TELLING INTERACTIVE STORIES

A PRACTICE-BASED INVESTIGATION INTO NEW MEDIA INTERACTIVE STORYTELLING

A thesis submitted for the degree of Doctor of Philosophy

by

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March 2009

Acknowledgements:

Abstract:

Telling Interactive Stories is a practice-based thesis, which theoretically and practically probes the field of digital fictional interactive storytelling. The submission takes the form of the interactive cinema installation *Crossed Lines* together with a written element of the thesis which interrogates historical, contextual, theoretical, technical and critical aspects of the field of interactive narrative using new media. *Crossed Lines* is an original fictional interactive AV piece, amalgamating multiform plots, a multi-screen viewing environment, an interactive interface and an interactive story navigation form. The installation tells the stories of nine characters in a way that the viewer can constantly explore and switch between all nine forms, using a telephone keypad and handset as an interface, and can simultaneously observe all characters' presence between the nine remote locations. Several research methodologies are utilised to analyse and evaluate the installation. Quantitative methodologies include the use of user tracking systems where the computational output of the installation provides measurements and timings of user choices and behaviours. Qualitative methodologies include theoretical and visual analysis, and in depth analysis of user responses using interviews, questionnaires, video recordings and cutting-edge eye-tracking technologies.

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Chapter 1: An Introduction

1.1 Introduction

Telling Interactive Stories is a practice-based thesis, which theoretically and practically investigates the field of digital fictional interactive storytelling. The submission takes the form of the interactive cinema installation *Crossed Lines* together with a written element of the thesis which analyses and contextualises the practice-as-research methodologies and also interrogates historical, theoretical, technical and critical aspects of the field of interactive narrative using new media. *Crossed Lines* constitutes the practice-as-research part of this thesis and began following the registration for PhD in January 2002. Its development included work when participating at the *Developing Interactive Content workshop*, which was hosted by *Sagasnet* in Munich, October 2002. The work was previewed at *Visionary Landscapes*; The Electronic Literature Organisation Conference, Vancouver, WA, USA in May 2008 and premiered in the Art Show at the *Digital Interactive Media in Arts and Entertainment* Conference in Athens, September, 2008. Analysis by the author has been published in the journal *Nebula* in June 2007. The interactive cinema installation is fully documented and submitted within this thesis in the form of three DVDs:

- DVD 1 – *Crossed Lines* full interactive version. This is presented as two DVD-Rom discs, which contain a PC and a MAC version of the film and all of the associated *QuickTime* movie files (appendix 1). The entire contents of both discs need to be copied to the hard drive of a computer with the following minimum specification:

  - For PC, Xeon CPU 3.40ghz, 3GB RAM (or equivalent).

  - For Mac, a Dual 2GHz PowerPC G5, 3GB RAM with an *ATI Radeon 9600 Pro* Graphics card (or equivalent). The files are contained in one folder on each of the DVD discs; these should be dragged and dropped, so that they copy over onto the internal drive of your computer. Once copied, double click either the file titled PC or MAC depending on your platform and the installation will run.

  The paradigm of the original installation, which used a telephone as the user interface, is emulated in this version by the user pressing keys 1-9 on the keyboard, to prompt video sequences and to navigate through the narratives.

- DVD 2 – *Crossed Lines* scenes appendix, presented as one DVD-video disc. This allows the user to navigate and view each of the individual thirty-four scenes in their entirety (appendix 2).
- DVD 3 – *Crossed Lines* video documentary, screenplay and user testing questionnaire. A 7-minute documentary, which shows the installation in use and provides both authorial and user commentary is presented as a *QuickTime* movie on a DVD-Rom disc (appendix 3) and also contains the full *Crossed Lines* screenplay in pdf format (appendix 4), and the user-testing questionnaire, which is referenced in chapter 7 (appendix 5).

It is recommended that the DVDs be viewed prior to the reading of the written element of the thesis.

1.2 Aims and Objectives

The aims of this practice-based thesis are as follows;

- To investigate, analyse and contribute to the field of digital fictional interactive storytelling;
- To create and develop an original and distinctive interactive AV storytelling installation;
- To offer insights into methods of audience-based analysis suited to new media interactive narrative texts;
- To advance debates and practice concerning the intervention of new media technologies and practices into cinematic forms and filmic narratives.

The objectives are as follows;

- To investigate and analyse key critical and theoretical perspectives and issues related to this field;
- To analyse different theoretical perspectives and practical approaches to interactivity;
- To identify different modes of interactive storytelling in digital form;
- To conceive and produce a series of fragmented fictions that when navigated and pieced together by the viewer form a complete narrative;
- To develop an alternative to branching tree interactive storytelling structures;
- To conceive a series of fragmented narratives which can only be viewed in their totality through user engagement;
- To propose methods of tracking and evaluating user interactivity and narrative engagement;

- To provide new insights into the field.

1.3 Research questions

In meeting these aims and objectives, I will be attempting to answer the following questions

- How are different modes of interactive AV storytelling employed and received?

This inquiry will be addressed in Chapters 3, 4 and 5 in which case studies will be approached primarily using narratalogical and theoretical perspectives. These will be detailed and discussed in relation to interactive aspects, aesthetics and narrative content.

- What aspects affect different levels of user engagement?

This will be investigated by seeking out audience studies into the reception of interactive works and by conducting user tests into the *Crossed Lines* experience.

- How do different interactive dramatic and narrative techniques affect story telling processes and experiences?

This will be addressed through discussion of a number of examples and case studies within the field of interactive narrative that will be analysed throughout the written thesis. The question is also core to the decision-making processes underlying the conception and production (including navigation and interface design) of *Crossed Lines*.

- How can non-branching structures be employed effectively within interactive storytelling paradigms?

A number of examples of effective non-branching interactive narratives will be sought out, presented, evaluated and researched.

- What interactive storytelling architectures can be devised to ensure equitability of characters within a multi-plot narrative?

This research question is central to the conceptual and practical methodologies employed in the creation of *Crossed Lines*.

- What techniques can be developed and/or employed to track and evaluate user navigation and engagement?

A multi-modal approach combining both qualitative and quantitative research methodologies will be adopted to address this question.

1.4 Approach, Methodologies and Originality

The approach to this thesis is threefold. The first strand involves a full engagement in the practical production process, from conception to delivery, of an interactive AV storytelling based paradigm in the capacity of the creator, author and director. The practical project has been undertaken as a predominantly individual endeavour (with the assistance of actors and production crew members) over the course of six years as illustrated in figure 1.1. The conception, development, script writing and production took place in the first two years of study, with the subsequent post production, encoding, and interactive authoring taking the majority of the time over a five year period. The final user testing and evaluation took place in the last year of the study.

STAGES OF PRODUCTION

Interface planning and design

Story and plot development

Scriptwriting and editing

Cast calls, Auditioning, Rehearsal of actors

Location and studio filming

Voice-over recording

Post-production (editing and scene synchronisation)

Encoding all video

Director authoring and interactive scripting

Re editing and Re encoding all video

Prototype 1 – development and testing

Alert frame design and experimentation

Interface design and building

Re encoding all video for user testing

User testing and results gathering

J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O

2002   2003   2004   2005   2006   2007   2008

Figure 1.1: Crossed Lines: entire production process

The secondary strand involves ongoing research throughout the duration of this study of other projects within the field exploring similar themes, modes and paradigms. These will be analysed, referenced and reflected upon throughout the thesis. The third strand is the investigation, reflection and analysis of the philosophical and theoretical underpinnings to the practice and research, which is discussed, referenced and applied extensively within this thesis. Several methodologies were utilised during the undertaking of the practice based element of the project; ranging from the quantitative (for example the computational output of the installation providing measurements and timings of user engagement with the piece from a large sample), to the qualitative (such as theoretical and visual analysis, and in depth user observations of the piece using focus groups, video recordings and cutting edge eye tracking technologies). When approaching works and case studies, theoretical and narratological readings of the works are undertaken. The content of this thesis in both its practical and written form contributes to new knowledge on a number of levels.

