Digital gardens with real toads:

in what ways have heritage and digital practices fused to form hybrid methods in moving image design?

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Abstract

This thesis is a critical examination of my own creative practice through my published works in the moving image: a short film, commercials and a television series title sequence. My creative approach has been to use a hybrid of digital and heritage practices to create original works for television, advertising and film. I define 'heritage' as traditional, analogue and handmade practices that predate or overlap digital technology. I consider 'digital' as a description of the means of production and also a medium of communication. Educational research, as a qualitative and quantative study in lens-based media also contributes to this thesis and forms an argument for future directions in art and design practice.

The thesis explores the ways I fused heritage and digital practices to create works that were original at publication. A second aim is to recognise the different skills required by artists and designers to embrace a multiplicity of technologies, skills which can provide sites of resistance to technological and socio-economic change. Lastly, the thesis proposes a pedagogical imperative to ensure that heritage skills do not atrophy, but develop and are reinvigorated with new possibilities combined with digital practices and platforms of communication.

Many of my works have been broadcast to a global audience, but I have also published through traditional academic journals. In the thesis I analyse the production methods that created the range of work presented here. My narrative of production unmasks the processes of illusion and argues that hybrid techniques can offer a more 'human' expression that carries greater 'authenticity' and a broader capacity of meaning than an entirely digitally created technique. Stimulated by a range of theoretical discourse I examine human relationships with technology in the creative industries. I also examine the conditions of production from a political economy perspective.

The reflective and critical commentary on my published works argues for an urgency to this study. I conclude that to avoid 'sleepwalking' into a digital conformity, heritage processes must be celebrated and advocated as areas of difference particularly in education. Taken together, I consider my creative practice and my educational work as a pedagogic intervention to explore a multiplicity of creative expression rather than enclose moving image in a solely digital medium.

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1. Introduction

Aims

My thesis is based upon a selection of my previously published works that have been broadcast, screened commercially, and printed. This selection is linked by my creative practice that has developed since the early nineties to seek innovative processes that fuse digital practices with traditional analogue and hand manipulated: what I would like to term 'heritage' practices in moving image design and lens-based media. It is important that my work is viewed in context with the creative work and ideas that were surrounding them at the time of publication and broadcast, particularly as technology in communication media was and is developing rapidly, a theoretical issue I discuss later. The originality of my work I hope will be judged in that context and by the nature of the aims of this thesis which seek to examine innovative creative practice in industry and position it within my recent research as a designer-educator working within academia.

My thesis has three aims. The first is to examine the hybrid digital and heritage practices within the creative industries of television, film and advertising. By situating this examination in my own creative practice I wish to highlight the epistemology of innovation and development of techniques that led to new ways of creating and thinking. New theoretical knowledge may not be explicit in the art works themselves but it can be found in reflections and interrogations that effective arts based research generates (Barone & Eisner 2012). I describe the political economy of the creative industries and specifically the British Broadcasting Corporation (BBC), which form the conditions of production for my work. The narrative of my production process describes the technical methodology of each published work. I then position the work in a theoretical context within a reflective critique.

Underpinning the self-reflective critique is a theoretical examination of the relationship between technology and art. Following Burgin I will offer 'critical insights into the history of (my) art practice…critically interrogating the various theories that may inform it' (Burgin 2009: 78). Media theorists such as Oliver Grau (2003) and Lev Manovich (2001) Baudrillard (1994) question the relationship between the creative arts and the use of computer technology in screen illusions and special effects. I

explore what is meant by authenticity in art and the perception of what is 'real' as these are central to the creation of illusions in art and in the screen arts of moving image in cinema and television.

I further examine technology by looking at the skills needed to use and be productive with it. A second aim of this thesis is to examine the skills that are required by artists and designers to find ways of using digital and heritage technology and processes. The role of the artist-educator can be to teach emerging creative talent by example and give them agency to read and understand the media from the past, present and what could be the future (Allen 2003; Lowgren 2010). I present a theoretical debate of how creative practitioners can find 'praxical' knowledge, particularly through drawing, and the use of materials and technology in moving image design to gain new skills and understanding (Carter 2004). I try to avoid the binary argument of analogue versus digital, however it is important to recognize the foreclosure on celluloid film production and the threat of losing the technical skills and materiality of film forever, as is argued by artists such as Tacita Dean (2011). When looking at the organisation of skills within the broadcasting industry I use the theoretical work of Raymond Williams (1981) to consider the social context of changing industrial practices within television. Hesmondhalgh (2007) and Hesmondhalgh and Baker (2011) provide a more contemporary critical framework for the complex and overlapping causes of recent structural and institutional changes in the creative industries which I use to contextualise the changing skills in television. Sites of resistance and counter-culture add complexity to the pattern of different technical processes that exist in the creative industries, but perhaps also in art education. Through a critical reflection on the skills that are used in both heritage and digital practices I wish to take account of recent challenges and look beyond to new opportunities that can inform my role as an art education researcher.

The third aim of my thesis is a proposition: that hybrid heritage and digital practices in moving image can develop into the future. By examining the application of these hybrid practices in art and design education I argue such practices in moving image are also relevant to other art practices and culturally relevant to students. Both modernist and postmodernist approaches are discussed, reviewing the legacy of the Bauhaus, highlighting the multi-media cultural influences on students and how they can find agency in their work. A pluralist approach to skills and technology is central

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to my argument and this is discussed with reference to my published paper 'Why Throw the Negs Out with the Bath Water?' (Macdonald 2012). There is a real urgency to the debate on skills and technology in art and design education and I wish to discuss the implications that my findings have on current educational policy and provision for art and design education in schools and higher education. The learner is commodified when learning art and design becomes a means of creating economic growth (Poor 2011), rather than finding a means of self-expression and articulating our understanding of the world as artists and designers.

My practice as a designer and an academic has offered me the opportunity to work abroad and so it would be appropriate, but also crucial in the digital 'global village' as coined by Marshal McLuhan, to take an international perspective. While the cinema and television industries expand their global reach and digital networks stretch the coverage of the delivery of their content, it is important to remember that the experience of the mediated world is not yet as universal as it might appear to a student in the UK.

Lastly, I hope that I can bring new awareness to the potential vitality of human expression within heritage practices that are in danger of atrophy or being overlooked and forgotten. The next generation of designers cannot have any regrets over lost practices and cultures if they are not aware of them existing in the first place. Education is critical in order to maintain a plurality of human experience and to provide opportunities for fusing heritage and digital creative practices that can continually rejuvenate and refresh creative expression.

The fusion of heritage and digital practices, I would like to argue, is a contemporary issue, but in the following section I shall illustrate that there have been other periods in Western cultural history where industrial and hand crafted processes have reacted and responded to each other.

Description of Published Works

In order to justify the selection of my published works it is necessary to put them in context within the technological and creative practices of each specific form. The moving image works (see appendix 1) are designed and produced to different criteria and creative frameworks. A television title sequence is a work of motion graphics designed with 'the purpose of explaining, and revealing, the message of the programme' (Merritt 1987: 45). The film is a work of cinematic narrative with live action performance. The commercials similarly follow a narrative, but with the purpose of selling a product, commissioned by a client through an advertising agency. Through my vision as a director and graphic designer I have creatively determined the mode of production to construct and shape the appearance of each piece. A different author may have written the script, but as the director I have authored the moving image.

People's Century (1996) is a 58 second title sequence for a landmark documentary series made by the British Broadcasting Corporation (BBC) and WGBH Boston examining the history of the 20th Century through the eyes of the people who witnessed it. I directed and designed it in collaboration with Alan Jeapes, one of the leading graphic designers in British television whose experience in the heritage practices of film opticals and typography had no equal. The sequence combined live action model photography with projected film archive using a computer-controlled camera.

Domestos (1999) is a 20 second television commercial. It combines live action performance, traditional skills of puppetry and 3D computer generated imagery (CGI). The script for this commercial was written by the advertising agency Ammirati Puris Lintas. It described how a box of wipes comes to life and flies through a kitchen to rescue a mum from using a bacteria infested cloth to wipe up her children's mess at the dinner table.

Vespa (2000) is a 50 second television commercial for Vespa scooters. The script from Fallon Advertising Milan's office describes a King Kong running amok in a futuristic city. A young woman rides a Vespa against the flow of panicking crowds towards the giant Kong before he picks her up to take her scooter. It involved

stopframe animation, directed by animator Derek Mogford, which I combined digitally with the live action and model sets that I directed.

Herbal Essences (2006) is a 20 second commercial for a viral internet campaign. The script from Leo Burnett advertising agency was written to draw attention to the brilliance of Herbal Essences hair colouring by suggesting that explosions of hair were fireworks at Guy Fawkes Night. Live action hair was shot using a high-speed digital camera.

Exposure (2000) is a 13-minute film about a television crew who are recording a man's suicide. It is a satire of reality television that exploits different media to suggest different viewpoints and levels of power: the suicide character, the television director, the commissioning editor and the audience. Technically it combines video, film, surveillance cameras and internet graphics to create a 'metamedium' that fuses digital and analogue practices.

'Why Throw the Negs Out with the Bath Water?' (2012) is an article published in the *International Journal for Art & Design Education*. It is a study of lens-based media education, specifically A-level Photography at a further education college in England (see appendix 2). Using a sample group of 200 photography students the study examines the choice of media and learning approaches across digital and analogue film photography.

Structure of the Thesis

Following the introduction that prepares the context and methodology of the thesis, the next chapter sets out a position for hybrid practices in art and design education that seeks to challenge a digital orthodoxy. It questions the application of monetary values - the commodification of education and the value of creative education to the economy. The next chapter raises contradictions in my experience of commodification as I consider the political economy, the conditions of production for my published works in broadcasting and advertising. It describes the creative industry and the commodification that has affected culture in industrialised societies. These themes are developed and contextualised in an examination of the changing

practices of production in television, followed by a chapter that explains how my works were produced in a narrative that connects it to theoretical position. Finally the thesis, rather than reconcile a set of theories, develops and explores a range of theoretical discourse which contextualises hybrid and digital practice. But first we must consider what is meant by heritage and digital within the context of production processes.

Heritage and Digital

> There are, then, two worlds & these twain can never be one flesh. They are not complementary to one another; they are, in the liveliest sense of the words, mortal enemies.
>
> (Gill 1988: 16)

Writing in 1936 the typographer Eric Gill (1988) saw handcrafted design and mechanized design as two opposing worlds. I wish to examine whether Gill's view could be applied to analogue and digital practices. Rather than rely on an argument based on nostalgia, why, should and how can heritage practices associated with analogue production be maintained and further developed? Can a hybrid of heritage and analogue practices produce a more authentic, or a more convincing illusion or artistic expression than a purely digital one? When the American poet Marianne Moore wrote 'Poetry' she distinguished between the real (the subject) and the artificial (the context): 'imaginary gardens with real toads in them' (Moore 1919). It is this quote that gives my thesis its title. I contend a digital image, as in poetry, requires something random and human to make it come alive.

Philosophers such as Paul Virilio (2000), Jean Baudrillard (2009), and Friedrich Kittler (1999), and media theorists such as Oliver Grau (2003), Lev Manovich (2001) and Charlie Gere (2006) have argued that digital is the dominant media. In art and design education Addison et al also acknowledge that digital media dominates the 'visual landscape of global communications' (Addison et al 2010:46). Davies and Worrall refer to an 'emerging ICT orthodoxy…in our schools' (Davies and Worrall 2003: 91), and it could be argued, in our universities as well. There is a need to provide insights into this medium, 'with its growing societal and artistic importance, and the new status of the image under the hegemony of the digital' (Grau 2003: 8).

An examination of the mediated world is as urgent as ever, not least because our relationship with technology has changed significantly with the advent of worldwide digital communications (Turkle 1995; Kittler 1999; Manovich 2001). Virilio (2000) argues that our whole perspective on the world is increasingly mediated through digital technology at an accelerating pace. Charlie Gere is concerned with the role art might play in a mediated world where 'the increasing speed and complexity of contemporary technology is the cause of both euphoria and anxiety' (Gere 2006: 1). The close relationship that art has with machines, and technology in general, spans many epochs, from antiquity to the present (Heidegger 1954; Benjamin 1992; Grau 2003). So it is unsurprising that we question how art can respond to technology's rapid development: 'the very status of art is brought radically into question by the speed of technology' (Gere 2006: 11).

Oliver Grau (2003) takes a historical perspective when building a theoretical framework for analyzing the phenomenology of illusionary space. Grau, building on much of the work of Gombrich (2002), postulates that the art of illusion, whether religious frescos or virtual reality simulators, drives the technological convergence of image and medium. There is a basic human desire for illusion, and Grau argues that reflection on the applications of the technologies in virtual art reveals a utopian quest for illusionism. Quoting Heidegger, Grau brings the mid-twentieth century philosopher into twenty-first century focus: 'the most elemental process of modern times is the conquest of the world as images' (Heidegger in Grau 2003: 2).

Interrogating the idea of what it is to be human through art in a digital world is very much the 'here and now' according to Lyotard (Gere 2006). Baudrillard describes a dystopian 'simulacrum' where nothing is experienced in 'reality' and everything is received through visual representations alone. He believed postmodernism to be a highly dystopic condition leading us into a 'hyperreality', a Disneyland. He views this as dangerous to society because the dominant systems of corporate capitalist power eliminate any agency once possessed by the people (Baudrillard 1994). However, later I will argue that digital technology can provide agency.

How an image is viewed and how its authenticity is regarded is central to the work of Walter Benjamin. In *The Work of Art in the Age of Mechanical Reproduction,* written

in 1936, Benjamin critiqued the change in reproduction processes and how the medium influences the reception of the art form.

> Mechanical reproduction emancipates the work of art from its parasitical dependence on ritual. To an ever greater degree the work of art reproduced becomes the work of art designed for reproducibility.
>
> (Benjamin 1936/1992: 218).

In other words, the mechanical reproduction of an image removes it from the tradition of image creation where each image is uniquely created by hand (Ritchin 2009; Meecham 2000). The technical revolutions of print and cinema that Benjamin theorises are just as relevant to today's digital and online one, where analogue media creation represents tradition and heritage. Indeed Benjamin's title was incorporated by others such as: 'The Work of Art in the Age of Electronic Reproduction: Interviews with Paul Virilio, Jean Baudrillard and Stuart Hall' (1988) *Block 14*; and Gumbrecht and Marrinan (2003) *Mapping Benjamin: The Work of Art in the Digital Age.* Meecham sees this as 'an 'inevitable' fulfilment of Benjamin's prophetic essay' (Meecham 2000: 220).

Another comparison which could also apply to heritage analogue and digital techniques is the division of production techniques between the handmade and the industrially mass-produced that Eric Gill, the typographer and sculptor, wrote passionately about in 1931.

> The two worlds can see one another distinctly and without recrimination, both recognizing what is good in the other – the power of industrialism, the humanity of craftsmanship. No longer is there any excuse for confusion of aim, inconsistency of methods or hybridism in production; each world can leave the other free in its own sphere.
>
> (Gill 1988: i)

Separating industrial production and craftsmanship is contrary to contemporary designers, such as onedotzero (2004) who celebrate the new graphic visuals of hybrid analogue and digital techniques. Expensive film production has given way to more affordable technology to bring industrial processes into the student bedroom.

> The boundaries between animation, motion graphics and digital effects, and their relation to the 'filmed' image are essentially meaningless. The pure film has given way to hybrids of moving image that have influenced other more

> traditional animation areas and have colonized areas from broadcast design to music videos.
>
> (onedotzero 2004: 15)

Like many graphic designers in both print and television, I was at first seduced by the mutable perfection of digital technology. However, after a while, once the spinning chrome logos of television graphics became ubiquitous, it was time to consider how individuality and even 'the humanity of craftsmanship' (Gill 1988: i) could be regained in a digital orthodoxy.

But what of the digital orthodoxy? Cultural evidence of pluralism and overlapping technologies of digital and analogue media are now frequent: Tacita Dean's *Film* (2011) analogue exhibit at the Tate Modern Turbine Hall, Terence Conran's retrospective (2011) at the Design Museum, and David Hockney's *A Bigger Picture* (2012) at the Royal Academy. In the Far East there is a particularly vibrant fusion of traditional handcrafts and modern interactive digital technology, as in the *Chimera* (2012) exhibition at the Singapore Art Museum. But commercially the global collapse in sales of photographic filmstock and the transfer to digital projection in cinemas suggests a different situation. Bourdieu (1993) in *Theory of Practice* alerts us to the dominant groups who may impose an orthodoxy. In human society there is a 'struggle for cultural and symbolic capital' (Atkinson 2002: 146) that provides energy for heterodoxies and develops heretical discourses. Whether looking at Benjamin, Gill, and Williams the theorists of the last century continue to provide fruitful discourse for our age, each providing a counter balance to the euphoria of digital invention, and a context to theorise my own creative practice.

Is the heterodoxy (Bourdieu 1993) of heritage practices sustainable, or rather than working in binary opposition to each other is there a third space that is developing on the boundaries of digital and heritage creative practices? Homi Bhabha argues that there is living culture between the gaps, between the 'borders' of media, cultures and race (Bhabha 2003: 1110), and I would further argue subject boundaries between media studies and art in education. It is an art of the present that has a 'newness that is not part of the continuum of past and present' (Bhabha 2003: 1114). Bhabha argues that the third space is where new art can be created through consensus or confrontation. I hope to argue that through my work there is a third space, a hybridity of technologies that will begin to question the emergent quality of technology in art,

rather than see technology as a means to an end. 'Technology can also be used to question what we value and why' (Meecham 2000: 225).

> … it's not only what design means that counts – the 'why', as it were. The 'how' is an equally powerful way of understanding the physical, material world – not least because technologies and techniques keep evolving and expanding. By combining this technological perspective with an appreciation of the cultural context in which design operates, we have a particularly powerful way of looking at and understanding the world.
>
> (Sudjic 2009: 50)

To begin to understand our relationship with technology it was necessary to find a suitable methodology. Atton argues that Bhabha can also provide a methodological approach to 'interrogate identities and practices that are negotiated across the terrain of a third space that hybridizes practices between hegemonised and marginalized cultures' (Atton 2002: 152). Not only the methodology, but also this thesis itself could be viewed as situated in a third space on the boundaries of traditional scientific academia.

