'Conversations Before The End of Time': **"Re-Futuring" Applications of a New Media Art Praxis**

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ABSTRACT

This chapter examines how the methods, outcomes and transformative potentials of my new media arts praxis have been understood by a range of critical commentators from disciplinary perspectives outside of my own 'home territory' of media arts. By drawing upon perspectives from Human Computer Interface Design, Engineering, Sustainability Design, Tertiary Education, Communication Design and Public Librarianship I demonstrate how ideas from my arts disciplines have had tangible 'external' significance and application.

I begin by observing that the impacts of my work have been most readily recognized through their innovations within the domains of interface and interaction design and that potential applications are most frequently envisaged within the disciplines of Human Computer Interface design and technology-assisted rehabilitation processes.

I then describe how I conceive of and frame my art works through an approach that I name "ecosophical" (Heim 1998; Armstrong 2007, 2003, 2009; Naess 1995), with the central aim of creating contexts for discussion around eco-critical philosophical concepts. This approach is framed through the design of new media interactive experiences based upon a broad range of critical perspectives, including Tony Fry's concept of "The Sustainment" (Fry 2003) and Arne Naess' proposal for a personal ecosophical ethic (Naess 1995). I conclude by examining a range of perspectives from commentators writing from 'outside' of my discipline who have commented upon the effectiveness and reach of my eco-critical methodologies – thereby confirming some 'real-world' applications for my work.

MAIN

In reflecting upon what my forty-five or more creative outputs over the past eighteen years might have 'achieved', my thoughts at first alight upon a central question that I am regularly asked by members of the public who have experienced my interactive works for the first time: "What is the 'use' of this" (particular interactive work). "What is it "FOR"!?

Whilst this question is not unexpected – and understandably more so from individuals who maybe less versed in contemporary, new media practices - this frequent request to identify the "real" applications of my work raises a gamut of serious questions that beg careful

consideration. Throughout this chapter I will seek to tease out my thoughts around these ideas, working initially from the most obvious: Do my works suggest new ways that we might interface with computer systems and therefore new applications? towards the most opaque, but I argue, the most potent: How can my works create experiences that may assist in triggering a more 'world-sustaining' ethic?

A central feature of many of my large scale, interactive works are novel forms of human computer interface – which create experiences that are often highly unfamiliar for users. *Intimate Transactions* (Armstrong, O'Neill, and Webster 2005), asks audiences to literally climb on board a piece of furniture (called the Bodyshelf), which then registers the movements of their feet and back via sensors and moving elements, thereby allowing them to control avatars within a networked virtual world. *Knowmore (House of Commons)* (Armstrong et al. 2009) uses both the physical position of several people standing around a circular table and the way in which they all choose to spin and touch its fluidly moving top as the means for directing its interactive script. *Shifting Intimacies* (Armstrong, Vincent, and Webster 2006) responds to the position and pace of a single person walking across the space of an entire darkened theatre in turn controlling all subsequent image and sound. All of these works' experimental interfaces avoid the traditional mouse and keyboard in order to focus upon body sensitization, perceptive process, space and immaterial form. This approach resonates with the discipline of Ubiquitous Computing (Milner 2006) that seeks to seamlessly embed computing within the fabric of everyday physical place and object. (E.g. computation embedded within vehicles or the sensory fabric of the urban informatic landscape). It is therefore not unexpected that the public would routinely associate a 'use value' of my artworks within the broader domain of Human Computer Interface design and given the very particular nature of body placement and interaction within these works, their specific application in rehabilitation practices also has clear veracity. I will therefore begin by examining these potential applications for my work.

In the mid 2000s I began to investigate how my work might become an instrumental input into other disciplines: for example during 2004 and 2005 I developed two ARC Linkage grants in collaboration with our university's School of Human Movement. Our aim was to develop visual and audible 'rehabilitation encouragement' systems - initiated through a central question: 'is there a better way to interface computers with humans in the context of improved rehabilitation outcomes'? The *Artistic Biofeedback Environments for Health and Physical Activity* research project (Armstrong, Kerr, and Brereton 2004) aimed to significantly inform strategic thinking around the use of "multimedia" in order to increase the success rates of preventative public health care programs. This study was formed around both the investigation of key health strategies for the prevention of chronic diseases (such as obesity) as well as new strategies for reducing the frequency of falls amongst an increasingly ageing population. The public trialing of these findings would be undertaken via "artistic productions" throughout Australia in order to create "unique and inspirational experiences" for the public giving them first hand access to innovative Australian research culture. This work would be driven by and inspired by the multimodal interface/furniture being developed at that time for the *Intimate Transactions* project (Armstrong, O'Neill, and Webster 2005), with the aim that interactive rehabilitation and exercise environments might be created for both public and private scenarios whereby patients could incorporate physical exercise and collaborative feedback within familiar and yet stimulating environments[i].

