

Itamar

REVISTA DE INVESTIGACIÓN MUSICAL: TERRITORIOS PARA EL ARTE



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7

 Facultat de Filosofia i Ciències de l'Educació



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Performing arts and mediation technology in the period of lockdown

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Abstract. Advancements in digital technologies have become novel ways to enrich communication, expression, and transmission of arts knowledge. Technology is increasingly implemented in the performance space, as a source of inspiration for artists. Especially in this period of lockdown, mediation technology has turned out to be an essential tool for different aspects of social life, as in performing arts. With venues, schools and artistic activities closed, performers, students and spectators have been obliged to keep connecting in remote conditions.

This article wants to retrace the aesthetic impact of mediation technology in performing arts during this period of lockdown by focusing on the aspects that induced advancements of strategies for the transmission of performing arts. The goal is to illustrate the potentialities as well as the challenges of the art-technology encounter by underlining the transformation of the interaction with and perception of the performance space in remote conditions and in distance learning. The implementation of digital technologies is contributing to the evolution of the performing arts sector by facilitating futuristic approaches.

Keywords. Performing arts, Technology, Performance Space, Interaction-Perception, Distance learning.

Resumen. Los avances en las tecnologías digitales se han convertido en formas novedosas de enriquecer la comunicación, expresión y transmisión del conocimiento artístico. La tecnología se implementa cada vez más en el espacio escénico, como fuente de inspiración para los artistas. Especialmente en este período de encierro, la tecnología de la mediación se ha convertido en una herramienta esencial para diferentes aspectos de la vida social, como en las artes escénicas. Con recintos, escuelas y actividades artísticas cerradas, los artistas, estudiantes y espectadores se han visto obligados a seguir conectándose en condiciones remotas.

Este artículo quiere volver sobre el impacto estético de la tecnología de mediación en las artes escénicas durante este período de bloqueo, centrándose en los aspectos que indujeron los avances de las estrategias para la transmisión de las artes escénicas. El objetivo es ilustrar las potencialidades, así como los desafíos del encuentro arte-tecnología, subrayando la transformación de la interacción y la percepción del espacio escénico en condiciones remotas y en el aprendizaje a distancia. La implementación de tecnologías digitales está

contribuyendo a la evolución del sector de las artes escénicas al facilitar enfoques futuristas.

Palabras clave. Artes escénicas, Tecnología, Espacio de actuación, Interacción-Percepción, Educación a distancia.

1. Introduction

The digital revolution is boosting innovations across our contemporary culture contributing to the social transformation and leading towards new ways of thinking and placing artistic practice. Especially in this period of social distancing due to the COVID19 outbreak, the main challenge for artists and performers has been to reformulate their performative strategies to work and dialogue through the virtual space of digital networks (Carel et al. 2020). These restrictions also implied activities of distance learning. Therefore, human-machine mediation became a challenge especially in relation to the difficulties of managing physical contacts in arts practicing and learning. The timeless and empty virtual context of the wireless condition brought bodies to lie in an ambiguous absence/presence relation (Pitozzi 2011), where communication is possible with the mediation of a screen. This challenge induced performers to reformulate their expression and interaction, especially in playing, dancing or acting in ensemble at a distance, from different locations, via an Internet connection. Performing in a virtual environment mediated by technology turned to be, in this way, a new territory of experimentation.

What has been the impact of confinement and virtual communication mediated by technology on the artistic and learning process of performing arts?

How does distance learning change the traditional approach of the offline/local lesson in terms of physical interaction and transmission of artistic knowledge?

Can this challenge become an opportunity to potentiate performing arts practice and learning in the digital environment?

On the basis of these questions, this paper wants to retrace some aspects that characterized performing arts during the recent lockdown. The goal is to reflect on how performing arts changed in distant conditions in terms of corporality interaction, presence/absence of bodies and use of technology.

