two of the cast members in Venue A, monitoring themselves via the projection screen above. Here they are trying to create the illusion that they are touching the top of the Eiffel Tower from afar, an image which is popularised by tourists who visit the famous Paris monument. While this figure depicts the actors in a co-present space, the point of

this game was to introduce the actors to the concept of virtual objects and depth, this aided in their performance when props featured in one venue but not in the other.



Figure (6). Two cast members monitor themselves via the above projection screen.

The introduction of the headsets used in Venue B allowed the actors to converse with one another. To the surprise of the actors, there was very little audio latency between both spaces though the actors in Venue B did experience echo of their own voices in their headsets if the volume was too loud. This was remedied via the actors adjusting their headsets accordingly. Having had the opportunity to become accustomed with the technology across both of the spaces, the actors were invited to participate in improvisations which were again initiated via changing images as virtual backgrounds in vMix. This included a scene under the sea, a desert and in a living room, to name a few.

Exploring the use of monitoring for Telematic Performance

In an interview for the feature film *The Hobbit: An Unexpected Journey* (2012), actor Ian McKellen spoke of his experience performing alone for long periods on a green screen set which allegedly almost led him to quit acting. McKellen's character Gandalf the Grey was required to be taller than the other characters in *The Hobbit* and to create this effect, he was filmed alone against a greenscreen.

"It was so distressing and off-putting and difficult that I thought 'I don't want to make this film if this is what I'm going to have to do'," McKellen added. "It's not what I do for a living. I act with other people, I don't act on my own." (McKellen cited in, Pulver, 2013).

On McKellen's experience, Director Peter Jackson remarked "He truly had such a miserable time on the first day or two of the shoot. We felt sorry for him being dumped in greenscreen land" (Jackson cited in, Pulver, 2013).

In modern cinema chroma keying is used increasingly for visual effects such as the effect created for McKellen's character as well as in post-production. The Visual Effects Society (VES) estimates that 95% of films today employ some digital imagery (Steinberg, 2015). As McKellen experienced, performing in isolation at length can be physically and mentally demanding on the actor. Performing to a character that isn't physically in front of you while maintaining their eye line and negotiating props, furniture and architecture which likely isn't there, is certainly a pressure on the actor. Similarly, the telematic actor can be faced with the same challenges in performing in this way via chroma key techniques. In response to this a key part of the rehearsal process involved the development of a monitoring system and exploring ways in which telematic actors can monitor their performances during the production of *The Nether*. As well as helping the actor, the attention to detail such as eye-line heightens the illusion to an audience that the telepresent actor is co-present with their opposite as well as breaking it when it is misplaced. "Since humans are very good at detecting missed eye contact, it is crucial to help actors maintain a consistent eye- line by giving them cues for where to look." (Bouville, 2016).

Initial exploration of monitoring techniques involved the use of widely used greenscreen set techniques where an actor may be given a physical object or mark to monitor the eyeline or presence of another actor. An example of this is in the interrogation room scenes where the actor playing Detective Morris situated in Venue A is interrogating either Sims or Doyle in Venue B. In the interrogation room scenes the actors are sitting at either end of a table, so we first measured the eyeline height of each actor sitting down at the table and experimented with physical markers positioned offstage that resembled that eye line height for the actors to direct their gaze. Experiments included the use of tape marked on walls, a tennis ball on a stick and a half body mannequin. Whereas the actors were able to maintain eye line with these objects for a short period of time as they would have done for individual takes in a greenscreen studio, this method was not sustainable for a stage performance as the actors found it difficult to sustain their gaze and performance across a length of time without the use of a visual representation of the telepresence

space. Such methods may have worked at a push for the interrogation scenes as the actors are primarily sat down across from each other at all times, however, this is not the case for the scenes in *The Hideaway* where the actors walk the stage. This would have required a plethora of marks for the actor to remember at every given time or alternatively a member of the crew to cue the actors eyeline throughout the piece.

In response to this I introduced television monitors to both performance spaces, basing my setup on Paul Sermon's technical specifications for *Telematic Quarantine* (2020) in which he positioned 3 monitors for monitoring his performance. In the production of *The Nether*, television monitoring was limited by the fact that there were not enough screens available for actors to have visual monitoring across 3 sides / 180 degrees of the performance space in both venues. Ideally actors would have three screens, one positioned stage left, one stage right and the ability to monitor themselves when facing the audience, out front as per Sermon's specifications. To remedy this, the projection screen in Venue A which displays the telepresence space for the audience was altered in height, so actors in Venue A could monitor themselves peripherally when facing the audience/camera. In Venue B a monitor was placed centre stage in front of the performance area so actors could also monitor any of their performance when facing towards the camera. In favour of the interrogation scenes which make up the majority of the play, a monitor was placed on stage left in Venue A and stage right in Venue B. This concluded that the actor playing Detective Morris in Venue A was positioned on stage right of the table for the entirety of the play and could monitor directly into the stage left wing monitor and vice versa for the actors playing Sims and Papa in Venue B. The monitors were positioned directly in line with the markings of the interrogation room table and were adjusted to the eyeline of the opposite actor. The interrogation room table was adjusted higher with the addition of high back office chairs. This change in level meant that when the actors performing in the hideaway scenes monitored the telepresence space, their gaze was not altered downwards at the monitors when walking the stage. This also meant that if the monitors were to power off during the performance, the actors had a reference of a sizable screen to act as a marker for eye-line, as objects like the tennis ball act in a greenscreen studio. Figure 5 shows a performer monitoring their performance via a television monitor.



