

Community building through cultural exchange in mediated performance events

Leif Handberg Alex Jonsson Claus Knudsen
KTH Media Technology
Lindstedsvägen 7, S-100 44 STOCKHOLM, Sweden
{leifh, alexj, clausk} @kth.se

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Abstract

A rich sense of togetherness can be achieved in distributed audiences by using scenography, dramaturgy, story telling (narratives), conscientiously applied on a foundation of advances in media technology. This paper describes the findings from a series of full-scale performances, nicknamed the "Point 25". This event was launched as a joint venture between The Royal Institute of Technology in Stockholm (KTH) and Stanford University in Palo Alto, CA within the Connected Performance Spaces Project (a.k.a COPS), funded by WGLN (Wallenberg Global Learning Network). Each performance consisted of two performing nodes (each hosting two musicians) and two audience nodes, respectively located in the universities' performance spaces, separated by 10 000 km and nine time zones. The physical scenography was based on a hexagonal boundary with a number of large projection screens, cameras, microphones, speakers et cetera. In this common “performer-audience” scene, there were designated "hot" capture areas for the performers to work in, assisted by auxiliary video feeds for real-time transitions and immersive blending. On each side of the intercontinental performance, there was a ”presence producer” in action, changing the characteristics of the interactive spaces for the performers, thus exploring new narrative tools and developing new experiences for the audience. This type of event implies that enriched convergence between media-related disciplines, will move the boundaries of what is possible to do today. To work together inevitably leads to a deeper understanding of each others’ research areas, and ultimately to what we refer to as concept calibration – a starting point for breaking new ground within presence production. It shows that it is possible to build communities between humans separated both by large distances as well as previously disjunctive fields of research, arts and performance

Introduction

Within the Wallenberg Global Learning Network [WGLN], the KTH-Stanford team have participated in a number of projects within ICT supported learning. The work involved both performance-type such as the project described herein, as well as others such as electronic student portfolios (Folio Thinking project), interactive rooms (iSpace) and emerging computer-supported learning styles.

A cornerstone of the collaboration taken place was the physical locations themselves. On the Stanford site you find the refurbished Wallenberg Hall, the home of the Stanford Communications Department and Stanford Center for Innovations in Learning [SCIL]. While nine time zones away, there is an equally elaborate counterpart in Stockholm, Sweden, called The KTH Learning Lab. The two university organizations in the two countries each independently introduced the concept of performance spaces; rooms for interactive learning, real-time communication and sheer enjoyment. Further, by pure chance, the two physical buildings happened to be of near identical size. This fact probably hatched the idea of mirroring these rooms, so one node could take part of the actions at the other and vice versa, using sound, images and other signals.

At the Department of Media Technology at KTH, there exists a collective experience of 20+ year exploring community building over distances in time and space, backed-up by common industry standard technologies – although exploited and combined in new clever ways. These can be either used on demand or continuous, and available at any given time. E.g. the work on multi-modal mediated capture of real-time events as described in [Jonsson 1998], only here there is no passive audience since everyone is part of the mediated space and each individuals behavior affects the shared experience. The COPS project as well as its predecessors, has resulted in an increased understanding of how media assisted communication and learning can be adapted to enhance team-building, communication and learning when geographically separated.

Intent and method

This report describes a study on three live music performance events carried out concurrently at Stanford University in California and Stockholm, Sweden referred to as the Connected Performance Spaces project (COPS). There were four participating skillful musicians assigned, two physically present at each location. The three concerts were given on June 1, 2004 at 20, 22, and 24 PM (Stockholm node) and 11 AM, 1 and 3 PM (Stanford node). The intention was to manipulate the scenography around the musicians in such a manner that it would give the audiences at the two nodes a sense of taking part in one single performance rather than two separate events occurring simultaneously. This was to be carried out using the dramaturgical techniques and methods from cinema, theatre and television, as well as lessons taught from the art of story-telling, which has evolved ever since the dawning of time, but nowadays seldom taught outside the institutes of trade. And naturally, all the equipment for mediation, lighting and communication we could rent, buy and borrow.

The performance as such was an improvisational piece of music, two cellos, flute and grand piano. The whole act was "conducted" by synchronized, shared movie sequences, depicting rhythmically pulsating jellyfish, which the musicians used as the basis for their shared improvisation. The time delay in audio and video signals come into play for any signal over large distances, but became far less apparent when led by the jellyfish conductor. Remember that many musicians pay good money for a digital delay simulation, here the internet backbone is used as a vehicle for delay effect generation.

