

# Convergence and Creativity in Telematic Performance: *The Adding Machine*

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**ABSTRACT:** Between December 2005 and March 2007, the Department of Theatre Arts and the Multimedia Program at Bradley University, USA; the University of Waterloo, Canada; and the University of Central Florida, USA developed a unique theatrical enterprise that encompassed four creative artists, over one hundred students from seven academic departments, and an array of sophisticated rendering and communication technology. The fully mediatized production of Elmer Rice's expressionistic play *The Adding Machine* integrated virtual scenery, live, real-time telematic performances facilitated via Internet2, recorded composite video, avatar performers, photographs, graphics and sound.<sup>1</sup> This paper reports and analyses some of the artistic, dramaturgical, and technical discoveries made from the production and offers some theoretical insights about convergent telematic performances.

**Keywords:** Telematic performances, teleconferencing, virtual theatre, intermediality, new media dramaturgy, theatre technology, DVTS (Digital Video Transfer Systems), telepresence

**RESUMEN:** Entre diciembre de 2005 y marzo de 2007, el Departamento de Arte Dramático y el programa Multimedia de la universidad de Bradley, la universidad de Waterloo y la universidad de Central Florida desarrollaron un acontecimiento teatral único que agrupaba a cuatro artistas, alrededor de cien estudiantes de siete departamentos universitarios y una ingente cantidad de tecnología de la comunicación. La versión completa de la representación transducida de la obra

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1. For more information on this production see the Bradley University website: <http://addingmachine.bradley.edu/>

expresionista *The Adding Machine*, de Elmer Rice, integraba decorados virtuales, actuaciones telemáticas en vivo y tiempo real a través de Internet2, grabación de vídeo analógica, actores digitales, fotografías, gráficos y sonido. Este artículo presenta y analiza algunos de los descubrimientos artísticos, dramáticos y técnicos realizados y ofrece una reflexión teórica sobre las representaciones telemáticas convergentes.

*Palabras clave:* representación telemática, videoconferencia, teatro virtual, intermedialidad, nueva dramaturgia digital, tecnología teatral, DVTS (sistemas de transferencia de vídeo digital), telepresencia.



**Murder Montage Composite Scene with Thomas C. Lucas as MR. ZERO and John Wayne Shafer as THE BOSS. Photo by Duane Zehr of Bradley University**

Written in 1923 by Pulitzer Prize winning playwright Elmer Rice, *The Adding Machine* is one of America's first expressionistic plays. From a dystopian perspective on technology, the play takes a look at the dehumanization of society in a technocratic age that is both funny and terrifying. The play's anti-hero, Mr. Zero, is a downtrodden wage-slave who is sacked after 25 years of loyal service as a bookkeeper. Angered by having been replaced by an adding

machine, he subsequently murders his boss. He is tried and executed for his crime. After his death, Zero reaches the Elysian Fields – an idyllic countryside, unbounded by the prison walls of human conventions. But Zero has no use for unlimited freedom, so he jeopardizes his chance of happiness with his devoted co-worker Daisy and opts instead to work in a «celestial repair shop» for worn-out souls. There, he works diligently on an adding machine for what he expects to be eternity, but after 25 years he is again sacked and sent back to earth where he will become an even sadder cipher.

*The Adding Machine* provided a wonderful vehicle to explore the creative potential of the new digital media in theatrical terms through the convergence of theatre performance, production, and dramaturgy, with multimedia and streaming video technologies. This paper reports and analyses some of the artistic, dramaturgical, and technical discoveries made from this production, as well as from several other productions on which we have previously collaborated.

