**An intermedial contextualisation of iMorphia, a prototype performance system**

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**1. Introduction - Practise as Research**

Historically a PhD has been awarded through the production of an academic text, a thesis that argues the claim of evidencing new knowledge through referencing and contextualising the research within previous academic texts and publications. The thesis may also utilise quantitative and qualitative methodologies and various forms of ethnomethodological studies as a means of qualifying the argument of the thesis.

The transformation of polytechnics and art colleges into acquiring University status (Candlin 2001: 9) and the official recognition of art works as evidence[[1]](#footnote-1) resulted in the awarding of PhDs in the Arts, which have a distinctively different quality to the essentially positivist and empirically determined form of a classical PhD. An art based methodology utilises practice as means of both evidencing and generating research. Discursive text is recognised as only one form of representing and communicating knowledge and other forms such as music, film, performance and artworks can communicate knowledge using non-linguistic and experiential modalities.

Research results consist partly of one or more artistic productions or presentations. The results communicate the artistic outcomes both cognitively and artistically. Far from being a mere illustration accompanying the research, the artistic outcomes thus form an indispensable component of it.

(Borgdorff 2004: 7)

Stating that a non-discursive medium can represent and communicate knowledge begs the question “what constitutes knowledge?” Is it something that can only be captured in a written symbolic language? Is a guiding principle that knowledge must be in a form that is transmittable and is to be understood by everyone in exactly the same way? These epistemological concerns are key to some of the problems associated with a constructivist art based approach to knowledge, where interpretation and subjectivity, the antithesis of scientific empiricism come in to play.

The positivist paradigm of inquiry is characterised by a realist ontology (reality exists ‘out there’), and an objectivist epistemology (the researcher is detached); methodology is therefore experimental and manipulative; in contrast, the constructivist paradigm is characterised by a relativist ontology (multiple realities exist as personal and social constructions) and the epistemology is subjectivist; methodologies are hermeneutic (interpretative) and dialectic.

(Gray 1996: 12)

The distinctive difference between the two approaches to knowledge has resonance with the ongoing art-science schism, exemplified by the infamous “Two Cultures” lecture and the departmentalisation of the disciplines of science and the humanities within education and academia.

Literary intellectuals at one pole—at the other scientists, and as the most representative, the physical scientists. Between the two a gulf of mutual incomprehension—sometimes (particularly among the young) hostility and dislike, but most of all lack of understanding.

(Snow 1959: 2)

In order that an art based PhD might stand its ground when countered against the longstanding and well established methodologies used in the production of a traditional PhD, there have been numerous debates, arguments, and publications that have sought to define the form and identify appropriate methodologies for a practice based PhD. The publication of ‘Practice Based Research in the Arts’ by Robin Nelson (Nelson 2013) provides a useful resource for contextualising the problem of an art based research approach and offers insights and appropriate methodologies for best practise.

Nelson shares the view that there are likely to be issues as to what constitutes knowledge and research when pursuing arts practise as research (PaR), especially from within non-arts disciplines.

For academics in non-arts disciplines with established methodologies and (quantitative and qualitative) methods, PaR is at once both a challenge to some of the fundamental assumptions about ‘research’ and ‘knowledge’

(Nelson 2013: 4)

..established ‘academics’ could not comprehend that arts practices might be knowledge-producing and that the practices themselves might on occasion articulate a research inquiry.

(Nelson 2013: 24)

Nelson suggests the idea of praxis – ‘theory imbricated in practise’ as a means of melding thinking and doing. Rather than producing a thesis, Nelson suggests the production of complementary writing, text that contextualises the practise in a lineage of other practise and serves as a means of unpacking if not unpicking the practise through explanatory language.

This document aims to serve as a work of complementary writing and will be inspired and influenced by the guidelines suggested by Nelson.

**1.1 Art as a Mode of Enquiry**

Knowledge (know-how) is often taken for granted by arts practitioners and, second, beyond articulation in doing, much of it is not easy otherwise to make manifest. Indeed, one of the key challenges of PaR is to make the ‘tacit’ more ‘explicit’.

(Nelson 2013: 42)

The key method used to develop know-what from know-how is that of critical reflection – pausing, standing back and thinking about what you are doing. Put thus, it sounds straightforward, but in the actuality of PaR it demands a rigorous and iterative process.

(Nelson 2013: 43)

In this section I intend to reflect on previous practice in order to evaluate and to make explicit any tacit know-how I am bringing to bear on the current research. At the same time I am hoping to identify key elements of know-what knowledge that can be used to inform current practice.