Methodology

My focus as a practising designer and director is to examine our relationship with heritage and digital technology through an art practice, because as Barone and Eisner argue 'there is an intimate connection between technology and expressivity' (Barone & Eisner 2012: 5). There are several ways of approaching visual evidence, such as my published works, for critical analysis. Van Leeuwen and Jewitt suggest that a visual anthropology, which looks at the social and cultural practices surrounding the visual evidence, tends to 'emphasize the researcher as "editor" rather than artistic "practitioner"' (in Sullivan 2005: xv). Hickman suggests an alternative discipline of ethnography where the artist researcher is 'totally immersed in the phenomena observed' (Hickman 2009: 18) and that view from within can bring out deeper insights and revelations through reflexivity. Schon (1987) and Dewey (1934) both advocate a reflexive approach to practice. An autoethnographic approach would examine the documents and recordings from a personal account and a running diary or record of my practice could have supported such a methodology (Haywood Rolling 2008; Sullivan 2010). Starfield and Ravelli argue that a humanities doctoral thesis is 'marked by its construction of a reflexive self, unable

to write with the classic detachment of positivism' (Starfield & Ravelli 2006: 222) and so my reflective practice can be thus contextualized and situated within the contested space of my chosen subject of digital technology and heritage practices.

At The Royal College of Art, Frayling (1993) laid out a framework to legitimize arts-based research that acknowledged the differences to traditional scientific research methodologies, but he also stressed that it is the relationships between art and science that are more important (Elkins 2009). 'There is a lot of common ground. There is also a lot of private territory' (Frayling 1993: 4). The 'renegade' artist is not easily accommodated by academia, 'what we cherish others may not' (Sullivan 2010:80). In a Romantic sense the artist can be perceived as an outsider of convention and tradition, but this can be a positive position to hold as it allows new territories and approaches to be claimed and argued for in academia. Research through art and design can bring an explanation and analysis of the design process while allowing the artefact to provide evidence of the development and/or action research. 'Arts-based research is designed to enable readers and viewers to see aspects of the social world that they might have overlooked otherwise' (Barone & Eisner 2012: 166). Polaine argues that in design research 'theory *is* practice and practice *is* theory and that the same is true for research' (Polaine 2011: 47). Once the internal personal process of sense making is externalised ideas become 'real', something to be discussed and defined by other people in a collaborative synthesis (Kolko 2011).

> Those in higher education face the realisation that the rapidly changing worlds of digital visual technologies, new hybrid alliances being forged across disciplines, and the volatile globalization of commerce and culture can no longer be explained by rational reasoning alone…For many, it is essential that the creative and intellectual energy of artists be more fully acknowledged in higher education and the community at large.
>
> (Sullivan 2010: 76)

There has been an increased use of research methods from areas such as psychology and sociology in design projects (Polaine 2011). Since the digital revolution of the mid-1980s within graphic design there has also been an increase in critical reflection and academics in this field have sought to define research approaches where they were once lacking (Blauvelt & Davis 1997). 'The use of theories and practices of other fields requires an integrative approach, interpreting

and synthesizing ideas within the particularity and materiality of graphic design' (Blauvelt & Davis 1997: 81). Noble and Bestley argue that theory can provide a basis to ask questions through work, and that design lacks 'not necessarily more visual variety, but rather more provocative questions and polemical answers (Blauvelt in Noble & Bestley 2005: 166).

Triggs also argues that 'graphic design history in the present is looking for its past; in doing so, it paves the way for the future of graphic design' (Triggs 2011: 6) and so by examining my practice at a key point in graphic design history this thesis might help to further knowledge in the subject. A written analysis and reflection through and of my work can therefore be presented as an appropriate body of research within my field of graphic design and creative arts.

Contribution of Published Work to Thesis

My selected published works present different combinations and uses of hybrid practices, each have come about from finding methods to bring to life and execute an idea. They contribute praxical knowledge and an exploration of processes that range from drawing (in the form of storyboards), or through a dialogue with model-making, film, video or digital processes to reveal a creative practice that combines heritage and digital practices. What Frayling (1993) describes as research through art. This can inform educators and practitioners wishing to extend or re-engage with processes that have been neglected or over-looked.

Each form of representation imposes its own constraints and affordances which the designer and artist can exploit to communicate what otherwise could not be 'said'. Barone and Eisner argue that 'for educational research, this idea suggests that the invention of and use of new media (or hybrids) might give us images of social life that would otherwise be impossible to see' (Barone & Eisner 2012: 166). In a later chapter I will explain and contextualise the experience of making –'its exact pedagogy, its methods, knacks, and skills, its feel' (Elkins 2009: 128).

In *Exposure* I use a combination of analogue film, video and digital post-production to create multiple textural surfaces in moving image to signify different audiences within

the film, what Manovich (2001, 2007) refers to as 'elastic reality' and a 'metamedium'. I use different forms of media to multiply the strands or viewpoints of the narrative. It questions alternative sites of viewing, whether in the cinema where *Exposure* was screened, at home on DVD, or online. I preceded several Hollywood directors who shared my interest in exploring the aesthetic qualities of different media to distinguish between different registers of a story.

People's Century contributes an example of a combination of handcraft model making, digital film restoration and computer controlled camerawork. A 10-metre tracking shot along a handmade 3D scale model with registered film projection was unprecedented and was only possible because of a computer-controlled camera that could accurately repeat a programmed move. A hundred years of history was collapsed into this short physical space. The heritage skills of scale modelling and dioramas assisted in developing the subtle use of materials to disguise the scale and portray a naturalistic rendering of streets and fields from different parts of the world.

With *Herbal Essences* a knowledge and familiarity with high-speed photography allowed me to explore and further the possibilities of image manipulation with new High Definition digital equipment. My intimate dialogue and knowledge of digital practice enabled me to value the aesthetic freedom afforded by working creatively with performance using real hair rather than a synthetic computer generated technique. It may appear an obvious decision to use real hair in a hair commercial, but it was a challenge to meet the demands of the script.

The process of making *Domestos* brings to our attention the importance of drawing skills. I use drawing as a process of communication and idea manipulation to problem solve and visualize (Adams 2001). My drawn visualizations informed the puppeteers and digital visual effects artists who contributed their skills to the commercial. The heritage technique puppet animation and special effects offered the illusion of naturalistic live interaction and placement of the virtual computer generated box within the scene. I explain in a later chapter the nature of the dialogue that happens between the computer and the animator (Grau 2003), who, by being immersed in this dialogue, can develop a skill and knowledge of their sophisticated tool in order to imagine and anticipate functions and outcomes.

Vespa used a hybrid of animation processes that simultaneously re-engaged with the past and looked to the future (Wells 2008). There were similarities to *Domestos* in the approach to making *Vespa,* but it differed where the significance and the visual presence of the animation was now privileged over the live action. Rather than employing computer animation for the foreground action, in *Vespa*, it was the reality of live action that was inserted into a constructed model environment and stop-frame model animation (see figure 5). The script with its references to *Metropolis* (1927) and *King Kong* (1933) can contextualise the historical background to our complex relationship with technology and its portrayal in the moving image. I argue that the social ambivalence to mechanization of the 1930s has parallels with contemporary society. The relentless push for technical advancement, the impact of cultural, economic and social factors continue to challenge orthodoxies of production and labour skills in industrial, cultural and educational organizations (Williams 1981; Hartley 2005; Hesmondhalgh 2011).

A pluralist approach to skills and technology is central to my argument and this is discussed with reference to my published paper 'Why Throw the Negs Out with the Bath Water?' (Macdonald 2012). There is a real urgency to the debate on skills and technology in art and design education and I discuss the implications that my findings have on current educational policy and provision for art and design education in schools and higher education.

The paper presents compelling primary research that supports the pedagogic principle of my thesis. As today's digital applications hold our gaze and become increasingly ubiquitous, it is easy to dismiss the previous technologies and processes that provided yesterday's creative opportunities. Using qualitative and quantitative research I explored students' attitudes to learning Photography with an artistic curiosity, which included experiential learners, and those that eschew the digital age who are content with the organic variety of analogue learning that film offers. They make their own case for maintaining a plurality of approaches to learning that are not limited by any orthodoxy, digital or otherwise.

Skills and Educational Research

Hesmondhalgh (2007) argues that those who experience a shift in processes and technical innovations in creative industries can witness it from very different perspectives. There are those that fall victim to the collapse of the demand for their skills, there are others who advance with new knowledge that is scarce but in high demand, and there are those who straddle the divide and seek to adapt their heritage skills to a new environment. Williams (1981) also points out the conflict that arises when one media begins to exclude another. 'The crisis, in certain arts, of the transition from handwork to machine production' motivates the formation of alternative and oppositional groups (Williams 1981: 72). Yet, despite the conflict Williams could see the potential for transitional periods to be the most creatively innovative. Throughout the 1980s and '90s digital technology advanced rapidly and with it the engagement of moving image designers as they sought out new aesthetics and styles (Willis 2005). I witnessed how designers expert in analogue, either had to team up with new digitally trained graduates, or retrain, or seek redundancy in a cultural shift that rocked the BBC in the 1990s.

'The attachment…to the democratization of the social order' (Williams 1981: 72) is also part of the process, and perhaps ironically it is the internet and flourishing online communities that support and educate professional and amateur creative practitioners alike in heritage media. The first decade of the new millennium saw a revolution in domestic and professional moving image production as digital media and the internet took over the established mode of recording an image and the means of reproducing it. Nothing has been more technically challenging to established industrial skills, and arguably liberating, than the advent of digital production (Myerson & Vickers 2002).

As a practicing educator and designer part of my current research activity is to ensure that hybrid heritage and digital practices can continue to be developed by new emerging talent. What educational research can be extracted from this analysis and how might this inform current art and design pedagogy? There are many within the art education establishment (Long 2001; Ash 2004; Newbury 2004; Allen 2003; Davies & Worrall 2003: Meecham 2000) who promote the opportunity for digital and moving media to engage and further enhance learning in art. Why is it that students

who struggle with traditional media are finding recognition as competent manipulators of digital media (Wood 2003)? Perhaps it is because students are bringing skills from their considerable home use of digital technology into the school artroom (Davies & Worrall 2003; Buckingham 2010; Erixon 2010). Born into a digital world, students are 'digital natives' and often they are informing the teachers, the 'digital immigrants' (Prensky 2001).

Students learn from demonstrations, mimicking the techniques and procedures shown by teachers as well as other more able students and friends (Eisner 2002). They need to be able to learn through practical application and experimentation in a learning environment that allows for mistakes. Perhaps the home is a safer environment than the school or college. Learning through experimentation is inherently a creative process, where success and failure walk hand in hand; it is not a straight trajectory but a bell-curve (Mayer 2003). As computers become more affordable it allows regular access and practice for students to develop their skills and techniques to tailor working routines to suit their individual learning styles, for those that can afford it they have agency (Addison, Burgess et al 2010). For tacit knowledge in any media, digital or analogue, to be developed requires 'imitation, practice, repetition and complete immersion: it takes time, what Polanyi (1964) calls 'indwelling'' (Addison & Burgess 2007: 36). From this tacit knowledge of the medium a learner can develop intuition, which Dewey (1934) identified as an essential element in creativity.

Through experiential learning the heritage skills of drawing, animation, model making and photography can all inform and enhance digital image processes. Designers and artists can be trained in technical skills and aesthetics but there also has to be a development of attitude and approach to solving design problems and extending creative practice. Therefore underpinning my critique I shall draw out the pedagogic opportunities and self-reflection of my own epistemology.

In the next chapter I examine how hybrid practices can be developed through a pedagogy that offers a pluralistic and diverse approach to media and informs emerging student talent of possible routes of enquiry beyond corporate software.

2. Hybrid Futures in Art & Design Education

In the following chapters I will make an argument using my creative practice for a hybrid of heritage and digital practices in the moving image. It leads to a pedagogic imperative where in this brief chapter I would like to argue that there are several advantages to a hybrid of heritage and digital approaches to education in the visual arts. In 'Why Throw the Negs Out with the Bath Water?' (Macdonald 2012) I argued that there was a digital orthodoxy, especially within education, in response to the anxiety to prepare children for a digital future in a global workplace. By focusing on lens based media within art education the paper revealed sites of resistance and alternative pedagogic practices that provided a more pluralistic learning environment. Contrary to public opinion not all young people are 'techno-geeks', some find heritage media not just 'cool', but more tactile and real – qualities that they value in the digital mediated world that they grow up in (Macdonald 2012). Art rooms are still bastions of physical heritage media. But critical reflection of the amalgamation of heritage and digital processes is lacking.

Art education finds itself under continued threat of being marginalised unless it can justify its position by providing employability, economic value and literacy, just when it might offer an opportunity for exploration with technology (Hughes 1989; Peers 2011). I would argue that this is where the relationship with art and technology is critical, 'failure to familiarise children at school with the use of such technology inhibits their imaginative potential' (Warnock in Hughes 1988: 132). The Henley report explicitly warns that any downgrading of the status of the arts subjects 'required by the Creative and Cultural Industries for future employees could pose a serious risk to the revenues earned by UK plc' (Henley 2012: 16). Henley continues:

> There is a strongly held view among design professionals that we compare unfavourably with rapidly developing economies such as China. The perception seems to have arisen in England that Design should be regarded as a second tier subject.
>
> (Henley 2012: 43)

In Australia a similar concern exists, Peers argues that the dropping of 'art' from the *National Review of Visual Education* (NRVE 2008) is a symptom of the neo-liberal politics that encourages market forces to dictate curriculum provision and further

commodifies the human capital of children: 'in educational terms, it no longer matters whether knowing is authentic so much as whether the performance can be capitalised' (Peers 2011: 420-1). Technical skills, such as drawing and computer modelling used in VFX, appear to have economic value, expanded consciousness and creative thinking seem harder to quantify and therefore value. Instrumentalism and tacit knowledge go hand-in-hand rather than in binary opposition. Measuring the value of art and design education against economic human capital has been an aspect of industrialised societies in the twentieth century, as Field illustrates: 'throughout the thirties there were complaints from industry and commerce that the schools of art were failing to produce designers of much practical use' (Field 1970: 57).

Current thinking on the future direction of education suggests that there should be greater convergence of skills across the arts and science. In the 2011 MacTaggart Lecture at the Edinburgh Television Festival Dr. Eric Schmidt, CEO of Google, called for an end to the pigeonholing of 'luvvies and boffins' and that tomorrow's graduates should not see themselves segregated in such narrow definitions (BBC News 2011). In the UK, Henley warns that leaders in industry 'argue that there should be greater crossover between art and science within education' and that in fast developing economies such as Singapore, there is no separation between science and art (Henley 2012: 43). Sullivan argues that new digital technologies can provide the bridge between art and science:

> It is the development of newer technologies sparked by the digital revolution that is forging links between the arts and the sciences. And for Wilson (2002), the arts are crucial to this enterprise as they 'can fill a critical role as an independent zone of research, in which artists integrate critical commentary with high-level knowledge and participation in the worlds of science and technology' (p.35).
>
> (Sullivan 2010: 163).

John Maeda, Director of the Media Lab at the Massachusetts Institute of Technology, argues that education should enable people to become 'humanist-technologists' through a 'post-visual arts education'. Art and technology 'compliment each other in a necessary union of relevant vision united with relevant construction' in a purposeful learning environment (Maeda 2000: iv). This approach is not as new as it may seem. Maeda (2000) acknowledges the tradition of the Bauhaus and the art educational

research of Josef Albers and Moholy-Nagy to find an appropriate pedagogy at a time of unprecedented technological advancement and mechanization during the 1920's.

Other American East coast academics, such as Lupton and Phillips (2008) at Maryland Institute College of Art (MICA) in Baltimore, also draw on Bauhaus approaches that combine a humanistic (individual rather than machine centred) approach to using technology to describe and interpret visual forms in design thinking. At The Cranbrook Institute of Art in Michigan 'the messiness of human experience is warming up the cold precision of technology to make it liveable, and lived in' (McCoy & McCoy 1990: 14). In a reaction to the rational, systematic approach of formalist Modernism they have embraced expressive rule breaking and deconstruction since the eighties. Cranbrook would argue that they offer students a pluralist approach to suit the individual rather than the singular philosophy of the Bauhaus.

There are other voices that suggest 'algorithmic thinking requires an analytical bent of mind' (Vidwans 2008: 152), and that we need to 'develop technological intuition without losing aesthetic intuition' (Huang 2008: 167). Huang (2008) suggests a more Eastern philosophical approach using Wu-Wei to develop a mastery of technology in harmony with artistic practice. This is contrary to Western thinkers such as Heidegger who would advocate that we develop skill with technology rather than attempt to master it in order to reveal 'something never-before-revealed' (Bolt 2011: 103).

It is significant that some of the most radical and highly reputed art and design education institutions are using new technology to bring art and science together, but retaining a pluralistic approach that accommodates heritage practices to interrogate and often subvert the original use of new technology. Some of the contemporary artists that re-appropriate technology in order to examine our relationship with it are Cindy Sherman, Yasumasa Morimora, Willie Doherty (Addison & Burgess 2007). By developing digital technology or processes into material objects artists Troika and HeHe try to understand human interaction with technology by questioning the correlation between digital and analogue worlds (Rodgers & Smyth 2010). The human element is key to this approach, because an alternative view would, in Heideggerian terms enframe us. Kittler (1999) describes a world that will only be conceived and experienced through digital media where cables connecting

computers form a human bypass, removing us from the information highway loop and so 'computers themselves become subjects' (Kittler 1999: 258). This is surely a dystopia we must avoid.

Another advantage of a hybrid approach to visual art education is linked with literacy. Barone and Eisner (2012) call for greater heterogeneity of media to allow for a greater diversity of 'language', particularly in research methodology. Futurists such as Alvin Toffler acknowledge the continuing technological change necessitates continuing education, otherwise the 21st century illiterate will be 'someone who cannot learn, unlearn, and relearn' (Toffler 1971: forward). Illiteracy at its most basic level of reading and writing is a central concern across the world so Toffler warns us of the potential for greater social and economic inequality. In the UK and other developed countries the rapid increase of digital processing power at a corresponding falling cost has allowed a democratization of digital media and communication. (Moore's Law follows that £1000 of memory today will be worth £1 in twenty years time (Facer 2011).) While some contested the assumption that the use and availability of digital media was universal with UK children (Hall in Stanley 2009), it is evident that each year it becomes a reality. The impact of this is that for 'those children with access to digital technologies outside school, such resources have the potential to intensify the impact and reach of their informal learning' (Facer 2011: 19). Within this however, there will continue to be inequalities.

