“DIGI-SITE:” CREATING SPACES OF ENGAGEMENT THROUGH DANCE AND TECHNOLOGY

A PROFESSIONAL PAPER

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COLLEGE OF ARTS AND SCIENCES

BY

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DENTON, TEXAS

MAY 2011

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To the Dean of the Graduate School:

I am submitting a herewith a professional paper written by Scott F. Martin entitled: "'Digi-Site:' Creating Spaces of Engagement through Dance and Technology." I have examined this professional paper for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Masters of Fine Arts with a major in Dance.

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Jordan Fuchs, M.F.A., Major Professor

We have read this professional paper and recommend its acceptance:

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Sarah Gamblin, M.F.A

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Mary Williford-Shade, M.F.A

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Penelope Hanstein, Ph.D., Dance Department Chair

DEDICATION

To my parents, Dr. Kathleen Martin and Donald Martin,
thank you for your unwavering love, guidance, and encouragement.

&

To my partner and friend, John Greer,
thank you for your continual patience, support, and love.

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ABSTRACT

SCOTT F. MARTIN

"DIGI-SITE:" CREATING SPACES OF ENGAGEMENT
THROUGH DANCE AND TECHNOLOGY

MAY 2011

The purpose of this paper is to identify and discuss the opportunities that virtual and responsive spaces offer to dance in developing engagements with perceptual awareness, embodiment, and interactivity. In this project, the eleven collaborators and I investigated different methods of integrating digital image projection and responsive computer systems into dance spaces and explored how these environments allowed us to develop techniques of engaging, creating, experiencing, and communicating movement and idea. For the purposes of this paper, I will refer to these contexts as "digi-sites." These explorations were part of a series of summer workshops which culminated in an evening length dance concert presented at the Texas Woman's University Dance Theatre Studio. The works presented created new contexts for both performers and audience members to experience dance by integrating technologies that were responsive to improvisational scores collaboratively created with the dancers.

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Introduction and Purpose

When considering the evolution of technology over the last 40,000 years, most technologies have primarily acted as an addition to, or extension of the body, allowing us to reach beyond our normal physical capabilities (Dutton, 2008). A new and exciting shift has occurred in the way we create, interact with, and utilize today's technologies to engage our imaginations and the world around us. New computer based digital imaging and projection technologies now extend and expand our imaginations and concepts of beauty into new territories, creating responsive virtual spaces that have the potential to shape, sometimes even transcend, the negotiation of perceptual and kinesthetic awareness. These evolutions of space provide us with an adaptive ability to alter experience which can be used to extend and intensify the creation and enjoyment of works of art and entertainment.

How can the evolution of these technologies inform and influence dance inquiry and creative practices? In my culminating project *Techdance: exploring engagement through dance and technology*, the eleven collaborators (see Appendix A) and I investigated different techniques of integrating digital image projection and responsive computer systems into dance spaces. We explored how these environments allowed us to develop ways of engaging, creating, experiencing, and communicating movement and idea. These explorations began as a series of summer workshops which culminated in an evening length dance concert presented at the Texas Woman's University Dance Theatre Studio. The works presented created contexts for both performers and audience members to experience dance by integrating technologies that were responsive to improvisational

scores collaboratively created with the dancers. I will refer to these contexts as "digi-sites."

The purpose of this paper is to identify and discuss the opportunities that different digi-site contexts offer to dance in developing engagements with perceptual awareness, embodiment, and interactivity. This paper starts by briefly looking at the evolution of space in performance in order to investigate more closely how digi-sites open modes of experience for both dancers and audiences. I then explore three examples from the Techdance workshops which investigated how perceptual awareness, embodiment, and interactivity were informed within the digi-sites context. Next, from these investigations several guiding principles for engagement/integration of technology into a digi-site are distilled and identified which can be used as entry points by other artists interested in exploring these contexts. Finally, I reflect on the Techdance workshop series and performance experience from a personal perspective.

Digi-Site: The Evolution of the Space in Performance

The nature of theatrical space has varied greatly through its evolution. From live stage performance to virtual internet streaming, the method of engagement and relationship of audience to that which is being presented have undergone many possible arrangements. For the purposes of this paper, I will briefly examine three key evolutionary contexts which have informed and influenced the evolution of the digi-site: site-specific performance, cinema, and computers.