Between 1995 and 2002 I worked as a research fellow in Computer Related Design at the Royal College of Art where I created an exhibited three interactive art installations. The research was carried out under the banner of “Art as a Mode of Enquiry”, the name of the research methodology being inspired by a book on Art and Science I had read as a teenager. One of the outcomes of this method was to push the limits of technology through arts practice, The artistic led research in the development of real-time interactive 3D installations resulted in a report (Brown 2001) being submitted to one of the sponsors, Intel Research, suggesting advancements in technology such as multiple processor computing, real time 3D graphics processing and outlines for new gestural interfaces..

In terms of making tacit knowledge visible, some of the observations in the report make interesting reading in the light of my current research:

A participant experiences a sense of immersion and flow when engaged in the feedback loop resulting from the 'appropriate' combination of real-time dynamic form and interactive response through gestural input.

The successful combination of gesture and interactive response results in a form of interaction that is intuitive and natural, requiring no computer literacy, instructions or training.

When natural gesture results in an immediate and obvious real-time feedback it is possible to create both novel forms of interaction and highly engaging and rewarding artworks.

(Brown 2001: 5)

One of the early motivations for this research was to move away from participants interacting with an artwork towards the notion of performers acting as a medium between some form of interactive technology and an audience. This performative turn brings forth a new set of dynamics, not only concerning performative interaction with technology but perhaps more importantly the role and perception of the audience.

Having witnessed a number of performances of musicians and dancers using live interactive technologies, one is often left questioning as to whether live interaction is discernible from well-rehearsed and choreographed performance using non-interactive technologies. A case in point being the highly effective performance D.A.V.E. (Obermaier 1998) I witnessed in 1998, which using a linear video projected onto a highly choreographed dancer, resulted in a melding of dynamic imagery and body transformations which appeared totally synchronised with the dancers movements.

Drawing out a key theme from my previous research which also finds resonance with recent research in projection mapping is the creation of suspension of disbelief within the viewer when watching a combination of projection and live performance. In my early research, the Mimetic Starfish (Brown 2000) serves as an exemplar of how interaction when combined with the appropriate visual feedback results in deep engagement in the participant. The work originally created for the Millennium Dome has been exhibited many times and continues to engage adults and children alike. When first exhibited in 2000, visitors had not experienced how a virtual image could respond to physical gesture, unlike a modern day audiences familiar with touch screens. In recent exhibitions (Brazil 2006, Nottingham 2013) participants continue to relate with the virtual starfish as if it were a living thing. The key to producing this engagement and suspension of disbelief (people know the virtual creature is not alive, but act towards it as if it were) is the combination of physics simulation, producing an organic and visceral like behavior, coupled with the ability of the work to sense and respond not only to the location of the participants hands, but also their gestures, if they move slowly a tentacle will reach out towards them if they move too quickly the tentacle jumps back as if alarmed.

The effectiveness of interaction and participant engagement has parallels with the projection mapping pop promo by Willow (Willow 2008). Here an actor performs on a white set onto which videos are projected onto the floor and walls (Figure 1). The actor walks on a treadmill, which when synchronised with the appropriate moving backdrop produces the illusion that the actor is actually walking through various scenes, additional gestures enhance the illusion of the actor being immersed in a virtual set, he moves to open a door and walks into the next room, his legs move up and down as if he were going down stairs in time to the video backdrop of descending stairs.



Figure 1. Screen capture from Willow pop promo

The combination of performance and synchronised video in a three dimensional space is a strange mix between performance and film, and draws the viewer into engaging with the hybrid mix of real performer and virtual backdrop such that it may be argued that a suspension of disbelief is created in the viewer because the actor engages with the virtual scenes as if they were real. This aspect of performative engagement with the virtual and the creation of a suspension of disbelief in the viewer is of particular interest in developing live performances with interactive technology.

In summary, firstly the previous use of “Art as a Mode of Enquiry” shares similarities with the Practice as Research within the Arts (PaR) methodology (Nelson 2013) and secondly there are potentially useful forms of know-how embedded within previous practice that can be made explicit to create knowledge in the form of know-what which are applicable in the current research. The proviso being that the interaction context has changed from the audience as performer to audience as spectator and actor as participant. In order to understand the issues involved with this performative turn, reference will be made to other practices and literature drawn from performance studies and the field of intermediality.

**1.2 Research Overview**

The interdisciplinary research commenced with a very wide remit, examining multimodal performance and improvisation, melding work in Computer Science with that of theatre and performance and informed by critical theory (figure 2).