> Importantly, some of these augmentations will have the function of empowering and extending children's agency, others may be administered to limit, and control them, and these different patterns may play out along lines of wealth, ethnicity and gender.
>
> (Facer 2011: 54)

Wildermuth (2010) argues that education should focus on empowerment rather than digital inclusion. There are striking imbalances across the globe where the vast majority of humankind is without the physical resources or skills to be a digital citizen. In India, the Sarai research project in Delhi has challenged Western cultural hegemonies and the digital divide by bringing together artists, activists, urbanists, theorists and critics on a hybrid mission to share learning (Lovink 2005). Nations such as Brazil, India and China that are rapidly growing economically and have enormous resources of people are, in my opinion, the ones that increasingly will bring innovation and a resourcefulness, which includes heritage and digital practices, to

education. Recently in China I have witnessed the appetite to adapt and embrace new educational research, to involve handcrafts and digital skills to model and develop 3D designs (see figure 1).

As digital technology develops it seems to mimic more analogue experiences and so bring a whole new dimension to education. Haptic literacies that grow through heritage hand crafts and analogue processes are likely to be developed in digital technologies that have motion sensors, for example those technologies found in the Wii. Information and experimental designs could be felt and navigated through in a virtual simulation. The speed of reflection and action is further accelerated; the plasticity of a design process becomes greater. It 'bridges the divide between the academic and vocational knowledges, between knowing 'that' and knowing 'how', between reflection and action' (Facer 2011: 65). When drawing, David Hockney was frustrated by the slowness of Paintbox and early Apple Mac computer technology, but by 2008 he found that the iPhone, and latterly the iPad, were able to respond as fast as his hand and mind (Gayford 2012). Of course endless plasticity and a faster cycle of action and reflection may have a bewildering and overwhelming effect to less competent and literate artists.

> To be 'literate' in this environment, is to be able to model, to experiment, to visualize, to verbalize, to write and to film (among many other things)…Educators will need to engage with the materials by which representations are produced, with the ways in which the hardware and software, the networks and biology of our modes of communication also serve to structure our possibilities for representation, modelling and comprehension.
> (Facer 2011: 71)

The world is more mediated and so the experience of the learner, both young and old, is also more inter-textual (Darley 2000). 'Nothing is finished, nothing is complete, nothing cannot be modified' (Facer 2011: 75). The creative opportunities online allow for people to 'mash up' music, video, text and image to create individual compositions and products. These can be found on fansites, which provide opportunities to create, disseminate and engage discourse far beyond the classroom. This heavily mediated experience may be creative, but it is far removed from Richardson's approach that viewed children's art with a Romantic purity of vision (Holdsworth 1988; Smith 1996). Can an authentic creative expression ever be found or taught if the technology and media used allows for content to be easily so fluidly

Figure 1. Chinese students learning through handcrafts and digital technology

intertextual? Within academia there is also the opportunity to bring art and science closer together through technology, and I would argue, a means of continually questioning the authenticity of the inner vision in creative expression.

In the next chapter I will again address the issue of monetary value of creative expression in art and design, but within the context of the BBC and the wider creative industries. The contradiction of commodification in my work, whether in education, the BBC or as a director in commercials is not easily reconcilable. But there are examples of artists such as Barbara Kruger who have 'encountered performative contradictions in their own enactment of the paradoxes of cultural patronage' (Wilson 2009). I hope lessons can be learnt from each distinct sphere of experience, and conclusions made later that inform students and practitioners alike.

3. Political Economy: Conditions of Production

Creativity: Human Expression

This chapter forms a theoretical argument in support of my creative practice. The term 'creative industries' is a relatively new one, an amalgamation of 'creative arts' and 'culture industries', which is used as an inclusive term for all activities of any scale and media, private or state (Hartley 2005). For some it can be seen as an 'oxymoron' (Negus & Pickering 2004: 46). The Romantic may ask if industry, with its obsession for rational organisation, can accommodate creativity, which demands freedom for human expression without compromise and corruption? Lehrer (2012) argues that the difficulty of the task accelerates the process of insight, poets for example use the discipline of sonnet and haiku forms to promote creativity. Rand argued that good design and creativity are the 'embodiment of form and function: the integration of the beautiful and the useful' (Rand 1970: 9). Adorno and Horkheimer (1991) argued that the commercial usage of art forms consumed across new technologies of mass communication resulted in a culture industry made from the fusion of art forms through commodification.

Raymond Williams further argued that it is the power of works of art to communicate that gives 'the distinction of value' (Williams 1961: 34). It follows then that we may also value creativity, as the central idea of 'creativity involves the communication of experience' (Negus & Pickering 2004: ix). It is an experience of something new for the author as producer and the audience as consumer. It is future orientated by creating new from altering our present (Vygotsky 2004). Benjamin (1936) and Simmel (1900) argue that mechanised production has enabled the commodity to become ascendant and it has fuelled a fetish, a sexual desire that the consumer needs. Yet as new processes and ideas are becoming more quickly assimilated products of creativity risk being dismissed as 'so last year'. In Latour's critique of Modernity, mediation brings unwanted hybrids that challenge at 'dizzying pace' the carefully erected Modernist boundaries between subjects and objects, society and nature (Kochan 2010: 582). Latour wishes us to slow down and find 'enlightenment without modernity' (Latour 1993: 12). Virilio's (2000) position is that time is now meaningless because of the hyper-speed of digital technological progress. Kurzweil (2005) describes the point where technological progress is so rapid that we no longer

have the power to control it as 'singularity'. But, as Gere (2006) argues, art can maintain a human relationship with time and technology and so give us time to understand it.

From an educational research perspective the debate of how technology interplays with art is just as relevant to design. My practice as a graphic designer and as a commercials director can be analysed within the context of art theory. Spigel (2008) makes a specific link between video art and broadcast television and argues that they can be seen together as an art form, eroding the boundaries that have been erected between high art and commercial design. Yet we have to be conscious that my creativity has been born out of commercial constraints with 'subjective intentionality' and 'objective structuring, lying at the heart of the creative process' (Petrie in Negus & Pickering 2004: 57). I am aware that comparing graphic design with art is highly contested (FitzGerald 1998), and even arguments by leading designer Paul Rand (1993) were often inconsistent. However, the hybrid processes I describe are as art practices in design.

I was fortunate to begin my career in television graphic design at the very moment digital graphic systems were introduced. Traditional materials and practices overlapped new digital ones, which called for a re-assessment of skills and a re-evaluation of materials. This thesis examines my dialogue with the materials that I have used in my practice, which are intertextual, linking historical and innovative practices within the phenomenological events of my work to inform future knowledge in my teaching practice (Addison, Burgess et al 2010). My work has to be seen and judged within the context of our television and advertising industries, the mode of production, the means of transmission and the reception of the audience. Design and advertising have always developed in very direct response to the social, political and economic conditions of the times (Hartley 2005). The scope of my creativity is defined within the conventions of this habitus. Taste and preferences are conditioned by our habitus (Bourdieu 1990), through or against the culture and the social class we grow up in. Benjamin's 'The Author as Producer' (1934) asks how the work of art is created by looking at its 'context of living social relations' (Benjamin 2003: 495). Television titles and commercials have, in the period of my publications, matured and undergone the tremendous change of the digital revolution, yet they continue to develop and mutate in response to our social relations (Darley 2000). The form is far

from dead, but just as in 1936 Benjamin points out that there is a possibility of mourning the past (analogue and heritage media) 'and ecstatically affirming its transformation' (Caygill 1998: 77). Traditions of production and reception may change, and so with it the significance of an object in a culture, but the uniqueness of the object remains (Benjamin 1936).

The shattering of tradition that Benjamin (1992) speaks of, that has accelerated since the last century with democratization through digital technology, remains a concern to those in the arts and education who are invested in the renewal of humanity. The modern experience is defined by technology. Art can negotiate technology within technology; within the experience of technology it can be inventive and extend its limits through experimentation and creative practice (Heidegger 1954; Kittler 1999; Jameson 1994; Manovich 2001; Grau 2003; Gere 2006).

Contrary to the Enlightenment, traditions do not necessarily die as modernity advances (Williams 1981). They may relocate to alternative sites or 'in-between' spaces (Bhabha 2003), and they can adapt to new modern political, technological and cultural developments. Living traditions bridge the past with the present and future. It does not have to exist in binary opposition to modernity, but perhaps 'tradition as cultural dimension has…proved to be co-extensive with modernity…because it has provided resources for cultural creativity and invention which modernity may appear to have forgone' (Negus & Pickering 2004: 100).

Abbs (1989; 1994) argues that with curiosity and a stimulus we can begin a cycle that starts an expressive impulse of creativity. Here science and art overlap. But Schon (1987), drawing on Simon and Dewey, includes a more refining state between reflection-in-action that would to-and-fro between action, reflection and revision/refinement as a pedagogic approach to creativity, that counters a technological rationality or applied scientific approach (Addison, Burgess et al 2010). Vygotsky (2004) brings a further humanist perspective that includes emotional and intellectual motivation

Since the beginning of the twentieth century the commodification of culture has been uneven and increasingly entangled with industrialisation (Hesmondhalgh 2007). The German philosopher Georg Simmel (1900), writing a hundred years ago,

'acknowledged the inability of culture within a capitalist society to evade commodity status' (Meecham & Sheldon 2005: 44). While commodification appears an unstoppable and defining characteristic of highly developed economies, an 'Americanism of the times' (Simmel 1997: 251), can its appearance in the form of ubiquitous corporate software be challenged, or perhaps disturbed in by hybrid heritage and digital practices?

Adorno argues that 'art is produced under a condition of commodification, but an independent work of art can also be a bearer of meaning to enable reflection upon that connection' (Wood 1996: 273). A work of art requires critical distance, and according to artists, such as Tacita Dean (2011) the immediacy of digital image creation cannot replace a slower analogue production process that provides the space, material and time for creative reflection.

Benjamin (1992), unlike Adorno, saw a democratising power in the reproduction of art through technical advancement and the commodification of culture (Hesmondhalgh 2007). Miege (1989) attributes the commodification of culture in part to industrialisation and new technologies, but he argues that it can also bring new directions and innovation, which I would argue could be hybrid heritage and digital practices. In the culture industries commodification is ambivalent and complex as I aim to explain in the following section, which describes the political economy within television.

Changing Practice in Television

The thrust of this thesis is to argue for pluralism and to look at the ways hybrid heritage and digital practices can fuse together in moving image. The contextualisation of my practice at the BBC can explain the motivation and root of this argument. It is where my professional training took place and where, surrounded by years of experience in heritage creative practices in film and animation, I was able to experiment and develop with state-of-the-art technology. I hope that a reflective study on this small but visibly significant department can raise consciousness and offer a wider perspective on creative practice. As Triggs (2011) argues, in looking for its past graphic design finds a means of moving forward to the future.

Over the last twenty years television graphic design has seen an unprecedented upheaval and transformation in design and commercialisation of practice (Woolman 2005). I aim to explain why and how that change has happened within my practice and seek to place television graphics in the context of the broader culture industries. Hesmondhalgh (2007) warns against looking for any easy answers to why change in the culture industries has happened. There is a tendency to determinism (McLuhan 1962), even extremes of pessimism (Adorno 1991) and optimism (Toffler 1971). But there are few critical commentaries from the makers and creators in the creative industries, in fact there is 'a surprising neglect of these cultural workers in studies on the cultural industries' (Hesmondhalgh 2007: 308). I wish to redress in part that neglect with an autoethnographic study of this change from the perspective of a television graphic designer. By examining the core skills that have transcended and adapted to changing conditions it can inform a pedagogic practice that could influence future generations of designers and academics. It can provide a critical pedagogic argument to what some television graphic designer-lecturers of my generation and older teach intuitively. Students in motion graphics must be made aware of the heritage techniques that allow them to think creatively through their hands: drawing as they storyboard, navigating 3D spaces in model-making, movement in time over a sequence of animation cells. A tactile rather than solely virtual exploration offers a different kind of learning (Macdonald 2012). A critical pedagogy (Freire 1970) can raise awareness for teachers and students of the limitations of orthodoxy, digital or otherwise, and encourage the development of autonomy in their creative practice. Core skills and new digital practices should then be supported by a critical study of creative industry practices in preparation for employment.

Hesmondhalgh and Baker (2011) examine the working conditions of employment in today's creative industries and debate the 'good' and 'bad' work within them. They describe the stresses and pressures of cultural workers trying to enter and stay within the creative industries, particularly television. Many of the interviews in their research chime with my own personal experience as a television graphic designer and later a commercials director. What is important is identifying the lure and positive attraction that sustains the 'self-exploitation' and sacrifice socially and economically:

> Cultural-industry organisations also tend to be structured in such a way that some workers are able to gain high levels of autonomy, in two different senses: workplace autonomy and creative autonomy deriving from ambivalent Enlightenment and romantic conceptions of the value of art and culture.
>
> (Hesmondhalgh & Baker 2011: 282)

As a teenager I was drawn towards television graphic design because it embraced new digital computer technologies: it was dynamic and animated, it represented the future. Evidently I was not alone in this opinion, Scott Millar, Head of Design at WCBS New York summed it up:

> The newcomer is usually someone who has been seduced by the energy, the electronic immediacy, the show business connection or the subliminal thrill of knowing that perhaps millions will see his work in a single moment.
>
> (Millar in Merritt 1987: 14)

The lure of recognition for individual creative endeavour and the opportunity to contribute to the greater good culturally are also strong motivators, along with financial reward for excellence. These are also particularly pertinent to my account of working at the BBC and the culture before and after commercialisation.

Technology has played a significant part in changing the culture of creative industries: since the 1990s there has been a 'digital revolution' in design (Myerson & Vickers 2002) and especially in television graphic design (Woolman 2005). But this is only one of many complex factors that have brought about change. Government deregulation and the selling of licences to allow satellite broadcasting and cable in the 1990s transformed the UK broadcasting industry with an expansion from five terrestrial channels to a market place choked with hundreds of channels (Hesmondhalgh 2007). Perhaps the most significant change to public service broadcasting has happened at the BBC where political and commercial influences have had a uniquely dramatic affect on the shape of British television graphic design. There has also been, in the words of management consultants, a 'paradigm shift' in business models and the kind of design service offered to programme makers within the corporation and externally to other broadcasters. The changes at the BBC have been 'ideological as well as technological' (Holland 2000: 4). In a high cost and highly industrialised industry such as television production and broadcasting, creativity and commerce are closely intertwined. The change to a more commodified cultural output within the cultural industries has not been smooth or quick, but rather 'complex, ambivalent and contested' (Hesmondhalgh 2007: 17).

Raymond Williams (1981) writes of the friction and asymmetrical power structures within industries that are undergoing change in processes and culture. The BBC's unique position is continually challenged both commercially and politically. Many other industries continue to undergo complex changes but within our mediated world there is a threatening orthodoxy of media delivery and content. Adorno is typically critical of this and warns of sleepwalking into a less democratic society: 'conformity has replaced consciousness' (Adorno 1991: 90).

Georgina Born (2005) provides the most authoritative analysis of the cultural change within the BBC during the 1990s. Her ethnographic study of programme makers and commissioning executives provides great insight to the struggles and motivations of shaping the BBC from a civil service model to a commercial operation. Many of her interviews highlighted the sometimes contradictory, confusing and administrative chaos that the introduction of an internal market produced. My account will focus on the nature of that change within the BBC Graphic Design department and how it was transformed into a separate commercial company. I position my perspective as both a designer and a line manager. The duality of my experience at the BBC not only affected my creative practice, but also tasked me with the responsibility of managing other designers to deliver part of this change.

Commodification, fraction and opposition

The theories of Williams (1981), McLuhan (1962), Adorno (1991) and Benjamin (1939) all predate the transformation that I seek to explain. Why might any of them still have relevance twenty or fifty years later? The importance of television production, its organisation of industrial labour, developing technology and high cost, and also specifically the artistic practice of designing television graphics, have a cultural impact that can be viewed in the context of these theorists.

Williams argues that socio-economic factors must be considered in relation to technological development and that 'the moment of any new technology is a moment of choice' (Williams 1983: 147), a stance he takes in opposition to McLuhan. McLuhan (1962) argues that cultural history is defined by the positive change brought by technology, which Williams' critically regards as technological determinism, one that ignores other social factors (Williams 1983). Other forms of determinism can

also distort or reduce the complexity by overemphasising one factor of cultural change over another, such as economic determinism where profit dictates cultural production, and cultural determinism where the media gives what the public want (Hesmondhalgh 2007).

Williams also argued against cultural pessimism and he sought to encourage the development of new technologies that could offer the possibility of more democratic 'active social and cultural relations in…an exceptionally complex technological world' (Williams 1983: 152). The impact of affordable computing and digital production processes is one factor that affected the business of television graphic design and design education, which will be discussed later.

Williams has written much on television, notably his explanation of how television channel continuity is maintained and what he terms as 'television flow' is particularly relevant to television graphics (Williams 1974; Dauppe 1995; Holland 2000; Ellis 2002; Bignell 2008). But while he examines how people watch television, Williams (1958; 1981; 1983) can put a theoretical perspective on the production techniques and organization required to make television content.

Williams (1974) explains that:

> …the forms and functions of television are not technologically determined so much as commercially, politically and socially constructed. Drawing on the talents of craft and performance labour in a production process that is continually negotiated and renegotiated with capitalist owners, financiers and corporate management, television labour as a while continually faces technological substitution, cost-reduction threats and industry layoffs.
>
> (Sussman 2002: 8).

Even though Williams was writing in the mid-seventies his writing is apt for the later upheaval of the creative workforce at the BBC during the period 1990 to 2005. Williams (1981) argues that there are asymmetries of practice and culture which become manifest in social relations between differing groups. In the BBC Graphic Design department it appeared that the work was drifting towards the designers who embraced the new technology. This created a simmering resentment between those who became overworked and those who were under-employed. One group resented their long hours and the other for not working as hard, the other for marginalizing their undervalued heritage skills and years of experience. Those that resisted

technological change became a site of opposition fighting a rearguard action in union-organised resistance, others became an alternative group offering analogue skills that no longer had a place in the corporation business plan, but following redundancy could operate in an external freelance market outside the BBC.

Yet at the same time other designers found opportunity and creative innovation that resulted in industry awards and accolades, which perhaps aggravated those who already felt sidelined, vulnerable and insecure. Williams also warns that the 'transitional' works that appear at the early stages of technological change should not be overlooked, when 'attention is centred on the typical, the modal, the characteristic' (Williams 1981: 200). These transitional works are 'innovation in process', the 'creative' productions. In my opinion they are the hybrids, those that employed the versatility and speed of digital production, but the humanity of analogue production where a handmade mark is present, such as computer controlled 35mm film cameras shooting handmade models (see figure 2). Styles of design do not disappear overnight with the introduction of new technology, they multiply and in places merge (Murphie & Potts 2003).