Fig. 1: The *Intimate Transactions* Bodyshelf Interface

During that time I also instigated some preliminary investigations with a team of participatory designers, dancers and ergonomists with the intention of designing a series of performative scenarios to aid in the training of clinical dentists. I drew upon my disciplinary understandings of embodied interaction and interactive engagement strategies as an informing input into how trainee dentists might understand surgery practices, layout of facilities and optimal practitioner - patient relationships. Much of this applied arts investigation can, in retrospect, be seen as a precursor to domains of praxis such as arts-and-health, arts-and-business management, arts-and-public space, arts-in industry, arts-and-personal development and arts-and-social development: all of which have their exemplars and have consequently garnered significant new income streams for practicing artists. These early approaches resonate with the work of recent co-collaborator, artist designer Natalie Jeremijenko (Armstrong et al. 2010-12) whose X-Design[ii] (extended, participatory design projects) specifically aim to structure public participation as a central modality. Jeremijenko's states her research as engaging with "structures of participation in the production of knowledge and information, and the political and social possibilities (and limitations) of information and emerging technologies — mostly through public experiments" (Jeremijenko 2010).

Fig 2: *Knowmore (House of Commons)*
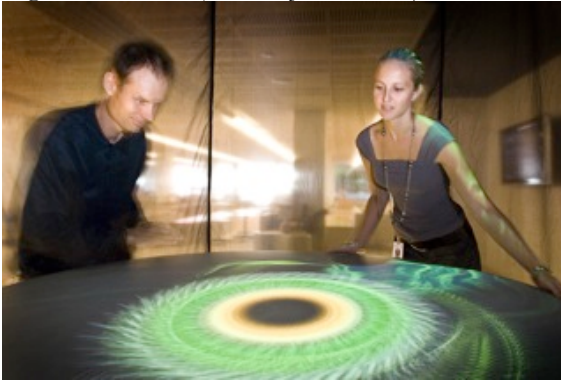
This modality of participative practice is described by Pat Hoffie (Hoffie 2009) whilst writing for the State Library of Queensland, about my work *Knowmore House of Commons)* (Armstrong et al. 2009). She observes my focus upon "deep collaboration in the process and making that also "invites collaboration as an integral aspect of experiencing it". This approach also underpinned an invitation I received in 2005 from the Australasian Creative Industries Network (ACIN), a research concentration of the Australasian Cooperative Research Centre for Interaction Design (ACID)[iii]. At that time a research agenda was established around the communication potentials of a low latency high bandwidth network called GrangeNet[iv] and the Access Grid[v] teleconferencing technology. I was amongst a group of artists, technology specialists and curators invited to work together to explore a range of related design, process and technical questions. By centralising the production and exhibition of experimental artworks within this study through collaborations with both The Australian Centre For the Moving Image[vi] [ACMI] and the Human Interface Technology Design Lab[vii] in New Zealand we were able to provide a new context to investigate the efficacy, transference and reach of these technical systems in the public and university sectors. My then nascent, networked new media installation *Intimate Transactions* became a central case study through which we developed several lines of investigation[viii] – one key example being within the domain of Computer Supported Cooperative Work [CSCW], which has a special focus upon networked collaboration and awareness. Writing in their book chapter *Am I the Lighter One? Awareness in a Dual-Site Networked Installation* (Madden and Viller 2007) state,

> *Intimate Transactions*, when viewed as an example of CSCW, is a work that explores how two people in different locations can interact with each other via embodied interaction devices (Bodyshelves) in a virtual environment where they transact with each other as well as the environment's population of on-screen creatures.

A key aim of the *Intimate Transactions* project was to focus upon forms of embodied and tacit communication that moved beyond video and audio streaming. Therefore whilst the two remotely situated participants were unable to see or hear each other during the process they were instead able to intimate the effects of each other's actions, being broadcast across the network through a range of alternate indicators, such as the local accumulation of objects or the relative movement qualities of their respective avatars. From a CSCW perspective this unconventional approach was seen as an experiment in the "abstract and ambient nature of 'awareness information' " with the authors stressing that,

a noteworthy contrast between *Intimate Transactions* and mainstream CSCW technology" is that "It involves the impact of knowing or not knowing who is at the other end of the interaction.