Figure 2. Interdisciplinary research territories

One of the early problems was finding a suitable term to describe the research in order to locate the field of enquiry. It was noted that a variety of terms such as digital theatre, virtual theatre, interactive theatre and augmented theatre were used to describe similar areas of research. Another problematic area was determining what aspect of critical theory might be used to inform the research. Early references were to Philip Auslander and his theories of mediation, liveness and authenticity (Auslander 2008). Another problem was defining an appropriate methodology, and the Manifesto for Performative Research (Haseman 2006) was felt to have resonance, especially as it proposed alternative methodologies to the primarily HCI techniques advocated within the first year of the doctoral training scheme. Haseman suggested the production of an ‘artistic audit’ as a method for contextualizing and locating the research within a field of other practices. This was felt to be a useful approach, and a website was chosen as a suitable vehicle as it enabled the inclusion of video, hyperlinks, images and text references. The practice carried out in the second year acted as a proof of concept, refined the research area whilst at the same time opening up new avenues for further research. One of the problems however was finding appropriate theory that would inform the research, resulting in the production of praxis.

Not only experimentation in practice, but also reflection on practice and interpretation of practice, may be part of research in the arts as defined here.

(Borgdorff 2004: 6)

A second problem again realised through critical reflection, a principle advocated by Nelson as essential in the process of rigour in practice (Nelson 2013: 27), was that of taking time to reflect rather than feeling impelled by the momentum of practice and the need to develop and pursue outcomes without taking time to assess. The lack of finding a suitable theoretical base and the feeling of being driven purely by practice led to a feeling of confusion, there were too many research directions and no method of determining an appropriate direction. There was no map, and no ultimate destination! This document acts a way finder, having produced a paper which summarizes the research to date (Brown 2014) and spending time assessing and researching the field, it is now felt that both a theoretical basis has been found and a number of potential directions have been identified as too wide or out of remit. The next two sections identify the notions of intermediality and postnarrative theatre as a means of locating the research practice.

**1.3 Intermediality**

The term intermedia originated from the Fluxus artist Dick Higgins, who in his essay of 1965 attributes the original use of the term to Samuel Colleridge (Higgins 2001: 52). Higgins uses the term in recognition of the multiple media and forms of art taking place at the time; he also cites Duchamp, Dada and the Futurists as practitioners of intermedia arts. Higgins goes further than simply to say an art that uses mixed or multimedia is intermedia and in 1981 he suggests that intermedia is perhaps best seen as a conceptual method in creating new work.

And with this I would leave the matter of intermedia. It is today, as it was in 1965, a useful way to approach some new work; one asks oneself, “what that I know does this new work lie between?” But it is more useful at the outset of a critical process than at the later stages of it.

(Higgins 2001: 53)

In 2014 intermedia has become a blanket term to describe almost all media, especially with the advent of the digital which embraces previously disparate media – text, image, video and sound.

The term itself is very broad and functions as an umbrella term, limited neither to a specific phenomenon or media, nor to specific research objectives.

(Sakoparnig 2012: 2)

As such, it is important that when intermediality is used it has to be both contextualised and clearly defined.

The current state of affairs, then, is a proliferation of heterogeneous conceptions of intermediality and heterogeneous ways in which the term is used. This proliferation may be rewarding, but it is also confusing, leading not infrequently to vagueness and misunderstandings. Hence it becomes necessary to define one’s own particular understanding of intermediality more precisely, and to situate one’s individual approach within a broader spectrum..

(Rajewsky 2005: 45)

Examining the use of intermediality within a performance context it becomes clear that it is not specifically about the nature of media or in-between media types, but instead concerns itself with the relationship between the performer and media.

..intermediality is very much about the staging (in the sense of conscious self-presentation to another) of media, for which theatre as a hypermedium provides pre-eminently a stage.
(Kattenbelt

In light of the performative turn, it is this live performative manipulation of media that reflects both a post dramatic turn in theatre and the cultural impact of technology.

In the intermedial discourse, while we increasingly understand how media redefine each other, we poorly understand how they redefine the performer and performance itself.

(Remshardt 2008: 50)

It is this particular area I see my work in the development of iMorphia research project being located, the performance of intermediality. A number of contemporary practitioners use intermediality in a deconstructive sense, revealing social and cultural relationships with technology in a live performative manner.

Theatre companies such as Forced Entertainment regularly make work that incorporates and comments on intermediality, with performers working with and interrogating modern day excesses of multimodal information. Joe Scott classifies herself as an intermedial performer and her work involves not only revealing the processes of constructing intermedial work, but also placing herself in a position of risk, manipulating media in real time so as to imbue a sense of liveness that embraces improvisation and spontaneity.

Within live intermedial performance, liveness exists within, through and in relation to

the media employed and is enacted and engendered by manipulation of such media

by the performer/activator in the real time of performance.

(Scott 2012: 8)

This concept marries with the definition of intermedia by Giesekam (2007:8) where he contrasts intermedia with multimedia productions.