During the 1960s, a site-specific performance movement emerged whose key impulses of creativity and performance were establishing a sense of a "lived moment"

with the space. Within this context, creative impulses are informed by the architectural, sonic, environmental, social, and historical context of the location or site (Foster, 2002). Additionally, the experience of engagement with the space is often extended beyond the performer to include the audience in a unique way. This is done by immersing the audience into the site of performance itself, removing the sense of a "fourth wall", and allowing the audience to move about the space. By doing so, the audience has the choice making ability of alternating their personal viewpoints of the performance and experiencing different aspects of the space themselves first-hand.

Somewhat concurrent with evolution of site based performance was the evolution of mass-accessible cinema. In the traditional cinema context, the spectators are physically present, but the actors and site are a virtual presence only, unable to respond to the spectator or adjust their performance to what might be occurring. The evolution of cinema opened new doors to creative storytelling by utilizing visual editing techniques to expand and capture audience imaginations. Yet, the mainstream movie and television shows of today present only a single perspective, that of the camera. In this way, they suggest only one "truth" to the audience, walking them step-by-step-through a pre-arranged narrative. (Morse, 1999)

The single perspective aspect of the evolution in theatrical space brought about by cinema has been challenged by the development and use of computers. Morse (1999) notes that as computers have evolved and expanded, becoming more accessible and

integrated into everyday cultural experiences and the social masses:

> the cinematic apparatus has now been largely subsumed into an electronic culture of video and computer-assisted imagery based on principles of envelopment and temporal simultaneity rather than distance and sequential unfolding. Television, video, and the computer have "live" screens that expose multiple "heres" and "nows" that overlap… with our own physical reality. (p. 64)

In addition to new contexts of overlapping experience, Youtube and other social media networks are evolving to create engaging interactive viewings and collaborative creative web platforms available to everyone.

Similar to site-specific work, digi-site performers use the physical and digital architecture, sonic, and projected visual imagery within the site as a stimulus for creation and interaction. Yet, digi-sites have two additional evolutionary characteristics that open up and expand into new forms of engagement for dance artists and audiences alike. First, computer systems provide digi-sites with the ability to be shaped, not only pre-determinately, but also in-the-moment. Digi-sites have the ability to create a visual space for performance which can move and/or change its fundamental characteristics, relocating and/or re-contextualizing those within them to new environments without even taking a step. This does not manifest in a physical architectural presence, but rather transcends into the visual perception and kinesthetic imaginations of both the performer and the audience (Birringer, 1999). Secondly, by utilizing movement capture, bio-feedback, and interactive display systems, the elements within digi-sites have an adaptive ability to directly engage with and respond to participants within them. These

engagements do not have to follow traditional or expected codes of behavior, but provide new, exciting, and unexpected possibilities for dancers, and also audience members, to interact with a digi-site's "lived-moment."

The Engagement of Perceptual Awareness and Digital Imagery

In the workshop leading to the creation of *The Thin Veil* with collaborators Mathew Cumbie, Whitney Boomer, and Grant Phillips, we explored the complexities of engaging perceptual awareness when negotiating movement between two and three dimensional spaces. For the purposes of this paper, perceiving space can be defined as:

> a form of absorbing and ordering information gained whilst expressing and interacting with space. Perception can be seen as a process of "making sense" with space, a process that is particular to each individual. (Hunter, 2009, p. 399)

In this digi-site, a large screen was placed between the audience and dancers with images projected through the screen from the back so that the dancers were silhouetted into the image (see Figure 1). Initially the dancers interpreted the digi-site in terms of two dimensions, creating silhouetted images that were flattened into the frontal plane, reminiscent of Egyptian profile views. This was fascinating, but lacked a sense of dynamic movement and engagement with the images being portrayed. As our exploration evolved, it was also discovered that working solely from a kinesthetic place of awareness resulted in moving body images that

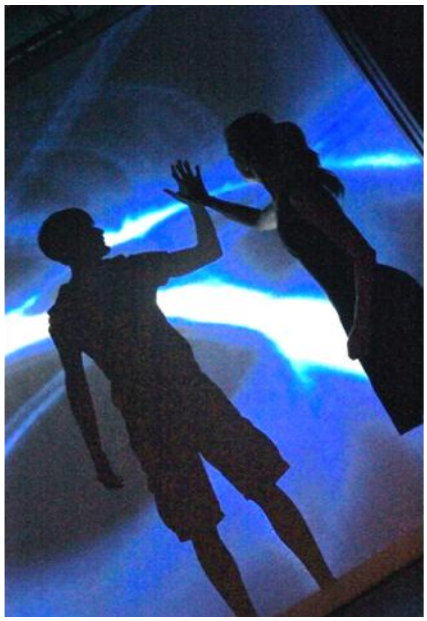

Figure 1. The Thin Veil closing.

often became amorphic when silhouetted and did not communicate dynamic intent.