Figure 1.2: A user interacts with Crossed Lines

The practice based installation *Crossed Lines* is an original fictional interactive AV piece, amalgamating multi-form plots, a multi-screen viewing environment, an interactive interface and an interactive story navigation form. The installation tells the stories of nine characters in a way that the viewer can constantly explore and switch between all nine forms, using a telephone keypad and handset as an interface, and can simultaneously observe all the characters presence within the nine remote locations. The series of narratives can be viewed as individual stories, but they also interrelate with and link to the other stories, as is the case of the multi-plot film genre.

The practical piece is original in terms of its focus on strategic creative methodologies designed to provide an equitability of characters and a screen form and navigational structure that enhances and encapsulates the equal emphasis on all characters and their associated narratives. What is also distinctive is that users have an open system of control yet this does not lead to randomised and meaningless events, it still maintains a narrative coherence when subjected to different levels of user interaction. This is in line with Gilles Deleuze and Felix Guttari's discussions of the rhizomatic text where they claim 'a strange mystification: a book all the more total for being fragmented' (2002:6). *Crossed Lines* incorporates a navigational system and structure that allows fragmented narratives to build together and cohere, whilst also enabling user control and flexibility.

There are many previous and current examples of filmmakers and artists working within this field, exploring similar modes of multi-linear diegesis, (which will be discussed in depth in chapters 4 and 5). However the exploration of *Crossed* Lines is different in its approach for many reasons and these are discussed in depth in chapter 6. Amongst other aspects, *Crossed Lines* attempts to create an interactive environment within the multi-linear narratives, which are centered around and based on traditions of fictional naturalism/realism. This is in contrast to most forms of interactive storytelling, which are based within specific genres, which lend themselves to exploration and experimentation, such as fantasy and science fiction. *Crossed Lines* also responds to contemporary modes of user engagement and reception, by reflecting upon seminal theorists in the field such as Ted Nelson, who, in his book *The Home Computer Revolution* described the 'impatient user' as a polar opposite to the 'waiting operator'. 'We are now going to see a new kind of user: slam bang, sloppy, impatient, and unwilling to wait for detailed instructions' (1977:24).

New knowledge is also generated from the use of the installation itself, where a range of methodologies are employed in order to generate original user data, feedback, responses and analysis which will stimulate subsequent reflection and theorising within the wider debates that surround this area. In the written element, originality comes in the form of the bringing together of concerted practical and

critical research into the emerging field of interactive cinema that has very few detailed studies.

1.5 Background

It is first necessary to clarify the scope of interactive fictional genres that this thesis will encompass since the field is wide and spans, in the realms of AV stories at least, five decades. The roots of interactive storytelling as a form can be traced back to oral traditions and ancient rituals, where stories are created and developed in groups through re-enactment and the use of symbolism and dialogue, for example through the re-enactment of a sacred myth in which the entire community would participate. This thesis specifically interrogates both the study and the practice of interactive storytelling practices specific to narrative A/V works where the viewer physically interacts to make choices and has some form of user agency. Although acknowledging the history and roots of such such practices, the focus of this thesis is grounded very much in modern society and AV practices since the 1960s. An overview will be provided of the various different digital storytelling paradigms that have been evident in installation works since this time and in-depth case studies will subsequently be provided.

1.6 Definition: Interactive Storytelling

A traditional story involves characters engaged in a series of dramatic events from their introduction to a resolution, which tends to stimulate some form and level of emotional response within the reader/audience. A story consists of plot, characters, setting and structure; it normally focuses on themes such as challenges and conflict and it is told or narrated from a certain perspective, or point of view. An interactive story also consists of these elements and represents similar aims, but in addition, the audience members can become navigators, participants or co-creators of the story. The story could be experienced from the audience member's own point of view; or from multiple points of view that could be accessed through interaction with the story. The events within an interactive story tend to be non-linear and/or multi-linear.

1.7 Interactivity

The term 'interactive' has been a widely used and widely debated and disputed term, particularly in the last two decades and it is necessary to acknowledge the problematic nature of the term in the context of this thesis. Interactivity has often

been applied to the fundamental relationship between a viewer and a 'static' artwork; by that I mean an object of art, which the viewers cannot themselves touch or alter in anyway (as is the case of a gallery exhibit displayed behind a roped off area) and Marcel Duchamp makes the claim that;

> All in all, the creative act is not performed by the artist alone; the spectator brings the work in contact with the external world by deciphering and interpreting its inner qualifications and thus adds his contribution to the creative act (1957:140).

This infers that all artworks are interactive in some way, and that meaning is produced as a collaborative process between artist and viewer. This standpoint has been echoed by contemporary theorisations; for example, Lev Manovich, in *The Language of New Media* states:

> All classical, and even more so modern, art is 'interactive' in a number of ways. Ellipsis in literary narration, missing details of objects in visual art, and other representational 'shortcuts' require the user to fill in missing information (2000:56).

The claim that all art is interactive has been further problematised by the status of interactivity as a buzzword in recent years. As Errki Huhmato has claimed, interactivity is a 'fashionable phenomena' (1999:97), and he believes that the catchword 'interactive media' was seldom used before the 1990s (1999:109). There have been several definitions of interactivity offered by artists and theorists alike and definitions vary depending on the context and the background of the writer. Chris Crawford who is both an artist and academic offers a definition of interactivity as a 'cyclic process between two or more active agents in which each agent alternately listens, thinks, and speaks' (2005:29). Huhtamo echoes this idea: 'ideally, an interactive system is characterised by a real-time relationship between the human and the system' (1999:106). Frank Popper states that an interactive artist attempts to:

> simulate a two-way interaction between his works and the spectator, a process that becomes possible only through the new technological devices that create a situation in which questions by the user/spectator are effectively answered by the artwork itself (1993:8).

These definitions are useful in articulating the conceptual nature of the interactive experience of artworks, but further clarification is required in establishing what the physical manifestations of engagement with a work may or may not be when discussing new media forms. Randall Packer and Ken Jordan, in their overture to the edited book *Multi-media: from Wagner to virtual reality* define interactivity as 'the ability of the user to manipulate and affect her experience of media directly' (2001: xxxv). They go on to state that:

> …reading a text is not an interactive experience; interactivity implies changing the words of the text in some way – adding to them, reorganising them, engaging with them in a way that affects their appearance on a screen (2001: xxxvi).

The definitions by Huhmato, Crawford, Popper and Randall and Packer provide a more useful context with which to apply the term to new media interactive storytelling forms and it is this type of interactive paradigm that is most applicable for the purposes of my own research.

To acknowledge the reverse of this debate, many commentators have noted the limitations of the phraseology and its implications including artist Perry Hoberman (1994):

> When you say something is interactive, it sounds like you should be able to change it somehow. But generally the choices are very restricted, and leaving is like checking out of a hotel room: the work returns to its pristine condition, and there is not evidence you were ever there (1994).