Three unique, consecutive performances were carried out, each followed by an all-invited cocktail-style mingle session with life-size video chat in an informal "communication corner". The audiences could thereby share experiences from the musical event, and take part in our audience survey used to capture some of the impressions made. The results show that the major part of the audience felt mentally associated with the – from their perspective – distributed audience. Interviews were also made with the performers, who clearly felt associated to the remote musicians though physically separated. Here, quoting one of them: "there were times when we really felt like a quartet".

The methods for knowledge collecting and feedback used in the project were both of quantitative and qualitative nature. An broad audience survey carried out in conjunction with each performance, and a number of in-depth interviews with selected participants; both musicians and members of the live audience(s). The entire set-up was based on a communication model involving the two locations, as that seen in figure 1. Each node held both a local and remote audience, two performing artists with their musical instruments and all the necessary implements to obtain audio and video from the performers at the remote location. The rectangles represent the mediated, shared virtual space, created by a number of controlled closed loops for audio, video and computer control signals. The audio was manipulated using echo-canceling hardware, but none of the performance components involved pre-recorded or computer-generated aspects.

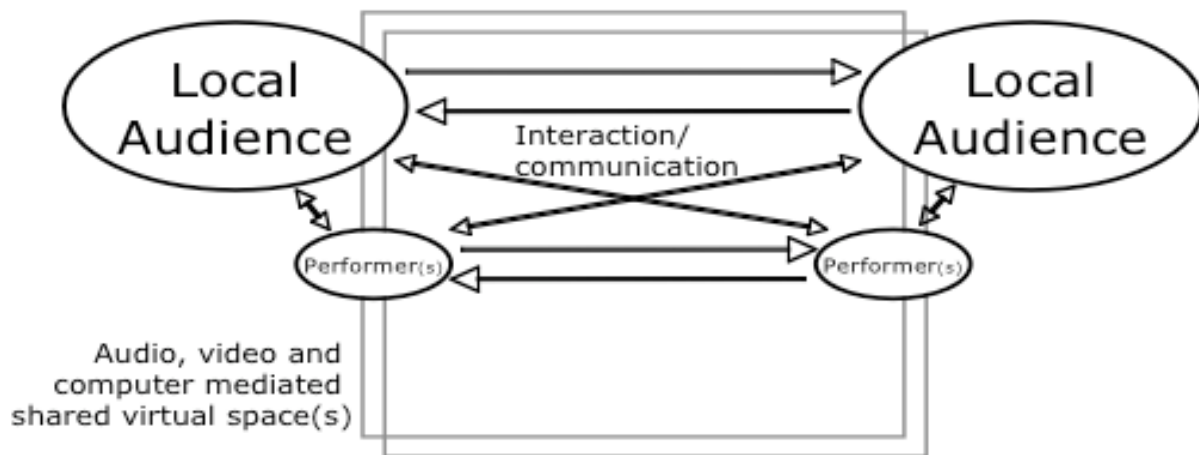


Figure 1: Basic communication model for mediated, shared virtual spaces (two nodes).

The Scenography

The performance spaces were arranged in a hexagonal shape, made up in the physical room by projection screens and cameras. At each node, the audience seating made up one of the six sides. The cameras were either capturing an aspect of the performers or the audience at any given time. Video signals were then sent to the remote location, through a video mixing equipment, allowing the video signals to be blended and manipulated in real time.

In the hexagonal shape, members of the audience can sense the presence of both audiences in their peripheral vision while enjoying the joint performances taking place in front of them, adding to the sense of togetherness. In figure 2, the scenography model of the connected performance spaces is explained. The triangle resembling the camera view becomes a "hot" area where a person is depicted at the remote location. At equidistance to the camera, the performer maintains her relative size in a plane, while movement perpendicular to this plane acts a zoom feature which allows the performer to become larger or smaller relative to the scenery and the other cast members.