Political Change and Accountability
Hesmondhalgh (2007) argues that the change in the culture industries began with the Long Downturn after the Second World War, which acted as a catalyst to accelerate and consolidate certain practices. However, I will focus on the factors I believe had the most impact since 1990: political change, organisational restructuring, technological change and internationalisation.

But first it is important to understand the culture that preceded the changes in the 1990s. When I began working at the BBC in 1987 my experience was similar to Martin Lambie-Nairn's who had been there nearly thirty years before: 'money was simply never mentioned. The lifestyle was relaxed, and management almost non-existent. You simply worked the hours needed to get the work done' (Lambie-Nairn 1997: 47). While efficient business practices could be found in independent design and production companies, 'most television companies in Britain, including the BBC, had absolutely no idea about the true cost of anything' (Dyke 2004: 167). BBC management under Director General Michael Checkland, an accountant, grappled with bringing the BBC into line with the Conservative Government's programme of

Figure 2. The author (2nd from the left) directs the *People's Century* model makers on set

industrial reform. The Licence Fee and how it was being spent came under scrutiny with the rise of neo-liberal market economics in the Thatcher government (Holland 2000; Hesmondhalgh 2007). Change came on a 'massive scale' (Dyke 2004: 167) in the shape of 'Producer Choice', the internal market that was introduced in 1991-3 under Checkland and Birt (Tunstall 1993). Born's analysis is that 'with Producer Choice, not only did the BBC pre-empt possible government action, but it showed itself to be zealous for marketisation' (Born 2005: 60).

With commercialisation of creative services there was also concern that some skills would be valued more than others, with the possible threat that some heritage and analogue practices could atrophy or be lost altogether. Film editors found their Steenbeck's, the large reel-to-reel film editing desks, being replaced by computers with digital editing software to meet the demand of young upcoming programme makers.

A further complication to the technological and commercial change at the BBC was the contrast between what Williams calls the 'minority culture' and 'mass communications', which emerge at each stage of new 'cultural technologies'. Those who were attached to the older order became part of the 'minority culture', one that stood for higher values, not the 'grubby' commercial mass consumer. In resistance to the increasing commodification of their work and cost control on time and materials there was a response by some to cling to what they believed was a cultural higher moral ground. Pockets of resistance could be found in many different production departments, but despite periods of limited industrial action it was never organised or coordinated effectively. The tea-trolley, then later vending machine conversations, led to a cultural pessimism that ran deep in BBC corridors of the 1990s brought on by the rapid cultural change. Within programme making and service departments I witnessed a collapse of morale and a resignation that the BBC would be broken up and sold off like the coal and steel industries, and perhaps the very cultural fabric of the nation would be lost.

Structural and Technical Change
Organisational restructuring occurred not only at the BBC but also across the whole of the culture industry (Flew 2005). Large corporations increasingly subcontracted services out to small to medium firms. The BBC set quotas for independent

productions and the internal market 'Producer Choice' was introduced bringing competition amongst departments within the organisation.

Graphic Design had already enjoyed the free market for some time – the freedom to contract specialist technicians and services outside the BBC, for example lighting cameramen, special effects video editors. But, perhaps ironically, graphic design like every production service from make-up to the music library, was now exposed to commercial competition. Rather than being allocated work by our manager my colleagues and I now competed for work by pitching against external independent graphic designers (often ex-BBC colleagues). Sometimes internal resources were completely overlooked and external suppliers were contracted directly by BBC programme makers. The biggest insult was felt when our own channel presentation, now known as 'branding', was lost to Lambie-Nairn who had won plaudits branding Channel Four.

Born (2005) illustrates the ambivalent response from programme makers to Producer Choice. Many welcomed the freedom to choose the creative services they wanted, without the vagaries in quality from a central allocation of resources, and to negotiate the cost. However, many recognised the absurdity of the BBC's cost of having empty studio space and withering creative resources on their doorstep while spending real cash outside the BBC on duplicate resources several miles and a taxi ride away. Stricter accounting also brought with it an expansion of administrative and accounting staff, while creative staff were being made redundant.

> The net effect of the profound changes in television is that many people are working harder for less satisfaction, good people in every age range are scarcely working at all, career-structure has gone out of the window, even entrepreneurial enthusiasts are waking up to a crisis in training and a clutch of quite ordinary people are seriously rich.
>
> (Fiddick in Holland 2000: 19).

Over ten years on Hesmondhalgh and Baker (2011) argue that the contemporary situation has not improved. Today workers in the cultural industries cannot guarantee a longevity of service that many of my BBC colleagues enjoyed, instead they leave or are forced out 'at a relatively early age, burnt out by the need to keep up to date with changing ideas of what is fashionable, relevant and innovative' (Hesmondhalgh 2010: 281). When I was promoted to Senior Designer in 1994 the job specification

was revised to bring in more focused line management responsibilities, which included staff appraisals and work allocation. In 1994 I was promoted not on the merit of many years service or an impressive award cabinet, but for writing a persuasive report on the future management of the graphic design department, mostly informed by useful Design Council publications that illustrated the lessons of the 1980s. Despite my best efforts to participate in the management of changing practices, and continue in my own creative practice as a graphic designer I found myself at a crossroads: either pursue a management career or follow my creative ambition. Long hours and pedantic bureaucratic tasks, versus the opportunity for more creative freedom and expression led me to find a career directing commercials. Perhaps it is a measure of the level of stress and mental exhaustion of managing change within oppositional groups that I chose to leave the comparative security of the BBC for the insecurity of freelance directing. Immediately I found an environment in advertising that was profoundly more positive and energising. The leap from the BBC to advertising was more of a step, as by the time I left BBC Graphic Designers were being touted as commodities much like commercials directors.

The commodification or market values of creative workers was a significant cultural change at the BBC. Showreels of graphic designers would be sent or marketed by Senior Designers like myself, or marketing executives that were introduced to improve sales and find new markets. This was probably an improvement on the service that programme makers had received in the past when departmental managers centrally allocated resources. Before Producer Choice very few programme makers could command a choice of personnel, hence the name of the new system. But for the designer, being touted by a third party felt contrary to their role as a public service provider and creative resource that had a career progression. As some designers continued to gain work and others floundered the announcement of redundancies brought industrial action, friction, disillusionment and poor morale.

Adorno and Williams share a similar pessimistic view of cultural change (Jones 2004). Adorno's work is relevant because his premonition of the culture industries appears to have similarities to the highly bureaucratised nature of the BBC, as well as its relationship with mediating culture to the masses. While some reject Adorno's position that culture would like to be 'untouchable' and free from 'tactical or technical considerations' (Adorno 1991: 93) as a nostalgic attachment to a pre-industrial form

of cultural production there is a shared interest in understanding the increasing commodification of culture (Miege 1989). This commodification of culture is due in part to industrialisation and new technologies, but it can also bring new directions and innovation (Hesmondhalgh 2007).

At the turn of 2000 there was further restructuring and internal realignments at the BBC in an attempt to respond to the rapidly changing communication and creative industries. The development of the internet and the convergence of communication technologies opened up new markets that the BBC decided to compete in. The BBC's response to technological change was 'on the one hand a highly contentious restructuring, but on the other a commitment to be at the forefront of the digital, multichannel future' (Holland 2000: 5).

But in 2001 when the dot com bubble burst it had a devastating effect, 'a massive downsizing and an end of the old ways' (Conrad 2010). There was 'a major cut in the number of traditional TV graphic designers in London' (BECTU 2002). The oppositional and alternative groups, those that represented old analogue skills and the commitment to a public service, were made redundant and all vestiges of the old culture and its associated skills were lost, but for a few exceptional designers. What qualities did they have as designers to survive? 'There was a skills divide, and more importantly a mental divide: those who saw the BBC as a job for life, and those who wanted to further their careers' (Wormleighton 2010). A twenty-year career as a civil servant in public broadcasting did little to equip a designer for the commercial market, and so many left the industry along with their heritage skills, while a few of those who were made redundant set themselves up as freelancers offering 'traditional tv graphic design' (BECTU 2002).

For those willing to embrace a freelance digital practice there was opportunity. As the boundaries between production and postproduction blurred to the point of disappearing it created a democratising opportunity for individual graphic designers to deliver an entire broadcast quality piece of work on their Apple Mac. Programme makers quickly realised that they no longer had to pay £30,000 for titles and content graphics because it was possible to do it for a tenth of the price. But for a large and complex business, such as BBC Graphic Design, a business focused on programme graphics alone was now untenable. It had to look for a new market and so it now

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focussed its business strategy on channel branding, work that commanded considerably bigger budgets. In 2005 after several company reorganisations BBC Broadcast, and within it BBC Graphic Design, was sold for £166m to the Australian investment bank Macquarie (BBC News 2005). Turnover in 1996 was £2m, by 2008 it was £14m, most of it non-BBC (Conrad 2010). It did not come overnight, new talent had to brought in and old talent had to be retrained or managed out.

'Technical changes were the easiest of the two driving forces to embrace. It made production processes quicker and easier' (Conrad 2010). Jeff Conrad, Head of Design's opinion and recollection masks the complexity of the broader external socio-political factors already discussed, but also the historical continuum of changing creative production technologies (Flew 2005).

In television production it is commonly regarded that the greatest technical change was from analogue to digital (Myerson & Vickers 2002). But it is only one in a series of changes that have affected graphic design in television. Even in the 1960s there was friction between differing technologies, true to Williams' cultural model.

> The BBC Graphic Design Department in the mid-Sixties was a world leader in the craft of television design and employed the very best people in the industry. There was however a great deal of friction between two distinct camps. The old guard from the Ealing Studios era of caption writing, maps and hand lettering, bitterly resented the new generation of graphic designers; they called us 'Letraset designers'.
>
> (Lambie-Nairn 1997: 43)

With the start of colour broadcasting in 1969 the 'Letraset designers' embraced improved quality and increased aesthetic range. In the early 1980s television faced another fundamental upheaval with the introduction of computers in graphics (see figure 3): 'many were baffled, shocked but could see its immediate benefits with increased production speeds' (Lambie-Nairn 1997: 43). While some were concerned that increased productivity would lead to less staff it in fact had the opposite effect. The faster production times and the relative ease of creating graphic collages with a new pristine and textural surface led to an increase in demand. Ellis sees the speed of audiences' acceptance for more graphic imagery as much a motivator as the designers' desire for new tools (Ellis 2002). Suddenly every television producer wanted graphics to make their programmes look modern and watchable. 'Graphics

Figure 3. The author working on a Quantel Paintbox 1988

departments gained a new prestige' (Holland 2000: 106) as they moved 'from the wings to the centre stage' (Taylor in Merritt 1987:42).

It was a new era where analogue and digital processes intermingled. As a new young digital designer I worked amongst older designers experienced in analogue film and we learnt from each other. The best of the older BBC generation: Alan Jeapes, Graham McCullum, Liz Friedman and Bernard Lodge all readily welcomed new technology and exploited it to innovate and further television graphic design. As craftsmen they embraced a bricolage of heritage techniques, as designers at the heart of their work was an idea, a core reason for using such a technique following the form and function modernist training of their era. Around them, for many young designers of the postmodern age, there was the allure of new digital techniques to 'constantly pressure the designer into the temptations of movement and surface gloss as a solution to every problem' (Crook in Merritt 1987: 45).

In the mid 90s it appeared to many British and American academics writing in *Émigré* and *Eye*, that the very meaning of graphic image and text was changing with a new digital language. Clichés like page turns, green grids, flying chrome letters, pictures within pictures, hierarchies of layers created a 'bland international look' (Merritt 1987: 14). Basic drawing skills became irrelevant when design degenerated into selecting software effects. Television graphics could be described as moving towards postmodernism as the trend became increasing multilayered and self-referencing, what Eco (1985) calls 'intertextuality'.

> Television graphics have a built in stylistic appetite for images. Because of this graphic appetite, images are transformed from the world of illusionistic realism into a frenetic world of spinning surfaces. Television is not just a succession of images or shots. It is a machine that consumes images within its own images.
>
> (Caldwell in Ellis 2002: 97).

Caldwell is following Baudrillard in this respect: 'the exponential enfolding of the medium around itself…this endless enwrapping of images (literally, without end, without destination) which leaves images no other destiny but images' (Baudrillard 1987: 28) especially in television news programmes. While Ellis argues that the television graphic is a 'working over, placing and processing of the witnessed fragments of the real' this may well be true of news graphics but in the context of the

opening title and brand identities they were very much postmodern in their 'act of referencing cultural styles or tailoring messages to narrowly defined communities' (Lupton & Phillips 2008: 8). Layers and transparency hierarchies can suggest conflict or synthesis of ideas, and they have always been at play in the graphic arts, it is just that today's software makes them omnipresent and a generic graphic language (Wells 2008). Dauppe argues:

> Conventions of televisual language derive from previously existing technologies and media, despite the arguments to the contrary which state that it is a new 'pure' form…Typography on television, though a moving image, is still firmly rooted in the conventions of print and book culture.
>
> (Dauppe 1995: 74)

In the late 1990s there was suddenly a greater democracy of creation as moving image and graphics technology became more affordable: a Mac with software was a hundredth of the price of a Quantel editing system. It also offered designers the resources to make their own films with 'a new visual language' (Myerson & Vickers 2002: 310). The 'epoch-making shift to digital technology meant that designers and art directors had to rethink the very core of their practices' (Myerson & Vickers 2002: 298). While there was evidently much optimism at the prospect of furthering design practices Hesmondhalgh (2010) argues that the professionalism of the industry has changed as more content is produced by free labour. He 'argues for the continuing political importance of the conditions of professional cultural production, against the implicit marginalisation of that importance in some versions of the free labour debates' (Hesmondhalgh 2010: 267). Unpaid internships that privilege those from wealthy backgrounds who can support them, exploitation of the young by media company owners are just some of these issues. The debate will continue on how to open up creative autonomy, while reduce and eliminate the negatives of inequality and social injustice within the cultural industries.

Conclusion

The aim of this chapter has been to examine the conditions of production in the creative industries, taking the BBC as an example of the modern experience. My personal reflections and perspective have been contextualised by framing the discussion around cultural theorists, such as Williams' theories of industrial organisation, and looking beyond any simplistic determinist arguments to explain how

and why this change happened. New technology has liberated production processes but challenged the organisation of them. The effect of neo-liberalist policy on the organisation of working practices and management within BBC Graphic Design is but one example of how economic reasoning can affect real lives. The scarcity of such critical commentaries from makers and creators in the creative industries and the recent questioning of the economic value of creative education by government suggest that there is urgency to this prescient concern.

In the next chapter I describe the production techniques that made one of my last BBC title sequences, and following the critical acclaim and success of *People's Century* (1996), using the lessons I learnt I give examples of how I have continued to develop my use of heritage and digital practices to form hybrid methods of production in film and advertising.

4. Narratives of Production

Introduction

This chapter aims to provide a narrative of the process of production for my published works in the moving image (see appendix 1) and connect that narrative to theory. By example I explain different heritage and digital practices that I have used and how they have fused to form hybrid methods. Each of the published works is explained in its own section in a manner that I hope credits my indebtedness and the co-responsibility of the other talented creative people who were involved in the production of these works, making explicit the value of teaching and learning to work collaboratively (Lowgren 2010). If we can understand the process of constructing what we see, then 'to *know* is to see (Rose 2007).

Virtual Flight: Domestos Wipes

A script can come to a director through a variety of ways and means, sometimes it can be serendipitous, or a director can be requested, in which case the door is already open for the director to walk through without too much opposition from the competition. There is always competition: a director and their producer always have to compete with other production companies on creative interpretation and budget.

Directors work within very tight codes of representation and modes of television advertising. It is commercially driven: people are in the business to make money, that is what producers do, however directors are expected not just to have a similar commercial attitude but also one that is balanced by a creative ambition. The Director has to convince the advertising creatives that he or she is the one person they should trust their script to, in preference to the 1000 other directors available in London and many more internationally. In a high stakes poker game the Director needs to interpret the script with several ideas up their sleeve so when they have the all-important first (and possibly last) meeting they can gauge the advertising creatives' aspirations, appear enthusiastic (just enough not to look desperate) and full of solutions and ideas without overplaying their hand. Many in advertising are happy to receive ideas from directors, only to use them later with someone else.

Following these discussions the director should be confident enough to understand the brief and explain their interpretation in a written treatment, usually supported with visuals like moodboards and storyboards, but sometimes an edited montage of mood clips. The *Domestos Wipes* script (see appendix 3) described the scenario of a magic box of wipes that had its own consciousness and propellant. The problem as I saw it was how to make this convincing and part of the world that the actors inhabited on screen. It required an illusion using the psychology of perception. 'Beyond speed and software and special effects lie a host of sophisticated psychological methods that strive, in countless ways, to reach audiences with even more mesmerising pull' (Helfand 2001: 30).

Digital or analogue?

There are some surface textures that are relatively straightforward to synthesize in Maya, the computer 3D animation software that is used extensively across the special effects industry. Plastic is one of them, therefore a plastic Domestos wipes box looked at the outset to be a suitable material to replicate as a virtual 3D computer image. Computer animation is a costly means of producing moving images but it offers great flexibility for refinement and adjustment in order to match combination live action shots filmed in situ on a real stage or set. Within the virtual 3D space of Maya all the camera angles, lens data and lighting data from the live action shoot can be replicated. I had to decide whether to spend a few hours filming background plates with puppeteer elements, or try to shoot the entire illusion with puppeteer boxes in situ - an alternative that although the boxes would be physically real on set, their movement would be less convincing and more restrictive than computer animation because of the relative crudeness of wire rigs that would have to be employed to suspend and transport model boxes during filming. This was a technical problem that required an analysis of the various production techniques that existed at that time. 'Technique, technicians and technology itself take command: cultural production becomes first and foremost a technical problem' (Darley 2000: 141). My visual effects colleagues at The Moving Picture Company were quick to reassure me of any doubts I might have had in respect to there being a convincing combination of computer generated imagery (CGI) and live action. While the hygienic surface look of CGI could be manipulated and artfully worked to marry the virtual and the physically real I would need to create deeper illusions with heritage handmade effects to make

this a convincing spectacle of hyperreality and an event with deeper meaning, albeit a commercially driven one.

Process

I began by visualizing the script through thumbnail storyboard drawings (see appendix 4). Hanna (1998) argues that drawing with pencil and paper has been superseded in design by computer-aided design (CAD) and the digital pen and tablet technology. This may be true for some architects but for the motion graphic designer and film director the process of drawing a storyboard offers an immersion into the visualisation of 2D, 3D and 4D space (Wells 2008). Images build up a visual story that inspires further detail than words on a page alone.