A further example of an application arising from my artwork emerged through the invitation to be scholar in residence for 3 months central Californian University Calpoly[ix] - in order to present, teach and extend upon my work. This professorship underpinned a key part of that institution's push to initiate a Masters program straddling the Liberal Arts, Engineering and Architecture with *Intimate Transactions* being used as a critical exemplar of the field.

This cross fertlisation of disciplines such as science (in its many forms) and media arts (in its many forms) has historically been of significant allure to practitioners within my field - particularly for applied, or embedded roles where it is countenanced that practice can in some cases inform industry outcomes rather than simply vice-versa[x]. This has offered numerous possibilities in art-science, artist-in-labs, artist in industry style programs that have been widely funded over the past decade and beyond. One notable example is the Swiss *Artists in Labs Program* (Scott 2010) developed in collaboration between the Zurich University of the Arts, Institute for Cultural Studies in the Arts ICS and the Bundesamt für Kultur BAK: who state their aims as being to broaden the dialogue, generate ideas and raise awareness of the contributions both artists and scientists can make to the larger challenges of our time", achieved through "providing a research environment where these experiments can take place" as part of a "quest for interpretations of nature, matter and human desire as well as the interest to comprehend, explore, reveal, sustain, create and build". Here in Australia the InterArts Board of the Australia Council[xi] has similarly strongly encouraged this approach both through residency programs and the Synapse Art-Science[xii] link initiatives.

Having 'escaped' from a career in the 80's as an electronic engineer and Information Technology professional the allure of being literally embedded within a technical lab environment, or indeed developing creative processes that might further corporate technological or public relations agendas had much less appeal – a fact that undoubtedly blinded me to many of the potential technical or pragmatic application of my works.

However, since the mid 90s I had resolved that my projects would be developed as vehicles for the examination of theories of ecology – following an approach consistent with Barrett's categorisation of "practice that moves between that which is known (theory) and the unknown or the "yet to be revealed" in a way that "transcends and extends that theory". (Barrett and Bolt 2007)). From a scientific perspective ecology refers to the diversity and symbiosis of living systems, but it is also a domain of critical philosophical theory (Hay 2002; Merchant 1996, 2004): a discourse that was initially inspired by the ethical dimensions of ecological-scientific findings. I have long employed a descriptive term to foreground my creative process called ecosophical (Armstrong 2009). Ecosophy is a term that mixes the words ecology and philosophy and therefore its derivants Oikos and Sophia, literally translated as wisdom of the dwelling. Ecosophy was originally defined through the Deep Ecology movement by Arne Naess (Naess 1995) as a way of acting in the world based upon a personally situated ethic. Another strong referent within this framework of praxis is "The Sustainment", an ontological position that its inventor Tony Fry (Fry 2003) describes as an aspirational design framework that veers strongly away from 'business as usual' based

approaches towards fundamental rethinking relationships between the social, political, economic and cultural conditions that frame our worlds.

From this theoretical basis I focus my thinking upon four profoundly relational ecologies - with my work then seeking (in many different ways) to draw focus upon these concepts. The first and most widely comprehended of these ecologies is that of the biophysical – and this is the one that tends to predominate in popular parlance. However this ecology is deeply intermeshed with the ecology of the artificial (i.e. all of the technologies that we design and bring into being) – a fact that reminds us that 'we' are therefore always the designed as well as the designers, and therefore it is us that constitutes the central problem of ecology, in that all environmental problems we have now created are a symptom of this relationship. Tony Fry names these first two ecologies collectively the "naturalized artificial", reminding us that our understanding of our technologies has now become metaphysics and as such have become innately embedded in us as a 'naturalized' way of knowing.

The third ecology I draw upon in my work is that of the sociocultural – framed by the principle that we cannot exist as a singularity given our deep dependence upon human and non-human others.

The fourth ecology that influences my work is that "of the image". Tony Fry states that we 'see' nothing without a "televisual" pre-layering – a situation "that inspires our "autonomic technocentrism" that he suggests will only be comprehended when we are able to find "means of production of an alienation from it in order to bring it to presence as that which is known" (Fry 2010). This suggests that everything we perceive is pre-imaged by historic and contemporary literary and visual sources, and so the re-thinking and re-working of what those 'images' might now become frames the central project and application of my research.