Debates and discourse around the term interactivity have therefore been broad, ongoing, evolving and contested. There is also clearly a distinction to be made between the technical aspects of interaction (the pressing of a button, the clicking of a mouse) and the psychological or emotional aspects of interaction and the consequent sense of immersion and engagement that is evoked in the reader or user of the work.

Crossed Lines can be classified as an interactive work in the sense that buttons need to be pressed to progress the story (on the telephone keypad), viewers need to physically lift and hold the handset to their ear to listen to the audio and users have agency in terms of choosing to follow different characters and narrative

paths. Claims regarding the emotional sense of interactivity and involvement that users experience when physically interacting with *Crossed Lines* cannot be made without evidence, despite the fact that the work has been designed, authored and scripted in such a way as to engage, immerse and involve the user both physically and mentally. Actual user responses will therefore be defined, measured, analysed and assessed within the written thesis in order to evaluate them and to validate the underlying research intentions and methodologies behind the installation.

1.8 Levels of Interaction

As we have seen, there is not a clear manichean distinction to be made between an artefact that is either interactive or non-interactive, despite Brenda Laurels' claim that 'there is a rudimentary measure of interactivity, you either feel yourself to be participating in the ongoing action of the representation or you do not' (1993, 20-21). There have been a number of classification systems that have emerged by which interactivity has been categorised into either types or levels. Various theorists have devised their own sliding structures and scales of different levels of interactivity and user involvement, specifically in relation to new media works. Most recently, various methods of categorisation have been offered by Chris Crawford (2005), J.Favre (2002), Mark Stephen Meadows (2003), Steve Dixon (2007) and Darryl Wimberley (1995).

Favre (2002) has proposed a categorisation system in which he has defined seven categories of interactive narrative: enhanced narrative, nodal narrative, multi-path narrative, parallel narrative, multi-modal narrative, topographic narrative and algorithmic narrative. Examples of each of these are included in this thesis, and will be related directly to Favre's categories in order to illustrate and reflect upon his definitions. Meadows (2003) presents three different structures of interactive narrative, which can be observed to simplify and compress Favre's offerings. They also indicate varying levels of complexity, from the minimally interactive end of the spectrum to the fully interactive end, they are: the nodal plot structure, the modulated plot structure and the open plot structure. User *levels* of interaction, that is, those categories that pertain to the experiential nature of interactivity, have been defined by Dixon. His categories relate to an ascending order of user agency, freedom and the performative engagement within interactive narratives and installations: Navigation, Participation, Conversation and Collaboration (2007:563).

Crawford (2005) has offered a system of interactive classification based on structure, and has illustrated his categories in visual diagrammatic form. They are branching trees, foldback schemes and constipated stories. The branching tree structure of interactivity is a frequently cited and commonly employed structural methodology, a hierarchical system with a point of origin. The user starts at one point, and then, at the next point will offered two or more places to go, where the path forks or branches off; the next opportunity for interaction will be another branching point of two or more options; and so on. The branching tree system operates in opposition to the rhizomatic text, a philosophical analogy to the botanical rhizome; a system of roots which do not have a point of origin, but rather a series of links, which infinitely intertwine and interlink widely in a non-hierarchical system (Deleuze and Guttari, 2002). Wimberley's (1995) proposition of the seven different design structures of interactive narratives are particularly useful from a practical perspective. He cites them as being; branching (pyramid and Christmas tree); loop backs/cul-de-sacs (scenes within scenes); explarotorium (explore a scene, click on objects etc.); arena (depicting different versions of the same event to offer viewer interactivity; maintaining the same outcome, extends the latitude); free worlds (a matrix/map of interconnected scenes/worlds); parallel streaming or harmonic paths; (many states or paths that exist simultaneously at various levels) and simulations – the only story path structures that cannot coincide with a linear narrative structure' (Wimberley,1995:131-156).

These systems and concepts of classification and categorisation will be referenced and illustrated in the forthcoming chapters.

1.9 Chapters Overview

In chapter 2, a literature review is conducted summarising the research and reading undertaken concerning the theoretical perspectives around the field of interactive storytelling. These include perspectives from critical and philosophical theory, art theory, film/cinema theory and media studies, technological theory, cyberculture theory, game theory, digital theory and new media studies.

Chapter 3 investigates practical explorations into interactive digital narratives in relation to interfaces and the architectures in which they exist. This includes explorations into the concept of the screen, and the practice of multi-screen diegesis. Case studies are conducted into video database storytelling systems

such as *Hypercafe* and *MediaLoom*. Investigations into 3D virtual world environments, and their documentation through machinima are also included.

In chapter 4 interactive modes within digital storytelling are investigated, plotting a history of their developments and a categorisation system of the different types of interactive paradigms. These include interactive literary fiction, electronic literature, hypertext, interactive audio drama, sensory-based interactions, site-specific installations, locative and augmented reality fiction, and Artificially Intelligent (AI) narratives.

In chapter 5, these discussions are extended further into the specific realm of video and cinematic based paradigms. These include systems that have been conceived, designed and built to house alternative interactive content, such as interactive cinemas and DVDs. Specific narrative examples are discussed within platforms of the CD-ROM, the DVD, online interactive dramas, games and advertising, interactive TV drama, static installations, multi-mode/hybridisations, and remixable and modifiable film.

Crossed Lines is discussed at length in chapters 6 and 7. Chapter 6 details the conception, design, development, scripting, production, postproduction and interactive authoring. An evaluation of the audience experience is provided in chapter 7. This is carried out through field observations, using video recordings, numerical data output, questionnaires, interviews and data generated from an eye tracking software system.

Chapter 8 provides a summary of the findings, reflecting upon emerging practice, theory and trends in the field and looking towards the future of interactive storytelling. An analysis and appraisal of the extent to which the research aims and objectives have been met is provided along with an articulation of my contribution to the research in the field.

Chapter 2: Theoretical Perspectives

2.1 Introduction

This thesis encompasses explorations into narrative, film, cinema, television, new media, interface design and interactivity. As such, it was necessary to conduct a broad and ongoing literature search since debates surrounding these areas have spanned several theoretical disciplines including critical and philosophical theory, cultural studies, media studies, art theory, film/cinema theory, spectatorship theory, apparatus theory, cyberculture theory, game theory and new media theory. This chapter aims to consolidate and summarise these areas in relation to the aims of this thesis, acknowledging the various sub disciplines that coexist and evaluating their relevance within the execution of this research, in order to refine the analysis for the discourse within the subsequent chapters. It will also identify prevalent themes and debates within the various theoretical disciplines that are of particular relevance to the ongoing practical investigations that are documented in the following chapters.

2.2 Critical and Philosophical Theory

The field of critical and philosophical theory has offered within it many perspectives relevant to this thesis, particularly within the field of postmodernism and the debate around the concept of authorship. This concept was reflected upon in chapter 1 in relation to the discussions surrounding the relationship between the viewer and creator of art works and is of particular significance to my own practical work since the interactive nature of *Crossed Lines* raises broader questions regarding the status of the author in interactive art works in which a degree of control is passed over to the user of the work. *Crossed Lines* also operates in relation to postmodern ideas of fragmentation in its presentation of multi-linear narratives and the splitting of the visual screen interface. Notions of textual interrelationships (which are fore grounded in the work of Roland Barthes and Jacques Derrida) are investigated within the process of the scripting and the complex interrelationships between the characters within the narrative content of *Crossed Lines,* and linkages both within the text itself and those made by the user during their experience of the work relates to concepts of linkages and the rhizome that are central to the post structural philosophies of Deleuze and Guttari, in their seminal work *A Thousand Plateaus,* (2002).