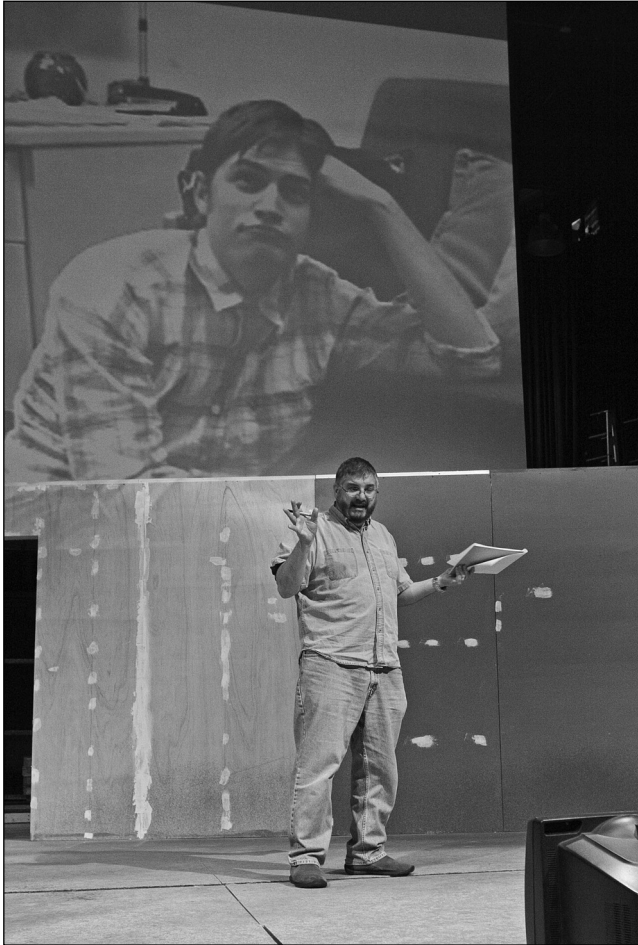
In the space of convergence in which intermedial theatre is created, we have discovered that it is imperative to work with both halves of the brain simultaneously: creative problems needed technical solutions and technical problems needed creative solutions. Consequently, in what follows we will be navigating between the two, discussing technical and logistical as well as aesthetic and dramaturgical issues.

Fully cognizant that the technical and dramaturgical complexity of this staging of *The Adding Machine* would justify the discussion of many production facets – conceptualization, collaboration, mediatization, processes and pedagogy, to name just a few – here we will focus on those aspects which appear to us the central ones: the technology involved in telematic performances and the nature, problems, pleasures and justification for digitally enhanced and facilitated performance.

Geographically, Bradley University served as the primary performance venue for the production, where some 3000 audience members watched the production unfold. There were three remote sites that fed telematic performances into the primary performance venue:

1. The University of Central Florida (1100 miles away), where our colleague John Wayne Shafer performed from his office;
2. The University of Waterloo (800 miles away), where theatre student Brad Cook performed in a studio theatre with a local support crew;
3. An additional studio had been set up for local actors to be included telematically in the production, which was situated less than 100 feet from the main stage on the Bradley campus.

In addition, there was a remote audience observing a live video stream of the performances, via Polycom, in a media room at the University of Waterloo, albeit with no live local actors present.



**Rehearsal shot with George H. Brown (Director) in Peoria IL and, on screen, Brad Cook as SHRDLU in Waterloo, Ontario. (Rehearsals facilitated via a Polycom videoconferencing system). Photo by Scott Cavanah of Bradley University**

To create the virtual space required for telematic collaboration we needed significant amounts of internet bandwidth to stream video signals. For this we utilized Internet2 in the USA and the CANARIE network in Canada. Internet2 is a consortium of 300 member institutions, including leading U.S. universities, corporations, government research agencies, and not-for-profit networking organizations working to develop and deploy advanced network applications

and technologies.<sup>2</sup> Collaborating with over 50 international organizations and networks, Internet2 has established global partnerships to help ensure interoperability and connectivity.<sup>3</sup> CANARIE Inc., Canada's advanced Internet development organization is a corporation supported by its members, project partners and the Canadian Government. Its mission is to accelerate Canada's advanced Internet development and use, through facilitating the widespread adoption of faster, more efficient networks; and by enabling the next generation of advanced products, applications and services to run on them. It is supported by the Ontario Research and Innovation Optical Network (ORION).<sup>4</sup> Serving as the backbone for Internet2 in the U.S. is the Abilene Network, with a data transfer speed of 10 gigabits per second and a goal of offering 100 megabit per second connectivity between every Abilene connected desktop.<sup>5</sup> The speed of the Abilene Network enables the real-time connectivity necessary for telematic performance.

Rehearsals and production meetings for *The Adding Machine* were facilitated through various videoconferencing technologies including Polycom and Apple Computer's iChat. For final rehearsals and the actual performances, however, we used a recently developed software program called Digital Video Transport System (DVTS), which enables digital video and sound distribution on the Internet.<sup>6</sup> DVTS is an open-source program that runs on various operating systems, though we did have trouble running it on a Mac. By connecting DV cameras through Firewire interfaces to PCs running DVTS it is possible, with very little investment, to distribute high-quality images and sound. The systems function uni-directionally, so it is necessary to have both a send and receive unit to create a two-way video connection.

For *The Adding Machine*, each partner institution was responsible for acquiring the necessary computers, monitors, and cameras to create the Digital Video Transport System. At Bradley, the system assembled consisted of four recycled PCs with Pentium 4 processors running on the Windows XP platform. Firewire cards were added to hook the computers to the video switcher. Similar computers were utilized at both Waterloo and Central Florida to complete the system. These eight computers, four at Bradley, two at Waterloo, and two at Central Florida were networked through Internet2 and CANARIE to create four send/receive video systems, which interconnected the remote performance sites with the main performance venue at Bradley. Combined, the four systems

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2. «Internet2: About Us», <<http://www.internet2.edu/about/>>, [8-6-2007].

