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Original citation & hyperlink:
Gorman, T, Kanninen, M & Syrja, T 2019, 'There is a world elsewhere: rehearsing and training through immersive telepresence' Theatre, Dance and Performance Training, vol. 10, no. 2, pp. 208-226.
https://dx.doi.org/10.1080/19443927.2019.1610491

DOI 10.1080/19443927.2019.1610491
ISSN 1944-3927
ESSN 1944-3919

Publisher: Taylor and Francis

This is an Accepted Manuscript of an article published by Taylor & Francis in Theatre, Dance and Performance Training on 22/08/2019, available online: http://www.tandfonline.com/10.1080/19443927.2019.1610491

There is a World Elsewhere: Rehearsing and Training Through Immersive Telepresence

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Word Count 6819 (Including title and author)

INTRODUCTION

> "The best tool ever invented for improving communication is the table. Online tools aren't better than face-to-face contact, they're just better than nothing."
>
> (Shirky, Cited by Staines, 2010)

Telepresence (or telematics) is a process by which the participant can interact, life sized, with other participants in remote spaces by use of high-speed internet connections, differing from virtual reality in that it allows the user to access a real space in real time without being physically present. The history of artists using telematics for performance purposes stretches back to 1874 with Elisha Gray's 'Electro-Harmonic Telegraph', further developed in 1895 when Thaddeus Cahill created the 'Teleharmonium' for creating and distributing music using American telephone networks. These primitive systems, using technology still very much in its infancy, showed a desire for art and technology to combine and develop a stable system for creating and distributing work over vast distances. Of course, these early systems failed gloriously – the Teleharmonium even interrupted the workings of the New York Stock exchange eventually leading to the telephone companies refusing to support the equipment (Barry, 2017, p.134).

The key pre-internet experiment in telepresence came in 1980 when the artists Kit Galloway and Sherrie Rabinowitz created Hole in Space "the mother of all video chats" (Press, 2013, no pagination). For this, two large projection screens, one in the Lincoln Centre, New York and the other in Century City, Los Angeles, were linked using satellite technology. The work offered no explanation and ran over three consecutive days during which members of the public interacted and

family reunions occurred with participants returning every day to greet, chat and interact with friends both old and new.

Today, video communication has become ubiquitous in business, education and in our personal lives. In the performing arts, systems such as LOLA (Low Latency Audio) and Ultragrid have been enabling participants to play music together and conduct instrumental masterclasses across the globe. The Gertrude Stein Repertory Theatre and Stationhouse Opera (to name but two) have created performances combining live actors with remote participants projected onto the stage but, in theatre rehearsal and actor training, these systems are rarely utilised.

The Immersive Telepresence in Theatre project began in 2016 as an online course conducted between Coventry University in the UK and Tampere University in Finland. Since that starting point, the project has evolved into an ongoing research project, using a variety of telepresence technologies and web-based applications to investigate actor training, rehearsal, education and performance.

Initial project discussions between both institutions began in 2015 with the desire to explore the text of Shakespeare's *Coriolanus*. As Tampere academics had expertise in theories underpinning acting in a foreign language[1] and Coventry staff had strong connections with directing and performing

[1] Acting in a Foreign Language is a long-running research and pedagogical work in the Degree Programme in Theatre Arts in University of Tampere, where a foreign language has been used as a tool for expanding the possibilities of the acting student's speech, voice and body when the student is estranged from the habits intertwined in speaking the mother tongueWhen acting in a foreign language, the symbolic significance of the words can lose its strength and the

Shakespearean text, it was decided to examine the play in both a Finnish translation as well as the original English blank verse. The acting students would be trained in coping with the rigors of acting in Shakespearean verse, characterization and interpretation of the text. As we had no idea what we could expect within this space there was always the notion that we would have to adapt our own teaching/training styles to work within what was then a 'theoretical space'. The primary challenge the team then faced involved delivering a series of practical workshops, contextual lectures and seminars to participants that were approximately 2555 kilometres apart. Traditionally, when conducting international collaborative work of this nature, one group of students travels to the other location to participate in workshops and rehearsals - a process that is costly, time consuming and ultimately environmentally unsustainable - so a digital solution to this problem was required. Indeed, during one single iteration of the project (Coriolanus Online) we calculated that we had saved 11.8 Tons of CO2e by eliminating student travel from Coventry to Tampere.