The concept of the death of the author (Roland Barthes, 1967) is relevant to the prevalent notion within new media theory and practice that the reader/user takes prominence over the author. The original texts of Barthes' *From Work to Text* (1971), *The Death of the Author* (1967) and *Introduction to the Structural Analysis of Narratives* (1966) have provided an excellent grounding with which to tackle the broad theoretical basis of this thesis. Although now over thirty years old, and originally applicable to textual forms such as fictional novels, the content of Barthes' semiotic writings strike a resonance with the nature of electronic and new media texts. In *From Work to Text* Barthes states that no universal grammar of the text is possible because the text is woven out of 'citations, references, echoes, cultural languages which cut across and through it like a stereophony' (1971:160), a perspective that can be applied to the experience of both authoring and viewing *Crossed Lines* and leads to issues of analysing and articulating these complex experiences. Postmodern theories of authorship have been shaped and characterised by Barthes, and the theorists already cited, and others, such as Mikhail Bakhtin, Walter Benjamin and Michel Foucault, and subsequently by those theorists studying their work; Peter Wollen, Robert Stam, Helen Stoddart, Simon Dentith and Sean Burke. As Burke has noted 'with Barthes, Foucault and Derrida, the authorial subject returns, the (auto) biographical disrupts, enhances and displaces aspects of their work, a return which I shall argue takes place almost instantaneously with the declaration of authorial departure' (1998:7).

Parallels have frequently been drawn between the authorial concepts introduced by postmodern theorists and current practices within new media texts and interactive paradigms. For example, Downes (2005) draws upon Foucault's theories when he investigates the notion of heterotopia within the spatial organisations of cyberspace. 'heterotopia is not simply an alternative to utopian or dystopian space but is a way of describing multiple domains and their coexistence' (2005:122). Burke reflects that; 'interactivity is seen to restore the immediacy and copresence of the speech situation: a dialogic or polyphonic anti-authoritarianism is promised in the 'scripted speech' which contemporary technology facilitates' (1998:194). The notion of the dialogic is a key debate, which relates directly to the questions and issues raised in the practical explorations of this thesis, such as the central conceit of navigable dialogic interactions between the characters in *Crossed Lines*.

Bakhtinian thought has contributed this concept of the dialogic and has provided accounts of the novel, which as in the case of Barthesian semiotics can be applied and addressed to the electronic text and interactive forms of fiction. Bakhtin's first book published in 1929, *Problems of Dostoevsky's Poetics*, claims that 'Dostoevsky's novels are distinctly polyphonic, that is, they grant the voices of the main characters as much authority as the narrator's voice, which indeed engages in active dialogue with the character's voices' (Dentith, 1995:41). Bakhtinian dialogism refers to the multiple characteristics of language, meaning and identity where meaning is not created within a single consciousness, but produced in conversation. From Bakhtin's account of heteroglossia, which describes the many voices of language, Julia Kristeva coined the term intertextuality within her translation of Bakhtin's notion of the dialogic. These theories can be applied directly to *the Crossed Lines* experience where the dialogic and conversational are evident in the content and context of the narratives, which are all based around the multiple telephone conversations, which the characters continually engage in with one another. Contemporary theorist Robert Stam also discusses and contextualises Bakhtinian dialogics in *Film, Literature and the Carnivalesque* (1989) in relation to the Auteur theory, which places the author or creator of a text or at the centre of the work through the use of a defined style, a personal signature which clearly communicates the identity of the author through the work. In applying this theory to interactive texts where the identity of the author may not be so clearly defined, Stam observes; 'In terms of auterism, purely individual creation becomes even less likely in a situation where multi-media creative artists depend on an extremely diversified network of media producers and technical experts' (Stam, 2000:319) and notes that 'the emphasis on multi-authorial textuality subverts the romantic individualism of auterism' (Stam, 2000:325).

Auteur theory has also been documented and discussed extensively by Peter Wollen. His studies of counter cinema through the work of Jean Luc Godard have been useful in articulating debates around classical forms of narrative. Parker and Parker (2004) point to Directors' DVD Commentaries as a contemporary example in which the Auteur theory has been foregrounded within debates surrounding authorial intention. Toschi (1996) debates authorship in relation to hypertext arguing that 'The electronic text, far from signalling the end of sequentiality, as many people seem to think or fear, rather represents the possibility of creating numerous sequentialities, according to multiple associations' (1996:203).

The work of cultural theorist Jean Baudrillard offers a postmodern reading of the nature of cultural products within society, and therefore can be applied to works of fiction, interactive or otherwise. Baudrillard builds a critique of capitalism and provides such a dystopic perspective of the world that his theories have been seen by many to represent a resistive response to the media (Cook, 1995 and Dixon, 2007). Mark Poster (1999) has already applied the theories of Baudrillard (and also Derrida) to the field of interactive fictions. In his essay, *Theorizing Virtual Reality*, Poster discusses Baudrillard's notion of simulational culture which was later termed as the 'hyperreal' and describes how Baudrillard's theories emphasise the ways in which:

> electronic mediation cripples the modern system of representation, folding it into a new mode of signification in which signs are divorced from their referents in the object world, becoming reorganised into a 'hyperreal' of screen surfaces. It might appear that the terms simulation and virtual reality are equivalent, each suggesting a sign system in which cultural objects are divorced from their referents, in which words and images appear in their electronic reproduction without firm connection to a prior real world (1999:45).

In his critique of the shortcomings of Baudrillard's theories Poster notes that 'the great weakness of Baudrillard's efforts to theorize VR is his inability to recognise assemblages of human and machine practices and account for their differential realisations' (1999:48). He compares Derrida's deconstructive approach to Baudrillard's and asserts that 'Derrida senses the need to account for differential materialities of the media, for the ways in which the ghosts of television structure objects differently from the virtualities of computer screens, for the ways in which Internet communities are different from helmet-and-glove computer-generated worlds' (1999:52). Derridean deconstruction sought to dismantle assumptions around notions of identity, knowledge and meaning, which he argued had been falsely constructed and bound up with structures of power and exclusion. These perspectives can be developed and applied within this thesis, as the practical element, in its execution, application and studies of audience responses, affords the unique position of gaining an insight into the 'new configurations of agency' which Poster deems so crucial in generating new theories of the virtual.

Many important arts and media commentators have drawn on key postmodern theorists such as Frederic Jameson including Hal Foster who provides an overview of postmodern culture and Gregory Ulmer (1989) who provides a foundation for a 'grammatology in the age of video' in his book *Teletheory*. Citing postmodernism as a debate that parallels and can be aligned with remediation (which will be discussed shortly), he cites Jameson stating that this cultural state 'ceaselessly reshuffles the fragments of pre-existent texts, the building blocks of older cultural and social production, in some new and heightened bricolage: metabooks which cannibalise other books, metatexts which collate bits of other texts' (1989:13). In *Cyberspace Textuality* (1999), Marie-Laure Ryan has applied postmodern theory to discussions of the virtual text (1999) and notes that this has also been applied by Landow and Lanham. Narratives with multiple, fractured, cross genre stories are the epitome of the postmodern condition. In Nash's commentary of hypermedia, he states 'forget about the death of the author – we are talking about the complete inversion of transmitter-to-receiver configurations that have defined the distribution of cultural production since the dawn of civilization' (Nash, 1996:385).