For the second type of production, where more extensive interaction between the performers and various media reshapes notions of character and acting, where neither the live material nor the recorded material would make much sense without the other, and where often the interaction between the media substantially modifies how the respective media conventionally function and invites reflection upon their nature and methods, I would suggest the term ‘intermedia’ is more appropriate.

The performer in a sense becomes a medium, a conduit for interacting with and imbuing meaning in the various forms of intermedia she engages with. It is this concept I find interesting, the live engagement, “the performing of the interface” in real time, producing presence and authenticity. Multimedia theatre on the other hand appears more as a stage prop, a backdrop against which the actor performs.

The research overview included a diagram mapping the interdisciplinary research between theatre and Computer Science. During the initial research I sought to identify a place of common ground and overlap between that would also be informed by relevant critical theory. I believe that the field of intermediality and performance provides grounding for the research with associated literature in critical writing and examples of contemporary practice.

The next section provides an overview of different theatrical modes, leading to the proposal that contemporary notion of postnarrative theatre provides an interesting reference point for the creation of an intermedial performance.

**1.4 Theatrical modes**

Not all theatre is the same, some theatre sets out to challenge the viewer’s perceptions rather than seduce them into an immersive illusion. The Epic Theatre of Bertholdt Brecht and the Theatre of Cruelty devised by Antonin Artuad deliberately set out not to seduce the viewers into a false and seductive illusion, but to challenge them and make them aware of real life and to use theatre as a device to instigate social awareness if not social change. The book “Computers as Theatre” by Brenda Laurel (Laurel 1991) re-contextualised human computer interaction from a theatrical perspective, at the time this was an innovative idea, although it has since been criticised for utilising a traditional Aristotle model of theatre where drama is viewed as illusory spectacle.

While I want to acknowledge the crucial insight given through Laurel's software-as-theatre analogy, I also want to question the limitations of framing a dramatic theory of software in a strictly Aristotelian sense.

(Evans 2014)

Evans, the author of the above quote suggests alternative theatrical models such as that proposed by Brecht, The Theatre of the Absurd, and Jerzy Grotowski’s Poor Theatre which might be appropriated and used to inspire alternate software models within the context of gaming.

Performance art presents an entirely different form of theatrical experience, one that determinedly challenges the conventions associated with classical theatre - the concept of the stage and an unfolding drama performed by actors reciting narrative. Performance art embraces a number of key ideologies, such as celebrating the presence of the live performative body and challenging the boundaries between the witnessed performer and a passive audience. Two key examples of participatory performances where the boundaries of acceptable audience behaviour are challenged are *Cut Piece* by Yoko Ono (Ono 1964) and *Rhythm 0* by Maria Abromovitch (Abromovitch 1974). Both works invited the audience to interact with the performer, in *Cut Piece* an audience member approaches the performer one at a time and using a pair of scissors cut a away a piece of the performers clothing, whilst with *Rhythm 0* members of the audience chose from variety of objects with which to interact with the performer, ranging from a flower and food through to scissors and a gun. Both works put the performer into a vulnerable position and challenge power and control relationships between a passive audience and an active performer.

Artuad’s “Theatre of Cruelty” (Artuad 1938) is seen as an inspirational influence in the development of performance art and was introduced by David Bachelor to John Cage at the Black Mountain College where in 1952 they produced *Untitled Event* (Pawlick 2010: 7). *Untitled Event* broke the traditional divide between audience and performers and incorporated simultaneous media events, paintings, slide projections, piano, lecture and dance performance.

Artuad calls for a theatre that challenged the passive audience, a theatre beyond artifice – it is labelled cruel in the sense that it sought to provoke and agitate the audience away from the state of dreamlike passive consumption of conventional narrative drama.

..the spectator, placed in the middle of the action, is engulfed and physically affected by it... immerse[d]... in a constant bath of light, images, movements and noises.

(Artuad 1938: 96)

Alan Kaprow attended Black Mountain college as a student of Cage, and his seminal performance work “18 Happenings in 6 parts” (Kaprow 1959) not only placed the audience within the action, but they were also given instructions on carrying out performative actions, painting, noise making and readings, the audience were no longer passive spectators but active participants. Kaprow coined the phrase “Happenings”, which became a key influence in the breaking down of the divide between performers and audience and the creation of new types of interactive multimedia performances.

The Futurists and the Dada movements of the early twentieth century also experimented and advocated alternative forms of theatre that would challenge “passeist theatre”. The Synthetic Futurist Theatre Manifesto (Marinetti 1915) proposed simultaneous happenings, discord, chaos and brevity, with the intention of inciting upset and violence in the audience. The Dada performances at the Cabaret Voltaire shared similar methods and intentions, multiple performers reading poems at the same time, a cacophony of noises, and the desire to incite the audience to respond rather than passively consume. Both Dada and Futurism have been regarded as ground making movements, challenging preconceptions and definitions of theatre and influencing art forms decades later.