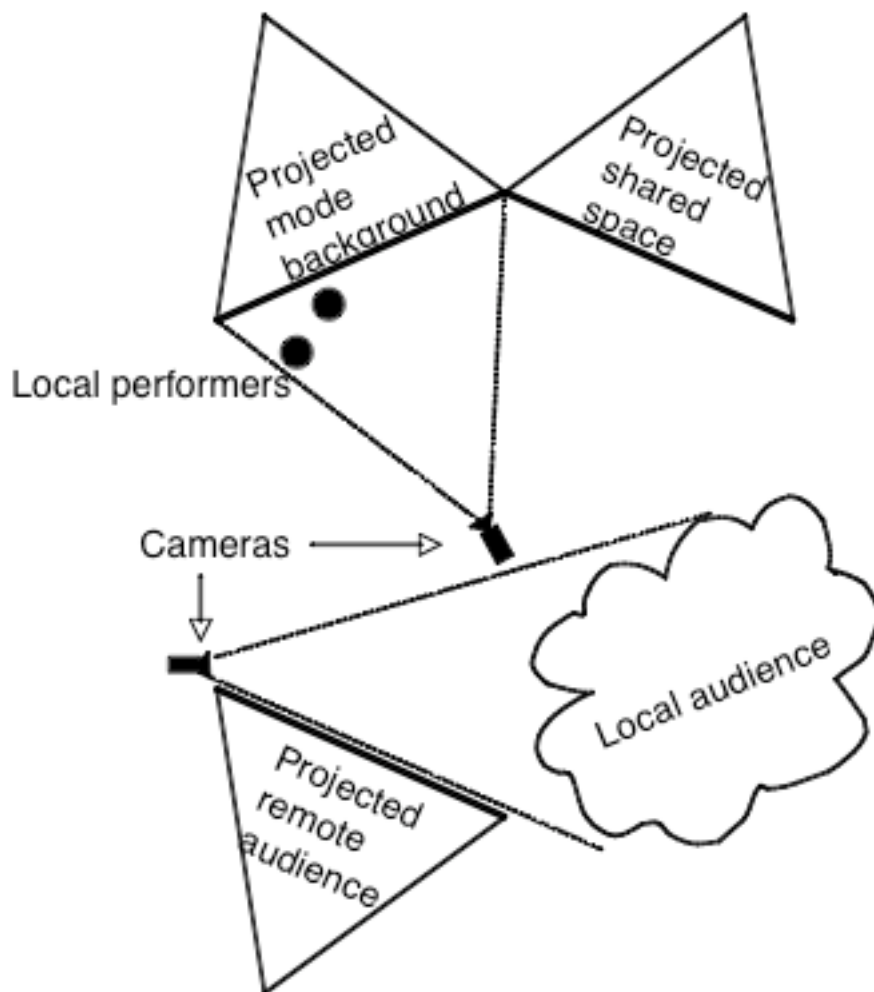


Figure 2. Scenography at Stanford, mirrored at KTH.

With this set-up, there is an obvious advantage if the physical space at each location is mirrored, rather than being exactly the same since moving about in one space would otherwise appear as moving in the opposite direction at the remote performance space. Mirroring all the video signals would naturally counteract this, but proved to be most confusing for all involved. If there is music, there is rhythm and timing is of the essence. With a natural latency of some hundred milliseconds due to distance and additional latency due to the usage of encoders and decodes for audio and video, the beat or common pulse must origin from somewhere else than either node, or be shared as in our case. The entire dramaturgy and story-telling was based on a movie with ”a jellyfish conductor”, shot and prerecorded at the Monterey Aquarium located on the coast of northern California, supported by specially assigned ”presence producers” for on-line video switching and mixing in real time. The jellyfish movie gave the necessary pulse as well as inspiration to the musicians to act and interact on.

The designated presence producers manipulates incoming and outgoing video signals in different ways which resulted in a number of modes in which the musicians were presented. Some of the noteworthy modes were, as elaborated on by Knudsen in [Knudsen 2004], here in a number of variations:

Common shadow space video loop

All musicians acted in the “projected shared space” as depicted in figure 2. They all appear as shadows to the audience and it is difficult indeed to distinguish whether a performer is being the back projection at the local node, or behind the remote screen thousands of miles away. The representation of the performers blend, much like their contributions to the perceived audio does.

Jelly fish movie on one screen, remote musicians on the other

Here, the jellyfish are man-sized up front and gives the performers excellent opportunity to interact with their rhythmic, pulsating action.

All musicians mixed together

The local performers interact with their remote counterparts presented on the rear-projected screens. With conscientiously camera placements and performer positions, it is easy for a member of the audience to suspend the disbelief from perceiving the performance as being a single, shared session.

All musicians mixed together using chroma key

Another variation, where incoming and outgoing signals were mixed with a monochrome background, adding to the illusion that they were playing together. This background can be altered and manipulated using standard mixing equipment so that any video feed, including the jellyfish conductor, could come into play.

Shared audience spaces

The audience also had audio and video contact during the event, as depicted in figure 1. After the music and the applause, a seamless, transatlantic wave was initiated involving all the audience(s).

Feedback

Audience survey

The audience was by invitation and was a mix of students, teachers, researchers, administrators from both universities, and also many others (family, friends). Most of them had no knowledge of what to expect. Before the event they were given a short introduction about what they were about to witness; a music performance between KTH and Stanford where they also would be able to see and interact with the other part of the audience.