This multifaceted approach to understanding ecology gives my work a much broader scope and application than that of many other artists in the 'Art and Ecology' arena who have traditionally mostly focussed their works around ecology's biophysical dimensions. (Eg. (Goldsworthy and Riedelsheimer 2004), (Polli 2007)). However in recent years a fuller understanding of what creative practice within this domain might become has emerged - an understanding based in the recognition that the crisis we face is a 'crisis of us'. One example was a Danish exhibition curated throughout major Copenhagen galleries at the time of the Climate Change Conferences of 2009 called *Re-Think* (Various 2009), which included streams called 'rethinking art', 'politics', 'social life', 'the implicit and 'relations'. The goal of this exhibition was stated as being to 'help' provide politicians attending the meeting, as well as the general public, with new perspectives on some of the complex human issues stemming from global climate change.

Consistent with this exhibition, my own ecosophical practice gels with my own ongoing journey to become a more sustainable and sustaining citizen – something that I believe all of us must confront as we move uneasily within our post Copenhagen world. In recent years, and particularly in light of the emergent ERA[xiii] and its somewhat instrumental definitions of arts research (e.g. "the creation of new knowledge and/or the use of existing knowledge in a new and creative way so as to generate new concepts, methodologies and understandings" (Council) 2010)) research groups such as Deakin Creative[xiv] have pursued sophisticated and credible models that locate creativity and collaboration and sophisticated artistic practice at

the very heart of fundable future endeavour. One example is Paul Carter's investigations into place, collaboration, work, material and intention, as they merge via his notion of the "mythyopoetic reinvention" of place (Carter 2009). Carter's works also suggest an aspirational application for my work - being "the articulation of a field of relationships implicit or incipient in the present situation and its materials but hitherto unrecognised or unvalued" and the "capacity to make symbolic connections, that is, ultimately to make a fuller sense of things, that allows the future not to be a repetition or an intensification of the present."

I will now conclude this chapter by charting a range of indicative writings from disciplines other than my own that further speak to this aspirational application of my work. This is evident in the words of design futurist Tony Fry (Fry 2008) who observes that many of my works specifically "confound views of detached objects available for critical scrutiny" in that they remain "unfinished works until realised through user interaction. Observation is thus denied by the primacy of enacted and individuated experience (looking is displaced by acting)". In a similar regard critic and academic Jillian Hamilton (Hamilton 2006) touches on this "articulation of a field of relationships" when she states, of the work *Intimate Transactions*, fosters "relationship with someone thousands of kilometres away ..wrapped, libidinally, into this intensely intimate, embodied and suspended space".

Fry (ibid) goes on to suggest that the intention of this work is to reflect upon

> " the experience of our being relationally connected as a collective body. The form of its materiality functions as a means towards this end".   "As such, rather than being understood within the genre of 'art and environment' it arrives in the more adventurous domain of 'art as environment.' Moreover, as an environment it has its own created immaterial ecology (an ecology of the image)".

He goes to on to ask,

> The question that now arrives is: does the work have the ability to actually prompt a user's reflection on experience beyond the subjective? (Did I enjoy it? How did it work? What kind of relationship did I have with my partner?) This question begs to be left open for each user to answer.

This is a key challenge and application for my practice: to develop works with the potential to prompt users' reflection upon an experience beyond the subjective as a means for asking them to question their own understandings of ecology.

In order to encourage this possibility I pursue forms of work that emphasise the integral place of social relationships within ecological systems and fosters an approach to art practice that foregrounds collaboration and interactivity in terms of both production and the design of how it will be experienced. In this sense in works like *Intimate Transactions*, *Shifting Intimacies* and *Knowmore (House of Commons)* I resituate audiences as performers who engage with ecological issues through their interactions with both the artwork and other participants. While this approach of combining ecological concerns with collaboration through co-production and experience is subtle and non-didactic, it ultimately governs every aspect of my works.

To promote this approach I often chose recognizable tropes of gaming and a sensibilities of body movement and response designed to initially lull participants through a welcoming front door into a sense of apparent game 'purpose' – and then gradually introduce a lingering question of whether the outcomes being achieved are in fact as desirable as they are initially implied. My aim is that the participant will leave the work in a reflective and activated state - whilst also recognizing the critical importance of a context around the work - which may be provided by writing speaking and other forms of applied acting.

Sustainability scientist Liz Baker (Baker 2003) eloquently reflects upon the limitations of her form as she perceives it and the applicative power of my work suggesting that "the ways in which ecology is traditionally taught and the contexts within which it is learnt do not support the development of an ecological consciousness".