This article will focus on the fields of physical experience and transmission of knowledge in performing arts during this recent lockdown to address and explore the following aspects:

- performance space and mediation technology
- distance learning

First, the concepts of performance space will be explored in relation to mediation technology and distance learning. Second, the possible creative role of technological interaction in performing arts will be examined.

Imagining future scenarios that will necessitate reiterating social distancing, new approaches, systematic methods and competences on the application of technology in the performing arts creation and transmission of arts knowledge need to be envisaged.

2. Performance space and mediation technology

Performances usually take place on stage in theatres or concert halls with the physical presence of an audience. The space where a performance is executed implies different modalities of perception both by the performers, who are the “actors”, and by the spectators, who are the receivers. From this double perspective, the performance space concerns three different dimensions (Bourgeau, 2006; Jensenius, 2007):

- 1) an objective dimension, i.e. the physical space in which a performance takes place (e.g. a practice room, a concert hall, a theatre, etc.);
- 2) a subjective dimension, i.e. the physical condition by which the lived experience of a performer is defined within the physical space;
- 3) a social dimension, i.e. the interactive space that entails the relationship between performers and audience.

To give a practical example, in case of a concert, performers have to adapt their playing an instrument in view of the intended sound result they want to reproduce in a specific room acoustics, which is the physical (objective) performance space. While playing, they have to interpret a score or improvise by shaping their lived emotions and feelings in relation to a performance space, which becomes a subjective space where to interact (see the concept of spatiality of sensations or spatiality of situations by Merleau Ponty 1962). Furthermore, the performer's subjective approach is biased by the prevailing cultural conventions, which are also related to the empathic responses of the audience in a performance space. This entails a social dimension. Therefore, the way to live in and interact with a performance space is characterized by conventions and cultural practices. This defines a social frame that determines the identity of a performance space, the nature and purpose of behaviours, and how they should be interpreted (Goffman, 1974). This social frame encompasses a symbolic status of the performance based on an implicit agreement and codified relationship between performers and audience.

Nowadays, performances is a *live* event that includes, furthermore, mass reproduction practices related to the entertainment industry and media. In the language of media, the adjective *live* indicates forms of entertainment that take place in real-time in a performance space. Qualifications such as *live* broadcasting and *live* recording are assigned in contexts that report different ways of communicative *authenticity* compared to the "retransmission" of data. An example, remaining in the musical field, is the live recording of a disc or a

CD that can occur during a live concert in performance spaces like theatres or concert halls, always in front of a real audience. However, the production of audio-video recordings is often reworked in studios before being released. Therefore, they are pre-processed, fixed and retransmitted upon request. Differently, television broadcasts or today's online streaming, are named also *live* when sounds or images are captured and retransmitted without any work of editing respect to all the manipulations made in the "production studio" or "post-production" in function of the circulation and final use of a recording.

This means that other than theatres and concert halls, other *performance spaces* should be considered like recording or television studios, which are places duly equipped by cutting-edge and specialized devices and technical tools. Performance recordings allow "the reproducibility" of an artwork and this opens a big discussion regarding the authenticity of each performance unique style (what the philosopher Walter Benjamin calls *aura*, see Benjamin 1936). However, while Benjamin considers the idea of reproducibility in art as a homologation and, consequently, a possible cause of *aura* demolition, conversely, the "reproducibility" done by modern technology contributes to the foundation of a social (re)construction of the artistic *aura*. Technology permits, indeed, the archiving, transmission and dissemination of an audio-video tradition that could not exist otherwise. This stimulates, at a social level, a reflexive awareness of the expressive and aesthetic qualities of a performance (Heinich, 1983). The Belgian choreographer and dancer Anne Teresa De Keersmaeker years ago has also envisaged in her essay *A Choreographer's Score* (2012) the potentialities of technology and creative methods of documentation in performing arts.

In this period of social distancing, where venues and artistic activities have been closed, the transmission of arts in remote conditions, especially online, has been necessary. This challenge actually opens new possible ways of performance production and fruition, even with questions regarding the physicality in the virtual performance space and the social frame of communication:
To what extent can physicality in performing arts be efficiently expressed in virtual environments with respect to the conventional practicing?