After the event the persons in the audience was asked to fill in a form with questions about how they experienced the event. In sequel to the actual performance, the audience could mingle together in a ”communication corner” with two portrait-oriented projection screens were placed in 90 degrees angle forming a mediated corner at each location, thus coming away from the traditional large flat projection surface, commonly used in traditional video conferencing contexts.

Musician intervjues

All the musicians were interviewed, using an open-ended line of questions, both between and after the performances. A number of minor improvements were made between the events after discussions between the musicians and the presence producers, so the concerts were not identical but rather gradually evolved.

Results

The results from the audience survey shows strong similarities in the answers from the audience groups in at KTH in Stockholm and at Stanford, as seen in figures 3 and 4. The only major difference was in relation to the question concerning the sense of presence in regards to the remote audience.

»I felt alienated from the other audience members that were not physically sitting with me.«

Here the KTH audience felt alienated to a higher degree. This may be true to some defree, but can also be an effect of the interpretation of the word »alienated«. The overall goal to get the audience groups to achieve a spirit of community, and was undoubtfully accomplished to a large extent.

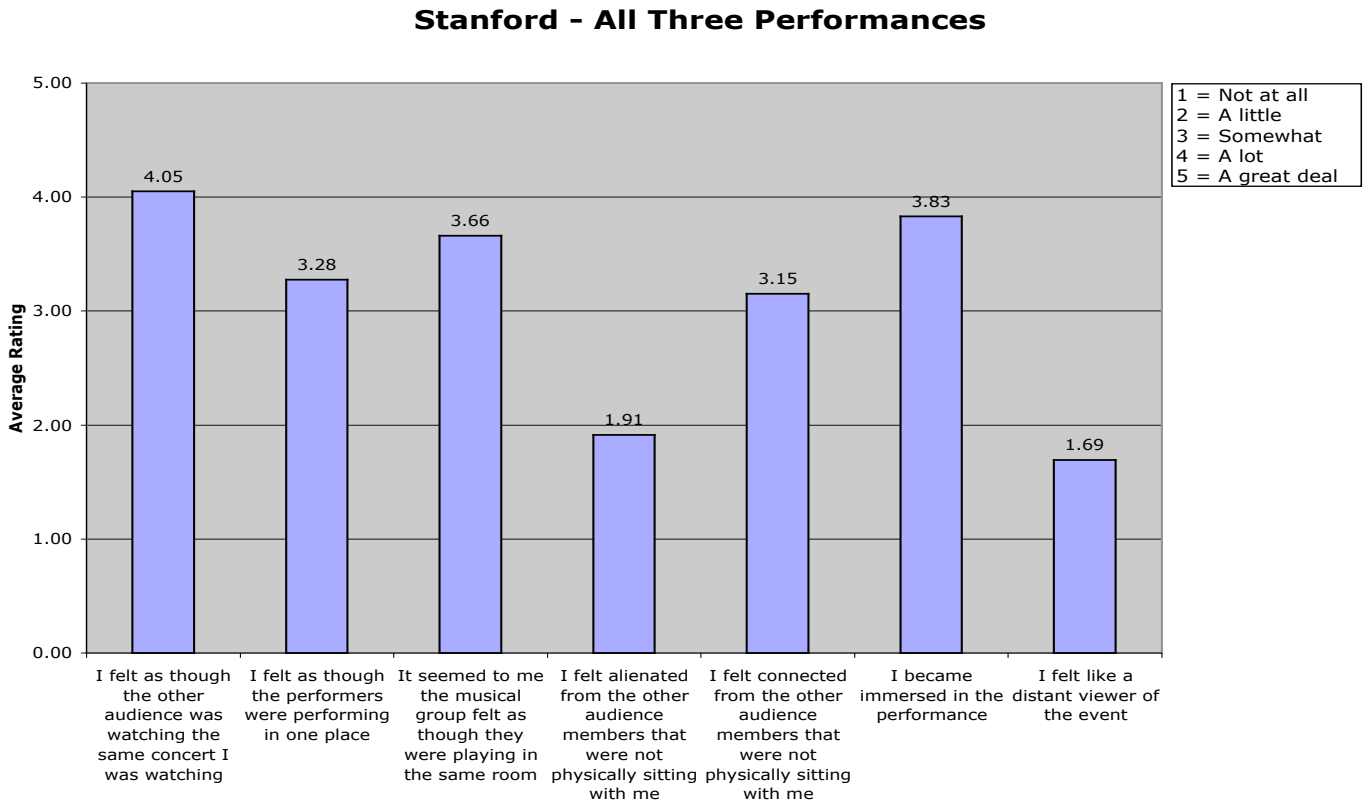


Figure 3. Compilation of the major results from the Stanford node. The bars denote average ratings as stated in the audience surveys.