TECHNICAL CHALLENGES

Various methods for enabling collaborative rehearsal work on both sites were investigated during the planning stages of the project, but all were found to be inadequate for rehearsal and training. Traditional video-conferencing software such as Skype, Google Hangouts and business conferencing telepresence devices were found to be limiting for performance and rehearsal work in

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corporeal level of meaning of the language and the material/musical quality of the voice are accentuated. The actor perceives the text written in an unfamiliar language more through aural and visceral senses and kinaesthesia, i.e. as speech sounds and embodied figures (cf. Syrjä 2007).

terms of image, sound quality and, most importantly, latency. Consumer friendly software, although adequate for small one-on-one conversations, is problematic when it comes to coping with larger groups and most of these devices/software applications when tested on larger screens pixelated the image to such an extent that it was difficult to discern any facial expression. Also, because the image quality of these systems/software applications is optimised for laptops and smartphones, increasing the size through projection meant rapid movement often created a 'ghosting' effect.

Another difficulty that occurs when working with telematic systems over large distances is the phenomenon of latency and echo feedback. Even in basic Skype conversation, information is transmitted through a firewall, the Internet and many miles of cable and switches, all of which delay the signal, which (though rapid) does not travel from location to location immediately. Each byte of information, audio and video, has to queue (along with conventional internet traffic) passing through the many switches and routers that connect each nation. The delay means that the original signal is eventually transmitted back to the sender, creating the distracting effect of hearing their own words repeated. Systems such as Skype use 'noise gate' software which prevents users from talking at the same time but can be problematic for group vocal activities or rapid-paced dialogue exchanges. In performance work which requires synchronicity this disconnect can be incredibly off-putting for a performer.[2] Digital sound systems also need to process the audio into an analogue signal for output through speakers which, once again, adds additional latency.

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[2] These phenomena became apparent to us for the first time during *Coriolanus*. As the Coventry students were located in an acoustically problematic space which created a multitude of echoes that the Polycom echo cancellation software could not cope with. As a result, the actors in Tampere experienced an 'echoing' of their own lines at a slight delay. As we were new to working with these systems, it was not until we brought this problem to experts in JISC and GEANT that we were able

As a result of this, the team had to become familiar with the twin concepts of bandwidth and latency.[3] Since both rehearsal locations in Coventry and Tampere were part of academic institutions that have high-speed bandwidth connections, the challenge was to persuade institutional technicians in both locations to allow the project to exist outside the normal campus firewalls - in essence travelling along a side road free from the usual university traffic. The methodology we were advised to adopt by experts from JISC known as 'Science DMZ Networking', is commonly used by academics working with 'big data' and high-performance applications and allows data to be transmitted without the usual campus restrictions, all of which can impede the smooth transmission of information.

It became increasingly important for the team to understand the basic principles of how networks perform in order to understand how to construct the actor's training and the course in general. Several months between the initial meeting in Tampere (June 2015) and the eventual series of workshops (Jan/Feb 2016) were spent in consultation with technologists and education specialists

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to determine what was causing this peculiar phenomenon and rectify it for the next incarnation of the project. JISC (Joint Information Systems Committee) is the provider for the high-speed JANET network for the UK research and education community. GEANT is the overall joint European data network for research and education.

[3] In layman's terms, if we look at the internet using the metaphor of a road, bandwidth would represent the number of lanes traffic has to travel along this road. The more lanes the road has, the more vehicles can travel at speed on the road. Latency could be seen as the length of the road - the further the vehicle has to travel, the longer it will take to arrive at the destination and return to the starting point. Latency (at this point in time) cannot be overcome. Even in an ideal situation (fibre optic cables in a vacuum) light travels at 299791.819KM/s.

exploring what would be possible in terms of constructing an experience as close to an actual series of 'physical' rehearsals/classes as possible within this digital setting.

Inspiration for the set-up of the rehearsal space was provided by a Coventry colleague, Joff Chafer, who had been developing theatrical collaborations using the online virtual world, Second Life. Chafer had collaborated with performance artist Stelarc and technologist Ian Upton on an installation located at the Herbert Art Gallery, Coventry, in 2012, entitled *Extract/Insert*, which attempted to bridge the two worlds of the real and the virtual, with large rear projections (onto which a scene from Second Life was stereoscopically projected) (Kuska, I. And Childs, M. 2014, pp135-6). Taking inspiration from the scenic arrangement of the piece, the team arrived at the idea of creating two identical spaces, one in Coventry and the other in Tampere, each with a large rear projection screen displaying an image of the other room. The spaces would be linked using H.323 video-conferencing technology and a unified spatial design mirrored in both locations. Careful use of lighting and directional sound was integrated into both spaces to give the student actors the illusion that they were occupying the same location. The fixed placement and fine tuning of the cameras and projectors enabled the participants to have the semblance of making eye contact with each other – an absolutely vital factor in rehearsal work.