Key to the *Crossed Lines* experience is the sense of postmodern fragmentation, since the viewer can witness several threads of the narrative at the same time, as well as the sense of the author becoming absent as the viewer becomes more present, since the coherence of the narratives of *Crossed Lines* can only be maintained through user control. At the same time, however, it should be noted that while the structure and form of the piece adheres to and is informed by 'postmodern' practices and associated theories, the core content of the video narratives follow a conventional film/television naturalistic mode. It is therefore the form, structure and interactive experience of *Crossed Lines* that follows postmodern and deconstructive paradigms, rather than its particular filmic style or narrative content.

2.3 Hypertext and Hyperfiction

The concepts of hypertext and hyperfiction, and their associated discourses dovetail into postmodernist thought, particularly those debates surrounding authorship and fragmentation. Debray describes hypertext as; 'an unpredictable sequence of bifurcations, a non-heirachical, unpredetermined crossroads where each reader can invent his own course along a network of communication nodes'

(1996:192). Research and debate around hypertext and hypertext fiction has been extensive. Key theorists and thinkers in the field include Ted Nelson, Vannevar Bush, Jakob Nielsen, Katherine Hayles, Marie-Laure Ryan, Michael Joyce, Sarah Sloane, Umberto Eco and George Landow. Hypertext, has been documented by McAleese (1993) and Hypermedia, which is core to A/V interactivity, is discussed by Landow (1997) and Espen Aarseth (1994). An edited collection of essays entitled *The Future of the Book* is provided by Geoffrey Nunberg (1996) and includes contributions from Landow, Joyce, Bolter and Nunberg who discuss the changing nature of text, authorship and readership in hypertext and hypermedia environments.

Nielsen (1990) has argued that 'one of the most important advantages of hypertext is that it is a method for integrating three technologies and industries that have been separate until recently: publishing, computing, and broadcasting in the form of television and film' (1990:11). Landow discusses the different applications and contexts for hypertext such as linking texts, simulations and world wide web links and suggests that 'the hypertext link-in transforms the printed work, when translated into this new form, into a kind of open-ended, permeable, Velcro text in which Bakhtinian multivocality seems more appropriate than does univocal voice characteristic of much print work' (1996:225).

Historical perspectives on hypertext fictional narratives have been provided by a number of writers, and the supporting CD in *The New Media Reader* (Noah Wardrip-Fruin and Nick Montfort, 2004) assists in charting the historical timeline of interactive text based fiction. In *Digital Fictions* (2000), Sarah Sloane offers a history and analysis of the digital fiction form, including an in-depth case study of the Oz project which aimed to create 'a dense, rich interactive fiction that provides participants with the experience of living in a dramatically interesting simulated world that includes simulated people' (2000:85). The project, a multi-user textual environment will be discussed further in chapter 3. The book lends itself predominantly to the study of text based (hypertext) fiction and her conclusions suggest that the book remains a superior fictional form to hypertext narratives using software applications such as *HyperCard*; 'despite the promise that hypertext fiction realizes – the promise of malleability, bifurcated plots, and reader-driven selection of events – texts like *Afternoon* and *Victory Garden* lack the

dramatic tension, the purposes and causes, the trajectories between concatenating events, which Forster identifies as central to good plots' (2000:127).

A sense of narrative closure, defined by Torgovnick as 'a sense that nothing necessary has been omitted from a work' (1981:6) has been said to be absent or problematic within hyperfiction and interactive narratives. This is an area, which was practically investigated in the user testing of the *Crossed Lines* installation, and also reflected upon in my subsequent writings. This perceived lack of a sense of closure has been discussed extensively by both Torgovnick (1981), in relation to the novel, and Jane Yellowlees Douglas (1994), who studies the notion of closure in Michael Joyce's works *Afternoon, A story* (1990) and *WOE – or a memory of what will be* (1991). Douglas affirms that 'our sense at arriving at closure is satisfied when we manage to resolve narrative tensions and to minimise ambiguities, to explain puzzles, and to incorporate as many of the narrative elements as possible into a coherent pattern – preferably one for which we have a script gleaned from either life experience or encounters with other narratives' (1994:185). Torgovnick claims that 'endings, closures reveal the essences of novels with particular clarity; to study closure is to re-create and re-experience fiction with unusual vividness' (Torgovnick, 1981:7).

2.4 Film Theory

Research into Film theory and its many manifestations provides some interesting perspectives which are again applicable to the production-based areas of this thesis such as narratology and visual grammar, and have been useful in the retrospective analysis of *Crossed Lines* undertaken as part of this thesis. In particular, texts and perspectives within this field have been sought out which seek to align traditional film theory with new media texts and forms, for example Michael Punt proposes that there are ways in which 'research into a nineteenth-century technology such as early cinema might be valid in understanding digital technology' (2007:62). Similarly, Sheila Chalke has drawn comparisons to current developments in high-definition home viewing cinema systems with early home cinema trends practised from the 1890s (2007:223). Perspectives such as these are particularly pertinent when reflecting upon Bazin's metaphor of the 'equilibrium-profile' of a river (Bazin, 1967: 139) to account for the parallel nature of change in both film production and content; 'In the early stages of cinema, technical developments bring with them the development of means of expression,

figures of language, which are then outmoded or rendered obsolete by new technical developments' (Wollen 1982:190). This observation strikes a particular resonance with the nature of technological and artistic developments within new media forms, and will be discussed and reflected upon in more detail in chapters 4 and 5. *Film Art* (Bordwell and Thompson, 2004) originally written in 1977, aims to provide a systematic description of the basic techniques that make up a film, such as cinematography, editing and sound. In the updated edition Bordwell has added a chapter entitled *Playing games with story time* where he maintains that disruptive narratives have become paramount in the discussions of contemporary cinema and film. Technical in its approach, Stam's *Film Theory* (2000) offers a more analytical and cultural account and the chapter *Post-cinema: Digital theory and the new media* introduces the field of visual culture and its associated theories and theorists. Noting that classical semiotic approaches are really only relevant to classical forms of cinema, Stam notes 'lately we find a slackening of narrative time, a kind of postmodern picaresque stringing of narrative non-events. Here a critique of linear narrative, exploitative spectacle, and the dominating gaze becomes irrelevant' (2000:318). He comments further that: 'The capacity for palpimestic overlays of images and sounds facilitated by electronics and cybernetics opens the doors to a renovated, multi-channel aesthetic' (Stam, 2000:323). These observations have been particularly relevant to the discussion of the conception and development of *Crossed Lines* in chapter 6.

The concept of the dominating 'cinematic gaze' is a key debate within film theory which originally derived from the writings of Jacques Lacan and articulates the representation of a position of power whereby one who is looking has the power over the one who is looked at. In her seminal article *Visual Pleasure and Narrative Cinema* (1975) Laura Mulvey aligns this theory with a feminist perspective, stating that the viewer is positioned within the point of view of the male protagonist, and is forced to view representations of females through the male gaze. Chris Chesher (2004) has recently applied these theories to the reading of modes of computer game spectatorship in his article: *Neither gaze nor glance, but glaze: relating to console game screens. Crossed Lines* initiates and provokes the sense of a controlling gaze and also brings about discussion of point of view. Stam's perspectives on issues of point of view are also applicable to *Crossed Lines*, which communicates nine points of view in both its form and content:

Both psychoanalytic and ideological approaches stressed the crucial importance of point-of-view to the overall narrative structuration of the work, a structure which was heavily criticised as mystifying and biased towards male characters and spectators … the manipulation of point-of-view allows the text to vary or deform the material of the fabula, presenting it from different points-of-view, restricting it to one incomplete point-of-view, or privileging a single point-of-view as hierarchically superior to others (1985, 82-84).