Which are the potentialities and limitations of physical presence in the virtual performance space?

Mediation technology, which is assuming a crucial role both in society and in performing arts, especially in this period of social distancing, becomes a necessary means to continue art creation and transmission. Performing artists, who are used to enact (Varela et al. 1991) and interact (Leman 2016, Noe 2005) with their bodies and others' in a real performance space have to adjust their gestural involvement in the new dimension of a virtual performance space. This provokes difficulties in keeping an empathic connection with a real audience, who was not allow being in presence but mediated by a screen. Consequently, both performers and audience lose the feeling to be part of a group in a common real performance space.

The contemporary modality of live broadcastings, thus, challenges the actions of performers in the real as well as in the virtual dimension of the performance space and the associated social frame. This new virtual dimension of the performance space requires unconventional approaches that can be in dissonance with the conventional space and frame. Consequently, when the performance space is new, and the social frame is unfamiliar, the question is how a new performance space-frame will emerge, and what it implies in terms of involvement from the part of the performers and the audience.

Even if digital technology helps to keep virtually open theatres and halls without real audience in presence, the virtual interaction, brought to experience the disembodied dimension of the online world. The fruition and performance in a virtual performance space has been causing what Lucy Lippard and John Chandler called “The Dematerialization of Arts” (1967- 1968). Performing arts is being perceived all the more as an immaterial world through a dematerialized mediation of a screen (Monda 2019), rather than a tangible and physical product in a real performance space. Performers have had to adjust their practice and communication to this disembodied condition of social distancing.

This situation implies an effort to verbalize body language to be expressed via mediation technology. However, the dichotomy absence/presence of bodies performing in a virtual environment turned out to be a new territory of creative experimentation (Di Bernardi 2018), documentation (Bleeker & Maaïke 2017) and knowledge archiving and transmission.

Studies on interactive technologies in virtual or augmented reality (A-V R) are becoming tools to support and enhance interaction and creativity in artistic practice (Miller 2019). By exploiting cutting-edge technology, performing artists are all the more stimulated to renovate their traditional approach and achieve new performative actions and expressions (Sutil 2015). Already over the past thirty years, many scientific and artistic experimentation on choreutic and music practice have been drawn to study the multimodality of human communication in digital performance (Fernandes 2016). This is the case of *Choreographic Cognition: Researching on Dance*, funded by the Australian Research Council and directed by the neuroscientists Shirley McKechnie and Robin Grove who studied for about ten years (1999- 2008) the creative processes of the choreographers Anna Smith and Michelle Heaven through the application of digital technologies (Grove, Stevens, McKechnie 2005).

Spurred even more by this period of lockdown, mediation technology is changing, therefore, the way of living and perceiving the performance space that is becoming a virtual container where bodies live new modalities of interaction.

3. Distance learning in performing arts

Mediation technology is becoming an issue that also involves teaching performing arts. The implementation of video conferencing as a teaching methodology during this lockdown brought organizational changes and

adjustment that challenge traditional pedagogy and everyday artistic practices, principally based on an interactive and mirroring professor-student relation in presence. However, video conferencing was not completely a new modality and experience. Concerning instrumental distance learning, for instance, north European institutions like the Royal Danish Academy of Music (RDAM) have already launched in 2009, a project featuring advanced technological equipment, in which instrumental teaching takes place in a video conference environment in collaboration with the Manhattan School of Music in New York. The aim was to develop a sustainable teaching practice at RDM that provided excellent competence in distance instrumental learning (Nissi 2011). Marrow et al. (2002) argue that video conferencing scaffolds students' reflexivity and ability to solve problems. These studies are also linked to European researches based on the implementation of technology in art education (see "Technology Enhanced Learning of Musical Instrument Performance" in Waddell & Williamon 2019) and to monitor dance expression (see "EnTimeMENTrainment & synchronization at multiple TIME scales in the MENTAL foundations of expressive gesture).