Figure 1

The bulk of the technology (apart from the camera and the microphones) was concealed behind both screens with the intention of making the process resemble a conventional theatrical rehearsal

as much as possible. As this was also a traditional academic course, a variety of tools were used to support the work in the main rehearsal spaces. A Facebook group was created to assist with scheduling as well as to share research and visual materials, and the web conferencing/presentation tool, Adobe Connect was used to provide a series of contextual lectures (delivered in English by both Finnish and English academics) on Shakespeare, Renaissance theatre, Finnish theatre history and the key theories underpinning acting in a foreign language.

Figure 2

Students were divided into six groups, each working on *Coriolanus III:iii* in both Finnish and English, and each group was given their own Adobe Connect 'room' to continue rehearsals and peer-to-peer learning outside the main space. The characters of Coriolanus and Cominius were taken by Tampere acting students and the opposing side of Brutus and Sicinius (and Roman Citizens) were performed by Coventry students.

The Coventry actors were eventually located in a disused wind tunnel, whereas the Finnish actors were situated in a traditional theatre studio space. Each day commenced with a one-hour workshop/warm-up for the whole group in both locations before the groups were split up for individual scenes. Each group had one hour per day working on their scenes in the main 'immersive room' and then continued to develop this work in their group's Adobe Connect room. The week ended with a sharing of the scenes for an invited audience in both Tampere and Coventry.

Figure 3

FIRST STEPS: CORIOLANUS ONLINE (2016)

> The new telematic systems of computerised communications are giving rise to a new, felt quality of human presence, a fascination with presence, an eroticism of presence. Simply put, this is a quality of being both here, at this place, and also there, in many other places, at one and the same time - both here-and-there or here-or-there, simultaneously or asynchronously. The play is with presence, place and time - the intermingling of presences, of space and time. This is a strange experience, new in the repertoire of human capabilities. (Ascott, 1991, p115-7)

Ascott, in 1991, theorised about how artists could collaborate using what was then a relatively primitive technology. Working within a system as unfamiliar as this can lead to a sense of disorientation - the participant essentially occupies three spaces at the same time. They are present in their home space, present in the remote location and are, simultaneously, mediated through their appearance on the screen. Paulsen (2017, p10) discusses this problem in relation to the 'physical, phenomenological status of the user's body and where, exactly, it is'.

The initial difficulty we encountered in trying to work in this 'telemetric space' was attempting to mimic the structure of a 'normal' theatre rehearsal. The first day of *Coriolanus Online* began encouragingly with a class on Finnish folk dancing conducted by Samuli Nordberg which, as a test of the system, demonstrated that almost synchronous activities could indeed be conducted: *(https://vimeo.com/288143093 - Folk Dancing Session Finland View,*

https://vimeo.com/288143274 - *Folk Dancing Session Coventry View)* Although there was a slight delay between both groups (just over a second), it was no more than one would expect from students being exposed to unfamiliar choreography for the first time.

Figure 4

It was when we approached the scene work that our unfamiliarity with the system began to produce unexpected results. On both sides of the screen, we had marked out floor areas with tape, not only to show the actors when they were 'in shot', but also to indicate where they should stand in order to appear 'life sized' to their opposing performers. The scene chosen in which Coriolanus appears before the Roman citizens in the Forum and is eventually exiled, was selected because it has a clear set of opposing sides in both situation and dialogue. Two boxes were marked out on the Finnish side, giving clear areas for both Coriolanus and Cominius, with a third (smaller) box in the centre for both characters to directly address the Roman people.