This dichotomy of creating images that the audience could recognize when flattened and finding dynamic movement qualities within this digi-site was very challenging. The perceptual schema created through the technology of the digi-site required that the dancers find a balance, an exchange, and commitment to awareness of the entire experience being communicated (see Figure 2). As Mathew Cumbie noted in our open online rehearsal journal (see Appendix B):

Figure 2. Finding balance.

> The audience is seeing a representation (shadow) of my body, but not my body directly. Therefore, there is a huge emphasis on the seeing. I've noticed that this tends to make my movement more shape-y and line-y, as that is what "reads" the best from the light... I almost feel a disconnect with my body. Today, I started thinking more about feeling my body, sending the weight into the earth and feeling the joints; this received a very positive response. It's just interesting to notice how I negotiate this relationship.

It was by continually re-investigating our sense of perceptual awareness and identifying moments when the images transcended to a sense of three dimensionality with dynamic quality that we were able to find a deeper engagement within this digi-sites paradigm.

From Perception to Embodiment

How does proprioception, the perception by a person of stimuli relating to his or her own position, posture, equilibrium, or internal condition (Reason & Reynolds, 2010), influence how performance is embodied when immersed in a digi-site? What if the digi-site has an added evolutionary component, it responds to movement choices? Embodiment can be defined as a process whereby:

> The actor no longer lends his body to an exclusively mental process but makes the mind appear through the body, thus granting the body agency… The result is freedom from the time-lapse between inner impulse and outer reaction in such a way that the impulse is already an outer reaction. Impulse and action are concurrent: the body vanishes, burns, and the spectator sees only a series of visible impulses. (Grotowski 1968, p. 16)

Just as in site-specific performance, this form of digi-site environment asks that a dancer continually reinvest in discovering what the dance is about by negotiating impulses arising from the environment of performance. This requires a shift from a traditional dance performance of codified movements into a mode of structured improvisational engagement and interaction. Different than a physical site, a digi-site can challenge engagement by shifting and altering the very visual architecture and imagery present in the space. This can be done independently or in response to the dancer's choices in the moment.

Within this digi-site context, a dancer is more often asked to confront, rather than represent the environment, narrative, or idea being presented. This changes the way the

dancer embodies the movement. They must actively be searching for, creating, and communicating changing relationships with the digi-site, rather than representing a linear narrative or "truth" from some idealized depth. This creates an environment that encourages not only the dancer, but also the audience, to follow and learn about the engagements by observing complex interactions with the digi-site itself.

Figure 3. Engaging text.

In the collaborative development of the digi-site *Troubleshooting*, the dancer Crysta Caulkins-Clouse had to develop this sense of an embodied relationship with the technology as a means to be present within the space (see Figure 3). The digi-space consisted of a projector aimed onto the floor of a blank space and a web-camera that was observing the projected space. Both of these were wired to a computer running *Isadora*, a real-time video editing and recognition software designed by Marc Coniglio for intermedia applications. The digi-site development consisted of designing shifting environments in which the digital images and architecture projected into the space responded to Ms. Caulkins-Clouse by changing shape, location, color, content, and movement dynamic. The responses were designed to generate challenges of engagement for the dancer by chasing, following, framing, displaying, hiding, and texturizing her movements within the digi-site. The digi-site was algorithmically programmed with base

rules for engagement, but incorporated aspects of chance to create moments of unexpected surprise.

The dance performer Ms. Caulkins-Clouse expressed this initial uncertainty with the digi-site:

> I was having a hard time reacting to the light, because it wasn't occupying the same world I was in. I could look down and see it on the floor, but it never actually felt as if I could interact with it… (Appendix B)

As we explored this challenge, we came to realize that much of the disconnection emerged from an attempt to represent what was being seen. It was when we learned to shift into a less presentational and more interactive and purposeful play mode, where we asked of her engagement with the digi-site "How and why do we interact?" and "What happens when I do this?" that a discovery of the rules of the relationship and engagement with the space manifested (see Figure 4).