The iconographic fantasy level of the dada plays and performances, the plastic quality of the staging, the innovations in costume and sound, the flow of energies between performer and audience were not equalled in the contemporary theatre until the 1960s
(Melzer 1994: xiv)

It has been suggested that Futurism with its embracing of technology and its societal manifestations of speed and simultaneity influenced the advent of the digitally enhanced theatre and performance we see today.

Digital performance’s historical lineage is precisely and inextricably linked to the philosophies, aesthetics and practices of the Futurist movement.
(Dixon 2005:2)

In a parallel manner to the influence of early twentieth century technology on the Futurists conception of synthetic theatre, contemporary writers cite the influence of media and technology on modern day theatre in creating ‘postnarrative’ theatre.

A concise and useful description of the postnarrative is provided by the following quote, which I include fully:

The most conspicuous features of post-dramatic aesthetics and dramaturgy, in the wake of Richard Schechner’ s formative performance theory and Lehmann’s derivative observations in his signature work Postdramatisches Theater comprise inter alia: the transition from a verbally predominant, narrative and sequentially structured poetics, to a performance-oriented aesthetics, distinguished by plot-less, character-less, deconstructed and fragmentary theatrical texts. These texts highlight the performers ’corporeal and concrete stage presence, as well as what Patrick Primavesi defines as ‘the moment of the performance itself’, rather than the traditional coherent and cohesive representation or presentation of a fictional world, plot and characters.

(Kaynar :86)

The “moment of performance itself” marries with the notions of authenticity and ephemerality that are present in live performance. The plot-less, character-less and deconstructed fragmentary texts resonates with the contemporary information space we find ourselves in, and is evoked by the work of Jo Scott and performance groups such as Forced Entertainment.

The next section describes the development of iMorphia and evaluates its potential research paths before recasting the research in the light of an intermedial and post narrative perspective.

**2. The Development of iMorphia**

Inspired by the more contemporary approaches to theatre, I found myself drawn to wanting to utilise technology in a confrontational manner, to challenge the perceptions of the audience whilst at the same time be knowing about it, to reveal what is going on, or to oscillate between creating an suspension of disbelief and challenging their preconceptions.

Prior to creating the first working prototype in November 2013 I researched areas melding improvisation, performance and multimodal technologies. I examined other research centres investigating a diverse range of multidisciplinary research covering gaming, narrative and theories on musical and performative improvisation. I attended conferences, events and reviewed live performances that utilised technology and viewed online examples from production companies utilising multimodal technologies in theatrical productions. At the same time I researched potential technologies that might support a practise based research project incorporating multimodal technologies. The multimodal theme acted as an initial driver, the idea of combining sound, video and various forms of interaction to create a live performance. I discovered there was a plethora of work backdating decades that used technology as a means of enhancing the spectacle of theatre. I also recognised that technology in theatre was not new, theatre had always embraced technology from lighting, sound, moving stages to enhance the viewer’s experience. The examples of other works, the historical context, research centres, performance reviews and appropriate technologies are documented on the research website (kinectic.net) and for reference purposes have been made available in Appendix 4.1.

During the research process I began to envisage the possible shape and form a multimodal performance might take, for example a technology assisted dramatic lecture, a surreal performance of virtual actors and sets combined with real live performers. I was inspired by notions of the surreal, Grimm Fairy tales and the work of Forkbeard Fantasy, especially their concept of the *Crossing the Celluloid Divide* which playfully commented on notions of reality using live action combined with traditional film technology.

My ideas were at a very embryonic stage and a number of elements from the research coalesced to form a seed idea from which the iMorphia project grew. A technical video demonstrating a female Japanese anime character being controlled by a male using the Kinect platform and MikuMiku software (Yu Higuchi 2008) attracted my attention as being somewhat disturbing and surreal. As described earlier I had previously witnessed the effectiveness of projection mapping combined with choreographed dance in the dance performance D.A.V.E. (Obermaier 1998) and the work of Forkbeard Fantasy integrating live action and film (Forkbeard Fantasy 1988). A more recent online video combining live action with virtual sets illustrated the effectiveness of actors interacting with carefully constructed projected scenarios (Willow 2012). These influences came together to form an initial concept for a possible avenue of exploration that would be technically feasible.

In November 2013 the first prototype using the MikuMiku anime software was documented on video and subsequently demonstrated to a number of researchers in the MRL Lab. Positive feedback encouraged further exploration. Personally I felt the experience was somewhat uncanny and used the term to describe the effect of the body projection. Watching the documentary evidence on the Kinect research website, my supervisor disagreed that there was anything uncanny about the cartoon character and suggested I move away from the anime aesthetic towards a greater degree of realism as a means of exploring the concept of the uncanny further. A clearer definition as to what I meant by uncanny was also required, in the section iMorphia revisited, I address the concept of the uncanny and describe its relationship to digital performance.