Figure 5

The initial sessions on this scene, using methodologies adapted from Cicely Berry's 'Text in Action' (2001), Kristen Linklater's 'Freeing Shakespeare's Voice' (2010) and Patsy Rodenburg's 'Speaking Shakespeare' (2005), focused on text, rhythm and meaning. Actors engaged in exercises to 'beat out' the iambic rhythm and some level of 'translation' of the text was explored through discussion and scene work. However, it was clear that although the initial dance session demonstrated that the students were engaging with this unusual space as a unified group, this more

traditional approach to working on Shakespearean text was not functioning as effectively as it would in a more conventional rehearsal room. Although students were enthusiastic about the process, the work seemed to lack any real sense of connection with the material. There also seemed to be both an emotional and intellectual disconnect between both groups of performers.

> I was quite sceptical at first to have a course like this with half the group being in England, but it turned out really cool. Of course, it was impossible to direct your words at a specific person on the other side, because when you're looking at the camera it looks like you're looking at the whole group on the other side. So, having this contact was a little difficult at first. Also, having a small delay in the connection made it a little difficult.
>
> Oliver Kollberg, Tampere Acting Student (2016)

Although the performers had been instructed to ignore the camera and the technology, they had also (in a move that now seems counter-intuitive) been advised to position themselves within the taped-off 'acting areas'. This approach seemed to restrict any sense of exploration of the scene by performers and the work was in danger of becoming merely a functional examination of Shakespeare's text rather than an exploration of how these texts could adapt to this new medium. As all six groups were working on the same material, there was a temptation by the tutors to repeat any small success in one group with the next which was starting to make each session rather repetitive and formulaic.

For the second day of workshops, a new approach was taken (after a hasty online discussion between the tutors). Instead of ignoring the camera, microphones and screen, the students were now given the freedom to play with the technology. A new set of 'given circumstances' were given to the performers:

> It was really interesting once we were doing the scene and we were honest to the situation that there is a camera and maybe this is a broadcast or something, or some kind of interview or anything. It made it really small - the distance - after that. You could really feel the connection through the camera.
>
> Elina Saarela, Tampere Acting Student (2016)

Instead of pretending that both sets of actors were occupying the same physical space, no attempt was made to 'make-believe' that the opposing performers were physically present. Essentially, the actors were asked to explore a new scenario - that these rooms were not actual physical spaces, that Coriolanus and Cominius were communicating with the senate and the Roman mob via video-conferencing and that if they were to move closer to the camera and the microphones their image and voice would naturally increase in size and volume. The actors were to become their own camera operators.

Shobana Jeyasingh has speculated on how the relationship between performers is subtly altered by the use of telematics:

> Certainly a new type of post physical experience of our fellow human beings has crept up on us. It doesn't necessarily invalidate the real time real space communing but it is of a different quality and intensity. It has different conventions and a different quality of intimacy – perhaps a more disposable kind?
>
> (Jeyasingh in Boddington, 2010)

The actors needed some sense of how to engage with this new method of rehearsing and performing. The essential questions of 'Where am I now? What do I do with the objects around

me?' (Lutterbie 2001, p7) had been overlooked in our initial approach to working within these spaces. Although Glesner is specifically referring to telematic performance (as opposed to rehearsal), she hits on a feature of this work that we accidentally discovered through acknowledging these technological structures in our rehearsal spaces:

> Telematic and distributed performances dissolve the spatial (but not the temporal) unity between performers and spectators and distribute the scenic space into diverse remote sites… The three-dimensionality of the performers' bodies and of space are represented two-dimensionally on the PC or a surface serving as projecting screen… Telematic performances in general redefine the role of space in performance with telepresence both as an emerging model of corporeality and as spatio-temporal structure. Telepresence as a specific form of embodiment replaces real proximity between the performing and perceiving bodies with their visual representation and, thereby, transforms the role of the physical performing body in performance art.
>
> (Glesner, 2002, no pagination)

Another factor that began to change the nature of the interactions between the performers in the main telepresence space was the independent work carried out by the students in their individual Adobe Connect 'rooms'. As previously stated, each scene group had their own individual 'room' using this video-conferencing software to develop work started in the main space, run lines together and work on pronunciation of both Finnish and English words. As the week progressed, the tutors noticed that the students had become more comfortable in working with each other in the main space. During the first two days, outside the scene work, social exchanges between the performers on both sides tended to be rather functional, mostly an exchange of schedules or technical queries.

As we reached the midpoint of the course, we noted that these exchanges had become more informal - students were now sharing jokes, playing with the camera (often attempting to pass objects from one space to another) and experimenting with the material.