Figure 4. Playing with light.

To explore this, Ms. Caulkins-Clouse established a series of character relationships between her movement and the sequence of interactive digi-site imagery:

> I am one place and the light character moves to another, compromise cannot be met, what I want to do is wrong for the other. I might move one way, and one way only, and this way of moving is not acceptable to the light character...The lines

> take over and my movement is restricted… I must forfeit my stance, and move within the constraints of the shapes allowed to me by the lights. I am trapped… Because I haven't moved much… the light begins to mischievously poke and prod me in my still positions. I react a bit irritably at first, but it is light-hearted and builds to a super physical chasing scene (Appendix B).

This mode of purposeful play in her engagements with the visual imagery gave Ms. Caulkins-Clouse a means to find bodily agency, resulting in an embodied relationship with this responsive digi-site context.

Engaging Audience Interactivity

One of the most exciting evolutionary characteristics of digi-sites is their ability to be programmed to be user-friendly and accessible to the un-initiated audience participant to engage in the creation of the art experience directly. This interactive ability restructures the traditional relationships for both audience and dancer into a co-creator of experience. This restructuring fundamentally shifts the way all participants engage this form of digi-space.

Wonderland 2.0 was an interactive digi-site which invited the audience to participate in the co-creation of a unique Techdance work (see Figure 5). The digi-site consisted of four live feed cameras that both audience and collaborative dancers (Amie Davis, Amanda Jackson, and Lily Sloan) could move and manipulate. Two interactive visual effects computer/projectors and one digital sound "creation station" were available for the audience co-creators to interact with. These creation stations were designed to allow the audience to engage the dance environment by manipulating the visual projected

images of real-time dancer feeds or pre-recorded abstract images through a simple computer interface system. Simultaneously, the auditory creations station allowed audience co-creators to digitally create the impromptu sound scores which also informed the space. These interactive tools asked from all participants a willingness to explore new relationships and possible engagements. The audience role was to contextualize, influence, inform, and co-create the 15 minute improvised score with the dancers (Figures 6).

Figure 5. Wonderland audience participants.

Figure 6. Wonderland play

The first audience co-creators were initially selected by lottery, but the participants were informed that they were welcome to pass their creation station to a new audience co-creator at any time. The digi-site creative team divided up among the stations and acted as helping guides should an audience co-creator have questions or need assistance with the interactive computer interfaces. In designing the audience interfaces, we hoped that by offering a more abstract interface of simple buttons and sliders, the audience co-creators would not have to spend significant time learning how to participate via the technology. In this way, a mode of exploratory play between all co-creators could emerge from the engagement with the site.

Even with simple interfaces of buttons and sliders, some audience co-creators had difficulty initially finding engagement with the site until a guide assisted them. It was only after the concert and upon conversing with several audience members that we came to realize that the digi-site had too many options to explore. Many of the audience co-creators we spoke with indicated they were very engaged in the experience, but felt overwhelmed with the possibilities provided. The excessive possibilities resulted in the audience co-creators trying to play with all the different possibilities simultaneously. Although this was a form of "discovery," it was one that was unbalanced towards the engagement with the technology, rather than the site as a whole.

Guiding Principles for Engagement/Integration of Technology into a "Digi-Site"

Throughout the Techdance explorations and discussions on engagement, we determined that there were several questions that repeatedly arose regarding integration of different technologies into the digi-sites. I believe that these questions can act as important entry points into these types of investigations and the creation of digi-sites by other artists:

1. What is beyond the "That's cool!" factor? What does the technology bring to the experience which could not otherwise have emerged?
2. What are the potential modes of perceptual awareness, embodiment, and interactivity that exist for both the dancer and audience members during the experience?
3. How does the digi-site expand traditional conventions of the participants' engagement of dance?