Figure 7. An actor monitoring their performance via a television screen.

Rehearsing Scenes and the challenge of blocking

Introducing the actors to the space

Establishing the stage space

Following the initial exploratory workshops with the telepresence system, to begin rehearsals, both venues were 'marked up' to establish the stage space and sight lines. Completing this exercise as a company meant that the actors had a deepened understanding of the geography of the telematic performance space. The first space established was the offstage area for the actors. Due to there being no capacity for wings out of view of the audience in Venue A, an area lined with chairs for the actors to sit on was made on both stage left and right where the actors would be situated when not in a scene. It was important to establish this area in rehearsal early, so when it came to running the show, the actors were comfortable offstage knowing they were visible to an audience. In Venue B an area was established behind the technical set up for the same purpose. Tape was laid on the floor in both venues to mark both the boundary of the performance space and the framing of both cameras. Entrances and exits to the performance space for specific locations in the play were established in the first rehearsals of scenes, however, initially two separate marks were made on both sides of each venue denoting (1) The end of the wing space which meant entrance to the stage space and (2) Where the actors entered/exited

the frame of the shot. This meant the actor could arrive into a scene in character by having a clear corridor of space between entering the performance space (the world of the play) and in frame of the camera. The introduction of a replacement actor meant that the cameras in both venues had to be reframed in order to allow sufficient head height for the new actor who was significantly taller than the rest of the cast.

Preparing the Script and Blocking Scenes

Unlike Mitchell's method of preparing the rehearsal script where she recommends making cuts such as stage directions dictating the performer perform a certain gesture, emotion etc, I made a point of not making any amendments to Haley's play script prior to the first rehearsal with the actors. The reason being I wanted to test the boundaries of the telepresence stage and see if we could achieve Haley's intentions where possible in regards to setting, actions the characters may perform and any physical touch.

Mitchell defines blocking as "The arrangement of actors on the stage so that the action, events and key story points are visible and focused" (Mitchell, 2008, p.233).

In the Interrogation Room that makes up the majority of scenes in the play, the actors preferred working in their separate venues when initially devising, blocking and rehearsing. Actors found it easier to rehearse scenes across the table as they could consistently monitor each other and due to there being little physical movement away from the table other than the positionings of their bodies and interactions on the table itself. Where scenes required actors to be present in another setting such as the nether scenes, this required closer blocking and understanding of the world around them which they cannot see. While I wanted the actors to have agency and freedom in their choices on the stage, it became apparent that careful blocking needed to be approached in order for the actors to sustain their performance throughout the production. This led to the development of a 'paint by numbers' technique, where the blocking on each actor's line was carefully choreographed - this was to avoid actors walking across each other (virtually) on set and staying in the same eye line. The marking of furniture which was not visible to the actor, such as the table in Iris's bedroom, was marked in Venue A so the actor

playing Iris was aware not to come into contact with the chair. Once the particulars and blocking for each setting of the play had been agreed in rehearsal and virtual backgrounds rendered, the actors received a copy of every virtual background to go alongside floor plans in the script. This meant the actors had a visual reference of the architecture not visible to them at all times to aid in their placement on the stage and any action they had with the virtual backgrounds in the play.

In person rehearsal method

Part of my rehearsal methodology built on practice from the *Immersive Telepresence in Theatre* project, where a key research aim, (which was not achievable due to the coronavirus pandemic), was to rehearse both in a telepresent space and in person.

Performing across two separate spaces in the same building afforded the opportunity to test if the actors could benefit from a blend of in-person and telepresent rehearsal. Group discussion, including traditional table work such as line runs between actors, and read-throughs was mostly favoured by in person rehearsal as the actors found comfort in being physically present with their co-actors. A surprising revelation was that the members of the cast who performed across the table in the interrogation room found more focus and were more aware of their performance by monitoring the other actor distanced through the television monitor as opposed to having them directly in front of them. When rehearsing scenes in the Nether, actors benefited from rehearsing separately in their given venues with no blocking/direction to test the boundaries of the space and to see what is/not possible in regards to proximity to the camera, being in/out of shot/headroom.

Limitations of space

One of the challenges of having a green screen within the theatre was the actors becoming accustomed to the technicalities of acting in front of a green screen, which limited the stage space. When using a green screen there are lanterns needed specifically to light the green and then separate light for the talent (actors). In order for the chroma key to be most effective the subject must be in their light which is separate and ideally distanced from the green screen. In order to tackle this, markers were placed on the floor to denote the back of the stage space.

As Venue B was a lot smaller than A, it meant that there was very little wing space for the actors to enter a scene into a shot of the camera. An observation I made was that this affected the actors ability to enter the performance space in character. In response to this I utilised Katie Mitchell's use of visualisation exercises to help the actors "remind themselves of exactly where they have just come from and what they were doing in that place" (Mitchell, 2008, p.172). The same exercise was utilised for scene changes and blackouts during the play. During a scene change in Venue A the output image on the projection screen performed a blackout whereas the stage was still lit. In Venue B the actors' television monitor showed the live output image projected before the audience. This meant that when a blackout occurred on the projection screen in Venue A during transitions, the actors in Venue B would not see the transition take place and await the 'lights up' at the start of the next scene. This required the actor at times to be pre-set on stage for up to a minute. Mitchell's visualisation exercises aided the actor to be present in the moment the scene commenced.