Adams (2001), coordinator for the Campaign for Drawing, defines three functions of drawing that I contend also apply to storyboarding. First is drawing as 'perception', for personal pleasure or insight. In my practice a director can begin an idea with the crudest outline sketch, as the legend has it 'on the back of a fag packet' or 'napkin'. Secondly it can be worked up into greater detail for client presentation: a drawing as communication. Thirdly, drawing as 'manipulation' it can allow the director to reflect, refine, discard and develop a sequential narrative of images or scenes that illustrate a moving image film. By visualising camera angles, arranging the elements in the shot that need to follow the script or idea, a mosaic of shots can be laid out.

As I drew a kitchen for *Domestos* (1999) I added features such as a sink and table tops. As I imagined this kitchen I began to consider where this box would fly and the nature of its movement. It did not require a physical characterisation or anthropomorphism, the box had to retain its integrity as a box, but it would be fast and low like a fighter jet. I found my inspiration remembering the many air displays where I had seen the Harrier take-off vertically and shoot skywards with its hot jet vapours bending the air beneath. Soap bubbles in the sink and delicate leaves in a pot plant could be displaced by the box slipstream (see figure 4). It could twist and rotate in flight to fly between kitchen objects. Two pasta jars could provide suitable obstacles to fly between without obscuring the box, they would also give an opportunity for CGI refractions and reflections in the glass to further embed the illusion (see figure 5). Puppetry would have to play a part on set, as this heritage

Figure 4. *Domestos* CGI box edited into live action shot over sink with reflections and puppeteered effects

Figure 5. *Domestos* CGI box edited into live action shot between pasta jars

technique in animation and special effects offered the illusion of naturalistic live interaction and placement of the virtual box within the scene.

It was with these ideas and approach to the production that I convinced the advertising creatives that my treatment would make for greater hyperrealism and verisimilitude than any other competing director (although I did not use those terms at the time). Baudrillard's (1994) definition of 'hyperreality' and the idea of what might be regarded as 'real' are explored in a following chapter.

How does a CGI box fit seamlessly into a live action shot? There are three stages to consider: the shoot, the CGI animation, and the digital compositing.

The Shoot

In commercials and broadcast graphics 35mm film has long been the preferred medium as it offered unrivalled image quality and frame stability within the camera. Today high definition digital video has finally reached the standard and affordability to supersede 35mm film. Live action shots that are later combined with foreground animation are called background plates. For many directors these technical shots are laborious and pedantry, but working with the technical detail that successful image combination requires can be satisfying. Careful methodology is required, which begins with a detailed storyboard. The cameraman uses this to set up the shot and the director can then explain the timing of the action and movement within the frame for the puppeteers to follow. Video playback of rehearsals allows for on the spot analysis to improve cues and performance before any film is exposed. The importance of video playback is explored in more detail later.

What do you do when the effects do not work? It is easy to get stuck in a loop and repeat the same event in the hope that something will happen differently. It takes a more scientific approach at these times to succeed and overcome failure. Together with the cameraman and the effects technicians the director can discuss the variables that are built into the design. With a jet of air it could mean changing the duration, the force or the size of aperture. However, a creative improvisation can also bring a solution if all the other avenues have been explored without success. Model makers come with combined talents in sculpture and engineering. They have an ability to improvise using an intimate knowledge of their materials and an

inquisitiveness to experiment. It is 'the contingency of circumstance and the 'interference' of material process, which encourage what art historian Barbara Maria Stafford has called 'nonformalizable moments of flexible insight' (Krcma 2010).

Each shot is carefully labelled on the slate at the start of each take. Visual Effects (VFX) supervisors usually attend shoots to ensure that all the data they need is recorded. Firstly, a white sphere is positioned in place of the CGI box to record the intensity and fall of light and the shadows. A chrome sphere is also useful for recording reflections. Today, VFX supervisors shoot a 360º reference plate. Then the physical model box is also situated in-situ as a reference plate to record the natural play of light. This played a key part at the end of the flight sequence where the actor has to interact with it to remove a real wipe. The camera position, height, angle to the stage, the focal length of the lens and lighting positions, colour, strength and focus are measured and written down. A stage plan and reference photographs are also taken to assist in construction of the CGI model. These shots were all transferred from the negative film to digital tape using a digital laser telecine that scans the film for grading and colourisation. The negative is used in preference to a print because it is a sharper and steadier image. When analogue film runs through a projector or telecine it can have a tendency to weave or oscillate within the frame and this can inhibit any accurate compositing with a steady digitally originated image. Today, digital image capture has all but superseded 35mm film.

CGI Animation
Rough 3D CGI renders without lighting effects are provided at the offline edit to help the editor cue up the live action puppetry and provide accurate frame counts and cues for the CGI animators. Within the CGI preparation and rendering of the animated 3D box all of the virtual camera and lighting elements are set up to match the physical properties and visual properties of the recorded live action. Sometimes there can be discrepancies between the virtual and the physical data and so the visual references of the spheres and dummy box in-situ offer a correcting comparison. These finer points are set up by the VFX artists under the supervision of the director for final approval. While we work in a virtual 3D space it is the flat 2D pixel display that is actually being physically changed and its luminance and colour values that are specified by the computer. Vince (1992) gives a fuller technical

account of how CGI lighting, reflections and refractions are ray traced and how textures are bump mapped to achieve heightened realism and verisimilitude.

The animation of the box as it flies across the kitchen also requires special attention. The box can easily be made to rotate on any axis but the acceleration and nature of that movement must look convincing for the illusion to be successful. One avenue might be to use mathematical equations to replicate the mass and velocity of the box of wipes, but more conveniently the animation software has an interface where the animator can change the graphic display of the acceleration curves along a time/position line. Adjustments can be made in response to the appearance of the movement rather than the physics of the movement. These reflect the skills of the traditional animator who would line test drawings on film cell, rather than the skills of a computer scientist and mathematician.

The interface between the computer and the animator is 'neither continuous nor linear; the process of creation more closely resembles a dialogue' (Grau 2003: 256). The VFX artist can develop through immersion a skill and knowledge of the sophisticated tool they are working with to imagine and anticipate the functions and outcomes. At one level computer work is standardised and follows continual repetition of a program but it is the level of engagement in an active participation that goes beyond the automatic functions which is a measure of the artistry of the user. 'It is the intellectual vision, transposed into the work step by step with technology as its reference, that remains the core of a virtual work of art' (Grau 2003: 257). Manovich takes this further and draws a historical comparison that suggests the hand of animation is so prevalent in the spectacle of today's cinema that they are indistinguishable from each other.

> …the manual construction of images in digital cinema represents a return to nineteenth century pre-cinematic practices, when images were hand-painted and hand-animated…Consequently, cinema can no longer be clearly distinguished from animation. It is no longer an indexical media technology but, rather, a subgenre of painting.
>
> (Manovich 2001: 295)

Compositing

'Temporal montage is cinema's main operation for creating fake realities' (Manovich 2001: 149). The visual simulation of nonexistent spaces at the compositing stage

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requires powerful computing and rendering hardware and software because of the enormous amount of digital data involved. Following the pioneering of the first computer painting system invented by Ivan Sutherland in 1963, Britain's Quantel systems 'Harry', then 'Henry' once dominated the industry but by the late 1990s America's Silicon Graphics hardware and Discreet Logic's Flame software became the leading technology. Flame offered enhanced and superior keying and motion tracking – a technology developed in the defence industry to guide bombs to their targets (King & Paulson 2007).

The CGI box with its mattes, vapour and reflection elements are composited with the live action background plates to create a seamless montage where the boundaries between real image and virtual are invisible. Analogue noise in the form of randomized film grain is added over the CGI to match the ambient grain in the live action to complete the verisimilitude. CGI can appear too perfect and sterile to the human eye and it can appear incongruous to the filmed analogue live action. The eye can perceive fakery and trickery more than ever before as we have been increasingly exposed to ever more fantastical surface spectacle in the cinema and television (Darley 2000).

Hybrid Practice

Advances in digital processing speeds and software development have continually improved CGI animation. It is tempting to find solutions for every technical and visual problem through the approachable and responsive interface of a highly skilled CGI animator. As described, even the pristine and spectacular digital surface can be modified to appear more real by degrading it to mimic an analogue surface. This irony would no doubt amuse Benjamin. Would Benjamin find the reproducibility of the digital work of art problematic if it required such random distressing to appear more real naturalistically? Hybrid processes can flourish 'in the digital era, animation has simultaneously re-engaged with its past and looked to the future' (Wells 2008: 25).

Stop Motion Romance: Vespa

The approach to making the *Vespa* (2000) commercial had similarities to *Domestos* but the significance and the visual presence of the animation was privileged over the

live action. Rather than employing the hyperrealism of CGI for the foreground action, in *Vespa*, it was the reality of live action that was inserted into a constructed model environment and stop-frame model animation (see figure 6). A fabricated miniature model future cityscape of elevated highways and towering skyscrapers was scaled up photographically to match a human scale, in a cinematic convention similar to Fritz Lang's seminal *Metropolis* (1927).

The dystopian vision of *Metropolis* chimes well with the model destruction that provides an oppositional backdrop to the romance and beauty of the Vespa scooter. Vespa may promote a revolutionary image embodied in 'King Kong' but the company conforms to very modern production systems, as pioneered by Taylorism and Henry Ford in the 1920s (Bellin 2005). Perhaps taste for industrial elegance, in this case the Vespa, reflects the 1930s designer Walter Dorwin Teague's proclamation: 'we are all machinists today, the geometry of the machines themselves has gotten into our minds and into our eyes and affected all our preferences and tastes' (in Bellin 2005: 50).

From the outset the *Vespa* script required a combination of live action performance and animation direction (see figure 7). Working with a stop-frame animator, Derek Mogford, together we brought the script to life through our interpretation. He suggested ideas for the King Kong character and I visualized the street scenes with the crowds and the girl on the scooter. I introduced point-of-view shots and other camera angles that created a dramatic build up to the revealing shot of the monster King Kong. We decided to set the commercial in a fantasy model cityscape because there were scenes where King Kong interacts with the buildings by either smashing them or placing a Vespa scooter on them. This defined the appearance and visual style and so for continuity and verisimilitude to the fantasy world all the cityscapes followed the model reality. Many of the city shots are background plates to the live action foreground and animated model King Kong, and so are soft-focus or motion blurred. In 2000 there was a convention in cinema to use model miniature sets for backgrounds while the more expensive CGI featured in the foreground (Darley 2000).

The King Kong character is central to the narrative of the commercial and so there is a respectful acknowledgement to a long film history that was pioneered by the model

Figure 6. *Vespa* model animation and city edited into live action

Figure 7. *Vespa* live action woman and scooter composited over model King Kong
hand

animation special effects of Willis O'Brien in the original *King Kong* (1933), and further developed by Ray Harryhausen in the monster films of the 1950s.

Whether CGI or model animation these fabricated realities are married to live action in a seamless image combination using the transparent cement of digital processing. The compositor added live action smoke and flame footage to the model scenes as well as atmospheric effects and building surface textures to add greater realism and further disguise the true scale of the models.

The King Kong animation was completed over several weeks with several different scale models for close ups of the hand and head and wide shots of the body. Mogford and I visited each other's respective shoots to co-ordinate lighting approaches and camera or eyeline details, but each of us allowed the other authority over their domain of expertise. The live action was shot first and so a rough cut was prepared in advance of the animation shoot to assist with shot timings. This was essential to avoid the animator wasting precious shoot time on movement that would end up on the cutting room floor. There are 25 frames per second in a television commercial and every frame represents a significant investment of time and creative energy.

The live action was shot over several days in a large green screen studio. The green backdrop allowed for a digital chroma separation of the live action foreground. This process is ubiquitous in television news and weather reports where foreground presenters are overlaid into a different image background. For shots where the camera moved on set static tracking markers were placed in order to provide fixing markers to which the model cityscape could be positioned. This was essential to create the illusion of the live action moving in the correct relationship to the background.

Earlier Models: People's Century

The titles for *People's Century* (1996) had to show the changing physical world of the twentieth century and illustrate the depth and quality of the archive film footage that captured the human experience. The medium of film allows the designer to bring

together different levels of information and to create an 'emotional universe' all at once (Cooper in Drate et al 2006: 7). Helfand argues that good title design is as rigorous as any other design process, it 'reflects a significant understanding of content, and a clear ability to visualise that content into a dynamic form at once suitable and surprising' (Helfand 2001:121). Many title sequences then and now would be approached as a multi-layered visualisation, where 2D images are stacked or blended over each other (Darley 2000; Helfand 2001; Ellis 2002; Willis 2005; Drate, Robbins, & Salavetz 2006). It is an overused trope that digital manipulation has dramatically simplified since film optical printing.

With *People's Century* my colleague Alan Jeapes and I decided that archive footage should be physically projected on to a road that was lined with street architecture and buildings of each decade (see figure 8). Jeapes had made a world reputation for long camera tracks with titles for *Secret Army* (1977) and *EastEnders* (1985) among many, but these had always involved large 2D photographic artwork, and in some later cases 3D CGI. A 10-metre track along a scale model with registered film projection was unprecedented and was only possible because of a computer-controlled camera that could accurately repeat a programmed move.

The film *Cinema Paradiso* (1988) nostalgically captured the experience of an outdoor film projection as the movie image slipped from a screen and over the walls of the buildings in the village square. The rectangular image was distorted and shaped by the 3-dimensional forms of the surfaces it was projected over. Artist Krzysztof Wodiczko (see figure 9) has also been projecting images onto public buildings and monuments since the early 1980s to provoke debate and confront political controversy (Willis 2005). In this way there appears to be a physical binding of the imagery to the urban space that also magnifies the experience and the value of the projected image.

In *People's Century* no road or movie set existed that could start from cobbles to tramlines, past art deco cinemas to bombed out derelicts, through jungle to motorway, so a model was made to replicate an ideal reality (see figure 10). Why not CGI? At the time CAD systems were making a huge impact in architecture but the level of equivalent surface rendering required for broadcast special effects was still only affordable in multi-million dollar movies or big budget commercials (Darley
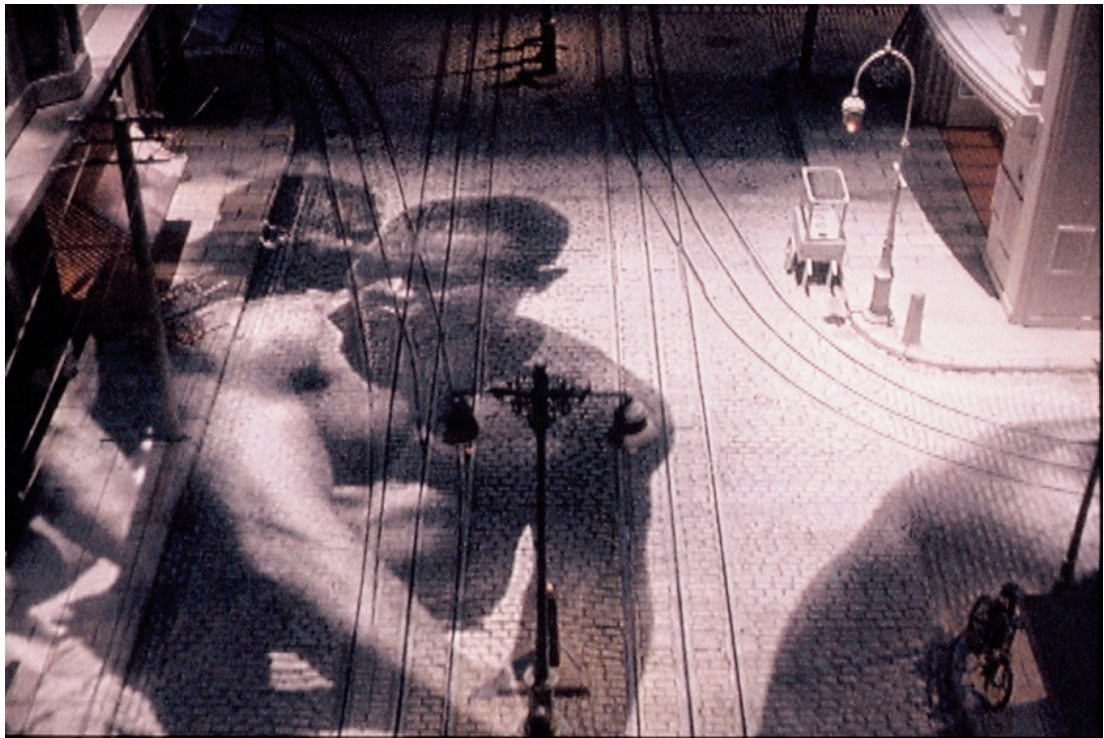
Figure 8. *People's Century* title sequence

Figure 9. Krzysztof Wodiczko *The Border Projection, Part Two* at the Centro Cultura Tijuana

2000). As with *Vespa*, models were not only cheaper to make but on film appeared more realistic as CGI had a less naturalistic appearance then.

It was important for the image to look as 'real' as possible. This was a documentary programme, with often moving and unique interviews with people who had witnessed at first hand the significant changes to the human experience in the twentieth century, and so it demanded an 'honest' representation. The historical context worked on another level as the projected image matched the context of the architecture and landscape that it was projected over. The projected image was privileged over the model road as it had to be brighter to be perceived as a projected image. The film and video archive was digitally cleaned and prepared before being transferred digitally back on to 35mm film for projection in the studio. We wanted a pristine image to reflect the veracity of the documentary account, rather than an antique effect of scratches and sparkle similar to the desktop effects on home computers today.

