

Theatrical Explorations in Virtual Reality:

Mark Reaney's *The Adding Machine* and Brenda Laurel's *Placeholder*

By Lori Shyba (2003)

Back in the computer stone-age of the 1960s and '70s, a battalion of ambitious computer scientists and visionaries forged what is colloquially known as the Information Superhighway — a metaphorically narrow band of technology which became fertile experimentation ground for artists and innovators of interactive installations, web cinema, role-playing computer games, as well as experiential forms of virtual reality (VR). Now that we have reached the third-millennium — a critical intersection in computer-mediated art and theatre, where tools, technology, and delivery methods are, more or less, keeping stride with the needs and expectations of artists — it's possible to step back to get a historical perspective on early innovators of computer-mediated dramatic art forms.

In this paper, I will look at the formative work of two artists whose work has made an impact on theatre history through their utilization of two distinct forms of virtual reality — Mark Reaney, working in a theatrically conventional 15-meter, or 50-foot, distance of experience, represented by his designs for Elmer Rice's play, *The Adding Machine*, and Brenda Laurel working in an immersive, "zero" distance of experience, represented by her original collaborative work *Placeholder*.¹ What are their common ideologies, and where do their theories and practices diverge? What is the process, both creative and technical, behind the making of the art of virtual reality? And, considering the cultural climate of the early 1990s, how can one contextualize these works within the genre of dramatic arts? Are Reaney's and Laurel's work considered theatre, performance art, visual art installation, or hybrid forms?

Distance of Experience

Before exploring these issues in detail, it's valuable to get a perspective on the concept of "distance of experience." The inventive artists and technologists who create interactive works can be categorized based upon their platform of delivery, and upon the resulting distance at which the audience's experience occurs. In a 60-centimetre, or two-foot, distance of experience, the "platform" is the computer screen, and the audience typically interacts through the use of a mouse or, in some cases, by touching a screen. In a three-metre, or 10-foot, distance of experience, the audience normally interacts with the "platform" of a television monitor across a room, and through the use of a gaming console. The 15-metre, or 50-foot, distance of experience, is closely related to a conventional theatrical context where the interaction occurs primarily with a theatre stage as "platform," through the incorporation of technology-driven stadium-style theatrical stagecraft.

The fourth, and most futuristically compelling, form of computer-mediated interactive dramatic art, could be called a "zero" distance of experience — immersive virtual reality where individual audience members literally become "the actor" — actually living the story, and playing the part themselves. In the case of "zero distance," immersion into a virtual environment creates a complete body-centred, human-to-computer interface communication

Consider this scenario:

It's 1995. We're in an audience, and we're all here to see Elmer Rice's *The Adding Machine* which, by the program notes, we know is the story of a man struggling against technology. We're sitting in a darkened stage house at the University of Kansas wearing 3-D polarized glasses, surrounded on three sides by black velour. Before us stands a stage platform, covered with

a black carpet. Immediately behind the platform, a black rear-projection screen hangs, flat in the center, but angled toward us as it extends from either side of the stage. As the action of the play begins, the screen seems to disappear and is replaced by a series of virtual worlds. A designer/technologist has devised eight different scenes including a bedroom, an office, and a graveyard, which appear as 3-D spaces behind the actors, and objects seem to emerge from the screen into the playing area. Live actors on stage converse with images of other actors who work live in front of a camera, backstage. An eerie soundtrack plays throughout. Behind the screen, the crew watches the action on a video monitor. As Mr. and Mrs. Zero move about the stage, a computer operator steers the observation point within the virtual worlds, and as our 3-D glasses cause our vantage point to change, the actors appear to “travel” within the world. As they enter and move about the bedroom, we see the scenery moving with them, moving to the right and left, closer and further away and panning around the room. When Zero climbs into bed, our viewpoint is raised to the ceiling and we look down on the bed. The actor playing Zero stands in front of the 3-D image of the bed, and seems to be lying upon it, sleeping soundly. Sometimes we see physical movement of the characters through the setting such as Zero rising out of the ground in the graveyard, and sometimes it reflects Zero’s changing state of mind. When a dazed Zero returns home after killing his boss, the furniture floats in mid-air and the walls of his living room spin and tilt wildly. In jail, Zero daydreams of past excursions to the beach and we travel with him, only to be wrenched back to his cell as the daydream ends.²