Limitations of Monitoring

Where monitors were placed significantly altered the blocking of scenes. The monitor in Venue A being on stage right meant that it became easier for the actors in Venue A to position themselves on stage left and direct their performance in the direction of the monitor on stage right. This trend carried through most scenes where the actor in Venue A would be, from the audience's perspective, on the left of the screen during the performance and venue B on the right. While this may present issues in other productions the small cast and emphasis on interrogation room scenes in Haley's play lend itself well to these limitations.

Communicating direction across two spaces

The direction of microphones in both venues pointing towards the performance space, meant that any communication made at the very back of both venues had to be well projected in order to be heard in the opposite venue. When directing from both venues, I therefore positioned myself accordingly so that I could be heard at all times and regularly confirmed with the actors that they could hear me clearly. When addressing an actor in the opposite venue I made a point of stepping into the frame

of the camera in the rehearsals of scenes so that I was present in the telepresent space for discussion, blocking, and addressing the actors concerns. Where scenes were being performed only between characters in Venue B, I favoured directing from Venue B, especially for the initial rehearsals where the actors were becoming accustomed to the space. When we began to run scenes and sections of the play more fully, I gradually detached myself from Venue B, so I could position myself from an audience perspective in Venue A.

'The [telematic] Book' Devising rehearsal documents

A series of documents were produced during the rehearsal process which were drawn both from traditional stage management practices and television studio production. The development of these hybrid documents aided the director and cast in navigating telematic performance to great effect.

Scene Breakdown Document - This document shown in figure (6) depicts a breakdown of each scene in the production and which characters/actors appear across each venue. The document was blown up in size and placed offstage in both venues during the rehearsal period as well as attached to the actors' scripts. Its aim was to aid the actors in learning the structure of the production across both venues and to be able to easily identify their individual journey through the play via colour coding for each character.

The Nether - Scene Breakdown				Character Locations			
Pages	Scene	Location	Characters		Venue A		Venue B
11 - 13	Scene 1	Interrogation Room	Morris	Sims	Morris		Sims / Papa Doyle
14 - 15	Scene 2	Interrogation Room	Morris	Doyle	Iris		Woodnut
15 - 19	Scene 3	Interrogation Room	Morris	Sims			
19 - 22	Scene 4	The Nether - The Hideaway Foyer	Iris	Papa			Woodnut
22 - 26	Scene 5	Interrogation Room	Morris	Doyle			
26 - 29	Scene 6	The Nether - Iris's Bedroom	Iris	Woodnut			
29 - 32	Scene 7	Interrogation Room	Morris	Sims			
33 - 36	Scene 8	The Nether - Iris's Bedroom	Iris	Woodnut	Papa		
36 - 40	Scene 9	Interrogation Room	Morris	Doyle			
40 - 44	Scene 10	The Nether - A Sunny Spot	Iris	Papa			
44 - 46	Scene 11	Interrogation Room	Morris	Sims			
46 - 49	Scene 12	The Nether - The Hideaway Foyer	Woodnut	Papa			
50 - 52	Scene 13	The Nether - Iris's Bedroom	Iris	Woodnut			
53 - 56	Scene 14	Interrogation Room	Morris	Doyle			
56 - 60	Scene 15	The Nether - Iris's Bedroom	Iris	Woodnut	Papa		
60 - 64	Scene 16	Interrogation Room	Morris	Sims			
64 - 65	Epilogue		Doyle	Sims			

Figure 8. The Scene Breakdown Document

‘The [Telematic] Book’ - Traditionally stage management will oversee ‘the book’, “a copy of the script in which the stage management writes down all of the moves the actors make and, when you get into the theatre, where all the lighting and sound cues are notated”. (Mitchell, 2008, p.233).

The book for *The Nether*, like the scene breakdown document, differed in that it had to be structured to include the information for both venues simultaneously, including the props, costume, sound effects, virtual backgrounds, scene changes and blocking. The book was made available in rehearsal for the actors to reference at any given time.

Floor Plans - Floor plans are used predominantly in television studio productions as a visual representation of the cameras, props, talent (actors) within a shot or scene. Drawn from a bird's eye view, symbols within the drawing represent the cameras, talent, furniture etc. The angle of the camera, direction the actors are facing and their movement etc is recorded on the plan to depict the action in the scene. For the production of *The Nether* I utilised floor plans as a tool for the actors to use alongside their scripts, to assist in not only retaining blocking but also monitoring and positioning of props which may or may not be physically present in their performance space. When giving the actors marks on the floor the development of floor plans

meant each scene was recorded in detail and retained in writing as opposed to a plethora of marks on the stage floor. The addition of floor plans to the scripts also allowed the actors to retain knowledge of and rehearse their movement when not in the performance venues.