The team came to the realisation that these additional spaces (Adobe, Facebook) were functioning as unofficial ‘green rooms’ for the group. In any rehearsal or practical process, no matter what the medium, especially when bringing a group of performers together who have not worked with each other before, a number of traditional exercises are typically used to get a group comfortable with working with each other. As well as established exercises, many of which were attempted in the telepresence rooms with varying degrees of success, there is also the social aspect - the coffee break, the post-rehearsal drink and the exchange of experiences outside the rehearsal space. These moments build a sense of community amongst a group of performers.

> With theatre, you need to have some connection, to get to know the people you’re acting with. You’ve got to get used to them, to get used to their mannerisms, their rhythms, because you’ve got to do a performance together - you’ve got to be able to connect in some way with that other person. Having Adobe Connect works as a place where we can just talk to each other - about how the rehearsal went, what we’ve all learned from today. We had a conversation with our Finnish counterpart (Miko Jaakkola) the other day and he just started playing the saxophone for us. It was incredible - we didn’t know he could play the sax until then... It made the experience more personal for me.
>
> Amy Middleton, Coventry Theatre Student (2017)

The question (which we would develop in subsequent iterations of the project) became how do we create most of the sensations and activities of a traditional rehearsal experience over a distance? For actors, the experience of working within a telepresence space with co-performers that they have never physically met and who speak a different native tongue, can be initially rather alienating. The Adobe spaces became the places where the actors repurposed these online tools for social interaction. Somewhat paradoxically, the local becomes central to international work such as this. At the conclusion of the Coriolanus Online course, several students from Coventry and Tampere even used their Adobe room to have a 'virtual beer' together with some students sitting in their homes and others on phones in bars in both cities.

Figure 6

> "We came into these sessions not knowing what to expect, thinking 'what could be happening?' It was just a really creative environment. We had people coming in to do workshops - just testing boundaries... It was just a playground almost - to try and experiment, to see what was fun and what worked and what didn't. It was a lot of tweaking - Coriolanus - trying to perfect something that was so new to us all. But it was just fun - there wasn't a lot of sitting down and fine tuning the system to the point that it was tedious… We made friends and had actual conversations outside the work."
>
> Steve Arnold, Coventry Theatre Student (2017)

One session that proved especially enlightening was a warm-up conducted by Joff Chafer on the second last day of the project. The concept of this session was to explore a series of traditional theatre games and examine how they operate in the telepresence space. As the performers do not occupy the same physical space, the team had no concrete notions how games that involved group synergy could function in this particular space. The morning started with an energy circle/concentration game (a favourite of Coventry students) called 'Whoopah'. The purpose of this game is to pass a 'whoopah' around the circle by making eye contact and pointing across the circle. With half of the circle in Coventry and the other half in Tampere, the idea of eye contact proved difficult at first until the students themselves adapted it, adding the calling of names to make it clearer where the 'whoopah' was being sent: (https://vimeo.com/288143765). It now became apparent to the team that the students were adapting to the peculiarities of working in this space and had started to take ownership of the shared telepresence space.

Finally, there was an experiment with group dynamics that provided some really unexpected results for the team:

(https://vimeo.com/288144288 - Shared moment of Silence, Finnish view
https://vimeo.com/288144465 - Shared moment of Silence, Coventry view)

During the Coriolanus Online rehearsals, which suffered from long latency times that sometimes caused an 'alienating effect', we noticed that silence was an important way to create the sense of a commonly shared space. This was demonstrated in the warm-up game (in the video clips above), where the students quietly walked around the space with no leader and together found a collective

moment when they slowly fell down on the floor all at the same time. This shared virtual silence was a powerful experience in contrast to the constant bombardment of stimuli which we are often used to in virtual environments. As an exercise in group dynamics, the result it produced was both unexpected and encouraging – there did indeed seem to be a sense of 'group energy' even though the participants were geographically distant. Also, on other occasions, the team perceived that when the students were sitting or lying on the floor and were in a better contact to the materiality of that surface, the sensation of the continuation of the shared space was reinforced through the optical illusion created by the camera placement.

These sensations of materiality and physicality are important in telepresence rehearsals, acting in opposition to the domination of the screen which can lead to exclusively frontal acting and to the objectifying, distancing gaze which tempts the co-actor to see their opposite mainly as a two-dimensional, flat reflection on that projection surface. Here games and the students´ own will to investigate the possibilities of these techniques became vital to the exploration of what can be achieved within this space.