The technology and processes used to create this combination, this metaphor, were not 'autonomous' (Darley 2000: 58) but approached through a filmic tradition to create the complete aesthetic of the moving image design. Perhaps in cinema and advertising 'the technology itself is the message' (Darley 2000: 53) to echo McLuhan, but with this title sequence I was not in thrall to technology, it was 'a means to an end' (Lambie-Nairn 1997: 61) and subservient to the narrative and the idea. Jeapes and I looked to create a title that encapsulated the twentieth century experience and yet appeared timeless. Designer Kyle Cooper states rhetorically that 'there are fundamentals of form and communication that transcend time' (Cooper in Drate et al 2006: 7), but I would argue only if they are free of fashionable styling (Rand 1993).
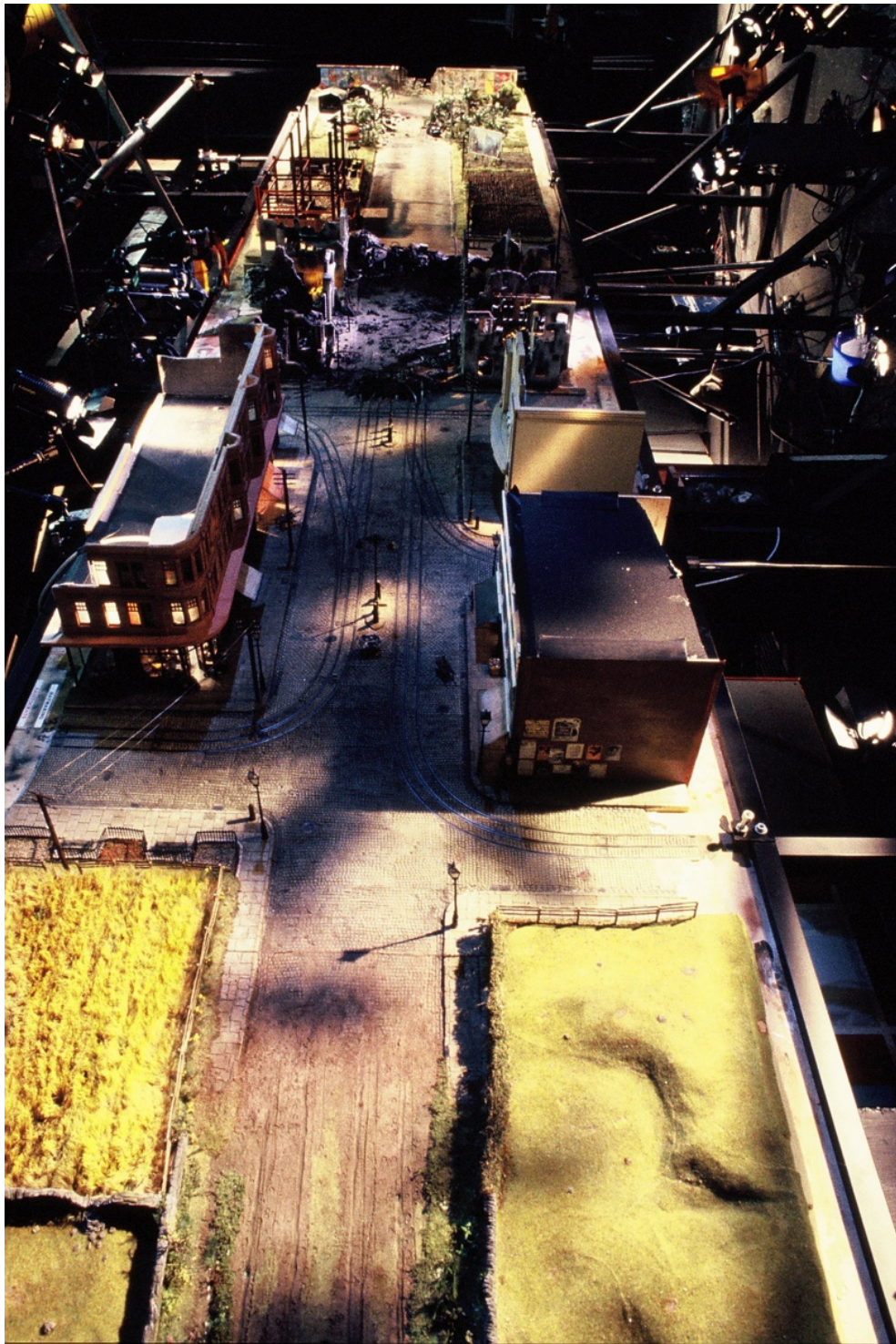
Figure 10. Camera viewpoint of lit *People's Century* model set

Performance Analysis: Herbal Essences

With any live action shoot or stop-frame animation instant video playback is a necessary tool for the analysis and review of a performance. Before the introduction of the U-Matic videotape in 1971 a director had to trust their own judgement, and the alertness of the continuity person, and order a take to be printed from the negative to be seen in the following day's rushes. Before the relatively recent availability of high-speed digital capture, shoots that involved high-speed film photography between 200-1000 frames per second using a Photo-Sonics camera could only be reviewed relatively crudely with a separate video assist mounted alongside the film camera. A grainy video black-and-white image could only confirm if a target had been hit or if the action was in shot while the thousands of feet of film negative were already exposed and spent. The invention of a digital high-speed camera that used high quality optics was therefore very welcome to the industry.

Video playback has had a huge impact, nowhere more than in televised sports. This genre of broadcast programming continues to be the greatest innovator and early adopter of new technology in the industry (Thomas 2006). In a highly competitive world market each broadcaster competes in a lucrative seduction of the sports audience with ever more visual enhancement and ability to forensically examine the action, whether it is in high definition or now even in 3D. Yet while this use of video playback and digital high speed capture is for sporting entertainment its genesis was to assist the military in recording the delivery of munitions on their targets so as to improve their accuracy and destructive power (Hesmondhalgh 2007). Even at the dawn of film when in 1892 Georges Demeny was assigned by the French army to film the goose step of its infantry 'research into slow motion was more important than the illusions of feature films' (Kittler 1999: 136). On the *Herbal Essences* (2006) shoot (see figure 11) slow motion was essential in determining whether the idea could work – could hair be made to look like exploding fireworks?

The Phantom high definition camera can capture ten seconds at 1000 frames per second, or 20 seconds at 500fps. Unlike high-speed film cameras it does not have to run up to speed, it is continuously recording (and over-records when the memory is full) until the operator presses the on/off button. There is no tape or film, the image is recorded on the camera's solid-state memory and to playback the data is transferred

Figure 11. Digital high-speed photography on *Herbal Essences*

Figure 12. Digital high-speed photography on *Herbal Essences* revealing model's face

to a laptop computer. An instant review of the shot is available at 25fps and using this it is possible to select the moments that the director wishes to transfer. 32GB or 10,000 frames of high-speed data can take 40 minutes to download, but this is far quicker than waiting for film processing and only marginally longer than unloading and loading new reels of film (Green Door Films 2011).

There was no guarantee that the idea would work and so I had several approaches with which to experiment. Puppetry with false hair extensions was one option but on playback this looked contrived and lacked any qualities that could be associated with attractive healthy hair- it lacked the essence of hair. The more naturalistic approach was to direct a model to jump on a trampoline and record her hair moving as she did so. When this was played back in reverse it appeared to shoot up, but only if the image was continually repositioned to counter the movement of the head (see figure 12). This was a theory I had hoped would work and it proved to be so.

Over the previous ten years I had shot several high-speed camera effects, but all on film. My earlier practice informed my approach to *Herbal Essences*, I understood the specialness of the unexpected, and the beauty of unstructured randomness that can occur when brief moments in time are magnified by slow motion.

Multiple Perspectives: Exposure

Exposure (2000) is a short film about reality tv, a genre that sets itself up as a mirror to the audience, although it is not possible to provide an unmediated view of the world as it is a constructed version of the social world (Roscoe & Hight 2001). It follows the conventions of a 'mock-documentary' (Roscoe & Hight 2001) in that it is a fictional text using the codes and conventions of documentary filmmaking. Using multiple cameras it follows a television crew in the making of a sensational scoop: the first televised suicide. And yet everything is not quite as real or live as it seems, because the director intervenes to ask the subject of the programme, Leonard, to repeat the action of putting his head in the oven for a better close up. The first scene ends in farce when the sound-recordist coughs because of the gas fumes filling the kitchen.

The drama is centred on the power struggle between the television director, Bridget, and her subject Leonard (see figure 13). Who will ultimately decide Leonard's fate and means of suicide? The balance of power switches from scene to scene as Leonard attempts to wrestle control of his life while seeking his 15 minutes of fame on television. Beyond the protagonists on set there is the unseen audience, those that are watching on webcams: the focus group and the executive producer. Like a Roman emperor and a baying crowd they are ultimately the ones with the power to give the thumbs up or down. The viewer is left to ponder Leonard's outcome once the glare of publicity has left him with Bridget's last words ringing in his years 'you're just going to have to live'.

I decided to use several different media formats and cameras to record the film as a way of visualising the separate levels of audience engagement. At the closest level to the action is the view of the video camera that belongs to the crew in the story. This image has an enhanced contrast and chroma to appear more video-like and it appears in monitors on set as it would in real life (see figure 14). Above that there is a webcam positioned in each room that is being displayed on a fictional website viewed by an unseen 'focus group' (see figure 15). This footage was recorded over the entire making of the film and edited to synchronise with the other video and film footage. In post-production it was slowed from 25fps to 5fps to reflect the staccato motion of Internet video of the time and these were edited in as junctions between scenes. The last level is the film, the audience's view, which was shot on Super 16mm film and transferred with all the fine grain and subtlety of colour inherent in that medium. Each media was graded and manipulated to enhance and exaggerate the inherent surface qualities within that media, not for purely aesthetic reasons but to provide signifiers to assist the narrative and drive the story. The visual appearance of the image, both surface quality and content of the composition, signified the viewpoint of different groups of observers, which suggested to the audience that there were others with privileged access to the drama.

I took a Brechtian approach to the making of this film. I wanted all the paraphernalia of documentary television making to be exposed and laid bare for all to see (see figure 16). I was inspired by the 'Dogme 95 Manifesto' (Willis 2005) that the Danish film director Lars von Trier established. I followed some of the 'vows', but not all of

Figure 13. Leonard (Mark Benton) and Bridget (Emma Fielding) in *Exposure*

Figure 14. Video image of suicide attempt in *Exposure*

the ten rules: I shot on location, in sequence to avoid temporal and geographical alienation, without superficial action, and it was not a genre movie. Dogme set out to 'de-individualise artmaking and dismantle traditional cinematic and artistic models of authorship and control' (Willis 2005: 25), similar to some of the aims though not as subversive or critical as the earlier Fluxus movement in the 1960s and Nam June Paik's video work that sought to expose the controlling mechanisms of network television (Meecham & Sheldon 2005). These are themes I explore along with surveillance in a following chapter.

While more recently documentary making has been slimmed down to a director/cameraman/editor role, I wanted to use a more traditional sized crew for dramatic effect where each had a part and voice to play in Leonard's fate. In this way he could appear outnumbered and a servant to the broadcasting machine. His pique and determined unilateral attempt to change sides with a rival broadcaster was ultimately no match for the wile and persuasive powers of the producer. Her ambition and drive to succeed in pulling off this scoop blinded her to the moral question that is unspoken throughout: should someone be allowed to commit suicide on television?

As a satirical comment on audience participation and the manipulation of people on reality tv *Exposure* was very timely and it continues to resonate today. In 2000, the year I made *Exposure*, *Big Brother* the reality television gameshow was launched. In 1999 a documentary director had hit the tabloid headlines with the discovery that his documentary had been dramatized to sensationalise the narrative. In another a participant lied about his story to get on television. At the time it seemed that integrity and reality were disposable commodities in the quest for higher ratings and sensationalism. I had worked with many young ambitious documentary makers at the BBC and so I recognized many of the pressures and types of personality involved.

Willis refers to Manovich's description of new digital cinema as 'elastic reality' and a 'hybridity of media, a cheerful mixing of film, video and photography, as well as an easy mixing of live action and animation' (Willis 2005: 35). Using new digital media storytelling could now expand the boundaries within the frame of the lens, or multiple lenses, and the frame of display in cinema, online and alternative sites of viewing. In
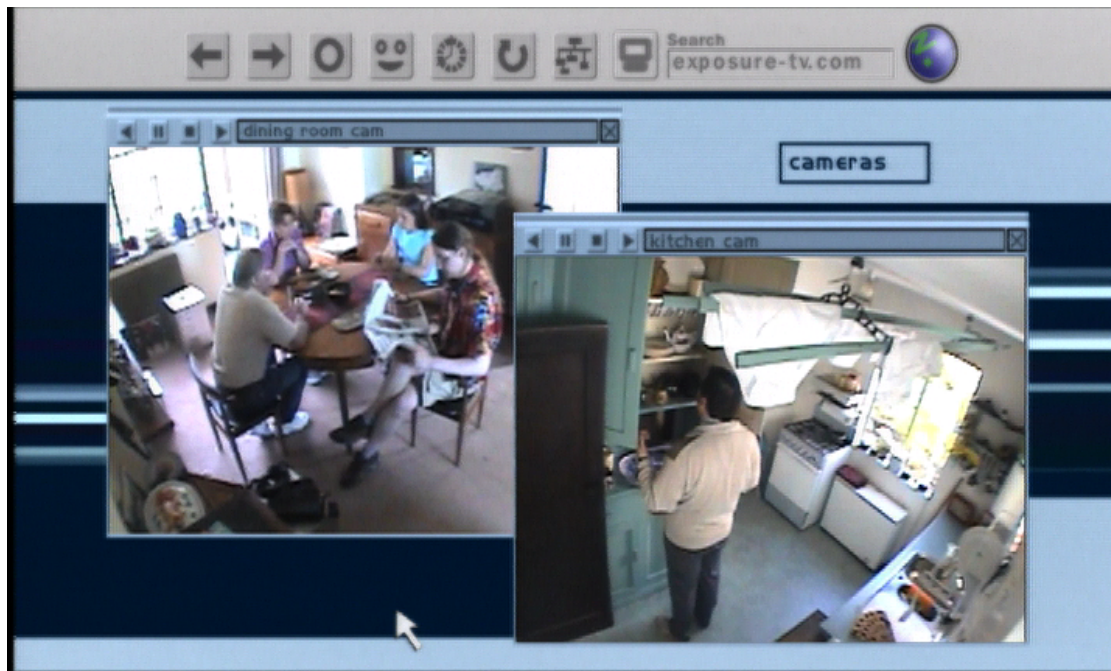
Figure 15. Webcams on an internet computer screen within *Exposure*

Figure 16. Fictional TV crew interview Leonard in *Exposure*

the year after I made *Exposure* and promoted it on the arthouse cinema circuit in the UK, experimental film makers such as Richard Linklater with *Tape* (2001), Stephen Soderbergh with *Full Frontal* (2002) and Luc Godard with *Eloge de L'Amour* (2001) all sought to capture footage rather than film pristine images, using a mixture of domestic and industry recording technology which was then edited and manipulated digitally in postproduction. In a similar manner they used the aesthetic qualities of different media to distinguish between different registers of the story. Willis' interest lies in 'that they call attention to the very fact that we are uncomfortably aware of the dispersion of these registers at all' (Willis 2005: 38). The filmmaker can use the form of the media to multiply the strands or viewpoints of the narrative. While it maybe unlikely that these leading directors saw *Exposure*, I certainly predated their interest and experiment in this form.

In the next chapter I shall return to Manovich to contextualise hybrid heritage and digital practices in moving image within a theoretical discourse. Our increasingly mediated world has provoked much critical thought from contemporary thinkers such as Baudrillard and Virilio. With reference to their theoretical arguments I will examine what it means to be 'authentic' in the moving image and explore the human relation with technology.

5. Contextualising Hybrid Heritage and Digital Practice

Introduction

In the preceding chapter I described the process of the design and production of my selected published works, which focussed on the hybrid combination of using heritage and digital practices. I now seek to theorise how artists and designers experiment with new practices and contextualise how historical practices are layered over them. In this chapter, rather than reconcile a set of theories, I explore a theoretical context for regarding the relationship between artist/designer and technology, particularly when questioning the being and nature of technology and our place in the world. Manovich (2001) and Baudrillard (1994) bring into question what is perceived as honest and authentic, and this chapter aims to question what is meant by 'authenticity' within the mediated world. Can hybrid heritage and digital production techniques make the manufacture of illusion on the screen appear more authentic? In a previous paper (Ash & Macdonald 2011) I have argued the importance of moving image education as a means of empowering understanding in a world of moving images.

Barthes argues in his book *Camera Lucida* that still photographic images can appear surrealistic or appear as a documentary evidence of a moment in time, a photograph 'possesses an evidential force…the power of authentication exceeds the power of representation' (Barthes 2000: 89). A still image exists as a separate artefact as a record of a moment, moving image on the other hand plays in time as if looking through a window to a living world, cinema is an illusion. According to Baudrillard (1994), cinema has far more power to deceive because it replays a view of the world that appears to be real, whereas television transmits live pictures. I disagree as television advertising is arguably one of the most potent forms of moving image, and television fakery within programmes has deceived many (Roscoe & Hight 2001). My film *Exposure* and title sequence *People's Century* offer examples of different spaces of illusion and realism.

Oliver Grau (2003) takes a historical perspective when building a theoretical framework for analyzing the phenomenology of illusionary space. Grau, drawing on

Gombrich (2002), postulates that the art of illusion, whether analogue or digitally created, drives the technological convergence of image and medium. Grau brings a contemporary reading of the mid-twentieth century philosopher to question technology's place to use virtual reality as 'an appropriate medium of reference for the real world' (Grau 2003: 231). Manovich (2001) argues that digital technology has created a new media space, a virtual space made of data that can be navigated, and which has its own language. Has technology itself become the message? Darley (2000) argues that information has become inter-contextual, working across different media there is also a postmodern re-appropriation of other people's works and cultures. As designers and directors of moving image reference other work from other media so the Romantic, and then Modernist view of sole authorship as an individual creation of genius must be reconsidered (Darley 2000; Manovich 2001; Grau 2003).

But first to explore the art of illusion I will address with an urgent concern how we perceive what is 'real' in an era where people's view of the world is increasingly mediated. Although it is a contemporary issue I begin by setting a historical context that argues that there is a long tradition that goes back to Plato of anxiety and philosophical thinking attached to what we see as 'real'.

The Enlightenment Goes Digital

Heidegger (1954) argued that authenticity, as an experience of living in the world, was unmediated by technology. Baudrillard (2009) argues that in the modern age the 'real' only began to exist when technology was used to measure and scientifically calculate it. In the eighteenth century Enlightenment and for empiricists such as John Locke (Porter 2000) it was through scientific measurement and analytical drawing that the world was captured through visual representation more accurately than ever before. As thinkers of the time tried to make sense of our place in the world in order for humanity to progress it was Immanuel Kant, the Prussian philosopher, who declared man could only develop from immaturity by daring to know (Porter 2000).

Carter credits Kant with 'foregrounding the subjectivity of vision' (Carter 2004: 28), and argues that the appearance of an object must conform to our mode of

representation. Carter asks 'if all eidetic phenomena had equal status, how could the true appearance of things be established?' (Carter 2004: 29). If the world is mediated with a high-resolution photographic verisimilitude can we tell if the image is 'real' or computer generated even if it is visually accurate? Rather than trying to prove if the image is 'true' (physical) perhaps it would be better to approach the problem from the opposite position: how could it be 'false' (virtual)? This is a position of questioning that the Enlightenment thinker René Descartes used to reason the veracity of something. It was a radical change in approach that had a profound effect in bringing art and science together in an attempt to set rules for understanding how the world worked or is experienced (Sullivan 2010).