Explorations with Virtual Touch

In Haley's *The Nether* there are many instances where the characters make physical contact with one another, whether it be implied through a stage direction or directly in the narrative. Examples of actions in the play script include hugging, caressing, hitting etc. Where touch was initiated in scenes between two physically present actors, for instance Papa and Woodnut's handshake when they are introduced to each other for the first time, this was straightforward to negotiate as the actors were both situated in Venue B. The challenge for the telematic actor is how to create the illusion for the audience that touch has occurred with another telepresent performer, when it is physically impossible to do so. Working with a chroma key for telematic performance presents many uncanny effects, for example the ability to walk through the image of another actor, playing with the use of green screen fabric to conceal part of the body or creating imagery of props levitating by being held by green fabric etc. Whereas touch could have been explored more experimentally in this way through creating such uncanny imagery as is the case with many previous works such as body>data>space's *Me and My Shadow* (2012), in the process of putting on *The Nether* such imagery would have interfered with the realism required not only in the setting of the interrogation room but also when the characters enter into the virtual world of the nether. When in the Victorian themed realm 'The Hideaway', the characters are able to taste, smell, touch etc as if it were real. It was therefore imperative to focus on creating the illusion for the audience that the actors were physically touching in instances when touch was required, during the entirety of the performance.

When approaching virtual touch, I built on the practice of Sita Popat-Taylor and her theatre companies (Satorimedia) telematic piece *TouchDown* (2000) and Kiss and Cry Collective's *Cold Blood* (2015). Both productions are performed using the actor's

hands. In *Cold Blood* a feature film is created before the audience. The performers' hands are filmed in a multitude of miniature sets which evoke different stories during the production and the camera image is projected onto a screen above. During the production the "hands intertwine then relax, touch each other and leave the scene, then come back before disappearing for good" (Astragales, 2019). The performers' movement in *Cold Blood* is carefully choreographed, controlled and precise. When watching the 2020 Barbican production at the London Mime Festival I was left amazed by a Fred and Ginger inspired dance between two performers where their fingers wearing tap shoes made of thimbles, tapped in perfect time to a golden hollywood number. In *TouchDown*, a "duet for hands", two performers' hands meet physically in one space and then via the internet they meet telepresenently. "Although the touch is not physical in *TouchDown*, the hands move with extraordinary sensitivity and awareness of each other, perhaps even more than they would in physical space" (Dixon, 2008, p.238).

The sensitivity and awareness present between performers in both productions prompted the development of a series of exercises in the rehearsal room for *The Nether*, based on the actors focussing on the telematic representation of their hands. This approach has proved successful since the first examples of telematic performance. In Kit Galloway and Sherrie Rabinowitz's *Satellite Arts 1977* (1977), the Mobilus Dance troupe explored the telepresence space using only their hands. "Over a black back-ground, the dancers reach from outside of the frame toward the center of the screen, and toward each other. They touch fingertip to fingertip, gently caress- ing and holding each other's hands" (Paulsen, 2013).

A development on this exercise involved the actors being played different music tracks and tasked with choreographing a short dance number, like in *Cold Blood*. By only using hand to hand contact as a means of touch in such exercises, the actors were able to develop an ability to monitor their movements with precise awareness of their opposite actor which was particularly useful for instances of touch where the actors were in close proximity to one another, for example across the interrogation room table. In Figure 7, two actors experiment with virtual touch using just their hands.



Figure 9. Two actors experiment with virtual touch.

Further development of virtual touch was initiated via mirroring exercises from theatre practitioner Augusto Boal's *Games for Actors and Non-Actors*. One actor in Venue A would face another in Venue B and look directly into their eye line. They'd then take it in turns for one person to initiate movement and the other mirror their actions. The objective of this exercise is that the "synchronisation should be such that an outside observer would not be able to tell who was leading and who was following" (Boal, 2002, p.130). A development of this exercise was mirroring gestures such as caressing the opposite partner's head. Repeating this motion allowed the actor to build a muscle memory of the distance and height required to realise this image accurately in performance. This exercise proved a really effective way of furthering the actors ability to monitor one another and perform virtual touch as it forced them individually to concentrate on the movement of the opposing actor via close monitoring and working together as a team to make the image as synchronised as possible. This exercise did however bring to the forefront the challenges of video latency, where the actors tried to trick their partners by moving sharply and their bodies became out of synchronisation with one another. Whereas the latency of

audio was remedied technically via headsets and meant the actors were able to converse freely without the need for tailoring their voice in performance, the minute differences in latency between the video feeds were felt when trying to achieve virtual touch for the performance.

This became especially challenging for instances such as in Scene 15, where Papa slaps Iris across the face in a fast motion. Whereas in the majority of other cases, touch was able to be choreographed and the actors monitor themselves and make adjustments accordingly, this action required the actor to monitor and make contact with the opposing actor playing Iris in a fast motion. In order to do this the actor playing Papa choreographed his steps on approach to Iris and the height of the hitting motion with great detail. The actor playing Iris had to react to the slap in advance of it being thrown in order for both to connect at the same time. This was aided by an offstage 'slap' sound effect created live by one of the other actors clapping their hands together. Figure 8 shows the actors playing Papa and Iris practising the hitting action in rehearsal.