Branigan, in his discussions of point of view, believes that a 'film spectator, through exposure to a small number of films, knows how to understand a potentially infinite number of new films. The spectator is able to recognise immediately repetitions and variations among films, even though the films are entirely new and outwardly quite distinct' (1984:17). This idea is relevant to both the character development and scriptwriting of *Crossed Lines* where particular archetypes were drawn on and plotlines were created in relation to theories of stories and narratives.

Branigan defines narrative as 'a particular way of assembling and understanding information that is best contrasted to a *non*narrative way of assembling information. Nonnarratives may be found in classifications, inventories, indexes, diagrams, dictionaries' (1992:192). Stam suggests that: 'The narrative analysis of film is the most recent branch of semiotic enquiry to emerge from the critical initiatives which redefined film theory in the 1970's' (Stam, 1992:69). 'Narrative can be understood as the recounting of two or more events (or a situation and an event) that are logically connected, occur over time, and are linked by a consistent subject into a whole' (Stam,1992:69). In depth studies of narrative structures and content were developed within the field of Structuralism and Russian formalism. The Russian formalist, Vladimir Propp analysed the basic plot components of Russian folk tales, concluding that they all included the same 31 plot elements and that there were seven different character types. A number of articles on multi-form narrative and digital media criticism published in the journal *Screen* have been most useful in the study of film theory and its application to the field covered by this thesis; and multi-form plot narrative structures have also been debated by contemporary theorists such as McMahan (1999).

2.5 Cybertheory

The field of Cybertheory developed significantly in the 1990s with writers and theorists such as Nicolas Negroponte, Sadie Plant, Donna Haraway and Dale Spender discussing and debating areas around new technologies, the Internet and the cyborg. The grounding for these contemporary theorists is based on earlier texts such as Ted Nelson's *The Home Computer Revolution* (1977) which offers a prophetic vision into the future of home computing:

> The new computer media will uniquely combine elements of all of these: the visual entertainment of reading and of television; a personal environment comparable to the automobile; and the personal intercommunication of the television. The computer media on tomorrow's screens will include text and visual material, animation and branching alternatives (1977:146).

Nelson's account is fascinating, and prophetic, particularly his discussions of portable computing, which could be aligned to the ubiquity of today's manifestations of portable media devices such as PDAs and Apple's *ipod.*

Negroponte continues in Nelson's utopic vein, in *Being Digital* (1995) where he discusses the social and cultural impact of new technologies as being decentralising, globalising, humanising and empowering: 'The global nature of the digital world will increasingly erode former and smaller demarcations. Some people find this threatening. I find it exhilarating' (1995:239). Downes (2005) offers a contemporary theory of interactive realism within the field of cybertheory. In his book *Interactive Realism*, Downes defines his method of exploring the concept of cyberspace as challenging 'the transformative turn in media studies with a version of media ecology that emphasises the elements of social construction' (2005:xiii). Downes goes on to state that 'a poetics of cyberspace is the collection of metaphors and representations that organise, influence, and constrain our thinking in this new communicative environment' (2005:xiv). The chapters discuss the different types of reality constructed through computer mediated interactions and the metaphoric paradigms that shape debate around the concept of cyberspace.

Of particular interest within this field are the notions of identity within cyber environments and the creation of multiple identities and virtual personas, which have been fore grounded by theorists such as Sherry Turkle (1995), Roy Ascott (2008) and Allucquere Roseanne Stone (2000), all of whom will be referenced and discussed in Chapter 3.The notion of the interface, particularly in relation to

embodiment is discussed within the field of cybertheory, but it is also discussed from perspectives of new media by theorists such as Bolter and Gromola (2003). The notion of the screen as interface, which is of particular relevance within my own practical explorations within the multi-screen presentation of *Crossed Lines*, has been pursued by theorists such as Gabriella Giannachi (2004) who will be fore grounded within the discussions of interface in chapter 3.

2.6 New Media Theory and Multi-media Theory

> What is new about new media comes from the ways in which they refashion older media and the ways in which older media refashion themselves to answer the challenge of new media. (Bolter and Grusin, 2001:15)

Remediation is a key debate within new media theory and was captured and defined by Bolter and Grusin (2001), and is referenced and debated in later chapters. The concept of remediation has struck a resonance within subsequent theories and debates within the area. Lunenfeld's (1999) collection of essays in *The Digital Dialectic* takes on Bolter and Grusin's concept remediation and their insistence that the difference between old and new media is not trivial, but elaborates and emphasises what is new about new media. Lunenfeld states that:

> no matter how much digital systems resemble film or television, they are fundamentally different. The computer, when linked to a network, is unique in the history of technological media: it is the first widely disseminated system that offers the user the opportunity to create, distribute, receive, and consume audiovisual content with the same box (1999, xix).

The broad areas of New Media theory and Multi-media theory have often built on foundations from earlier media and technological theories by writers such as Marshall McLuhan (1997) and Walter Benjamin. Emerging reflections and writings have been led by scholars such as Janet Murray (1999), Brenda Laurel (1993), Lev Manovich (2001), Jay Bolter (writing from 2000-2003), Richard Grusin and Diane Gromola (2001-2003), Dan Harries (2002), and Everett (2003). Within Hansen's *New Philosophy for New Media* (2004), the post human condition is explored, 'theorising the correlation of new media and embodiment' (2004:12), analysing new media art work from Jeffrey Shaw, Bill Viola and Douglas Gordon, which although not interactive art works per se are useful in providing analytical and reflective tools for later retrospective analysis of my own practical

investigations. Issues of immersion in interactive art have been investigated extensively by Grau (2003), who studies interfaces and their suggestive potential.

Wardrip-Fruin and Montfort's *New Media Reader* (2003) articulates the history of the field through selected essays from artists, academics and practitioners using three types of material - foundational writings, functioning programmes and digitized video (the latter two presented on an accompanying CD Rom) which also contains the previously unpublished work *Forking Paths* by Stuart Moulthrop (1987), a hypertext fiction adaptation from a Borges novel. Interactive documentation of Weinbrens work, *The Erl King* and *Sonata* is included as well as his essay *In the Ocean of Streams of Story* which was originally published in the *Millenium Film Journal* in 1995. Samples of work by Lynn Hershman are included which will be discussed in more depth in chapter 5 and further work by Hershman is included in the book, *The Art and Films of Lynn Hershman Leeson* edited by Tromble (2005). Packer and Jordan (2001) in *Multi-media, from Wagner to Virtual Reality* present a collection of essays from key theoreticians such as Bush, Nelson, Murray, Hershman and Burroughs that form a historical narrative of multi-media collaborations between the arts and the sciences. 'Multi-media is the form that makes the most complete use of the computer's potential for personal expression' (2001: xxxviii). Several journals have published articles on various aspects of Multi-media and new media: the *International Journal of Cultural Studies* has included articles looking into interactive audience studies and new media, The *Journal of Film and Video* has published an article entitled *Scripting narrative for interactive multi-media*, *New Media & Society* has published on interactive media, *Television and New Media* has examined home theatre, intertextual narrative and DVD box sets, and *Visual Communication* has included articles on augmentation and immersion. A key discourse within the field of new media and multi-media theory is that surrounding interactivity.