In telepresence rehearsal, the problem is, of course, not the vision itself but the quality of it and the possible weak interaction between the performer's sight and the other senses. Architectural theorist Pallasmaa (2005, p25) asserts: "Vision separates us from the world, but the other senses unite us with it." As a remedy to the "ocularcentrism" which might produce estrangement, Pallasmaa (2005, p10) recommends hapticity and peripheral unfocused vision, which enfolds the subject in the space and 'envelops us in the flesh of the world.' He also suggests focusing on hearing which can structure the experience and understanding of this new space (Pallasmaa 2005, p45).

KING LEAR ONLINE (2017)

> "Our bodies seem 'irrelevant' because, by the power of our minds coupled with networked machinery, we can functionally be in two places at once, something bodies - by their very nature - are not able (at least not yet) to do… But if all our information about our selections is inherently mediated - distanced from the body and its direct sensory apparatus - will we accept without question the reality of our selections and their effects on those bodies that lack the privilege of disembodiment?'
>
> (Paulsen, 2017, p10)

Encouraged by the results achieved during Coriolanus online, for the second iteration, the team approached the project with a more focused research question - how can this system be utilised to support and develop live performance? This time the intention was to follow up the week of online rehearsals with a further week of live rehearsal in Tampere, culminating with a performance in which we would simulate the conditions of a renaissance thrust stage. On this occasion, a variety of scenes were chosen for exploration,[4] from large, group scenes, to smaller, more intimate ones focusing on exchanges between two performers. The Coventry students, now in their third year,

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[4] I:i in which Lear divides his kingdom and exiles Cordelia (Lear, Gloucester and Edmund on the Coventry side, the daughters and Kent in Tampere; I:iv Lear, Goneril (Coventry), the Fool(s), Tampere; I:v Lear, Goneril, Cornwall (Coventry), Regan, Gloucester (Tampere); IV:vi Gloucester (Tampere), Edgar (Coventry); IV:vii Cordelia, Kent, Doctor (Coventry), Lear (Tampere).

were the same group that had participated in Coriolanus Online whilst the Tampere students (first years) had no familiarity with the system beyond what they had heard from fellow students.

The technology and physical arrangement of the rehearsal space had also been refined over the year. Both groups were now situated in acoustically dampened rehearsal studios to avoid the echo feedback experienced in the wind tunnel, the screens shared a 16:9 aspect ratio rather than the 4:3 we used the year before giving us the ability to have a wider space for the performers to work in, and the network configuration had become more sophisticated. The latency between both spaces was now in milliseconds rather than the delay experienced during Coriolanus Online.

> **"**I think the project has become a lot more refined since Coriolanus. I think now we felt that we could just focus on the scenes. I think a huge difference is not just working through the screen but now actually having an end goal to it. Performing live in Finland, like we are now, is something to build towards in the rehearsal sessions. Especially mine and Santeri's scene - it was very difficult one to try and stage through the technology. This gave us something to build upon from the online rehearsal sessions."
>
> Steve Arnold, Coventry Theatre Student (2017)

Again, the structure of the course mirrored the previous incarnation with morning workshops and warm-ups followed by individual scene work, all supported by contextual lectures in Adobe Connect and, again, each group had their own Adobe spaces to continue to develop the work without tutor supervision.

In contrast to *Coriolanus´* confrontational scene which tempted some of the students to think that the students on the other side were far away and thus increase the volume of their voices, in *King Lear,* the team wanted to see if a sense of softness and intimacy could be generated between the actors on both sides of the screen. The obvious problem with this is that the actors can't physically touch each other so contact has to be simulated through asking the actors to look at the camera instead of the eyes of the actor on the screen. This notion of touch needed to be explored and expanded.

In the multifaceted field of touch, two dimensions can be recognised: immediate touch, which refers to concrete, physical touch, and deep touch which is both metaphorical and mental (Paterson 2007, p1-5). When acting in a digital environment, the lack of the immediate touch of the hands and the skin must be replaced by other sensory means, for example by the tactility of the voice or the touch of the eyes. And of course, some element of make-believe was needed.