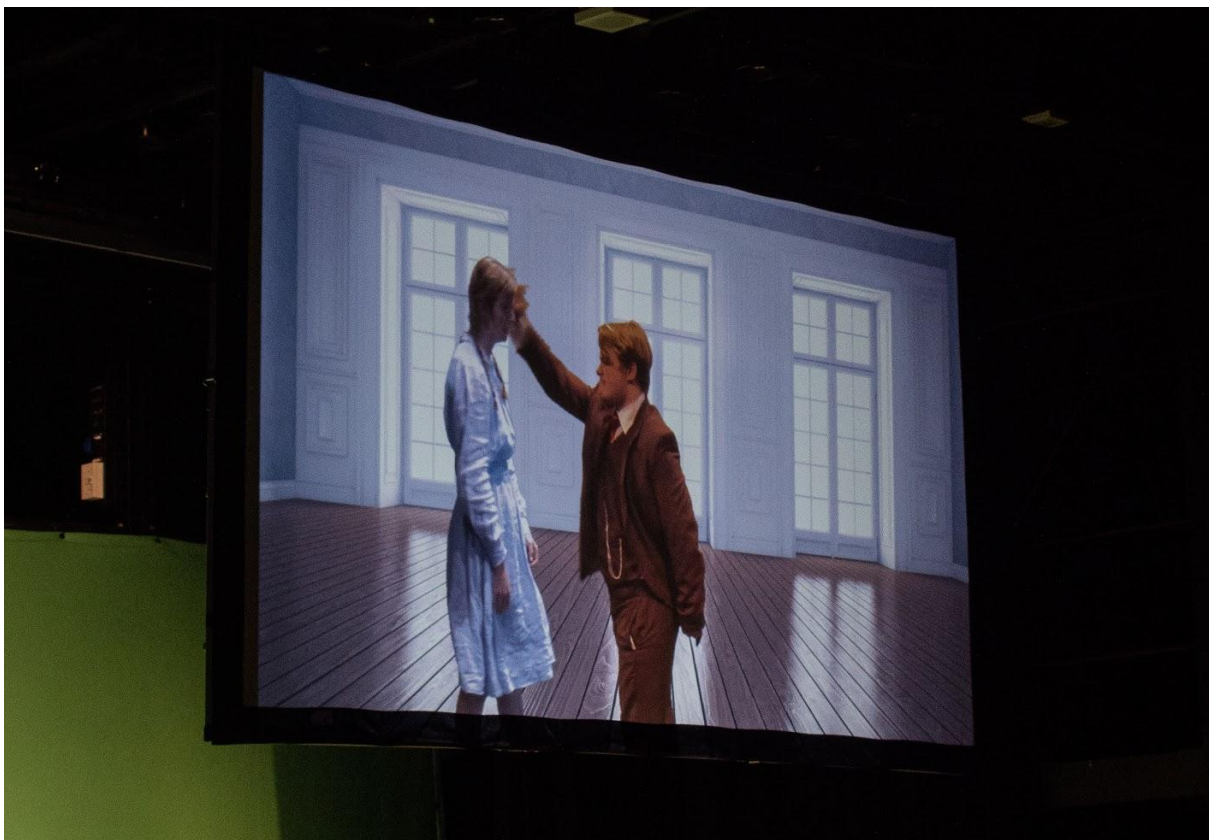


Figure 10. Two actors rehearse virtual touch for Jennifer Haley's *The Nether*

Chapter 4 - Limitations

In professional theatre productions it would be common practice for lighting and sound desks to be removed from a gallery into the auditorium for the purpose of tech rehearsals and then returned. In the case of our production of *The Nether*, the entire control of the production, including the projector, lighting and sound desks as well as the desktops running VMIX, were situated on the ground level of Venue A behind the audience seating and in front of the performance area in Venue B for all of the rehearsal period and the eventual performance. The reasoning for this in part was practicality, so there could be constant access to controlling virtual backgrounds and chroma key via VMIX in rehearsal and easy accessibility for troubleshooting any imperfections in the system as they arose. With the system being closely situated to the performance space in both venues, it afforded me the ability to observe rehearsal from the control, whilst simultaneously cueing the show. Following their initial introduction to the system at the beginning of rehearsals, I gave free rein to the actors to operate the system to obtain greater understanding and relationship with the technology involved. This proved successful as actors were able to operate in place of myself when not in their own scenes and in my absence took complete control of the system to rehearse scenes autonomously.

Whereas the inclusion of stage management would have aided the rehearsal period, the absence of any stage management during the process did have a positive effect as it put ownership on the actors to be in control of remembering their own blocking and updating their floor plans accordingly. This constant referral to and ownership of one's performance I believe enabled the actor to thrive individually as opposed to a stage manager recording every move into 'the book'. It also put the onus on myself to meticulously record floor plans during the rehearsal process which enabled a greater recollection of every moment during the piece.

Conclusion and Further Study

This research project builds on existing knowledge in the field of telematic performance and demonstrates the practice of rehearsing existing full length published plays on the telematic stage, using current and accessible technologies. I was inspired to pursue research into this form of performance at a time where I was socially distant from others during the coronavirus pandemic. I endeavoured to explore alternative ways to connect creatively, both in person and remotely, beyond the constraints of video conferencing software such as zoom.

The research project builds on telematic performance of full length published plays, of which there are fewer examples. Set in both reality and an immersive virtual world, Jennifer Haley's play *The Nether* runs parallel with the premise of telematic theatre, where characters and performers are both physically and virtually present. The actors' character development and immersion in the metaverse theme of the play were enhanced by performing to virtual representations of each other through monitors. Directors should consider narratives such as *The Nether* which explore virtuality or the separation of characters as these best lend themselves to being performed telematically.