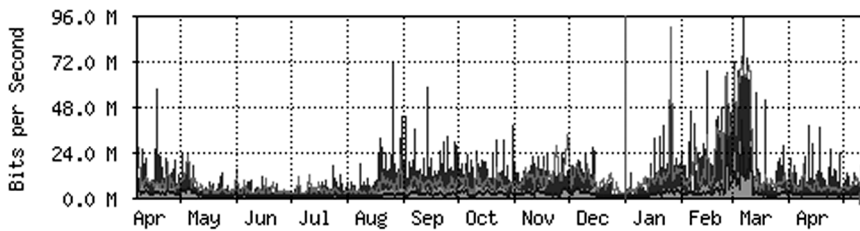
3. «International partnerships», <<http://international.internet2.edu/index.cfm>>, [8-6-2007].

4. «Canarie», <<http://www.canarie.ca/about/index.html>>, [8-6-2007].

5. «Advanced Network for Leading-edge Research and Education», <<http://abilene.internet2.edu/>>, [8-6-2007].

6. «DVTS Consortium: What's DVTS », <<http://www.dvts.jp/en/dvts.html>>, [2-5-2007].

required 30 megabits of bandwidth each. Since there were times when the production required up to 120 megabits of processing speed, we did experience occasional video latency or break-up. To resolve this we capitalized on the play's episodic structure and alternated our connection to receive signals either from Florida or from Waterloo. This kept the performance operating at around 90 megabits:



**Graph of Internet 2 bandwidth usage. Peak usage during Jan – March reflects production of *The Adding Machine*. At times during the process, over 120 megabits of bandwidth was required for the production**

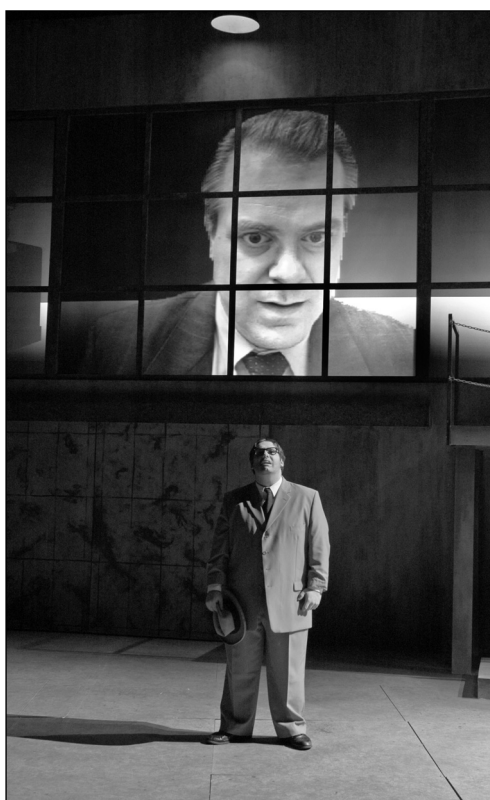
Video quality was central to the aesthetic appeal of production. Because all telematic performances were played in front of a green screen the streamed performances were keyed mechanically into the graphic backgrounds designed by Jim Ferolo, the director of Bradley University's Multimedia program, and his team of multimedia students. These were high-quality composite video pieces that required months of development and rendering time. One video sequence that served as the transition into the Elysian Fields took over 100 hours to render on an array of some 35 computers. A planning bid for the project submitted to a commercial rendering firm estimated the cost at over \$100,000 for this sequence alone.

Directorially, we shared the belief that honouring the integrity of the play was paramount. Consequently, all choices relating to mediatization and telematics were made with the support of, and in support of the text. Thus, the authority figures in the play, for example, appeared on screen, oversized in scale to Zero, the insignificant protagonist.

Similarly, the character of Shrdlu, lost in his isolated, angst-filled world, existed only in the virtual world of the production, while Zero's companion Daisy, who perpetually longs for the warmth of human companionship, had a physical presence on stage. In terms of colour design, the dramaturgical choice was to present all screened performances, with the exception of the Elysian Fields scene, in black and white, symbolizing Zero's drab life. For the scenes in the Elysian Fields we transitioned to full colour in all the media elements in order to represent a joyous paradise – an environment totally unfamiliar to Zero.