4. Should the audience be absorbed in the performance in the piece or in the engagement of the technology? How and when?

From our own exploration of these questions, several key strategies emerged that assisted in the holistic aesthetic integration of the various technologies into the dance spaces:

1. Attention must be placed on how the technology acts independently or with movement. It is easy to desensitize, disengage, or overwhelm a viewer to a digi-site by creating a space of large or complex visual moving layers that although exciting and stimulating, do not form relationships to the moving performer. The most successful digi-sites are explicitly attentive to how and why the technology engages the movement activity within the digi-site space.
2. Appropriate application of technologies should support the over-all visual imagery as well as the intent to embody within the dancer. Why include technology into a work? What does it create which otherwise could not exist? How does it relate to the ideas and relationships explored? If a digi-site is to communicate intent effectively, the use of technology must support and not just layer the space visually.
3. The collaborative engagement with technology is about developing interconnected and interrelated elements. Elements of the site should not simply be adjunct. It is when all elements of a digi-site act in a holistic manner that deeper engagement and meaning making can emerge.

Personal Reflections

One of the most exciting parts of the Techdance project experience for me personally was my role as the "Constructor of Space." In this role I lead the collaborative exploration of space creations where the objective was to immerse both the dancer and audience in an environment that reorganized traditional ways of sensory understanding. The primary way we accomplished this was by exploring how technology can be used as a tool to break down the barriers between performer-choreographer and to create a fundamental shift in the various modes of engaging the space.

In these environments there was no "choreographer." Rather, in the role of "Creator of Space," I had to give up a huge amount of control. Instead, I was creating environments where the technology was interactive and responsive to the dancers' choices in the moment. Simultaneously, the performers had to be willing to take more control and be willing to experiment in new ways of engagement and response to stimuli that changed in the moment. This called for collaborative explorations and the sharing of leadership roles. Within this dynamic was the ability of our group to successfully explore and negotiate the complexity of the environments while creating a space of inquiry and investigation.

How has this project informed and expanded my understanding of the potentials technologies offer to dance? I have found through my explorations that digi-sites can create modes of engagement that lead to expanded forms of shared experience between the audience, dancers, and the site itself. The technology tools available to dance artists today can extend imagination and creative potentials into new territories of understanding

and creative realization. As technologies continue to evolve, it will be important to explore how these evolutions inform perceptual awareness, embodiment, and interactivity, in our every day life and in dance as a culture and art form.

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APPENDIX A

Collaborator Biographies

Collaborator Biographies

Originally from the "Little Apple" Manhattan, KS **Whitney Boomer** is a performing and teaching artist, touring throughout the Midwest and abroad. She is a former member of the regional touring company, the 940 Dance Company, performing most recently in Big Range Austin, Dance Carousel, ReleaseMotion Dance Project's Circumstantial Playground, and with the Kathy Dunn Hamrick Dance Company. Whitney is currently pursuing an MFA in Dance at TWU and is a co-founder of Big Rig Dance Collective.

A native of Austin, TX, **Crysta Caulkins-Clouse** has per-formed, choreographed, and taught dance throughout her home state as well as in NV, NC, OH, GA, and New Zealand. She particularly enjoys collaborative choreography that incorporates multimedia and technology, and she often coordinates projects that enable diverse groups of people to make dance together. Currently, she is pursuing her MFA at TWU and co-creating Big Rig Dance Collective, a group of artists who strive to build and connect communities through innovative dance-making across Texas.

Meredith Cook is afraid of the dark and elevators, but she would never pass up the opportunity to make dance in a dark elevator. Her interests lie in exploring how improvisation can be used to benefit professionals outside the dance community and is a co-founder of Big Rig Dance Collective. While pursuing her MFA in Dance at TWU, Meredith has been a member of DanceWorks repertory company and DanceLab. She has worked with such artists as Tiffanee Arnold, Mark Dendy, Jennifer Mabus, and Nina Martin.

Currently pursuing his MFA in Dance at TWU, **Matthew Cumbie** worked as the Production Coordinator and teaches for the department. Prior to his graduate studies, Cumbie was also in the professional training program at the Ailey school in NYC and earned a BA in Communication Studies from Texas Lutheran University and a BS in Dance from Texas State University-San Marcos. He has performed in NY, CA, TX, LA, and Mexico, the American Dance Festival, the Kennedy Center, and has worked with Mark Dendy, Sarah Gamblin, Teena Custer, and Jose Zamora. In addition, he is a co-founder of Big Rig Dance Collective.

Amie Davis, from PA, graduated from Slippery Rock University with her BA in Dance and is currently working toward her MFA in Dance at TWU. Amie focuses on choreography that connects people by focusing on similarities, using improvisation, and encouraging individuality. Amie is interested in technology as a support to live dance, dance on film, contact improvisation, fitness and somatics, and new avenues for performing.