Adapted during rehearsals, the devised telepresence system worked effectively during rehearsals and performance. The equipment that made up the system and the operation of the show, was visible to the audience during the performance. The audience were invited to experiment with the system and visit the remote space post performance. In future practice, a functional telepresence system contained behind a false proscenium could create a more traditional theatre environment where technical equipment is out of view of the audience. Figures 4 and 5 show initial sketches of how this setup could be realised.

Rehearsals were a fusion of in-person and in the telematic space. This rehearsal methodology was built on proposed practice by the *Immersive Telepresence in Theatre* project. Key findings of this blended rehearsal process were the actors' preference for remote rehearsal using monitors as opposed to rehearsing in person

across a table. Performing across two venues at The University of York afforded the director efficient movement between both spaces and the ability to switch between rehearsals in-person or remote in the telematic space. Future practice could constrain rehearsals to a more structured blended rehearsal process.

The cast was made up of second year undergraduate performers who were unfamiliar with performing using technology. I identified with Professor David Barnett's findings that Stanilavskian trained actors found it difficult to adapt to Brechtian techniques and that key multimedia practitioners such as Imitating The Dog and Katie Mitchell frequently collaborate with the same actors trained in performance with technology. Time should be reserved for detailed exploration of the telematic stage and equipment used at the beginning of the rehearsal process. Where performers are not accustomed to working in this way, the introduction of performing to camera, against a green screen and to virtual performers is paramount. The cast reflected that they benefited from free exploration, as part of structured and unstructured workshops eg. through games, improvisation, and independent play. This allowed the actors time to realise both the limitations and newfound possibilities of working telematically as well as ease any previous anxiety of working in this way.

The use of self view monitors came about as a result of research into green screen techniques combining practice used in film, alongside those developed by Paul Sermon for his improvised performance, *Telematic Quarantine (2020)*. The use of self-view screens enabled actors to sustain their performance alongside a constant visual representation of their virtual counterpart. Actors referenced this as a particular technique which enhanced their experience of performing telematically. A 180 degree perspective should be used by directors when directing for telepresence performances via three monitors, adjusted to a standard height that actors can directly and peripherally monitor while moving around the stage.

This project saw the development of a series of documents to aid the rehearsal process and to support actors performing telematically. The documents were drawn from traditional stage management practices, television studio production and the methodology of established multimedia directors, such as Katie Mitchell. Developing

an extended script including floor plans and copies of the virtual backgrounds was a particularly beneficial resource for the actors. 'The [Telematic] Book' provided a clear way to navigate the production across both venues simultaneously, including the props, costume, sound effects, virtual backgrounds, scene changes and blocking. It acts as a clear aid for the director to manage the characters on stage across both venues, according to each scene. The development of new and the hybridisation of existing rehearsal documents are original approaches to telematic theatre and should be used by directors when producing telematic performance where conventional theatre practices cannot be applied to the telematic stage. I propose my future practice will include building on this rehearsal document 'The [Telematic] Book', into an open access resource which provides examples from the production of *The Nether* as well as blank templates which practitioners can utilise in their own productions for scripted plays.

As of January 2022, theatres are now reopening in England with limited Covid-19 restrictions and close to full audience capacity. The development and production of online performances are being superseded by a return to in-person performances. I believe that the production of full length plays performed telematically is a viable performance practice which I advocate can be successfully produced post-pandemic.



Figure 11. The cast and director for the telematic production of *The Nether*

Bibliography

Ascot, R. (1990). Is There Love in Telematic Embrace? Ascott, Roy. "Is There Love in the Telematic Embrace?" *Art Journal* 49(3), 241–47. [Online] Available at: <https://www.jstor.org/stable/777114> [Accessed on 21 August 2021].

Astragales (2019). Cold Blood. [Online]. Available at: <https://www.astragales.be/en/nos-spectacles/cold-blood/> [Accessed 25 October 2021].

Barnett, D. (2021) 'Brecht in Practice': Critical Reflections on Staging Drama Dialectically. *Contemporary Theatre Review*, 31(3), 266-285 [Online] Available at: <https://www.tandfonline.com/doi/full/10.1080/10486801.2021.1928653> [Accessed 2 November 2021].

Bean, H.R. (2007). Repeating Gertrude Stein: Language, Performativity, and Hypermediated Theater. *Text and Performance Quarterly*, 27(3), 168-193. [Online] Available at: <https://www.tandfonline.com/doi/full/10.1080/10462930701412312?scroll=top&needAccess=true> [Accessed 24 October 2021].

Boal, A. (2002). *Games for Actors and Non-Actors*. 2nd ed. London: Routledge.

Boddington, G. (2007) Virtual Physical Bodies – Serious Play in Birringer, J. et.al (eds) *Die Welt als virtuelles Environment*. 64-92. [Online] Available at: http://www.bodydataspace.net/bdsdocs/Boddington_TMA2007.pdf [Accessed 3 November 2021].

Boddington, G. (2021). The Internet of Bodies—alive, connected and collective: the virtual physical future of our bodies and our senses. *AI & SOCIETY*. 1-17[Online] Available at: https://www.researchgate.net/publication/349142264_The_Internet_of_Bodies-alive_connected_and_collective_the_virtual_physical_future_of_our_bodies_and_our_senses [Accessed 3 November 2021].