Mark Reaney, with his innovative stagecraft expressing a 15-metre, or 50-foot, distance of experience, has been instrumental in creating scenographic works for the University of Kansas such as the 1995 production of Elmer Rice's *The Adding Machine* that explore the integration of experimental technologies with theatrical production. When describing the similarities between the art of the theatre and the phenomenon of virtual reality Reaney proclaims, "A theatre performance and a VR experience both are time based, existing only during that time that the human participants are engaged with them. Both rely on the creation of a fictive universe, designed to entertain, inform, and enlighten" ("Art in Real Time"¹).

Consider this even-earlier, scenario:

It's 1993, and I've stepped into the VR production *Placeholder* at The Banff Centre. Suited up with a stereoscopic head-mount display, I've been told I'll be able to not only explore narratives from aboriginal tales, but actually immerse myself by being a "player" in three connected virtual environments – hoodoos above the Bow River, a rushing waterfall, and a dark watery cave. I decide to explore the cave, and I hear story fragments emanating from animal-spirit petroglyphs all around a pool. The voice of a Goddess, who seems to reside in my head, draws me to the crow "critter" spirit who severely startles me with her spacialized vocal enticements. I jump, turn, and look up, all quite involuntarily and, as I grow nearer, the crow critter starts telling me about herself — her powers, characteristics, and her feelings about the other animal spirits in the room, all the while urging me closer. When my head intersects with hers, I become embodied in her, and my body politic suddenly changes how I look, sound, move, and perceive the world. I have an urge to pick up and collect shiny things,

and to flap my wings in order to fly away. My elegant landing makes me feel like an expert flyer, and I'm able to dialogue about this with the Goddess — a holographic vision who even knows my name. She listens to my adventure for a while but then begins behaving like a naughty cupid and a tease, connecting me with another headset-suited participant who, by all appearances, is just becoming disembodied from an immersive snake “critter” experience. My new real-time friend and I are both drawn to an irresistible sound beckoning us into a spiral-shaped “portal” which, intriguingly, transports my companion off to a full-motion rushing waterfall environment, while I'm whisked to a stand of Hoodoos above the Bow River where a continuous sound of a river below allows me to close my eyes, spin around a few times, and then point accurately at its exact location – an evocative and pleasant experience. I'm able to record a fragment of my adventure into a “voiceholder” to leave a little mark of myself on this place.³

Brenda Laurel who masterminded the immersive “zero distance” VR experience, *Placeholder* at the Banff Centre in Alberta Canada, has created a legacy in many aspects of computer-mediated drama, including her ground-breaking 1991 PhD dissertation entitled “Toward the Design of a Computer-based Interactive Fantasy System,” (subsequently published as *Computers as Theatre*), along with stints at Atari and Apple Computer where she “helped to shape the emerging field of computer entertainment” (Montfort 76). In her artistic statement for *Placeholder*, Brenda Laurel asserted, “Our motto was ‘no interface,’ expressing our desire to maximize naturalness, to enable the body to act directly in the world, and to minimize distraction and cognitive load.” Laurel further elaborates, “It's not that the audience joins the actors on stage; it's that they

become actors — and the notion of passive observers disappear” (Laurel, Strickland, and Tow 7).

Similarities and Differences

There is no argument that both Brenda Laurel and Mark Reaney utilize computers as creative tools; in fact Laurel’s thoughts that “the computer serves as a projection surface for our own hopes and fears about what it means to be human in these times” (Laurel: *Computers* 17), coincide effectively with Reaney’s objective of using computers, “not as a dehumanizing force, but as an interpretive artistic medium” (qtd. in Wilson: 697).

However, *The Adding Machine* and *Placeholder* projects diverge enough, especially in terms of the audiences’ “distance of experience,” that an important issue emerges: Can we consider both these scenarios to be virtual reality experiences? And if so, are they both VR dramatic art experiences?