In retrospect I would suggest that the uncanny is experienced by the performer witnessing themselves transform and by audience members seeing the illusion take place live, rather than watching a video documentation which distances the witness from the event, thereby eradicating any possible evocation of the uncanny.

This sentiment echoes the loss of presence that occurs through the representation of performance in another medium.

Performance's only life is in the present. Performance cannot be saved, recorded, documented, or otherwise participate in the circulation of representations of representations: once it does so, it becomes something other than performance.

(Phelan 2012:146)

The qualitative difference between documentation and live performance is likely to be important factor to consider in terms of presenting practice as part of the PhD.

Between January and March 2014 the system was developed to enable the support of more realistic characters with subsequent documentation on the research blog of the website. In April 2014, sixteen participants took part in a workshop involving a series of exercises designed to evaluate the effectiveness of the system and to gain audience and performer feedback. The participants were a mix of performers and those interested in the concept of performance. All participants reacted strongly to the change of projected gender, a number of participants voluntarily used the term uncanny when witnessing the projective illusion. It was pointed out that the experience of the performer is substantially different to that of an audience member, the illusion having a stronger emotional effect on the performer, whilst the effect on the spectator was felt to be more objective and thereby less easily affected. Performers exploited system tracking errors to improvise and play.

A second workshop was carried out to investigate whether two performers might encourage improvisation. The results of this workshop suggested that having two transformed performers does not result in improvisation and that a third element, a game or an object for the performers to interact with might encourage improvisation. Another element might be the framing of a scenario utilising techniques developed for improvisational workshops.

In August 2014 I produced a paper for the Fascinate conference at Falmouth (Fascinate 2014) which summarises the research and outlines potential avenues for further research, the paper is included for reference in Appendix 4.2.

The next section revaluates iMorphia examining each of the potential research strands in the light of intermedial performance, a postnarrative approach and concludes with a plan for imbricating theory in practice, praxis.

**2.1. iMorphia Revisited**

iMorphia began with a simple idea, that of projecting a computer generated figure onto a performer wearing a white body suit, with the figure following the movements of the performer using motion tracking. In order that the performer could see the resultant projected figure, the ‘bodymask’, they wore video glasses which relayed a live video feed giving the performer the perspective as if they were watching the performance as an audience member.

Though initially a simple concept, the development of the project over a ten month period revealed a number of interesting themes for further research which are outlined below

1. Gender and body transformation, stereotypes and performative behaviour
2. Control and Possession
3. Improvisation and multiple performers
4. The Uncanny and the Double

In the following sections I intend to unpack each of the potential research themes, contextualising each theme in the field of praxis (practise and theory), evaluate the feasibility and validity of each path according to scope and potential for creation of new knowledge and new forms of performative art. I will also include a personal commentary representing perhaps a more nuanced and subjective perspective, responding to each theme from the position of an artist/maker.

**2.1.1. Gender and body transformation, stereotypes and performative behaviour**

This would involve the creation of a range of virtual characters with differing ages, gender, build and ethnicity, a range of virtual clothing and a series of user studies in order to evaluate the effects of differing bodymasks on performative behaviour. This avenue is difficult to scope and out of remit for two reasons - the creation of multiple characters and clothing would be a time consuming task and require the skills of a 3D designer; evaluating the project requires knowledge and skills in areas such as psychology and gender studies. Such research however might have applications in mental health and well-being and the cultural studies of stereotypes.

**2.1.2 Control and Possession**

This area focusses on Human Computer Interaction and involves three overlapping areas of research - control, feedback and dynamics. The control aspect would investigate the mapping between the time based 3D data of the performers body movements to the bodymask - can it be improved in terms of speed and accuracy? Feedback concerns investigating the form of information delivered to the performer on the coherence between the performer’s body and the bodymask – how might the ability to follow or control the body mask be improved? Bodymask dynamics would involve the addition of interactive characteristics to the bodymask such that it has performative behaviours – it might only be able to move slowly, or may direct the performer into following certain actions or movements. This avenue of research is certainly within scope though does present technical and implementation challenges requiring low level programming and dealing with raw data rather than working at a higher level using a game engine and scripting. The strong technical focus may also steer the research away from any creative and performative practice. The research avenue may find application in training and exercises, though it is not entirely novel as there are examples of academic research and commercial applications in this area[[2]](#footnote-2). The concept of procession however has an interesting artistic aspect, suggesting themes of the supernatural and the performer as a medium; and in this context marries performance with HCI and will be developed further in the next section on praxis.