Body>Data>Space (2012a). "Me and My Shadow" premiere @ National Theatre/London [Online]. Available at: <http://www.bodydataspace.net/2012/05/me-and-my-shadow-national-theatre-london/> [Accessed 3 November 2021].

Body>Data>Space (2012b). Me and My Shadow. [Online]. Available at: <http://www.bodydataspace.net/projects/meandmyshadow/> [Accessed 3 November 2021].

Bouville, R., et al. (2016). 'Virtual Reality Rehearsals for Acting with Visual Effects'. *International Conference on Computer Graphics & Interactive Techniques*. Victoria-BC, Canada. 12th May 2016. Pp.1-8. Available at: <https://hal.inria.fr/hal-01314839v1/document> [Accessed 25 October 2021].

Brooks, P. (2010) Creating new spaces: Dancing in a telematic world. *International Journal of Performance Arts and Digital Media*, 6:1, 49-60, [Online] Available at: https://www.tandfonline.com/doi/pdf/10.1386/padm.6.1.49_1?needAccess=true [Accessed 3 November 2021].

César Garcia, P.S, et al. (2015). 'Distributed Theatre: Connecting (with) Remote Audiences.' *Proceedings of Workshop on Everyday Telepresence: Emerging Practices and Future Research Directions* (in Conjunction with the ACM SIGCHI Conference on Human Factors in Computing Systems) September 2014. Available at: <https://ir.cwi.nl/pub/23644> [Accessed 25 October 2021].

Crossley, M. (2019). *Intermedial Theatre: Principles and Practice*. London: Bloomsbury Publishing.

CU-SeeMe Development Team, 1998. *Cornell University's CU-SeeMe Page*. [Online]. Available at: <<https://ftp.icm.edu.pl/packages/cu-seeme/html/Welcome.html>> [Accessed 7 November 2021].

Delbridge, M. and McGowan, L., (2015). Green: Exploring the aestheticized use of chroma-key techniques and technologies in two intermedial productions. *Body, Space & Technology*, 14. [Online]. Available at: <https://www.bstjournal.com/article/id/6831/> [Accessed 25 October 2021].

Dixon, S. (2006) Uncanny Interactions. *Performance Research*, 11(4), 67–75. [Online] Available at: <https://www.academia.edu/18970053/Unheimlich> [Accessed 24 October 2021].

Dixon, S. (2007). *Digital Performance : A History of New Media in Theater, Dance, Performance Art, and Installation*. Cambridge: MIT Press.

Durland, S. (1987). Defining the Image as Place: A Conversation with Kit Galloway, Sherrie Rabinowitz, and Gene Youngblood. *High Performance* (37). Available at <http://www.vasulka.org/archive/Writings/DefiningImagePlace.pdf> [Accessed 24 October 2021].

ECafe.com (n.d.) Hole in Space, 1980. [Online] Available at: <http://www.ecafe.com/getty/HIS/index.html> [Accessed 2 November 2021]

ECafe.com (n.d.) Satellite Arts Project, 1977. [Online] Available at: <http://www.ecafe.com/getty/SA/index.html> [Accessed 2 November 2021]

Fairweather, R. (1998). *Basic Studio Directing*. New York: Routledge.

Faver, C. (2001). Toward a Digital Stage Architecture: A Long-Term Research Agenda in Digitally Enabled Theater. *IEEE MultiMedia* 8(4), 6–9. [Online] Available at: <http://gertstein-org.ideazzz.org/pdfs/u4artflo.pdf> [Accessed 24 October 2021].

Foster, J. (2014). *The Green Screen Handbook: Real-World Production Techniques*. 2nd ed. New York: Routledge.

Gorman, T. et al. (2020) Immersive Telepresence in Theatre: performing arts education in digital spaces. in Beaven, A. & Helm, F. (eds), *Designing and implementing virtual exchange – a collection of case studies*. Research-publishing.net, pp. 23-35. [Online] Available at: <https://research-publishing.net/publication/chapters/978-2-490057-72-6/1112.pdf> [Accessed 3 November 2021].

Haley, J. (2014). *The Nether*. London: Faber & Faber.

Hart, C. (1999). *Television Program Making: Everything you need to know to get started*. New York: Routledge.

Hedley, S. (2020). 'Be creative with your videoconferencing, make it memorable, it makes a difference' [Online] Available at: <https://blogs.brighton.ac.uk/creative/2020/04/21/be-creative-with-your-videoconferencing-make-it-memorable-it-makes-a-difference/> [Accessed 2 November 2021].

Kozel, S. (2008). *Closer: Performance Technologies Phenomenology*. Cambridge: MIT Press.

Kozel, S. (n.d.). Spacemaking: Experiences of a Virtual Body. [Online]. Available at: <http://www.art.net/~dtz/kozel.html> [Accessed 2 November 2021].

Larry Press (2013). A Hole in Space LA-NY, 1980 - mother of all video chats. Uploaded 6 December 2013. Available at: <https://www.youtube.com/watch?v=SyIJr6Ldg8> [Accessed 3 November 2021].

Masura, N. (2007). 'Digital Theatre: A "Live" And Mediated Art Form Expanding Perceptions Of Body, Place, And Community', PhD Thesis, University of Maryland, Maryland.