Reaney, in *The Adding Machine*, created an illusion, for the audience, of being within the environment by making computer-generated objects appear to occupy 3-D space, whereas Laurel, in *Placeholder*, actually created an illusion that audience members were individually participating within the environment depicted by the computer. *The Adding Machine* provided the audience with a distinct beginning, middle, and end, and the production personnel directly controlled the duration of the experience, whereas *Placeholder* was, as Laurel puts it, “inimical to this kind of authorial control — working best when people can move about and do things [...] in a relatively unconstrained way” (Laurel, Strickland, and Tow 1).

Howard Rheingold, a computer-age visionary with a masterful understanding of the subject of virtual reality, defines VR as, “a magical window onto other worlds, from molecules to minds,” calling it “neither strictly a child of computer science, nor a form of entertainment, but something that necessarily partakes of both technical legacies” (67).

Another intriguing definition is offered by Charles Jonscher who declares “The label is the perfect oxymoron, for the opposite of ‘virtual’ is ‘real’, so what are those of us without the goggles seeing? Real reality? But the term makes its point — we can block our eyes and ears from seeing and hearing what is really there, and substitute something which is not” (174). A third definition, this time from Mark Reaney himself declares, “VR is a computer simulation of real or imaginary environments and that these simulations are ‘interactive,’ capable of being navigated or manipulated in real-time rather than being prerecorded.” He carries on to say, pointing out a possible discrepancy in his own production, “some definitions also include the idea of immersion, in which the images of the virtual environments are presented to the user in such an intimate manner that the real world can be disregarded” (Virtual Scenography 36).

Ironically, Mark Reaney seems to have tipped the scales slightly in favour of Laurel and Strickland’s immersive *Placeholder* in terms of a production of fully qualified virtual reality environment. However, Reaney goes on to qualify that, in the case of *The Adding Machine*, “since the focus was to create a theatre piece enhanced by VR, and not to produce a VR artwork using theatrical methods, it was decided that theatre conventions would take precedence over the VR practices” (Virtual Scenography 38).

Among the defining signs of dramatic art is the value placed on narration or the telling of a story. Mark Reaney feels that virtual reality can “unlock many scripts, realizing potentials that have been thwarted by production techniques that, being bound by muslin, wood, and steel, cannot keep pace with the imagination of playwrights” (Virtual Scenography 43). Reaney did not write *The Adding Machine*, but clearly recognized the affinity of Elmer Rice’s script with the capabilities of virtual reality stagecraft. In 1923, in an interview with the *New York Times*, as cited by Reaney, Elmer Rice explained his stage vision as departing from objective reality and employing “symbols, condensations, and ...

devices which, to the conservative, must seem arbitrarily fantastic” (Virtual Scenography 43).

Floating furniture, spinning walls, dancers that fly, and people walking through walls were all effects that Reaney created by a mega-bank of offstage computers, mixers, projectors, and cameras that he referred to as “Mission Control.” He explains that:

At the heart of the formation, were two projectors needed to project graphics with an illusion of three-dimensionality. One projector was assigned to right-eye views only, and the other to left-eye views. Each was then polarized with the “direction of polarization” in opposition to each other [...] in such a manner as to match the polarization of the special glasses given to each audience member and the 3-D illusion was formed (Virtual Scenography 43).

Brenda Laurel, on the other hand, was intimately connected with not only the creation of the “mise-en-scène” and stagecraft of the virtual world, but the with the narrative storyline of *Placeholder* as well. In collaboration with storyteller Lucinda deLorimier, motifs were extracted from mythology and folklore to create dialogue for the critter inhabitants of the virtual world, and then work sessions were facilitated with actors from Banff’s Precipice Theatre Society, who improvised the action, vocal, and physical characteristics of the critter characters.