**2.1.3. Improvisation**

The concept of improvisation was included in the original PhD proposal but has not been strongly attended to in the iMorphia project. The last evaluation workshop was carried out with two performers with the premise that two performers transformed at the same time might result in improvisation. The two performers did playfully interact with each other but not in a way that suggested the emergence of improvisation. Discussion afterwards led to suggestions that a third element was required, a game, an object they could work with or perhaps a scenario designed to encourage improvisation. The system currently lacks the facility to enable the performative bodymask to interact with its virtual environment; it is simply a projected character that follows the movements of the performer. However iMorphia is implemented using the Unity Games Engine which is designed for supporting interaction and the scripting of virtual objects such that they can be imbued with performative and responsive behaviours. In addition a virtual set such as a room or a forest can be designed so supplying a context for an interactive scenario designed to encourage improvisation. The Unity platform represents a suitable vehicle for exploring the potential of creating improvisation through the addition of interactive objects and scenarios.

Early on in the research reference was made to the crossover between interactive storytelling and improvisation (Tanenbaum 2008) and the states of receptivity and engagement that encourage improvisation (Lockford & Pelias 2004), including notions such as communication, playfulness and vulnerability.

An improvisational performance is associated with the quality of liveness, it occurs in the here and now and has a distinct quality of edginess and risk in comparison to the rehearsed and choreographed. The idea of a live interactive stage that supports improvisation also resonates with some of the early discussions on intermediality and therefore represents a strand suitable for further research.

**2.1.4. The Uncanny**

This section is perhaps not so much as a research strand, but a commentary on the effect and manifestation of the uncanny observed and commented on by participants and myself. I recognise that the uncanny is a problematic term operating in the domains of phenomenology and subjectivity. The uncanny is a difficult term to precisely define in meaning and the conditions for how it might be made manifest.

The Uncanny according to the OED is defined as “strange or mysterious, especially in an unsettling way” and originated from the Scottish – not-canny relating to the occult and the malicious. The etymology of the word resonates with the German Das Unheimliche, "the opposite of what is familiar”, a concept expounded upon by Sigmund Freud in his 1919 essay The Uncanny (Freud 1919). Freud also refers to another German writer and psychiatrist, Ernst Jentsch, who in 1906 wrote the essay, On the Psychology of the Uncanny (Jentsch 1906).

In films utilising computer graphics the uncanny is to be avoided as it distances the viewer, challenging their suspension of disbelief in believing what they are watching is actually human rather than something alien and hybrid. The Uncanny Valley (Mori 1970) illustrated below (Figure 3) describes a trough to be avoided in the design of robotics, on the left we perceive things as non human and on the right they are recognised as clearly human, the trough is the inbetween space, a liminal and discomforting area where objects appear uncomfortable and disturbing neither really alive in a human sense or dead as in non living.



Figure 3, The Uncanny Valley

In his essay Freud refers to the earlier work of Jentsch and shares a definition of the circumstances that evoke a sense of the uncanny which mirrors the uncanny valley as described above.

..doubt as to whether an apparently living being really is animate and, conversely,

doubt as to whether a lifeless object may not in fact be animate

(Jentsch 1906: 8)

Freud applies his theories of repression and the subconscious the uncanny whilst Jentsch takes a different approach examining the writings of the Sand-Man by Hoffman as a source for how literature makes use of the uncanny. In his essay Freud appears to dismiss Jentsch’s intellectual approach in the analysis of Hoffman, and suggest that the uncanny is brought about by complexes involving castration.

We shall venture, therefore, to refer the uncanny effect of the Sand-Man to the child’s dread in relation to its castration- complex. But having gained the idea that we can take this infantile factor to account for feelings of uncanniness, we are drawn to examine whether we can apply it to other instances of uncanny things.

(Freud 1919: 8)

Freud emphasises that the uncanny is brought about from a reawakening of repressed childhood memories that make the familiar seem strange and disturbing. He argues against the view of the uncanny held by Jentsch, who believes the uncanny is a feeling that results from certain phenomena which produce an intellectual uncertainty that challenges the human need for intellectual mastery over its environment.

So if one wants to come closer to the essence of the uncanny, it is better not to ask what it

is, but rather to investigate how the affective excitement of the uncanny arises in psychological terms, how the psychical conditions must be constituted so that the ‘uncanny’ sensation emerges.

(Jentsch 1906: 3)

Rather than taking a Freudian approach to the uncanny, the quest for determining the conditions for how the uncanny sensation emerges suggests a line of practise based experimental enquiry for the iMorphia project.