Maynard Smith, J. (n.d.) Nowhere [Online] At Home in Gaza and London. Available at: <http://athomeingazaandlondon.com/nowhere> [Accessed 26 October 2021].

Maynard Smith, J. (2020). Telematic Theatres: usable technologies and the dramaturgies of global space. *UKRI* [Online]. Available at: <https://qtr.ukri.org/projects?ref=AH%2FG015996%2F1> [Accessed 24 October 2021].

Mitchell, K. (2008). *The Director's Craft: A Handbook for the Theatre*. London: Routledge.

Moran, N. (2013). *Electric Shadows: An Introduction to Video and Projection on Stage*. Cambridge: Entertainment and Technology Press.

Mort, S. (2015). *Stage Lighting: The Technician's Guide*. 2nd ed. London: Bloomsbury Publishing.

National Theatre Education (2007). Attempts on her Life : Workpack. [Online] Available at: https://www.nationaltheatre.org.uk/sites/default/files/attempts_bkpk.pdf [Accessed on 3 November 2021].

National Theatre Education (2008). ...Some Trace of Her: Workpack. [Online] Available at: https://www.nationaltheatre.org.uk/sites/default/files/some_trace_of_her_workpack_final.pdf [Accessed on 3 November 2021].

Naugle, L., 1997. *Cassandra 1997*. [Online] Dance.arts.uci.edu. Available at: <<https://dance.arts.uci.edu/lnaugle/files/cassandra/performance1997/index.html>> [Accessed 12 November 2021].

Paulsen, K. (2013) Image as Place: The Phenomenal Screen in Kit Galloway & Sherrie Rabinowitz's *Satellite Arts 1977*. *Leonardo Electronic Almanac*, 19(2), 98-111. [Online] Available at <https://journals.gold.ac.uk/index.php/lea/article/view/96/74> [Accessed 24 October 2021].

Popat, S. (2017) Virtually Touching: Embodied engagement in telematic and virtual reality performance. In: Butterworth, J. and Wildschut, L., (eds.) *Contemporary Choreography: A Critical Reader*. Routledge. [Online]. Available at: <http://eprints.whiterose.ac.uk/125649/> [Accessed 2 November 2021].

Press, L. (2013). A Hole in Space - envisioning and demonstrating video chat in 1980. [Online] Available at: <http://cis471.blogspot.com/2013/12/a-hole-in-space-envisioning-and.html> [Accessed 3 November 2021].

Pulver, A. (2013). The Hobbit's Gandalf almost proved a greenscreen too far for Ian McKellen. [Online]. Available at: <https://www.theguardian.com/film/2013/nov/20/the-hobbit-gandalf-ian-mckellen-almost-quit-acting> [Accessed 26 October 2021].

Saltz, D. (2001). The Collaborative Subject: Telerobotic Performance and Identity. *Performance Research*, 6(3). [Online] Available at: <https://www.tandfonline.com/doi/abs/10.1080/13528165.2001.10871812> [Accessed 24 October 2021].

Scott, J. and Barton, B. (2019) The Performer in Intermedial Theatre, in Crossley, M. (ed.) *Intermedial Theatre: Principles and Practice* 62-89. London: Bloomsbury Publishing.

Sermon, P. (2003). Peace Talks. [Online] Available at: <http://www.paulsermon.org/peace/> [Accessed 2 November 2021].

Sermon, P. (n.d.). Various Projects. [Online] Available at: <http://www.paulsermon.org/> [Accessed 2 November 2021].

Sermon, P. (n.d.). Telematic Dreaming. [Online] Available at: <http://www.paulsermon.org/dream/> [Accessed 2 November 2021]. Sermon, P. et al. (2021) A Telepresence Stage: or how to create theatre in a pandemic – project report. *International Journal of Performance Arts and Digital Media*. [Online] Available at: <https://www.tandfonline.com/doi/full/10.1080/14794713.2021.2015562> [Accessed 31 December 2021].

Station House Opera (2014). Dissolved [Online]. Available at: <http://www.stationhouseopera.com/project/6194/> [Accessed 26 October 2021].

Steinberg, D. (2015). Actors and Visual Effects: How to Behave on a Green Screen [Online]. *The Wall Street Journal*. Available at: https://www.visualeffectssociety.com/wp-content/uploads/2015/06/actors_and_visual_effects_how_to_behave_on_a_green_screen_-_wsj.pdf [Accessed 25 October 2021].

Telematic LASER (2021) '@ the Crossroads ::: where do our bodies go from here?' 16 January 2021. Available at: <https://leonardo.info/civicrm/event/info?id=580&reset=1> [Accessed 16 January 2021].

Telepresence Stage (2021). About. [Online] Available at: <https://www.telepresencestage.org/about> [Accessed 2 November 2021].

Vogiatzaki-Krukowski, E. and Santorineos, M. (2011). Illusionistic Environments – Digital Spaces. *Body, Space & Technology*, 10(1). [Online] Available at: <https://www.bstjournal.com/article/id/6777/> [Accessed 24 October 2021].

Williams, D. et al. (2015) 'A Distributed Theatre Experiment with Shakespeare.' *Proceedings of the 23rd ACM international conference on Multimedia*. 13 October 2015. Available at: <https://dl.acm.org/doi/10.1145/2733373.2806272> [Accessed 25 October 2021].