In 1986, many years before *Placeholder* was enacted, Howard Rheingold points out that Brenda Laurel was putting forward a wish to pursue the use of “fantasy amplifiers as soon as technology makes them possible” (306). He cites her paper “Interface as Mimesis” which uncovers her attitude about how drama provides a methodology for designing “worlds where larger forces like ethics, fate, or serendipity form constellations of meaning that are only rarely afforded by the real world.” Laurel further conjectures in this paper

that, “If we can make such worlds interactive, where a user’s choices and actions can flow through the dramatic lens, then we will enable an exercise of the imagination, intellect, and spirit that is of an entirely new order” (qtd. in Rheingold: 306).

Voices of the Goddess, embodied birds, snakes, and spiders, and full immersion waterfalls, were among the effects created by the central “fantasy amplifiers” in *Placeholder* — the headsets, or display helmets, that provided both visual, and auditory stimuli to the participants. Rob Tow, *Placeholder*’s technologist, outlined the environment as, “two physical spaces where the participants stood, wearing display helmets and body sensors, and three virtual worlds through which they could independently move,” aided by an additional sensor system “the Grippees [which allowed] the simple ‘grasping’ interface for virtual objects.” Combining the ideological and technological intent, Tow says:

the design of *Placeholder* is to cause participants to become more aware of what it is to be an embodied human. We sought to problematize issues around body and gender in the realm of the senses — in studied contrast to the usual literary post-modern de-constructionism, which denigrates the visual sense, and insists on the primacy of text, and results in a profound disembodiment of cognition and feeling (Laurel, Strickland, and Tow 15).

Expanding the Definition of Dramatic Arts

All things taken into account, I believe one could qualify both *Placeholder* and Reaney’s scenographic interpretation of *The Adding Machine* as virtual reality experiences, but the next query that evolves is this: What do these works mean within the context of dramatic art? If we accept that Mark Reaney is working in a theatrical milieu, on a stage platform, with an audience who is all experiencing a similar 50-foot experience, where does that

position *Placeholder* within the genre of dramatic art? I don't think one can dispute the fact that Mark Reaney creates theatrical experiences, but what about Brenda Laurel?

Recent drama theorists, such as Marvin Carlson, have disregarded the notion that performance, in a dramatic sense, needs to be "carried out for someone," and further indicates that:

although traditional theatre has regarded this "other" as a character in a dramatic action, embodied (through performance) by an actor, modern performance art has, in general, not been centrally concerned with this dynamic (6).

Using these criteria, could one not accept *Placeholder* as being 'Performance Art' rather than being 'Theatre?' By looking at several definitions of performance art including David Romàn's succinct "live art by artists" (211). and Rosalee Goldberg's assessment of it being "a permissive, open-ended medium with endless variables, executed by artists impatient with the limitations of more established art form" (qtd. in Carlson: 79) *Placeholder*, could be positioned within the category of Performance Art, but only under the condition that flexibility be given to the concept of audience as actor within an immersive or "zero" distance of experience.

This flexibility is not provided by visual art theorist Oliver Grau who, in his book *Virtual Art, From Illusion to Immersion*, argues that, "in virtual environments, a fragile, core element of art comes under threat: the observer's act of distancing that is a prerequisite for any critical reflection" (202). He further cites Theodore Adorno who amplifies his argument by stating, "Distance is a phenomenon of works of art that transcends their mere existence; their absolute proximity would mean their absolute integration"(qtd. in Grau: 202). These viewpoints from the visual art world seem to preclude the value of performance, in the form of a "zero-distance" actor's experience, as

being an artistic endeavor. Herein lies what I see as being the defining line between performance installation, as validated and embraced by the visual art world, and performance art as validated and embraced by the dramatic art world. By embracing *Placeholder* in the context of dramatic performance art, rather than visual performance installation, Brenda Laurel's own embracement of audience as actors immersed in a body-centred, human-to-computer interface communication, delineates a clear line in the sand between the world of art, and the world of drama.