Freud also refers to the writings of Otto Rank (Fredu 1919: 9) and his association of the uncanny with the double or doppelganger. This theme has been more recently taken up in the field of performance and technology by writers such as Causey and Dixon who writes about the digital double (Dixon 2007: 241).

The screens of mediated technologies, now ubiquitous in live performance, like the dolls, mirrors and automatons which Freud suggests bring forth experience, construct the space wherein we double ourselves and perform a witnessing of ourselves as other. The uncanniness of mediatized culture is a technological uncanniness.

(Causey 1999: 386)

The uncanny is a rich area conceptually, especially in relationship to technological mediation. In the next section I will outline how the uncanny might be used in connection with possession as both a metaphor and vehicle for imbricating theory and practise.

**2.2 Theory and practice, praxis**

In the last section I outlined a number of potential research strands, some of which I suggested resonated with the concept of an intermedial performance, where the performers interacting with the technology have an equal relationship and interdependence. In a thesis on dance and technology, the author describes this form of interdependent interaction as ‘interperformance’.

Consequently, interperformance presents a break from the dominant understanding of the role of technologies as supporting devices for the centrally figured human performer within the art form of dance. Technologies are also granted the role of performer and share the stage with human agents.

(Gündüz 2012: 201)

The author cites this as a post-human approach, rather than seeing the human as controller and hierarchically superior she places technology and human performers side by side as equals. The concept of the posthuman also opens up other contemporary theories concerning agency of objects - the machinic and Object Orientated Ontology, theories which I intend to develop so as to further inform the praxis.

Over the next phase two parallel activities are to be developed, further reading and research on intermedial practises and associated contemporary theory whilst in at the same time developing iMorphia into a vehicle for realising performative practise informed by theory. It is envisaged that a series of solo performative experiments will be developed and conducted with invited audiences. The performances will examine the role of the audience as passive spectator and active participant, investigating the potential of the intimate one person encounter (performer and participant) and the hybrid art installation/performance context, where a spectator becomes a participant in the action. The performances will be evaluated so as to determine whether theory has been successfully imbricated in practise through ethnographic studies such as analysing audio and video recordings of the live performances and post-performance interviews with the participants.

**2.3 Development plans and outline timeplan**

I intend to develop a series of intermedial performances that embody the concepts of possession, the double and the uncanny with an HCI and an artistic and performative slant through:

1. Extending the system so as to support the development and delivery of live intermedial performance. These are not regarded as major developments and can be implemented with relative ease. A number of prototype investigations have already been carried out utilising the powerful game scripting capabilities of the Unity games engine, such as interacting with virtual objects, interactive backdrops and objects with physics capabilities. This is regarded as an ongoing activity driven by the development of content and theory as described below.

2. The design and production of content such that theory and practice are imbricated together.

This is seen as a two parallel and interdependent activities which will mutually inform each other, the development and the performing of content alongside the ongoing acquisition of appropriate theory. For example the notion of the uncanny (Freud, Jenstch, Dixon, Causey, Mori) and its relationship to the digital double represents an area where theory can be used to inform practise. If a performance evokes the uncanny, then content and form substantiate a theory of the uncanny whilst theory is transformed into experiential phenomena.

It is recognised that the ongoing development of the complementary writing through further reading, researching performers and performances that embody interperformance and intermediality will play an important part in informing content development.

3. Staging a number of early test performances so as to gain feedback and further inform the design and development process of content.

Staging and evaluating a series of live performances at the end of the content and system development process.

4. Document and critically evaluate the process of development and performance through written reports and complementary writing, video and online evidence.

**2.3.1. Outline timeplan**

Ongoing December 2014 through to September 2015: Development of complementary writing with associated research.

January – March 2015: development of a series of prototype intermedial performances

March – May 2015: Test performances and evaluation

June – August: refine and develop further performative experiments

Sept – December 2015: Critical Evaluation and report

In September 2015 it is envisaged that a clear direction, methodology and examples of praxis will be present. These will be used as the basis for the last year, a final performance, evaluation and exegesis.

Early next year I am also hoping to obtain feedback from informed practitioners and critics of PaR and intermediality such a Robin Nelson (whom I have contacted), who may also be able to act as an external examiner, or recommend someone else if this becomes problematic. It is important I feel that I do have advice and feedback from a person skilled in the practice and assessment of intermedial performance within the context of a PaR PhD.

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1. This kind of disciplined inquiry was supported by the UK Council for National Academic Awards (CNAA), who in 1989 extended its research regulations to allow the inclusion of artefacts/artworks (elements of practice) as part of a submission for higher degrees, legitimising practice and not only ‘reflection on practice’ as a research activity. (Gray 1996: 3) [↑](#footnote-ref-1)
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 [↑](#footnote-ref-2)