As empiricism and reason prospered other thinkers, such as Edmund Burke became occupied by the beauty and force of nature, one that could overwhelm humanity, simultaneously beautiful and terrifying. This is what formed the idea of the sublime: 'terror enjoyed in security' (Porter 2000: 226). The Romantic Movement was born, an alternative to the order of science and in part a reaction against an increasingly mechanised world, which involved artists and writers such as William Turner (1789-1862) and Mary Shelley (1797-1851) respectively (Porter 2000; Meecham & Sheldon 2005). The twentieth century was even more perplexed by the contrary directions of technological advancement and the desire for a life that embraced the simplicity of nature. Now in an increasingly mediated world and one that Neville Brody (2010), arguably the most influential graphic designer in the UK since the 1980s, sees as the second Enlightenment, are our perceptions and sensory experience of the world more contradictory and perplexing than they were in the eighteenth century? Gere (2006) argues technological development is a cause of both euphoria and anxiety. Meecham and Sheldon (2005) in their critical introduction to Modern Art, examine the influences technology and artistic practice in contemporary media have on each other, which leads to a resurgent interest in one of the main artistic concerns of the Enlightenment: what is it that constitutes the sublime today?

The Technological Sublime

When considering the sublime in a contemporary context Gere (2006) examines the postmodernist position of Jean-Francois Lyotard and his curated exhibition, *Les*

Immateriaux (1985), at the Centre Pompidou in Paris. In Lyotard's view art that was made with new technologies was unable to invoke a sublime feeling (Gere 2006). In reference to Heidegger's idea of enframing, Lyotard (1984) saw the problem of being one of time and space where the senses are unable to appreciate beauty and the sublime through technical mediation. However, the British art critic Waldemar Januszczak in a review of the exhibition, *Thomas Struth: Photographs 1978-2010* (2011), at the Whitechapel Gallery, London, said of Struth's photographs:

> His huge colour prints are possible because of technological advance but their visceral impact gives the same pleasures to the viewer as the most ambitious narrative paintings used to deliver. Their detail and proportional tricks trap time and prompt a sense of the sublime.
>
> (Januszczak 2011)

In finding the sublime in Struth's mediated photographs of gallery visitors standing in awe at Michelangelo's *David* in Florence, Januszczak clearly does not hold the same view as Lyotard. Perhaps this is more of an 'American Technological Sublime' as argued by Nye (1996), where the possibility of transcendence is not in spite of technology, but by way of it. The American sublime differs from the European theory according to Nye, not as a solitary communion with nature, but 'crowds of tourists' fused by religion, nationalism and technology (Nye 1996: 43).

Dexter (2005), however argues that the sublime can be found in the re-emergence of contemporary drawing, as a reaction against technology, alienation and corporate greed, particularly in the art of post-communist Europe. These 'new Romantics' (Dexter 2005) have a socio-political concern that sound similar to the neo-Luddites that Jones (2006) describes in his book *Against Technology*, who have an ambivalent relationship to technology: who are concerned about the environmental and the social impact of technology. Jones argues that neo-Luddite sublimity is paranoid, one greatly influenced by the theories of Michel Foucault (1991), believing a hidden power of awesome terror lies behind the surface of the Net and controls the world, a theme I explore later with my film *Exposure* (2000).

These concepts of sublimity can appear to be in conflict but through the study of *Exposure* students can challenge their perceptions of the mediated world and the power structures involved with production and delivery technology, digital or otherwise. Rather than share the ambivalence of neo-Luddites I embrace technology

and seek to explore and understand the creative opportunities it can offer.

Similarly for Lyotard the increasing computer mediation of our world also creates its own terror: 'man's anxiety is that he is losing his (so-called) identity as a "human being"' (Lyotard in Gere 2006: 140). Taking a purely formal observation in this instance I would like to argue that my *Herbal Essences* (2006) sequence could provide a third space that links the mediated image with Lyotard's view of the sublime. Lyotard found the sublime conveyed through the primeval and spontaneous application of paint by American abstract expressionists, such as Willem de Kooning and Jackson Pollock, who emphasised the very nature of the media (Meecham & Sheldon 2005). Foster however argued that expressionism was a fallacy, another rhetorical trope for feeling, where one form of representation was replaced by another (Foster 1983). Could my creative use of high-speed photography in *Herbal Essences* provide both a suspension of motion and awe similar to the action paintings of the avant-garde? While Virilio (2000) sees time being eroded by technology, I show that it can also extend it. The extension of time brought to light the abstraction and extraordinary movement of the hair as it was manipulated in reverse speed and in a contra-gravitational movement. It could be argued that it was a series of thousands of action paintings that only gained context and narrative by being viewed in sequence and by revealing the model's face at the very end. I use the noise of fireworks over the exploding hair not only as a metaphor, but also to challenge the perception of the image, to disguise its scale and fix our gaze in wonder.

Despite the sequence's short duration of twenty seconds the photographic stretching of time, according to Gere (2006), provides space for reflection and this is key in maintaining a human relation with time. Gere argues 'that if art is to have a role or a meaning at all in the age of real-time technologies it is to keep our human relation with time open in the light of its potential foreclosure by such technology' (Gere 2006: 2). As real-time communication becomes increasingly continuous (the live-streaming of video that broadband delivers in 2012 was not possible on the Net in 2006) perhaps it is to be expected that the music video trope of slow-motion performances is there to provide time for us to appreciate the artist in the frame. For students who experience the world as 'digital natives' (Prensky 2001) it is critical to offer them

alternative means, even through formal observation, to create time and space for critical reflection.

Space for Reflection

To understand the part that technologies play in creative practice consideration should be given to the space between the viewer and the artwork that is being presented, for Grau 'strongly accentuated, visible interfaces make the observer acutely aware of the immersive experience and are particularly conducive to reflection' (Grau 2003: 10). Benjamin (1936) and Virilio (1994) both regard distance as essential to the preservation of an image's aura, its place in the world. Benjamin (1936) set his boundary for natural human perception with the painting, while he viewed film as a medium that collapsed distance and destroyed aura (but in a positive democratising way). Virilio however, writing fifty years later viewed film as part of the same optical tradition as painting, while it was instant electronic transmission which destroyed aura. Wherever we set our natural or cultural boundaries the implication is that physical space is as important as time in giving us an opportunity to think and reflect. A historical perspective can help illustrate this.

In the early part of the previous century the Futurist and Dadaist sought to challenge the boundaries between the spectator and the artwork and immerse the viewer in the illusion, and so reduce the space for reflection. Brecht also tried to break the stage boundary, or fourth wall with his Epic, later termed Dialectic, Theatre by having the actors address the audience, play multiple roles and by separating the various artistic components to expose their purpose (Thomson & Sacks 2006). The surrealists though sought the fusion of the arts to reflect the complexity of modern life as a 'sensory montage' (Helfand 2001: 55).

Later twentieth century thinking brought a feminist perspective on the sensory boundaries between women and machines. Sadie Plant describes her fictional character's relationship with media technology:

> She had never been able to accept the boundaries between media, the
> borders between senses, the blueprints of authenticity to which her work was
> supposed to live up to. Cameras had given her the chance to explore the

> technical potential of imaging machines, but she wanted her pictures to dance
> and scream, taste and smell, touch and contact senses still to come.
>
> <div align="right">(Plant 1998: 191)</div>

Plant's female character desires a more tactile experience from the mediated images she creates. It is as if she wants to breathe life into another form, like the feminised cyborgs as theorized by Haraway (Manovich 2001; Meecham & Sheldon 2005). To take the view of Donna Haraway (1991) the machine is embodied within us, but in movies its destructive power tends to be situated in something different: the freak (Bellin 2005), such as the King Kong and the conscious reference to the original movie in my commercial *Vespa*. It is the feminised beauty of the Vespa scooter, which the giant gorilla lovingly caresses, that relieves the dystopian horror of Kong running amok in the city. The last scene shows a construction of feminine values (perhaps an advertising cliché) in Kong that creates empathy with it and the scooter. We can love difference.

In the twentieth century the fusion of art and machine technology has created new spaces to challenge our view of reality. Real space and virtual space are becoming increasingly indistinct. In 1928 Paul Valéry's *The Conquest of Ubiquity* predicted the immersive nature of virtual reality and as that has come about thinkers like Borgman and Malpas believe that our sense of the real world will be diminished by the 'increased machine-mediated telexperience'. However, Dreyfus' opinion is that teleoperations will expand our sensory perceptions and extend our direct participation across vast distances (Grau 2003: 287). Following Baudrillard's concern of a life lived in simulacra, Turkle asks: 'Are we living life *on* the screen or life *in* the screen?' (Turkle 1995: 21). One of the aspects of my film *Exposure* (2000) is to illustrate the modern dilemma of those who wish to live their life through televised media.

Multiple Mediated Spaces and Time

At one level I set out to present *Exposure* as a naturalistic space and time; the action appears to be sequential and the stage space continuous, and it follows certain codes familiar within the culture of filmmaking. While Kant in the eighteenth century claimed that time and space are central to our understanding of the world, Lefebvre

(1991) argued that 'spatiality is a construction that socializes both physical and psychological spaces' (Willis 2005: 52). According to Lefebvre (1991) space is not neutral, it is constructed within a lived experience. On one level *Exposure* presents a space occupied by actors in a real home. Then on a deeper level is a video space of the programme being recorded, and deeper still a digital space occupied by an unseen online focus group that reflects the audience beyond the living room or cinema, almost like a live television gameshow. My original intention was to further blur the boundary between audience and film by giving the film an interactive online presentation and a community experience with multiple options for Leonard's outcome so that the observers could be participants.

But like all television gameshows that participation can appear illusory if your call or vote does not impact on the result. As Willis (2005) points out, Lefebvre can also be used to describe the fine distinctions between the spectator and the observer. Lefebvre argues that a spectator merely looks on, whereas an observer sees within a system of conventions that limit the definition of the space. In *Exposure* I sought to challenge the relationship of spectator/observer viewership. Do we merely look on as spectators of the attempted suicide, or as observers within the conventions of mediated space? It is also a moral question as the drama suggests that the fictional audience are observers with agency willing to vote to save a life.

The technique of mediating the image of the webcast to create its discrete space within the film *Exposure* produces a hybrid combination with other media. Manovich (2007) argues that hybrid media techniques in moving image have brought about a new 'metamedium', one that remixes all, or some, of the media techniques that were previously unique to that media. Video footage was shot and then manipulated digitally to mimic the staccato delivery of webcams as they were in 2000. These were situated within a graphic background to represent a website, which even had a moving cursor to suggest we were following a live computer screen.

The online cameras within the website mimic the surface texture and codes of surveillance cameras. *Exposure* raises a further question of what we see and what is presented as real. Willis argues that because we are familiar and comfortable with our domestic use of video cameras we are also more accepting of the tools of surveillance, which opens the door to potential corporate manipulation (Willis 2005).

Other contemporary artists, such as Hasan Elahi and Dan Graham, are exploring these themes further. From a pedagogic stand point *Exposure* offers both a formal and theoretical means of critically engaging the mediated world and understanding how it can be manipulated. Students of film may empathise with Bridget, one of the lead characters, while others may respond more to the victim, Leonard. Both present a challenge to concepts of authenticity and authorship, power and exploitation - providing essential opportunities to questions for any student in the visual arts and cultural studies.

Dan Graham's video installation and performance work *Present Continuous Past(s)* (1974) was an earlier critique of the postmodern experience of altered time and space perception (Meecham & Sheldon 2005). *Exposure* presents a continuous timeline and the speed of communicating decisions is dictated by a human interface, but Leonard is trapped in a loop of aborted suicide attempts where time is lengthened. Is it possible to counter Virilio's argument that time is speeding up like a video feedback howl?

Repeated Views and Virtual Space

Grau argues that the 'shock of the new' quickly subsides as 'habitation chips away at the illusion… and the audience are hardened to its attempts at illusion' (Grau 2003: 152). When audiences become familiar with the trickery and play of an illusion their attention turns to the detail and they become receptive to content and artistic media competence. There has long been a tension between on one hand the artifice and the spectacle of being captured in an illusion, and on the other the narrative as the greater entertainment (Darley 2000). Many watch movies repeatedly to enjoy the 'double-take' to wonder 'just how it was done' as much as the visual spectacle of the image (Darley 2000: 115). With an earlier Russian film director, Sergei Eisenstein's theory of montage in mind Barthes describes this artifice as: 'at once falsification of itself – pastiche and derisory fetish, since it shows its fissure and its suture…' (Barthes in Darley 2000: 115). The suggestion is that there is a contradiction that fascinates the viewer because the image appears both real and yet so extraordinary that it must be a fabricated illusion. How was it done? The boy character at the end of my 'Domestos' commercial acts out this perplexing question when he lifts up the box

Figure 17. *Domestos* boy tries to work out how the box can fly

to see if he can work out how it could fly under its own propulsion (see figure 17). It is conceived as a coda that dramatises a primitive desire to break the fourth wall (Brecht 1964) and interrupt the illusion in order to expose its fallacy.

In Grau's opinion this is a game that has been played since the Middle Ages, one between the art of illusion and the audience's ability to distance itself from the artwork. Today one trend is to extend the system of illusion beyond 2D. Using 3D the spectacle is further intensified to increase the immersive effect on the audience. It is a trope that action movies rely on special effects to disguise their lack of narrative content. But for all the art of illusion it was the Russian director Andrei Tarkovsky who saw illusion as a burden of responsibility on the director who must concentrate on creating a second reality, an emotional one created by technology (Grau 2003). Once again the human emotional component cannot be forgotten in order to completely immerse the audience emotionally and sensually.

Grau uses Eisenstein to argue 'the long continuity in the dialectical relationship of art, science and technology' (Grau 2003: 154). Eisenstein wanted to advance technology in a way that would bring the art of illusion closer to the emotions of the audience. In Soviet Russia Eisenstein envisioned a stereoscopic cinema in his essay 'O Stereokino' (1947), which would 'have the capability to amalgamate image and spectator psychologically' (Grau 2003: 155). Stereokino is a complete immersive cinematic experience that can 'capture and engulf' an audience 'through a tracking shot, which has never been realised before with such expressive power' (Eisenstein in Grau 2003:155). It was Hugo Munsterberg (1916), a Harvard psychologist, who defined the architectonics of screen space to give meaning to the camera movements that can project what is perceived as depth on to the flat screen. In 2012, stereoscopic 3D cameras are part of mainstream Hollywood movie making.

The long tracking shot along a road used in my title sequence *People's Century* was not a conscious homage to Eisenstein. But it conveyed the linearity of a timeline of the twentieth century, a 'fleeting reflection' in Walter Benjamin's words, while drawing the viewer closer to the screen, and thus conscious of the metaphor of the experience shared with the documentary interviewees. The camera angle could have been more of a vertical aerial image but this would have flattened the detail of the buildings that lined the road. This would have lessened the sense of realism, and

thus the impact of the illusion of large building sized projections, similar to the urban projections of artist Krzysztof Wodiczko. The use of the road gives a structure with depth to a sensory montage of archive documentary and modelled architectural space, accompanied with stirring music to create an emotional immersive experience.

Modernist theory still resonates today with the continuing balancing act, the tension between structure and freedom. In her critique of the new screen aesthetic Helfand applies this argument to virtual online spaces: 'sites seem to fail when both information and imagery are awash in abstraction: conversely, they succeed when there is order to sustain chaos' (Helfand 2001: 65). A multilayered and hybrid remix of film and video archive is a trope of history programme title sequences, they are chaotic and less immersive in my opinion, and Helfand's view of the online screen aesthetic is equally applicable to television graphics.

> At some very basic level we recognise that the design and planning of virtual spaces does not, in reality, mirror the cultural and temporal conditions of the built environment. If anything its appeal lies in the utopian conceit of its otherness.
>
> (Helfand 2001: 44)

People's Century hardly projects a utopian conceit, but I would argue it does have an otherness, which is virtual and yet realistic. Willis regards hybrid spaces as combinations of 'the so-called real with the patently fake… (where) the 'mediated' world aligns with the 'immediate' world' (Willis 2005: 57). For Lefebvre (1991) these hybrid spaces present contradictions that insist on being confronted. Over a decade since *People's Century* some mobile phone users are able to read and navigate live video images with overlaid graphic imagery. Augmented reality is already possible on mobile phones that can use their built-in camera and GPS to view a building and superimpose an image or text over the live image on screen (Uricchio 2011). Marketing and advertising executives may talk of utopian otherness, further mediating the world through technology, to create what Baudrillard calls a 'hyperreality' (Baudrillard 1994). Ultimately, there may be confusion between the indexical and non-indexical image for the viewer where reality and constructed image will collide and blend invisibly on screen. Data overload merged with live video could be more hallucinogenic nightmare than utopian dream.

Hyperrealism to Metamedium

In a previous paper (Ash & Macdonald 2011) that alerts educators to the challenges of teaching art and design in a relevant and empowering way, I have pointed out Baudrillard's concerns of living in a photographically mediated world that is a 'simulacrum'. It is a world without origins where nothing is experienced in 'reality' and everything is received through visual representations alone (Baudrillard 1994; Turkle 1995). Baudrillard describes hyperreality as a postmodern and dystopic condition, a 'Disneyland', which disempowers the audience. It is manifest as much in movies as it is in advertising. Using my *Domestos* commercial I wish to argue that in response to hyperrealism there is an alternative aesthetic, a hybrid one, a new 'species' (Manovich 2007) that combines analogue and heritage practices with digital processes and media. Manovich (2007) argues that 'by 2000 "pure" moving-image media became an exception and hybrid media became the norm' (Manovich 2007: 1), yet more recently 'pure' CGI films and commercials (that are entirely CGI) have become more in evidence.

Disney's CGI films *Wall-E* (2008) and *Toy Story 3* (2010) are simulated worlds created within a virtual film set where characters are lit, dressed and moved in a manner that reflects traditional 3D puppetry and animation conventions, such as parallax movement with camera tracking shots. The 3D image has developed a now familiar pristine finish, a surface quality that is sharper, brighter, and more reflective than reality- there is an intensification of the image (Darley 2000). Baudrillard argues that the hyperrealism of Disney-esque animation, whether in advertising or movies, disempowers the audience so perhaps a more random or physical intervention is needed to create naturalism that audiences recognise as constructed images, rather than extraordinary reality. For animators like Marjane Satrapi who uses heritage processes such as hand drawn cells and hand painted scenery, the computer has a look that can date within five years for her. In a story that is autobiographical like *Persepolis* (2008) the portrayal of people necessitated a higher degree of naturalism than CGI could create:

> Computers also create perfect images but human beings are not perfect, so it
> doesn't look natural. I don't like the coldness it brings to the whole, the

perfection that doesn't resemble us. The vibrations of the hand make the drawings come to life.