**Rehearsal shot from Control Booth with crew running Video Mixer and Isadora Software.  
Photo by Scott Cavanah of Bradley University**



**DVTS Cyberperformance Scene with John Wayne Shafer in Orlando FL as THE BOSS and  
Thomas C. Lucas in Peoria IL as MR. ZERO. Photo by Duane Zehr of Bradley University**



**Integrated Composite and DVTS Cyberperformance Scene with Brad Cook as SHRDLU in Waterloo, Ontario, Canada, and Thomas C. Lucas in Peoria IL as MR. ZERO. Photo by Duane Zehr of Bradley University**



**Integrated Composite as Background with Thomas C. Lucas as MR. ZERO and Lindsey Schawahn as DAISY. Photo by Duane Zehr of Bradley University**



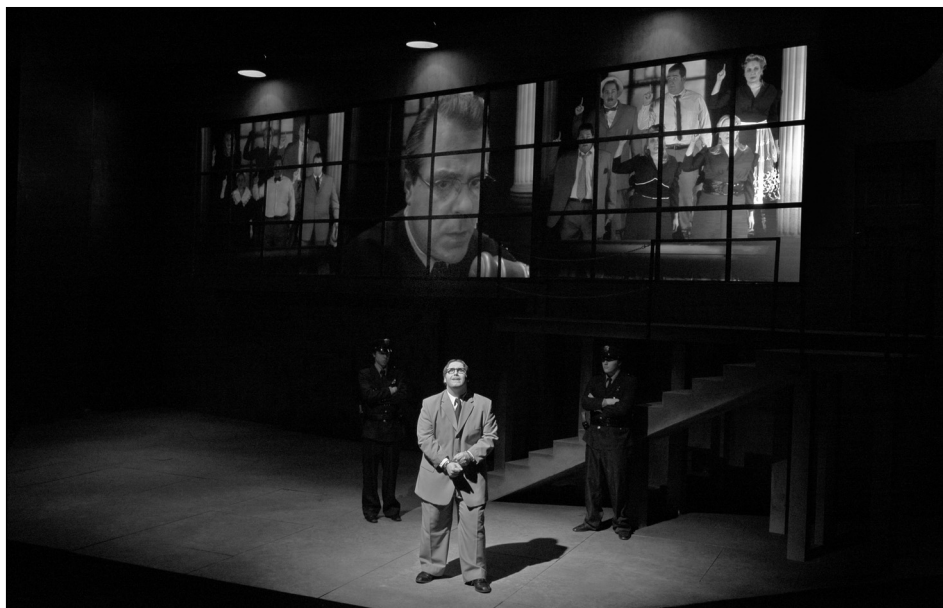
The transition to a new world was mirrored through the costumes as well. Designed by Becki Arnold, identical garments were created for the actors, with one outfit in a dark pallet for the drab world of Zero's daily life and the twin costume in white for the Elysian Fields. In this way, the production team was able to blend the virtual world of the telematic space with the physical world of the theatre, merging stage craft with mediatization.

As with all telematic technologies currently available, we did experience occasional latency of image transfer lasting up to three seconds. As latency is based on the time it takes a video signal to travel the fibre optics system and return, there is always some delay; even the speed of light takes one whole second to travel around the world seven times. Latency is determined by numerous factors: transmission speed, bandwidth, the number of switches the signal has to travel through, and is still largely unpredictable. In fact, we had lower latency between Illinois and Ontario than between Illinois and Orlando, while we had better video quality between Illinois and Orlando. We solved the problem by incorporating latency into the characters, for example, Zero's Boss became continually preoccupied with his work and had difficulty remembering names or facts. His «sluggish» perception and «delayed» responses highlighted his preoccupation and even created a comic effect.

One significant DVTS issue that plagued this production was the persistent presence of audio loops. When a performer at a remote site spoke into a microphone, audio signal was streamed via the DVTS over a thousand miles to the performance site at Bradley. The signal was then amplified and broadcast throughout the Bradley theatre sound system so that both actors and audience could hear it. Unfortunately, the microphones used at Bradley to send actors' voices to the remote sites also picked up the locally amplified voices, creating a sound loop that repeatedly echoed across the continent. Since we were unable to resolve the sound loop issue in the DVTS application, we solved the problem by having actors in the remote sites use ear buds to break the loop, even though they would still hear themselves, and then used electronic equipment such as a gate and a ducker to make the microphones at Bradley sound cancelling. The solution worked sufficiently well that the audience in Peoria did not notice a problem but it forced the remote performers to deal with significant audio difficulties.