In the perspective of eventual repeated lockdowns, awareness on how to combine traditional and distance teaching, called *blended learning* (Siemens et al. 2015), is becoming an issue to be also improved in the performing arts sector.

The main problem to solve was the latency of the transmission of sounds and video between different performers in different locations over the Internet. After a few months research, useful software and platforms were developed.

The most efficient appears the *LoLa Project* (<https://lola.conts.it/>), which is a low latency, high quality audio/video transmission system for network musical performances and interaction. This software was developed by Conservatorio di Musica "Giuseppe Tartini" in Trieste (Italy) in collaboration with GARR, the Italian Research and Academic Network. This project aims to enable real time musical performances, physically located in remote sites, connected by advanced network services, like the ones provided by the NRENs and GEANT and other International backbones.

Other possibilities of performing arts interaction online were platforms like *JamKazam* (<https://jamkazam.com/>). This connection helps musicians to play together live and in-sync over the Internet with high quality audio and video. The only limit is some difficulties in downloading the JamKazam setting up.

Another platform for distance learning conceived during the pandemic period was *mclassrooms* (<https://www.mclassrooms.com/>). It is very easy to use because it does not require downloading software or apps and it guarantees maximum security in the processing of personal data. This platform was already used successfully for the online masterclasses of Conservatories, Academies and Music Schools like Accademia Chigiana in Siena, the Accademia di Musica of Pinerolo in Turin, the Conservatorio "Canepa" in Sassari, the Festival "Dino

Ciani" in Cortina d'Ampezzo and the European Music Institute in Vienna. However, this is a paid platform, which offers a sound quality far superior to common video conferencing connections. The possibility to have student listeners, who can attend lessons virtually, and to perform virtual concerts, is up to 1,500 spectators. An electronic logbook, with automatic tracking of lesson hours and related video archive is also included.

This experience of lockdown brought mastering and elaborating such a new software, which require, however, conceiving new methods and strategies for distance learning in performing arts. Studies and researches are now monitoring the effects of distance learning during this lockdown concerning the prolonged use of technology, for example, that caused some problems on the level of attention, motivation, anxiety for both professors and students. Distance/blended learning is nonetheless a necessary system to be abreast with the time and build advanced approaches in performing arts education.

4. Future perspectives

Performing arts is living a moment of re-construction of new rules and strategies to overcome the restriction caused by social distancing. In response to the new life condition, in which there can be repeated lockdowns, performing artists (professionals, students and professors) have to deal with this challenge of being involved in a virtual performance space and in distance learning. Nonetheless, most of the performers are still scared about this process of digital implementation mainly because they are not confident enough in practicing and interacting with technology. By the way, in today's global pandemic period, where tactile connections should remain as virtually as possible mediated by technology, there is a tangible lack of research on immersive and interactive art fruition at a distance (Middelow 2020). Artistic researches on interactive technology and digital artistic forms of broadcasting are all the more needed to potentiate the evolution of performance practice (LaViola 2013).

On the one side, there is the issue to reconnect artists and spectators in remote condition via digital immersive and interactive virtual scene (Dietz, 2016; Hödl et al., 2020). On the other side, perspectives to augment the involvement of the audience in participatory actions within the performance space have been also experimented (see for instance Brunn *The voice of the audience*, 2018).

Concerning music performance, for instance, cutting-edge technologies, like the motion capture with infrared cameras, are introduced nowadays as a biofeedback-based tool to analyse performative gestures translated from a real performance space to a virtual performance space (Caruso et al. 2016; Caruso 2019). This was developed among the paradigm of technology-enhanced mirror (Caruso et al. 2021; Caruso & Nijs 2021, Caruso 2018) to obtain the mirroring visualisation of the performer's body in action as an avatar. Future steps will be to investigate the use of VR technology as a performative-based tool to augment

performance perception by an audience in remote condition, which is currently an experimentation carried on by the author of the article¹.