An even stronger evidence for these results origins from some of the spontaneous comments, which was possible to state in addition to the standardized questions in the survey, as depicted in these three quotes:

»What coordination! Stimulating and a fantastic way to bring the world together — thank you.«

»I appreciated the sense of connection over distance.«

»The transition between the four musicians, first on screen and then separated made me believe that they actually were in the same room at times. The true distance was revealed only once they appeared on the screen together.«

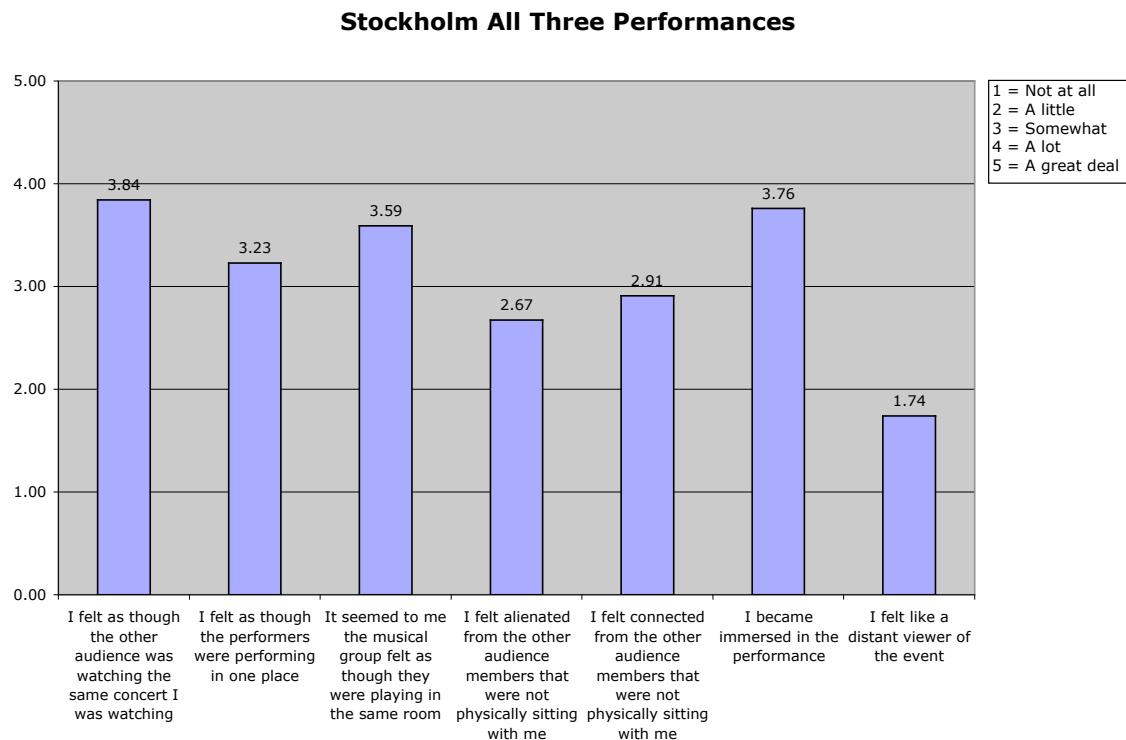


Figure 4. Compilation of the major results from the Stanford node. The bars denote average ratings as stated in the audience surveys.

Some in the audience also witness that the sense of togetherness and connection with the other audience group as such, was more important than the music.

»The music was not so good but the eye contact with the audience on the other side was thrilling.«

»I am really impressed more with the telepresence booth.«

The telepresence booth refers to the communication corner mentioned earlier. This innovative way of using architectural design helped to get better communication. In total it was a successful project that showed that communication and community building over distances is possible using media technology, scenography and architectural design. The project team at KTH believe that these disciplines combined, not only are the necessary ingredients for a shared performance out of the ordinary, but in a larger context larger as some of the the means for bringing us together as humans, over distances in time and space.

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WGLN, **The Wallenberg Global Learning Network**
<http://www.wgln.org>

SCIL, **Stanford Center for Innovations in Learning**
<http://scil.stanford.edu>

KTH/Media, **Department of Media Technology & Graphic Arts**
<http://www.nada.kth.se/media>

Point25 Website
<http://www.r1.kth.se/point25>