One additional technical area that influenced the aesthetics of telematic performance was the limitation of current projection technology to create a three-dimensional space. We do not live in a 640 by 480 pixel two-dimensional world. The flatness of images projected onto traditional screens, no matter how ingeniously the screens are integrated into the stage scenery, work against the dynamics of human movement and the sculptural qualities of the human body. Significant collaborative discussions took place concerning the placement of projectors and screens to overcome this limitation. Erich Keil, the scene and

lighting designer, created multiple designs, many of which were rendered in 3D for review. Choices were also affected by budgets and real-time issues concerning rendering time. Ultimately, we chose to create a factory-like environment with large «windows», which served as a 36-ft wide projection screen. The windows could be subdivided into three large 12x12 ft sections, each of which could be further divided into 9 squares, providing a multitude of differently-sized projection units. To minimize physical comparisons of dimensionality, the screen was placed above the actors on stage and most virtual characters were projected at larger than life scale, which added to the theatricality of the piece.



**Integrated Composite and DVTS Cyberperformance Scene with John Wayne Shafer in Orlando FL as THE JUDGE and Thomas C. Lucas in Peoria IL as MR. ZERO, the 12 members of the Jury all played by Thomas C. Lucas and Michelle Zicarelli, and THE POLICE played by Devin Kelly and Sean Cummings. Photo by Duane Zehr of Bradley University**

Ultimately, regardless of the technology we used in mediatization or telematic performance, the focus was always on the story. Almost every significant choice made in presenting *The Adding Machine* was based on considerations relating to Elmer Rice's script. In many respects, we attempted to make the technology invisible, not in a stylistic or physical sense – in the expressionistic and theatrical nature of the production it mattered little if the audience saw the cameras and projectors – but rather as the result of a high degree of integration into the production; to a point where the technology

became both intrinsic and necessary to the telling of the story. Janet H. Murry explains it in her book *Hamlet on the Holodeck: The Future of the Narrative in Cyberspace*:

Eventually all successful storytelling technologies become «transparent»: we lose consciousness of the medium and see neither print nor film but only the power of the story itself. If digital art reaches the same level of expressiveness as these older media, we will no longer concern ourselves with how we are receiving the information. We will only think about what truth it has told us about our lives. (Murry, 1997: 26)

In reality, we used technology in the same way as earlier innovators of theatre when they first employed the *mechane* or the electric lamp as tools to enhance the story. But in view of the 2,500-year history of successful storytelling through non-mediatised theatre and the gargantuan technological efforts it took to stage this production, one is justified in asking, «why bother?» Canadian writer, director, designer, actor, and artistic director Darren O'Donnell hints at one possible answer. In *Social Acupuncture* (2006), O'Donnell paints a dire picture of the viability of theatre in an age when «theatre has been eclipsed by [...] other time-based representational forms: film, television and now gaming and other online activities» (O'Donnell, 2006:16).

Conventional theatre practitioners have tried to hold on in a variety of ways to the cultural relevance of the art form as an active part of a civic discourse, but O'Donnell suggests it «is more or less finished» (O'Donnell, 2006:16). He concludes that:

Theatre is caught in an eddy, in a redundant conversation with itself, out of the loop of the cultural, philosophical, political and aesthetic development in other forms. Information-age capitalism, with its demand that cultural products be digitized and circulated via electronic networks, has left theatre gasping for intelligence, relevance and currency. (O'Donnell, 2006: 17)

Even though O'Donnell (2006: 16-17) considers the technological advancements of the past century a major perpetrator of theatre's demise, the other being theatre's inherent resistance to commodification on the same scale as film, television, and the internet, it is, ironically, in the new interactive media and in novel ways of involving the audience in a more productive manner where he finds the most creative experiments and the most innovative performances.

While one may take issue with O'Donnell's thesis, the figures relating to ticket sales in the United States tend to support his assumption that theatre is losing out to other media performances for well over 1.3 billion tickets are sold to moviegoers annually, which is an average of five tickets for *every* American,

whereas only 0.23 tickets are purchased by theatregoers. Even more striking is the fact that by age seventeen the average American has spent 15,000-18,000 hours watching television, compared to 12,000 hours spent in school, and just a few hours watching live theatre (Downs, Wright, and Ramsey, 2007: 28). The numbers for many other western nations, one may assume, are not substantially different.

These numbers, of course, do not tell the whole story since new forms of theatrical, or quasi-theatrical performances have emerged, which bridge the tradition of representational theatre with the new interactive media to create live experiences that capitalize on the inherent strengths of both. Part of this shift is economic – it is cheaper to make a modest film or video and have it shown around the world on *YouTube* than to produce a play for the local fringe festival. The other part of it is cultural – the explosion of interest in «reality shows» and «docudrama» for example, *The Amazing Race*, *Survivor*, *Train 48*, *Flight 93*, *Bowling for Columbine*, *Sicko*, *Spellbound* and dozens of others, which allow audiences to partake in the questionable illusion of the tribulations of real people. While film, television, and the internet profit from this fascination with «real» experiences, it is, paradoxically, in live, real-time, interactive *theatre* where «the real» can be generated *for real*, no matter if it is mediated according to conventional paradigms or mediatized through the diverse paradigms of the new interactive media.