<div align="right">(Satrapi 2008)</div>

Helfand also supports this opinion: the human mark is the 'antithesis to the hygienic purity of the machine age' (Helfand 2001: 98). Regarding how I use 3D CGI with live action and heritage puppetry skills in *Domestos* the argument I wish to make here is that each medium should be considered as a territory that can be occupied or transformed by either the human mark or another media. It is not only a fusing of analogue and digital but critically one where the hand of human artistry is evident: drawn, sculpted or otherwise.

The development and use of technology in visual media is not 'autonomous' (Darley 2000: 58), it takes place within the context of contemporary visual culture. It also takes place where there is a plurality of media, where different technologies compete and overlap. Jameson (1984) and Turkle (1995) both argue that the postmodern view of the world is one that is multi-layered and opaque. As postmodernism reached mainstream broadcast media, digital technology reached a maturity where a montage of layered sources could be brought together in ways previously impossible before digital compositing. A new aesthetic emerged in the 1990s with digital compositing, one that was 'characterized by smoothness and continuity' (Manovich 2001: 142). Analogue video degraded every time it was re-recorded to make new layers, and boundaries between image and text elements were well defined, each component was clearly from a different source. It was more 'graphic' in a similar way to Constructivist collages compared to Magritte's smooth and continuous surrealism.

While in the 1920s one aspect of modernism was the reaction to new media that saw the building of defensive barriers: literature as written art, theatre as performance art, film as cinematic art, radio as phonic art; today we readily see ideas cross over different media in an intertextual postmodern hybrid (Kittler 1999).

> What gets remixed today is not only content from different media but also their fundamental techniques, working methods, and ways of representation and expression.

<div align="right">(Manovich 2007)</div>

Manovich describes work that combines all or some graphic design, cinematography, typography, animation and special effects as a 'metamedium'. Where the media and the content were once unique to these different media they can now be fused together in a new form (Manovich 2007). Darley also recognised that 'computer imagery is producing ways of enhancing both intertextual forms and mimetic forms, and increasingly begins to combine them in the same text' (Darley 2000: 132).

My own intertextual creative activity spanned graphic design, advertising and film. Many independent graphic design groups, such as Tomato, were also able in the 1990's to invest in affordable digital video and sound recording and editing technologies, and simultaneously design *and* produce music videos, branding, commercials and television titles (Myerson & Vickers 2002). Previously production was an expensive separate activity that was provided by companies with large capital investment and a high turnover of work. Yet within a postmodern approach modernism can still have a place (Kenna 2011; Helfand 2001).

In the case of *Vespa* postmodern references of previous cinematic stop-animation traditions were an essential part of the communication. Rather than flatten the image or further enhancing the simulacra as Darley suggests, my use of digital and analogue in a hybrid approach retained a semblance of the formalist approaches that celebrate the qualities of the media employed. I veer then to a 'transparent' modernism rather than an 'opaque' postmodernism to use Turkle's terms (in Meecham & Sheldon 2005: 157). The scale of the giant gorilla and the model city were clearly not realistic when situated alongside the live action people, but there is a complex contradiction of perception if we follow Turkle's thinking. It is all the more real for not pretending to be real.

Darley's argument, following McLuhan (2008) and Kittler (1999), is that increasingly CGI has meant that 'technology itself is the message' (Darley 2000: 53), and that the new forms of hyperreality have made the narrative subservient to the image, for example in the film *Avatar* (2009) whose audience came to marvel at the imagery rather than the story. Digital processes perfected existing analogue ones that were less accurate, slower and more expensive, 'simulating the already mediated' (Darley 2000: 75). A new formalism developed that was led by technology rather than meaning, designers were 'seduced into thinking of ideas as software' (Jacobs 1997:

98). Jameson says that modernist ideology was centred on an 'aesthetic of innovation' (Darley 2000: 71) and it has been argued that Modernism was a break from the past, from heritage practices and thinking (Meecham & Sheldon 2005). Techniques, however innovative, must remain neutral for the design to communicate effectively. Paul Rand, a Modernist graphic designer argued that 'the more neutral the technique, the simpler the solution – unencumbered by eccentricities or confusing (sentimental) associations' (in Helfand 2001: 162), a view shared by leading motion graphic designers Martin Lambie-Nairn (1997) and Kyle Cooper (2006), and one I sympathise with.

As a television graphic designer working through the 'digital revolution' (Myerson & Vickers 2002) my approach, and that of those I admired, remained centred on the modernist principles of form and function, one free of passing trends, but facilitated and presented using the most sophisticated and enhancing technology the BBC could afford, as in *People's Century*. I would argue that there is another space, somewhere between Manovich's metamedia and the traditions of the analogue past. Homi Bhabha argues that it is an art of the present that has a 'newness that is not part of the continuum of past and present' (Bhabha 2003: 1114). Bhabha argues that the third space is where new art can be created through consensus or confrontation. The hybridity of technologies that I use questions the emergent quality of technology in art, rather than regarding technology as a means to an end. Challenging students to question rather than rely on technology through the process of design is essential to the development of their critical analysis skills. Students need to be encouraged and empowered to confront generic software solutions and apply more critical skills to explore fusions of heritage and digital processes. Rather than rely solely on a creative dialogue with digital hardware and software they can learn to be receptive to working in partnership with otherness: people with heritage handcrafts.

Authorship and Participation: Romanticism in Corporate Industry

The concept of an 'authentic' creation or experience is contested, but one that students must try to engage with if they are to understand their role in the creative process. I wish to examine this idea of authenticity in my work and with it the meaning of being an author. Authorship can be seen as a Romantic ideal of the

individual creating, an original that is complete and autonomous, true to the senses, authentic perhaps. But in the industrial production of television, film and advertising there are differences in authorship: author and authority must be separated. Barthes argues that the 'death of the author' frees the reader and the text: 'To give a text an Author is to impose a limit on that text, to furnish it with a final signified, to close the writing' (Barthes 1977: 147). This post-structuralist form of criticism privileges the work of art, the text and it is one that influenced the Danish Dogme group of film-makers who sought to break down the traditional cinematic and artistic conventions of author and authority (Willis 2005). Baudrillard (1994), who influences Darley (2000) argues that the intertextuality of postmodernism and the reliance on technology to differentiate works of art both undermine the idea of the author as an individual. In the context of mass-produced culture, authorship is subservient to genre because of the tightly defined and formulaic conventions in the film and television industry. Darley argues that commercials directors now focus on the image and generic appropriation, repeating and reworking where new technology is relied upon to make their work distinctive and so define the approach: 'Technique, technicians and technology itself take command: cultural production becomes first and foremost a technical problem' (Darley 2000: 141). It is an opinion that ignores the artistic and creative expression of the director and is contrary to my approach that seeks to interpret the script and explore different processes through a dialogue with my heritage and digital materials. Competition ensures that commercials are not made from off the shelf ready-mades.

Dewey takes a pejorative view of using 'ready-mades':

> No genuine work has ever been a repetition of anything that previously existed. There are indeed works that tend to be mere recombinations of elements selected from prior works. But they are academic – that is to say, mechanical – rather than esthetic.
>
> (Dewey 1934: 288)

It is the hand of the artist Dewey suggests that brings authenticity through an aesthetic presencing: 'The unexpected turn, something which the artist himself does not definitely foresee, is a condition of the felicitous quality of a work of art; it saves it from being mechanical' (Dewey 1934: 139). This is often the case when directors are storyboarding, and in graphic design when comparing typesetting with handlettering Heller argues that 'the strength of the hand is in its ability to render serendipitous

results' (Heller & Ilic 2004: 9). It is an argument for fusing the handmade with the mechanical, or the heritage and digital hybrid. That handmade mark or signature is what Dewey uses to reaffirm the link between the work and its author who acts 'as guarantor of its individual shape or gestalt' (Grau 2003: 205) and so confers authenticity on the work. In commerce it is the job of a graphic designer to design the signature of a brand mark or logo that also confers authenticity on the manufacture and quality of goods and services.

My work in television, and similarly in my film *Exposure* is credited on screen, thus authenticating my creative effort. Yet, my advertising work is anonymous to the audience and in Darley's view this has a particular impact on authorship. In the previous chapters I have explained the context and process of my authorship and it is through my practice and approach using a hybrid of heritage and digital production techniques that I argue that my work does have a signature. A broadcast credit at the end of the work has no significance to the end result nor is it any guarantee of authorship. Sellors argues that conventional auteur theory mythologises filmmaking rather than actually examining the circumstances of film production, and that 'people make films *for reasons*' (Sellors 2010: 127). In design these are commercial and based on the needs of a client, yet as argued previously the director or designer has often been chosen from a selection of talent like a commodity in the market. Invariably a client will see something in the previous work of the designer or director and ask for something similar, either aesthetically or technically. Sellors takes a historical overview to demonstrate that 'films are collaborative enterprises and that authors are facts of film production' (Sellors 2010: 129) be they avant-garde, commercial or otherwise.

Within *Exposure*'s narrative I explore the theme of authorship and authority as part of the mechanics of making and commissioning a television programme to satirical effect. There is a conflict between the fictional director, Bridget, and the subject of the fictional programme, Leonard, who wants to write his own epitaph, as they wrestle for control over his means of suicide. In the end the shoot is brought to an abrupt end by the commissioning editor in response to pressure from a focus group watching live on webcams, just at the moment Leonard is about to slash his wrists on camera. When working on the script I was inspired by a series of scandals that beset British television at the time that exposed fakery in documentaries: participants faking

stories to get on television and directors faking scenarios to stay in television (Roscoe & Hight 2001). It was a period in British television when authenticity had little meaning or importance to some.

It is important to put *Exposure* in context because the pressure to achieve higher ratings in documentary programmes and the interference from bureaucratic hierarchies had begun to erode ethical codes by 2000 (Born 2005). The hegemony of the terrestrial channels had still to be challenged by a digital multi-channel delivery. The character, Bridget, is just a representative of many young ambitious programme makers who continue to be exploited by job insecurity and low wages who feel they must bend their moral compass to survive (Hesmondhalgh 2007). As programme makers are increasingly beholden to audience ratings it is perhaps timely to consider the audience's creative authority.

Umberto Eco (2005) wrote over forty years ago on participation, the opportunity for the creative involvement of audiences if there was openness in the performance and reception of artworks. It is an idea that has found renewed interest with the development of interactive games and other screen entertainment that have open endings with multiple possibilities. Murray (2005) argues that cyberdrama has the potential for viewers to choose camera viewpoints, explore spaces, even open documents in order for audiences to augment their understanding of the drama. In *Exposure* the part played by an unseen focus group suggested a more interactive opportunity and involvement for a wider audience in the near future, one that could ultimately make life or death decisions, anonymously. The film ends with Leonard left to consider whether he goes to the wedding of his ex-lover or commits suicide alone without his '15 minutes of fame'. I further blur the authorship of the film within the film by punctuating each new scene with a cutaway to the online website, with a view of the webcams that suggests the focus group also have control of their viewpoints. For the Neo-Luddite, with a more paranoid disposition (Jones 2006), the faceless authority that uses surveillance to control the lives of the characters is a further example of the awesome power digital technology affords and how naïve it is to expect the system to act with humanity.

In contrast to the Neo-Luddite view that digital technology is pervasive yet invisible (Jones 2006), in some scenes I explicitly show the machinery and process of

recording a documentary; monitor screens display the live video camera feed. These shots confer an authenticity of the programme making action, but also offer the audience watching *Exposure* a selection of images of screens within the screen and a choice of points of view to watch. It is a similar technique employed by Shirin Neshat in *Rapture* (1999), which Willis uses to illustrate how multiple screens can complicate but force the viewer to 'acknowledge the partiality of the resulting interpretation' (Willis 2005: 90). Technology used creatively by the artist can expose how it is used to mediate our world, and rather than find easy answers we can be provoked to rethink our relationship with technology.

The role of the artist-educator can be to teach emerging creative talent by example and empower authorship, not just individually but collectively, to bring social change and aesthetic expression among groups of designers and amateurs. Lowgren focuses the motives for crossmedia collaborative design as 'the urge to belong, establish identity, express one's self, and influence others and society' (Lowgren 2010: 6). It remains to be seen how open interactive cyberdramas of the future will be, but with the seemingly insatiable public appetite to upload mash-ups and homemade animated remakes of Hollywood films like *Star Wars* (1977) to the online channel YouTube, it appears that one way to inspire social change is through entertainment.

Conclusion

Barone and Eisner argue that if theoretical knowledge is part of arts based research 'it will not necessarily be explicit in the work itself; rather, it may be found in reflections, interrogations, conversations, deliberations, and debates that effective arts based research generates' (Barone & Eisner 2012: 59). By putting my published work into context using a range of theories that have stimulated my reflection (Burgin 2009), I hope to have examined some of the pressing issues that have arisen with digital technology in art and design. Mediation through digital technology is problematic because there is a fascination with the spectacle that relegates the narrative to a level where technology itself becomes the message. Digital exactitude militates against the 'real' in a world of imperfections. Central to my argument is the importance of physical human experience as an artistic revealing that might make

digital art and illusion more authentic through a hybrid art practice. As artists and designers envision possibilities and experiment with new practices the historical practices are layered over them. The haptic qualities that we appreciate as signifiers of a 'real' experience will remain, as an essential grounding to what we believe is natural to being human. By taking a pluralistic approach to processes old and new, finding the 'in-between' spaces allows the arguments to extend beyond binary comparisons of digital and analogue, modernist and postmodernist.

6. Conclusion

This written synthesis and analysis of my research is but one component of my thesis. It is the accompanying published moving image material as evidence of an arts based practice that forms the greater part of my thesis. These works cannot provide final meanings, but as Barone and Eisner argue their purpose within a thesis 'is to raise significant questions and engender conversations' (Barone & Eisner 2012: 166). Utilising the expressive properties of a medium the artist-researcher role is 'to highlight…to call to our attention…to deepen and to broaden our experience…to help us understand what we are looking at' (Barone & Eisner 2012: 43). My recent research in a pedagogical context that is in the form of a published article completes my artist-researcher-educator role. As an educator I can use this original knowledge from my innovative creative practice to disseminate it through direct discourse with student practice, and with peers at conferences and publications.

I began by quoting Eric Gill who may have abhorred the idea of hybridity, but no less celebrated and recognized the attributes and value of the handcrafted or the well-made industrial product. Manovich (2007) may regard hybrid media as the norm since 2000 in moving image, as a metamedium of image, text and techniques, but he underestimates the political and economic forces that shape media and education. Since Williams (1974) there has been an emergence of the creative industries discourse, which has allowed a re-imagining of cultural production within the economy and its relation to cultural policy (McGuigan 2004). Hesmondhalgh (2010) alerts us to the free labour debates that must not marginalise the political importance of professional cultural production. The application of monetary value to education and public service is at odds with advertising and design. Money levels everything and anything; it is not a question of what something is worth but how much it is worth (Simmel 1997).

With increasing globalization of design firms involved in broadcasting and internationalisation of education there is a place for regional individuality and heritage practices that can counter the homogeneity of digital design solutions. The role of the designer is not simply to solve a problem as a scientist might, but to enrich our experience of life, humanise it with a sense of enjoyment and pleasure by using

materials that lie within a tradition (Louridas 1999). Added to that is the role of the artist-educator who can teach emerging creative talent by example and empower authorship, not just individually but collectively, and bring social change and aesthetic expression among different groups.

Graphic design frequently spawns countercultures that seek to specialize or differentiate themselves from mainstream and capitalist ubiquity. Wells (2008) asserts that design as a counterculture in moving image is in danger of being lost with the acceptance of the term 'motion graphics' as a new label, one coined by the computer animation pioneer John Whitney in 1960:

> …in dropping the word 'design' from the definition, 'motion graphics' also dropped the process of design from its animation activities and instead largely focused on an over-reliance upon corporate software to deliver message-free, 'content-lite' material.
>
> (Wells 2008: 52)

Analogue and heritage skills in moving image can survive and thrive in a hybrid practice, but it may be only the artist or artisan who maintains these handcrafts. After all in graphic design computer desktop publishing did not bring the redundancy of graphic designers, nor the complete extinction of letterpress, screen-printing, bookbinding and calligraphy. There may be differences between the cultures of the West and East, as the *Chimera* (2012) and *Future Proof* (2012) exhibitions at Singapore Art Museum are evidence that handcrafts can thrive in a highly digital society. The desire for an authentic experience with analogue machinery and handmade processes that have tradition and heritage is strong with students (Macdonald 2012). These 'digital natives' can appreciate the difference of the process, perhaps more than the outcome of the creative practice.

> During postmodern times, we live in a mediated visual world where there is little distinction between the real and the virtual. If we understand the constructions that shape what we see, then 'to *know* is to see' (see Rose, G. 2001 *Visual Methodologies*).
>
> (Sullivan 2010: 171)

Sullivan (2010) alerts us to the mediated world of contemporary postmodern times and so, I would argue, the importance of moving image in art education to increase learner literacy, in both text and visual modes, by thinking and learning through this media. Moving image offers stimulating opportunities for screen-based digital skills,

3D modelling and drawing to develop together, allowing contemporary modes of creation to be taught in a structured programme in an arts context. Even drawing can be given new visibility and purchase, re-energised as it enters a transformative relation with other visual technologies (Krcma 2010).

Barone and Eisner (2012) call for a diversity of practical and theoretical structures and media that a social researcher can choose to employ. A diversity of media allows for a greater diversity of meaning 'through the interpretation of forms in whatever media they happen to appear' (Barone & Eisner 2012: 62). I have argued that heritage practices and the intervention of human action can add greater realism and authenticity to an image, although what counts as authentic is subjective and even contentious. A hybrid rather than a purely digital image can offer greater capacity for meaning that can resonate with the handcrafts of different cultures and so be inspired by the multiplicity of human expression. Conceptual and formal approaches to art education can remain as critical agitators. I would argue it is the role of artists and designers to continually rethink our relationship with technology, rather than regarding technology as a means to an end. This can be done by the creative use of multimodal technologies to expose diverse methods of mediating our world. A boundary-free world that is blurred, ambiguous and transmutable can lead to confusion, and the rapid pace afforded by technology can be mesmerising (Staples 2002). In order to avoid 'sleepwalking' into a digital conformity, heritage processes must also be celebrated and advocated as areas of difference in education. Taken together, I consider my creative practice and my educational work as a pedagogic intervention to explore a multiplicity of creative expression rather than enclose moving image in a purely digital medium.

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Appendices