Jerrett Fowler is a New Media Artist who is not only exploring the relationship between art and science, but also working in game design, drawing, sculpting, installations, video

art, and web art. He currently resides in Denton, TX and will graduate with his BFA in New Media Art in December 2010. He currently creates online art collectives and manages http://interartspark.unt.edu and http://www.wikisculpture.org.

Amanda Jackson is currently pursuing an MFA in Dance at TWU and is a cofounder of Big Rig Dance Collective. She has been commissioned for choreography and guest artist residencies at San Jacinto College South Campus and Tarrant County College Northwest and has presented her choreography across TX, OK, and LA. Her performance credits include the American Dance Festival with Mark Dendy and most recently at the Kennedy Center with CholoRock Dance Theater. She has also performed in works by Sarah Gamblin, Jordan Fuchs, Michelle Manzanales, and Lisa Niedermeyer.

Scott Martin is a maker of spaces, often distracted with moments of tunnel vision, loves to move, likes the word "yes," is fascinated with technology, has lived in too many places, likes to share, gets excited when life's journey takes a turn, and tries to live by the golden rule. He is currently a MFA candidate at TWU, and has been teaching ballet at the University of North Texas for the past two years. He plans to continue his Intermedia studies and hopes to find a full time job at a university where he can teach and play!

Originally from Jackson, Mississippi, **Bethany Therese Nelson** recently received her MFA in Dance from TWU. Bethany is a choreographer, contact improviser, collaborator, educator, and filmmaker. Bethany lives in Denton, TX with her two black cats, teaches dance for the University of North Texas and Tarrant County College, and choreographs and performs with Muscle Memory Dance Theatre and Big Rig Dance Collective.

Grant Phillips is currently attending the University of North Texas for a Bachelor of Music degree in Composition. He is interested in writing music for different forms of art as well as designing sound through digital means. After graduating from North Texas, Grant hopes to learn more about scoring music for different types of media, but mainly wants to learn film scoring.

A Michigan native, **Lily Sloan** received her MFA in dance at TWU with the Outstanding Graduate Student award. Her work wavers between the lines of dance theatre, dance film, and site-specific performance. Lily loves creating and producing multi-genred performance events; and collaborating with musicians, film makers, and improvisers. Currently, Lily acts as an administrator, choreographer, and performer for Big Rig Dance Collective, and is an Adjunct Professor at North Central Texas College and Richland College.

Nicole Touzien is an Adjunct Dance Faculty member within the Performing Arts Department at Glendale Community College in Arizona, and a member of A Ludwig Dance Theater. Nicole received her MFA in Dance from TWU in 2009. She has worked with the Kinetic Artists Collective, Dance-Works, Ghost Town Arts Collective, Sapphire Moon Dance Company, The Power Company, and Columbia Classical Ballet Company.

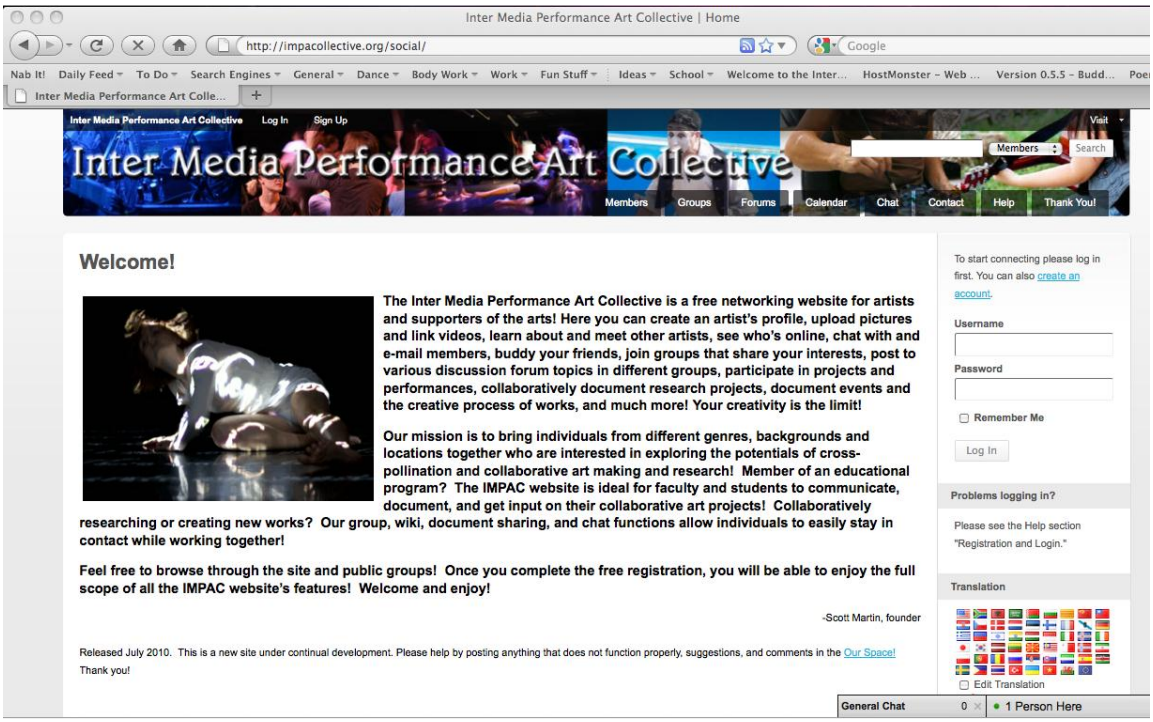
Nicole's artistic interests include the exploration of non-traditional performance spaces and the continuum of performance and observation.