Ironically, the idea that the theatre's liveness is – in itself – a virtue and a source of automatic, unearned moral superiority to film and television has been exposed by theatre scholars Peggy Phelan, Denise Varney and Rachel Fensham as «sheer bourgeois sentimentality» (Varney and Fensham, 2000: 91). Banal as it may sound, there is a perception that the theatre may have to be brought to the people if the people don't come to the theatre; and one of the best ways of doing that is to utilize the multitude of available popular media, singly or in combination, to create live, real-time, interactive theatrical experiences.

The question that poses itself at this juncture, and which appears to get asked every time theatre embraces one of the latest technological developments is whether we are justified in calling this type of telematic presentation theatre. Our argument is that it must have something to do with theatre because telematic performances tend to happen in theatrical spaces, involve actors, use dramatic scripts, connect with past theatrical practice, and form part of the academic discourse of theatre studies. However, some purists might refuse to recognize it as theatre because it contravenes, or ignores, some of the most revered assumptions about theatrical practice: actors and audiences occupying the same physical space, for example; the possibility of haptic exchanges and interactions amongst actors, which can play such a crucial part in establishing characters and their relationships; the often very subtle interactive and reciprocally affective

responses on the part of both actors and audiences, which contribute towards the ephemeral nature of the theatrical event, and which, in the opinion of Peggy Phelen constitutes the ontology of performance (Phelen, 1993: 146).

So what can we call it? Cyberperformance? Performance? Hyperperformance? Hyperperformance? Distributed performance? Multi-point videoconferenced performance? Telematic Performance? Distance Theatre? All of these labels have been attached to the type of telematic performances we have created over the past five years. We wonder if it is necessary to label the creation and if it is deemed necessary then who would benefit? If it is for advertising purposes the label might be rather wordy, for example: «a fully mediatised, multi-locational hyper drama with virtual performers in cyberspace by Jane Doe» is unlikely to be effective at attracting an audience. Similarly, in the arena of critical discourse academics will deconstruct any attempt at categorization. Therefore, instead of trying to pin it down semantically or typologically, it might be more fruitful to ask why we choose to make theatre that inhabits the realm of intermediality – where all concerned are located quite literally «in-between media» as performers, technicians and inter-active receivers.

There is a long list of benefits inherent in teleconferencing technology, which makes this technology a very desirable and remarkably reliable resource for both facilitating and researching theatrical activities. To begin with, and speaking purely logistically, teleconferencing can be useful in facilitating auditions and early dramaturgical brainstorming sessions, and in rehearsing and designing a production with theatre artists who are committed to engagements in other locations. Auditions, rehearsals, and all of the conceptual and dramaturgical discussions between the collaborators on this project were facilitated through telematic technology.

A more significant reason is that it allowed us to explore, *in theatrical terms*, the range of communicative choices provided by this particular technology and its associated media (video, sound, etc.). Theatre has always embraced the latest technological advances, and following Bolter and Grusin's persuasive historical approach in *Remediation* (1999), we argue that almost any technological manifestation has been utilized for creative expression. The lead pencil, after all, represents a technological advance over wax stencils or stone carving instruments and was not originally designed specifically for Dürer to create his drawings. Nor were BMW automobile parts created for Bruce Gray to make sculptures out of them. Telematic performances (let's agree to call them that for now), provided us with the opportunity to explore the creative potential inherent in teleconferencing technology.

In this we were guided by the well-known aesthetic paradigm that Michelangelo was merely an excavator who found the shape of David in a block of marble in which David had resided all along. To us, teleconferencing

technology had something of that block of marble from which we hoped to excavate many things of beauty. Furthermore, in the generation of the frequent-flyer business types gripped by fear of air travel in the post-9/11 world, the popularity and quality of image and sound production and distribution of teleconferencing technology has advanced at breath-taking speed. It has developed into a vehicle for human-to-human and human-to-technology interactions, which provide such a high degree of realism in image and sound reproduction that, as Theresa Ditton, Mathew Lombard, Carlton Reeve argue, it can provide an extremely strong sense of presence through «the perceptual illusion of non-mediation» (Lombard and Ditton, 2004).