Conclusion

The early 1990s were ancient times in terms of computer-mediated virtual reality dramatic art, and both Mark Reaney, and Brenda Laurel, have gone on to produce projects that make these early efforts pale in comparison. As of the date of this essay's completion, April 2003, Professor Reaney of Department of Theatre and Film at the University of Kansas, and director of The Institute for the Exploration of Virtual Realities, is about to launch his seventh University of Kansas experimental virtual reality theatre production, Mozart's *The Magic Flute*, where, according to the press release, the VR technology "will allow the stage pictures to move almost as fast as the music" (Mozart 1).

Subsequent to the *Placeholder* project, Brenda Laurel spent four years conducting research on gender, putting it to work at Purple Moon where she developed interactive computer games for girls. Laurel is currently Chair of the MFA Media Design program at the Art Center Design College in Pasadena, California, and teaches "Super Studio," which emulates a company or campaign with a socially responsible theme. She also maintains an active consulting, and public speaking career in the areas of interactive media; kids, teens, and popular culture; gender and design; computer games and interactive play; and online communities.

Works Cited

- Carlson, Marvin. *Performance: A Critical Introduction*. London: Routledge, 1996.
- Grau, Oliver. *Virtual Art: From Illusion to Immersion*. Trans. Gloria Custance. Cambridge: MIT, 2003.
- Jonscher, Charles. *WiredLife: Who Are We in the Digital Age?* London: Bantam, 1999.
- Laurel, Brenda. *Computers as Theatre*. Reading, MA: Addison-Wesley, 1993.
- _____. Brenda Laurel's Home Page. 31 Mar. 2003 <http://www.tauzero.com/brenda_laurel/>.
- Laurel, Brenda, Rachel Strickland, and Rob Tow. "Placeholder: Landscape and Narrative In Virtual Environments" *ACM Computer Graphics Quarterly* 28.2 (1994), <http://www.tauzero.com/Brenda_Laurel/Severed_Heads/CGQ_Placeholder.html>.
- McLuhan, Marshall, and Quentin Fiore. *The Medium is the Massage: An Inventory of Effects*. New York: Bantam, 1967.
- Montfort, Nick. "Spawn of Atari." *Wired* October 1996.
- Reaney, Mark. "Art in Real-Time: Theatre and Virtual Reality." Actes des seminaries CIREN Seminars, Paris University, 24 March, 2000. <<http://www.ukans.edu/~mreaney/reaney/ciren>>.
- _____. "Digital Scenography: Bringing the theatre into the information age." *L'art et le numerique*, 2000. <<http://www.ukans.edu/~mreaney/reaney/>>.
- _____. "Mozart's Magic Flute." Information Release. *Mark Reaney's Portfolio*. July 2002. <<http://www.ku.edu/~mreaney/flute/>>.
- _____. "The Theatre of Virtual Reality: Designing Scenery in an Imaginary World." *Theatre Design and Technology*, 29.2 (1992): 29-32.

____. "Virtual Scenography: The Actor/Audience/Computer Interface." *Theatre Design and Technology*, 32.1 (1996): 36-43.

Rheingold, Howard. *Virtual Reality: The Revolutionary Technology of Computer-Generated Artificial Worlds*. New York: Simon and Schuster, 1991.

Wilson, Stephen. *Information Arts: Intersections of Art, Science, and Technology*. Cambridge: MIT, 2002.

Notes

¹ Placeholder was a collaborative project between Brenda Laurel, Rachel Strickland, and Robert Tow.

² Stephen Wilson, *Information Arts: Intersections of Art, Science, and Technology* (Cambridge: MIT, 2002) 723-724, and Mark Reaney, "Virtual Scenography: The Actor/Audience/Computer Interface," *Theatre Design and Technology* 32.1 (1996) 36 – 43, were among the sources used in creating this hypothetical scenario.

³ Laurel, Strickland, and Tow, "Placeholder: Landscape and Narrative In Virtual Environments," *ACM Computer Graphics Quarterly* 28.2 (1994), <http://www.tauzero.com/Brenda_Laurel/Severed_Heads/CGQ_Placeholder.html>, and Stephen Wilson, *Information Arts: Intersections of Art, Science, and Technology*. (Cambridge: MIT 2002) 694 – 698, were among the sources used in creating this hypothetical scenario.