Concerning distance learning in performing arts, systematic methods, which help to interact and practice mediated by a screen, should be also developed. The major limit consists of the high level of technological equipment required to make a broadcasting or to work with new software and platforms. Many students, but also many professors, do not always have good wireless connections, microphones or cameras and are not used to manage digital technology during their practice. They need to master, for example, how to capture their performance gestures in a good angulation in the performance space and to produce a good reproduction of sound. For this reason, experimenting with technology in artistic practice should be seen as a way to potentiate documentation, analysis and reflection if digital devices are used as “augmented mirrors” (Caruso et al. 2021). In this way, mediation technology is an opportunity to potentiate self-reflection and self-evaluation (Caruso 2019, 2018; Leman 2007). This approach can refresh the traditional teaching in performing arts, where students are mostly induced to passively repeat their professors’ suggestions. To evaluate their performance and adjust their posture or gestures, performers are commonly used to look into a mirror. However, a

¹ See *AvatarPianoProject* (2020) in collaboration with LWT3-Milano <https://www.youtube.com/watch?v=SoaKJUPq36Q> and *PianoPhase for two pianists in VR* in collaboration with IPEM-University of Ghent, presented during ARS-ELECTRONICA-FESTIVAL-2020-online edition <https://www.youtube.com/watch?v=DwoIOeYb-eo>

simple mirror can capture only an elusive moment of a performance; conversely, cutting-edge software for the audio/video/motion recording can provide a concrete feedback that can stimulate students and professionals to an aware self-reflection and self-analysis. In this way, mediation technology, approached in creative modality, can be seen as an “augmented mirror” that can stimulate the process of eliciting artistic practice and growing artistic identity. The paradigm proposed as “technology-enhanced mirror” (Caruso et al 2021) constitutes nowadays a new frontier that can bring students to augment self-reflection, self-analysis self-gestural perception and improve body awareness (Gallagher 2005) and corporeal expressivity also in distance learning.

From this perspective, the impact of the lockdown in performing arts spurs to explore creative potentialities of technology in performing arts practice and distance learning. Future technological developments will continue to affect and inspire innovation in performing arts and besides the classical approach, artist-researchers are all the more stimulated to exploit new digital tools to achieve new actions and expressions also in the perspectives of performing in virtual scenes.

The documentation and reflection on artistic practice in the pandemic period is contributing to achieving pioneering performative paradigms useful for the generative processes of studies on interactive and immersive multimedia performance. With the hope to return to a normal life condition, the tendency should be to augment the perception and fruition of performing arts mediated by technology and induce participatory actions that bring performers and audience to share the real as well as the virtual performance space.

5. Conclusion

This article presents the aesthetic impact and challenges of mediation technology in performing arts, especially in regards to this period of lockdown. By referring to recent studies and innovative performative strategies, the perspective proposed wants to encourage renewing tomorrow's performing and learning arts by a creative use of mediation technology.

The bridge between arts and technology is nowadays opening, indeed, new points of discussion on both performance space and distance learning. This double challenge induces to consider the need to investigate and develop innovative strategies in the performing arts sector. The main problems concerning distance performance fruition and learning consists of the absence of a real interaction between bodies in the virtual performance space over the Internet (Slater 1997). This issue was amplified by the problem of latency in video and sound transmission for performers in different location. The performance space is now redefined by the virtual-digital revolution we are living through, where technological tools are effective means, which helps performing artists to continue practicing, experimenting and transmitting knowledge. The re-established rules of living and working in a virtual performance space will be the real target to keep alive the arts sector.

What will happen after this period of social distancing and digital hyperconnection, when performers and spectators will share again the common space of theatres and concert halls, is under research and studies. Nonetheless, the merger of virtual, augmented and interactive technology, which has been revolutionizing our life, is inducing pioneering performative paradigms on the role of human-machine interaction that will define new horizons in tomorrow's performing arts research.

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