After collaborating with me on the early stages of several works she wrote,

> What was interesting for me, too, was the ways in which these ideas were discussed using the language and symbols of other disciplines. As a scientist interested in sustainability I might approach the question of energy flows by looking at systems, whereas here I was asked to consider how changing energy flows might sound, or how to express through movement an awareness of energy inputs and of synergies through time and space.

> What evolved subsequently through our collaborations was a different sort of ecology; a simplified system of inputs, interactions, and feedback loops using visual, aural, and kinesthetic means of communicating the idea of existing within systems of energy flows and their consequences.

> It provides an opportunity for a person to be within a simplified version of a complex system of which they are already a part and, perhaps, to understand something about what 'being a part of' means.

Here Bakers' words again recall those of Carter in that my aim is to allow participants to "make a fuller sense of things" set within a context that suggests the "future not to be a repetition or an intensification of the present."

I would like conclude by drawing upon the words of Liberal Arts & Engineering professor David Gillette (Gillette 2007), who writes here about his experience of hosting the work *Intimate Transactions* in California within the context of a Faculty of Engineering and Liberal Arts – charting the subsequent affects that he observed the work to have upon both students, faculty and the general public. In this way Gillette draws attention to the most potent application for my works in that he centrally situates and understands them as a form of ecosophically, ecopolitically activated praxis.

> The *Intimate Transactions* project is not only a highly engaging interactive artwork but also a multidimensional educational tool that can serve many different functions from providing hands-on teaching about sustainability issues, to teaching about intercultural communication, to demonstrating how the human body creates its own form of

language through movement and collaboration.

He then states,

> I was surprised by the discussions participants had with us and with each other after they experienced the work—the depth of their emotional and intellectual reactions to the work of the Transmute Collective was often quite profound.

Gillette goes on to describe a successful application of my work that I believe meets Fry's challenge of prompting "a user's reflection on experience beyond the subjective?" (Fry ibid.), stating:

> Discussions about the work quickly diverged from the practicalities of the immediate experience (which were, in themselves, essential discussions), to much deeper conversations about the human connection to our environment and how we're all also connected to each other in subtle and often neglected ways. I was glad we had these discussion in our classes as we connected students and faculty to the project, but I was even more heartened to hear these impromptu discussions between young children and their parents after experiencing the project, and between strangers from diverse social and linguistic backgrounds who were meeting each other for the first time as a result of visiting the American *Intimate Transactions* shows.

This strongly suggests how work from within an arts discipline can have tangible, 'external' significance and application – in this case within the domain of applied critical ecology. By shifting the conception of application for my new media art works far beyond the technically instrumental I have therefore developed an approach to praxis that engages participants in experiences that allude to profoundly 'real-world' problems of our era - and that also asks them to re-consider their subsequent responses.

6. Title_references

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   Gallery of Denmark, Den Frie Centre of Contemporary Art, Nikolaj Copenhagen
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5. Title_endnotes.doc

Endnotes

[i] A similar project called *Elements* (Duckworth and Wilson 2010) was recently funded
through an ARC Synapse approach and engaged with embodiment and play in the design of
am interactive art system for movement rehabilitation.
[ii] <http://www.environmentalhealthclinic.net/> accessed 2 May 2010
[iii]< http://www.acid.net.au/> (Hamilton 2006)
[iv] An initiative of <http://www.aarnet.edu.au/> accessed 2 May 2010 - AARNet's
implementation of GrangeNet provides a high capacity research network of 5 Gbps from
Brisbane to Sydney and 10 Gbps between Sydney, Canberra and Melbourne.
[v] <http://www.accessgrid.org/> accessed 2 May 2010
[vi] <http://www.acmi.net.au/> accessed 2 May 2010
[vii]<http://www.hitlabnz.org/> accessed 2 May 2010
[viii] Much of this work was documented in (Hamilton 2006)
[ix]<http://www.calpoly.edu/> accessed 2 May 2010
[x] Amongst numerous examples the work of the Tissue Culture Lab at the Symbiotica Centre
of Excellence in Biological arts UWA is a significant example.
<http://www.symbiotica.uwa.edu.au/> accessed 2 May 2010
[xi]< http://www.australiacouncil.gov.au/grants> accessed 2 May 2010
[xii] <http://www.synapse.net.au/> accessed 2 May 2010
[xiii] <http://www.arc.gov.au/era/default.htm> accessed 2 May 2010
[xiv]<http://www.deakin.edu.au/alt/edsmf/deakincreative/> accessed 2 May 2010