Multi-point telematic productions like *The Adding Machine* have the potential to be interactive on a global scale that is truly inter- and cross-cultural. They transcend limitations of space and time in an unprecedented manner and at very limited expense; they have the potential to synchronize and synergize with the full range of filmic, digital, phono-digital, and cyber-spatial opportunities available. In conjunction with some of the latest developments in computer-generated special effects, telematic performances facilitate the real-time co-existence of live performers, with mediated performers and digitally generated avatars; they can be streamed live onto the web to audiences counting in the millions; and they enable theatre researchers to access an unprecedented amount of data to back-up their theoretical meditations on as yet unresolved questions in performance and reception studies, and thus lead to the advancement of a truly global approach to theatre and performance research.

Telematic performances become truly intermedial when streamed onto the web, with the potential to reach an audience of millions that are not a passive audience but who can actually interact with the performers through the employment of «remote approbation feedback interfaces» which are being developed at the University of Waterloo. In addition, they may also introduce the *YouTube* generation to theatre sites on the web, which, sadly, they are not keen on visiting in actuality.

As always, there is an economic argument to be made here as well: telematically generated theatrical interactions are extremely cost-effective – essentially, the cost of electricity to run a computer, sound equipment, and camera; they facilitate meetings, discussions, improvisations, and performances without the expense associated with travel and hire rental of theatres.

Finally, teleconferencing technology has the capacity to support one of the most striking developments in video-transfer technology – the projection of three-dimensional full-sized holographic images of real people into a (potentially) unlimited number of locations through «Teleportation». For example, the New York City-based 3-legged Dog Theatre Company recently

used the Musion Eyeliner projection system to create holographic avatars on stage for their production of *Losing Something* in the spring of 2007.<sup>7</sup> The same system was used to allow the animated musical group GorillaZ to serve as the back-up band for Madonna at the 2006 Grammy Awards.<sup>8</sup>

However, we recognise also that all of this good news is laden with more questions, in particular, the issues that relate to dramaturgy. For example, are there particular genres of plays that lend themselves to this form of intermediality? or does the use of telematic performance depend on the conceptual approach on the part of the director?

Here we may think of the work of the Belgian director Guy Cassiers and his production of *Rouge Décanté*, which used live video transfer on stage and begin to wonder how we may evaluate these types of performances. Can *Iphigenia* partake in a 21<sup>st</sup> century rave from a remote location, as is suggested in Caridad Svich's rave fable *Iphigenia Crash Land Falls on the Neon Shell that Was Once Her Heart*? Might it be possible to take a hypertextual environmental drama like *Tamara* by John Krizanc and Richard Rose and make it linear through the use of multi-screen presentations, and if so, then what would be the value of such a project?

In essence, having successfully proved to ourselves that telematic performances are possible, we need now to question the performances of *The Adding Machine* in relation to «real» theatre – as defined by the theatrical action taking place in real time, in front of a live audience in the real space of the here and now. This raises the following questions:

1. How much of the affective theatre experience do we lose by replacing human-to-human interaction with technologically-enhanced collaborations in rehearsals and live productions?
2. How can telematic performances respond to the subtle shifts in audience reactions, when audience members are thousands of miles away or partaking in the presentation sitting alone at their home computer?
3. How can the experience be real, complete, or authentic when, as is often the case, flawed connectivity or qualitatively divergent infrastructures or dialogic responses are delayed, and where synchronicity between voice and gesture is inconsistent and movements are devoid of their natural fluidity?

It seems to us that the questions ask us to compare apples and oranges. Yes, on the one hand, teleconferenced theatre can be studied in terms of the generic dramaturgical parameters we associate with regular live theatre – after all, the

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7. See «Current Productions», <<http://3leggeddog.org/mt/>>, [28-8-2007].

8. See «gorillaz & madonna - grammy awards 2006», <[http://www.eyeliner3d.com/gorillaz\\_madonna\\_grammy\\_awards.html](http://www.eyeliner3d.com/gorillaz_madonna_grammy_awards.html)>, [28-8-2007].

two share many elements and creative objectives; on the other hand, such a discussion is preordained to focus on the perceived shortcomings of teleconferenced theatre vis-à-vis the exclusive standards set by a reductive, purist notion of what constitutes «real» theatre. Some of these shortcomings are, after all, not insubstantial:

1. Actors and audience members do *not* share the same space; actors address cameras in order to establish eye contact with a partner instead of looking at that partner directly;
2. Actors participating from remote locations appear only two-dimensionally and have no opportunity for haptic interaction with local actors;
3. At this stage in the development of the technology, data transfer limitations can still cause latency in dialogue, jaggging of movements and lack of synchronicity between the two.