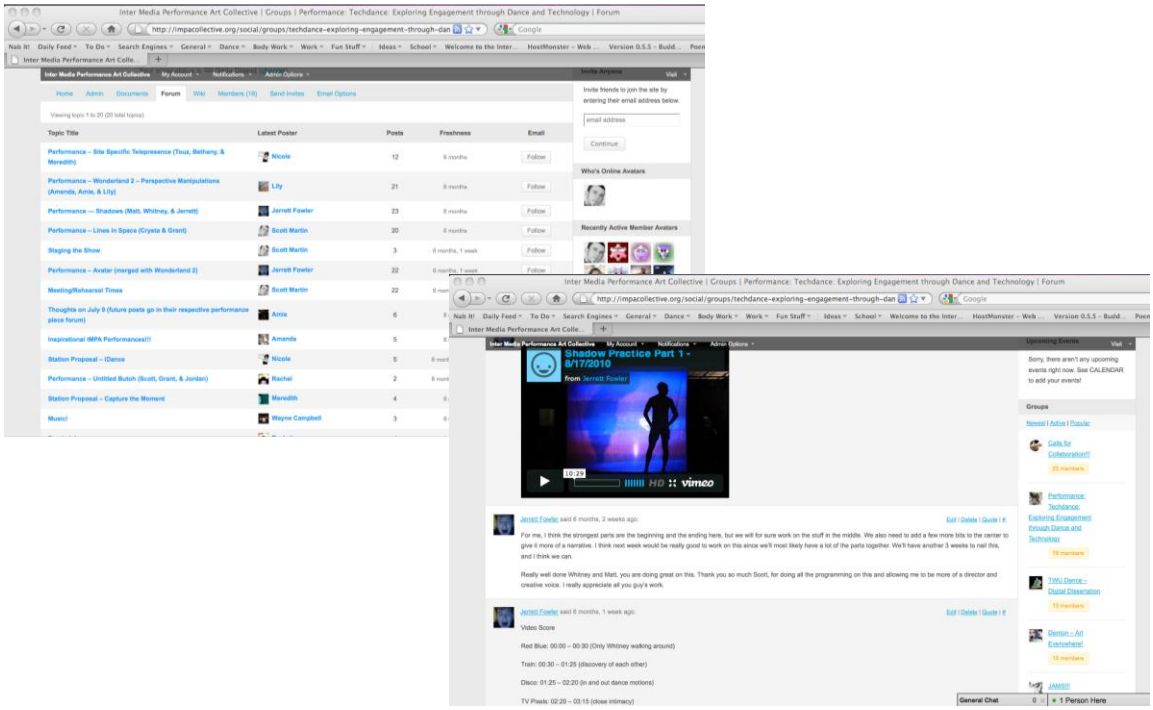
APPENDIX B

Inter Media Performance Art Collective Website

Inter Media Performance Art Collective

www.impacollective.org





APPENDIX C

Additional Readings

Additional Readings

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