2.7 Interactive Theory

Seminal texts such as Janet Murray's *Hamlet on the Holodeck* (1999) and Brenda Laurel's *Computers as Theatre* (1993) have helped to define new media interactivity within textual and artistic forms, and will be acknowledged and cited throughout this thesis. The core debates surrounding definitions of interactivity have already been summarised in chapter 1 which highlight the breadth and depth of this area and show how clear distinctions can be made between mechanical

and psychological levels of interactivity. As Spiro Kiousis has summarised, the concept of interactivity has been used to describe the context in which messages are exchanged, a property of the technology itself, or even a perception in users minds (2002:356). Hockley (1996) defines two types of interactivity; the first a mechanical relationship between machine and software (pointing and clicking), the second related to communication theory whereby interactivity is based on communication systems that incorporate user feedback. He then offers a third definition which forms a critique based on the assumptions that interactivity is political and empowering to the user:

> At their very best, the current implementations of interactivity merely broaden the paradigmatic set from which the viewer makes choices … instead of viewing interactivity in psychological and mechanistic terms we need to see it for what it is, as a political relationship. Interactivity is actually about power' (1996, 10-11).

He claims that interactivity purports to be liberating and democratic, but that this an illusion. Huhtamo suggests (1995) that much interactive art provides a meta-commentary on the state of interactivity, and addresses the area through an analysis of interactive art.

> recent work highlights the ideological, cultural and social issues enveloping technology and largely giving it its identity … the term *metacommentary* is used to refer to an art practice which continuously de-mythicises and de-automates prevailing discourses and applications of interactivity 'from the inside', utilising the very same technologies for different ends (1995:84).

When surmising the background reading and research that has been undertaken in and around interactivity within the context of a literature review, it is interesting to note the other different theoretical emphases and trends that have become apparent throughout the decades. In and around 1995, prevalent debates surrounding interactivity as a concept included discussions of the limitations and 'illusions' of interactivity (Cameron, 1995), and were epitomised by the book *Virtual Realities and their Discontents* (Markley, 1996), and continued through to 2000 with articles such as *Delusions of Dialogue in Interactive Art* (Campbell, 2000). The negative critical commentaries on the potential of interactive art forms and their many manifestations was carried forward by Peter Lunenfeld (2002) in his polemical article *The Myths of Interactive Cinema* which described the experiments as a failure. A common critical theme has been the perceived intrinsic

tension between coherence and interactivity; and also immersion and interactivity within interactive texts and works of art. Ryan in *Narrative as Virtual Reality* (2001) provides a striking account of these tensions and aims to 'transfer the two concepts of immersion and interactivity from the technological to the literary domain and to develop them into the cornerstones of a phenomenology of reading, or, more broadly, of art experiencing' (2001:2). Perhaps the most pertinent argument that Ryan proposes is that;

> the marriage of immersion and interactivity requires the imagined or physical presence of the appreciators body in the virtual world – a condition easily satisfied in a VR system but problematic in hypertext because every time the reader is asked to make a choice she assumes an external perspective on the worlds of the textual universe (2001:20).

The questions and debates that this perspective raises will be reflected upon throughout the thesis.

There has been a proliferation of texts in the last decade that have dealt with interactive narratives, and their production particularly in relation to computer gaming. For example Carolyn Handler Miller (2004), Mark Stephen Meadows (2003), and artists/theoreticians such as Chris Hales (2005) and Chris Crawford (2005), have all provided production based perspectives and reflection into the structures and contents of interactive narrative output. Journal articles have been particularly useful in bringing to light new projects which encompass interactivity. *Convergence* have included articles spanning 1995 to 2007 around areas such as digital cinema, intermedia reflexivity, critique of interactivity, interactivity of effect, user engagement, hypertext fiction, intertextuality, interactive narratives, interactive multi-media, cinema spectatorship, sound art, technological imagery, new media art, interactivity, hybridisation, database, remediation, girl gamers, eye tracking, simulacra, video games, intermedia and mixed reality, digital media theory, DVD format, digital media technologies, representation and simulation. Between 2002 and 2007, *Leonardo* has encompassed articles concerning interactive media arts, locative arts, data sonification, audio installations, virtual characters, and interactive eye tracking software. Debates surrounding interactive art have been covered extensively by the journal *Digital Creativity;* which between 2002-2006 published articles on interactive movies, interactive narratives, interactive TV and cinematic interaction. Many international practice based research groups have advanced the field and debates in the field; founded and

directed by Glorianna Davenport in 1987 at the Massachussets Institute of Technology, researchers in the *Interactive Cinema Group* focus on 'formal structures, construction methods, and social impact of highly distributed motion video stories'[1] and their website makes available both published and unpublished papers and essays. *Icinema[2],* the centre for interactive cinema research was established in 2002 at the University of New South Wales, Australia, and carries out research into the following areas: interactive narrative systems, immersive visualisation systems, distributed interface systems and theories of interactive narrative systems. Examples of work produced within both of these research centres will be discussed in later chapters.

2.8 Game Theory

Computer game theory is a relatively new, but rapidly expanding area, which has informed this thesis in terms of its discussions concerning gaming environments and their subsequent user modifications. This burgeoning area of popular theoretical study is highlighted by its presence in many articles published within journals of a broader and less specific remit. For example, *Media Culture & Society*; published the *International Digital Games Research Conference* report, the *Journal of Visual Culture* has published articles on video games, digital games and new media art, and the *Journal of Communication Inquiry* has included a video game theory reader. Although the research within this thesis is not based upon computer gaming per se, and rarely do current computer games incorporate Full Motion Video (FMV) in their design (some examples will be cited in chapter 5), the nature of the interactivity and the sense of 'play' intrinsic to the *Crossed Lines* design and experience, lends itself to parallels with a gaming experience. As Jay Bolter has argued; 'playfulness is a defining quality of this new medium. Electronic literature is a game, just as all computer programming is a game' (Bolter, 1991:130).

Graeme Kirkpatrick (2004) has also emphasised the effects of play when studying computer gaming, which derive from a Scandinavian school of thinkers known as the Ludologists. Their theories signify a departure from acknowledging narrative as a factor informing the play experience; 'the experience of playing a game has much more to do with negotiating a database through a complex series of interactions with a parser, or algorithm, than it has to do with the demands of

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[1] http://ic.media.mit.edu/
[2] http://www.icinema.unsw.edu.au/

negotiating, or even constructing a narrative' (Kirkpatrick, 2004:75). Recent gaming design trends have seen the adaptation of the cinematic perspective into game play and design, such as the use of multiple camera angles, of slow motion replays, advanced sound design and the use of actual dialogue replacement (ADR). The frequent use of these techniques highlight debates surrounding the convergence of games with film.