Together, these «flaws» are perceived by some as alienating for an audience and anathema to the experience of intimacy, immediacy, simultaneity, believability, and the resulting sense of presence we commonly associate with conventional theatre. In spite of the gravity of these reservations, however, this line of argumentation seems short-sighted to us, partly because we cannot blame the technology for something it was not originally designed to do; just as we cannot blame the *mechane* in Greek theatre for not bringing the gods on stage in a less obtrusive way; and partly because the development of the technology is still in its infancy; there is strong evidence that some of these technical shortcomings will be overcome before long. At the same time, it is important also to point out that some of the technical limitations will never be resolved because they are inherent to the medium. Crucially, however, it could be considered cavalier to fault telematic theatre exclusively on its failure to replicate a form of theatre that is based on the naturalistic model, while other modes of producing and presenting theatre exhibit a much greater openness to this technology. Take, for example, the work of Robert Lepage, which includes many instances of his interest in telematics, as well as other forms of digital technology, because they suit his multi-layered, non-linear narratives. Consider also Robert Wilson's image-driven theatre in which video technology allows him to give expression to the enormous scale of his images.

What is more pertinent to us is that part of the fascination of teleconferenced theatre is that it challenges old ways of performing; it deconstructs conventions, and leaves us with the joyous wonderment of how it all comes together as an affective experience. Because the method of creation may alienate us from conventional modes of representation and perception, it actually makes us more aware of the creative process *per se* and the paradigm shift in the convention. No



theatrical or quasi-theatrical representation has much value unless it engages an audience in some way. What theatre – like any other art form – is *really* about, says Darren O'Donnell in *Social Acupuncture* «is generating affect, and that's it. Feelings. And, if things go well, quickly following feelings will be thoughts» (O'Donnell, 2006: 19).

We know that the audience's capacity for having feelings and generating thoughts is crucially connected with its willingness to suspend its disbelief. In this context it is necessary to ask whether or not telematic theatre has the capacity to make an audience suspend its disbelief as willingly in the virtual space, as it does in performances where actors and audience share the same physical space. We believe that the audience response to *The Adding Machine* confirmed that audiences are more than willing to embrace the telematic illusions in virtual space, largely because: «theater [...] is the original virtual reality machine» (Reaney, 1996: 38), but also because in the last few years society generally have become so accustomed to experiencing things in a virtual manner, that the two have become increasingly intermingled and have turned out to be experientially similar. According to University of Kansas researcher and virtual scenographer Mark Reaney, both theatre and virtual reality allow audiences to «visit imaginary worlds which are interactive and immersive» (Reaney, 1996: 28). The degree of familiarity with a particular medium either encourages, or discourages a sense of presence and generates a greater or lesser degree of comfort with its operational specificities.

Lombard and Ditton conclude that it is not the characters, storylines, or actors that affect a sense of believability but the behaviour of the medium. The experience of *The Adding Machine* bears this out. After some initial hesitation and uncertainty, the actors accepted very quickly the limitations of the medium: delayed immediacy of response; inconsistent synchronicity of voice and movement; diminished fluidity of motion and quickly found a way of making the medium serve their acting needs. They succeeded in creating the illusion of non-mediated exchanges, and indeed, the success of this adaptation to the perceived shortcomings of the medium gave them great satisfaction and enhanced their perception of the «reality» of their exchanges. Experientially, the actors appeared to feel little difference between performing with remote partners in a virtual space and performing with real partners in a real space, in spite of a certain loss of intimacy, spontaneity, and immediacy. Thus, telematic performances like *The Adding Machine* problematized anew the aesthetics of reception in the theatre – one dictated and honed by the increasingly pervasive intermedial experiences – with critical receptors that are decidedly different from those fine-tuned by conventional theatrical practice. They remind us also to consider the concomitant difference in audience experience – an experience that may be, simultaneously, more solitary and more communal; one that

presents both performers and recipients with a very different sense of their engagement in a performance.

In conclusion: a word of warning. Historically, we are still at the very early stages of a technological revolution, which will very likely change the face of live theatre over the next couple of decades, and much of what seems valuable or exhilarating today will fall by the wayside, only to be replaced by something that is perceived more valuable, more relevant, or more exhilarating. We must acknowledge also that some of us are still too infatuated with, or too dismissive of, the new worlds of virtual reality, intermediality, cyberspace, or hypertext to see them for what they truly are. However, once our infatuation or dismissal matures into a real understanding of their innovative and challenging prospects, we may find ways of expressing ourselves through them, which we had not considered before – imperfections notwithstanding. This is why it is incumbent upon us *now* to gain the best possible understanding of the language of this revolution: its syntax, and its poetry, regardless of whether we wish to conserve ferociously the theatre of old, or if we wish to invest it, or even supplant it, with these new prospects. Most likely, teleconferenced theatre will never replace live theatre as we know it, and there is no reason why it should or would. It is simply a response both to the art of theatre, to which it is next of kin, and to the new medium which parented it, from which the art of theatre has a lot to learn. Our hope is that one will invigorate the other.

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