When speech and voice are understood as something material which can be sensed and touched, their function is not just to convey meaning but to make an embodied connection with the other. Our ability to empathise aurally/kinaesthetically with the speaker's body allows us to receive the other's body through the voice inside our own bodies. This is what Ronald Barthes (1985, p184) in his seminal essay of the same name calls 'the grain of the voice', which exceeds meaning and establishes an affective relationship between the body of the one who vocalises and the listener. In short, the grain is the 'body' in the voice. Thus, the touch of the other body can be felt even without concrete, immediate contact because it can be mediated through the vibro-tactile qualities of the voice.

According to Pallasmaa all the senses, including vision and hearing, can be regarded as extensions of the sense of touch - as specialisations of the skin:

> "We could think of the sense of touch as the unconscious of vision. Our eyes stroke distant surfaces, contours and edges, and the unconscious tactile sensation determines the agreeableness or unpleasantness of the experience. The distant and the near are experienced with the same intensity, and they merge into one coherent experience."
>
> (Pallasmaa 2005, p49)

Therefore, during the rehearsal period, students were encouraged to experiment with the space, using proximity and distance from the camera to examine how the screen could act as a tool for exploring the themes and characters within the scene rather than literally 'blocking' the action. Two moments in particular stood out - IV: vi in which Edgar leads his blinded father, Gloucester to the top of an imaginary cliff and scene vii from the same act in which Lear is reunited with Cordelia.

Both of these scenes require physical contact between the actors - Edgar is literally leading his father by the hand here, a purse is given in payment and Edgar (in yet another guise) helps his father to his feet after he has 'fallen'. In the Cordelia scene, there are many references to physical interactions between the two characters 'Hold your hands in benediction over me', 'Be your tears wet?' that are easily explored in a conventional rehearsal space, but which require another approach when both actors are physically separated by a screen.

Figure 7

In the Gloucester scene, Shakespeare uses the conventions of the Renaissance stage to play tricks with the imagination. In actuality, neither character is anywhere near a cliff, yet the image of vertiginous height is placed into Gloucester's mind (and the audience's) though the use of language and physicality of both performers:

EDGAR: Come on, sir; here's the place: stand still. How fearful

And dizzy 'tis, to cast one's eyes so low!

The crows and choughs that wing the midway air

Show scarce so gross as beetles: half way down

Hangs one that gathers samphire, dreadful trade!

Methinks he seems no bigger than his head:

(King Lear: IV:vi 11-16)

Since Shakespeare's plays were mostly performed in situations (open air, daylight) that did nothing to persuade an audience of these prevailing conditions at that moment in the play, actors had to imagine the situation so the audience could evoke their own imagination and empathise together with the situation within the scene. The effectiveness of this scene depends on the power of make-

believe. As Gloucester comes to believe that he is indeed standing on the edge of a precipice, the audience may also begin to doubt where the scene is actually located:

(*https://figshare.com/articles/King_Lear_Act_IV_Scene_VI_Rehearsals_first_session_Lear_Online_2018_/6714407*).

As Jan Kott states in his essay on Lear (Kott, 1964) the dialogue itself provides stage directions:

GLOUCESTER: Set me where you stand.

EDGAR: Give me your hand: you are now within a foot

Of the extreme verge: for all beneath the moon

Would I not leap upright.

GLOUCESTER: Let go my hand.

Here, friend, 's another purse; in it a jewel Well worth a poor man's taking:

Fairies and gods prosper it with thee! Go thou farther off;

Bid me farewell, and let me hear thee going..

*(*King Lear: IV:vi 25-31*)*

The scene itself only makes sense if played on a blank stage. All these requirements of make-believe are what empowers the performer in a telepresence space. It can be argued that this is the

one contributing factor as to why our experiments were successful with acting students. This scene depended on their artistic capability of applying make-believe to these conditions of reality that were not in any way perfect or believable. The medium is a metaphor for the image at the heart of the scene. Edgar can play with Gloucester through manipulation of what the technology does/cannot do. These telepresence workshops gave acting students a whole new platform to train their abilities to adapt to unusual kinds of performing circumstances.

In the field of performer training, the imaginative and transformative ability of the student has always been prioritised. Stanislavsky talks about the given circumstances of the play that are set before the character. Examples in the history of acting theory are numerous - Michael Chekhov stressed the actor's imagination in his theories and Stella Adler emphasised imagination rather than experience. One could state that actors are and have always been professional public imaginers of imagined things.

In our work on the scene, the actors had to come up with new ways of evoking the feelings of blindness, of height. In a conventional rehearsal space, these problems are easily overcome - one would simply blindfold the performer playing Gloucester to give him the sense-memory of being led - but since both performers are separated by the screen, a more experimental approach was needed. As the sound used in the telepresence space is directional, we eventually threw a coat over the camera in the Coventry side, effectively blinding the Tampere performer. The actor playing Edgar then had to lead Gloucester round the Tampere space by delivering his lines directly into the microphones and observing the other performer's movements. In this way, the actor playing Gloucester was able to make-believe in his blindness and the stage illusion whilst still maintaining contact with an actor over a thousand miles away.

The tactility of the voice its relationship to vision were examined further in IV:vii where Cordelia is reunited with her now broken father. Sound and touch meet at the notion of membrane: that which divides us from others but at the same time links us to others, for our skin is the membrane which permits us to sense one another on the most intimate levels (Bonenfant, 2008, no pagination). The resonance of the vibration of the sound can be felt in our bodies and the membrane of our ear-drum moves with the touch of the airwaves.

The performers of this scene managed to create an impression of intimacy by using the possibility of altering the scales on the screen so that Cordelia became literally much bigger than King Lear. The result resembled an image from a fairy tale. The close-up of Cordelia worked as in film: in reality, we let only those people that we trust get that close to our face. The magnified expression of tenderness on Cordelia's face helped to create an illusion of intimacy. The actors also raised their hands in an attempt to touch each other. The screen worked here like a second skin, a membrane that both divides the actors and yet enables them to reach for the other, a membrane outside of the skin-membrane. One sign of intimacy (touch) is replaced with another (sight). The membrane of the screen could be touched with the unfocused vision and the voice of the actors.

Figure 8

> 'We were talking to our Lear (Miko) earlier and we were talking about how difficult the scene is emotionally. My Character is trying to connect with her dad and there is a literal wall in the way - they are in completely different places which the screen really serves to highlight for us.

> Having the screen makes it worse for my character because she literally cannot get to her dad to comfort him physically. Both characters feel completely isolated... I was looking straight down the camera at him and he was looking straight down the camera at me and I felt like we were so connected yet so distant at the same time. It was such an odd feeling as a performer as I didn't really see the camera at that moment. And that's one of the challenges of having the camera there.'
>
> Amy Middleton, Coventry Theatre Student (2017)

Positioning the body close to the camera and thus alternating between film and stage acting seemed to help the actors move from optic images to what film theorist Laura U. Marks (2004) calls haptic visuality. The actor performing King Lear could focus intently on his fellow performer and move his eyes across Cordelia's face and hand like organs of touch attempting to be in closer contact with her: (https://figshare.com/account/projects/35627/articles/6729071).

In the liminal space of touch, one becomes aware of being close to but also separate from the other. In touch, there is always something present which is not touched, something that you can never reach. Maybe the experience of this quintessential impossibility of touch and the acknowledgement of being always an "other" is actually what 'touches' us emotionally and mentally. This can be noted in the melancholy of the scene between Cordelia and her father. The need to overcome the peculiar qualities of distance experienced in telepresence acting connects us to what Harri Laakso calls the 'technology of yearning'. The telemetric experience makes the distant things forcefully and sometimes painfully present. That leads us to a world "where the virtual is no longer anything remote, where distance is something we can touch" (Laakso, 2018, pp181-211).

CONCLUSION

Telepresence technologies may provide the tools to connect us around the globe, but they do not provide us with the pedagogical or artistic tools to be successful with those connections. These tools need to be developed by the performer and the acting pedagogues themselves. As universities around the world move their studies and pedagogic spaces more and more to the digital world and online sites, work of this nature requires new pedagogical thinking, research and curriculum development. In this enormous task, performer and actor training can be a useful research tool and "sounding board" since performing students have a naturally inquisitive and experimental attitude to new approaches and technologies. The future development of this project will continue to explore how this system can enable performers and students to collaborate and rehearse over distances, how the sense of touch and proximity can be simulated within the limitations of the screen and, of course, to give the participants the benefits of international collaboration and teaching without the expense or environmental cost of travel. The question of how we can train performers within this familiar yet unfamiliar space is yet to be fully addressed in our work – indeed, we are only at the beginning of the process of exploring this question. This pedagogic model opens up the possibility of new models of learning, not just learning mediated by teachers, but also through peers in collaborative online theatre workshops conducted across the globe.

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http://telepresenceintheatre.coventry.domains