Issues surrounding this area have been fore grounded by Hayward and Wollen (1993) who present an inter-disciplinary anthology of new technologies of the screen, investigating image enhancing technologies such as special effects, HDTV and IMAX, cultural forms such as gaming, and composite technologies such as VR. Within the chapter *Interactive games*, (123-147), Haddon looks at the three parallel histories; the development of games hardware, the evolution of the software industries and the nature of games playing across all types of interface; arcade, video, microcomputer and console. The chapter offers a useful mapping of these developments, with some interesting cultural debate around gender issues and gaming. Game theory is an ever expanding field of both practice based research and theoretical debate which is captured in journals such as *Simulation & Gaming;* which has included recent articles on interactive narrative, video game genres and gendered preferences of video games. The journal *Games and Culture* has encompassed articles covering remediation, video games as a new art form and limits of interactivity and *Space and Culture* has also included articles discussing video games and immersion cinema.

Natkin (2006) discusses the nature and design of video games and assesses their cultural implications in his text *Video games and Interactive Media*, which includes chapters on video games, multi-user gaming, mobile gaming, interactive technologies and artificial intelligence. Natkin discusses the commercial constraints that game producers are subjected to, for example the length of time to complete a game must be defined. This has given way to an original method of writing, borrowing from linear forms, social games and principles of computer interaction (2006:30) which principally has four stages: Game design (building the world or environment), level design (building the maze), immersion methods (defined by Natkin as creating the absence of disbelief through sonic and visual ambience, and complexities of tasks), and game play. In the concluding chapter video game art is discussed, whereby numerous artists have designed works

based on game technology. Natkin also discusses *machinima* - a film that is produced by recording a game session – a recent example of which was a documentary shot in *Second Life* (produced by Douglas Gayeton) which received an Oscar nomination, and is discussed further in chapter 3. In an chapter on immersion methods, Natkin makes the claim that 'we consider immersion (or presence) as the absence of disbelief. Schematically, the sensation of immersion relies on narrative control, game perception, and the playful appeal of the game's rules' (2006:41).

2.9 Instructional Texts

There are relatively few of this type of published resource, which relate directly to the design, scripting and production of interactive storytelling texts or systems. Textual sources dealing with the 'how to' of production elements and interactivity, which will be cited within this thesis, have been provided by McKee (1998), Ken Dancyger (2007), Syd Field (2005) and Robert Musburger (2007). *Writing for Electronic Media* (Musburger, 2007) has been particularly useful. Amongst the conventional guides a most useful source proved to be Wimberley and Samsels' *Interactive Writer's Handbook* (1995), particularly the chapters that deal with writing interactive screenplays. Wimberley, a screenwriter, offers a powerful introduction citing the audience as co-producers of a narrative, 'the end user can shape the story's tone, psychological nuance and theme in ways not before possible' (xvi:1995).

Wimberley and Samsel provide excellent insights into the creation of interfaces noting for example that, 'the best interface designs are those that go completely unnoticed to the end-user. Quality interface design, by definition, should be transparent' (Wimberley, 1995:42). They also provide useful comparisons between elements of a linear screenplay – transitions, slug lines, technical direction, scene description, dialogue and dialogue direction (Wimberley, 1995:75) and those elements of an interactive screenplay – transitions, slug lines, address, technical direction, command options, interactive modes, scene description, dialogue and dialogue direction, conditional statements (Wimberley, 1995: 75). Such technical production approaches were incorporated into the practice-based methodologies of my research and are discussed in detail in Chapter 6.

2.10 Methodological Theory

Methodological texts have also formed a key grounding for this research, including generic texts such as Rose (2007) *Visual Methodologies*, Pink (2005) *Visual Ethnography*, and other texts around ethnography (Crang and Crook, 2007; Spradley, 1979; Hammersly and Atkinson, 2003) have provided a theoretical grounding upon which to build the approaches to the user analysis aspects of this research. Journals such as *Qualitative Research* and *Field Methods* have included articles concerning *Multi-modal ethnography* (2006) and *Performance ethnography* (2002) respectively. These articles provide contemporary perspectives and approaches to the traditional forms of research. Particularly useful has been the Dicks (2006) article which aims to 'suggest an approach to ethnographic work which sees meaning emerging from the fusion of differently mediated forms into new, 'multi-semiotic' modes'. This provided an important point of departure into the undertaking of the audience based research into *Crossed Lines* since multiple methodologies are employed to capture all of the elements of the multi-faceted user experience. These will be discussed in detail in chapter 7.

2.11 Conclusion

The theories and debates summarised in this chapter are wide and divergent. There are some key concepts that have been defined and have been directly applied to the practical methodologies of the research. They have provided some useful insights and perspectives in how to deal with new media interactive texts in a practical, technical, analytical and critical sense. Key themes underlying and informing this thesis have included authorship, remediation, interactivity, the tension between immersion and interactivity, point of view and notions of identity.

Chapter 3: Interactive storytelling platforms and environments

3.1 Introduction

This chapter investigates the physical interfaces and software architectures of interactive video forms. Platforms of media content delivery will be discussed, alongside the technological apparatus, the interface (both physical and screen), and architecture (both hardware and software), reflecting upon the dense critical discourses, which surrounds these areas. The chapter will deploy several case studies: *Hypercafe (1996, Nitin Sawhney, David Balcom and Ian Smith)*, *MediaLoom (1998, John Tolva)*; *Virtual Cinema (1993, Hyperbole)*; *Soft Cinema (2002, ZKM)*, *Mutable Cinema (2007, Mario Márquez), The Korsakow System (2000, Florian Thalhofer) and T Visionarium* (2004, Brown, Del Favero, Shaw and Weibel), citing conceptual precursors and forerunners of their development and influence. The chapter also investigates virtual environments, user modification and also Machinima as an ethnographic form employed to record and document activity and events in virtual worlds.

3.2 Apparatus

The similitude of old and new media has been an ongoing theme in discussions of cinema, video and new media. This is particularly the case when comparisons have been drawn between the areas of cinema and new media, where technical and social developments tend to be discussed in parallel with one another. A central critical theme within the study or architecture and interface within these areas has been that surrounding the concept of 'apparatus'. This term evolved from cinema theory, in which cinematic apparatus refers to the elements which collectively form the cinema viewing experience: the technical base of the film, the film projection machinery, the film itself as a visual text and the mental machinery invoked and stimulated within the audience. Christian Metz (1975), in his study of the cinematic apparatus, defines the cinematic institution not just as the cinema industry, but also as the mental machinery. As Morris has noted, the study of cinematic apparatus recognises 'the interconnected technical, environmental, textual, psychological and social processes involved in the cinema-viewing situation' (2002:81). Morris goes on to justify the usefulness of this concept when discussing new media interventions that explore video and cinematic forms:

The term apparatus is a useful one, describing as it does the intersecting processes involved in audience interaction with a media form; it translates readily to an exploration of the kinds of subject positions offered by other media (2002:81).

It also highlights the influence that cinematic codes and conventions have had on new media art works, and how the technological developments have worked themselves back into the realm of the cinematic:

The cinema can achieve its greatest power of fascination over the viewer not simply because of its impression of reality, but more precisely because this impression of reality is intensified by the conditions of the dream; this is known as the fiction effect (Stam, 1985:144).

Weinbren has argued that digital media 'offer limited motion, inferior little images in a fraction of the monitor screen' (1995) and as Hilf has noted: 'Weinbren's notion of interactive cinema is thus explicitly tied to the dominant visual aesthetic, if not, the technologies of the cinema' (Hilf, 1996). Spielman has put forward an argument that aesthetics of new technologies and not just the existence of those technologies have influenced film production and cinematic codes and conventions:

Cinema, in reaction to virtual environments, has developed new spatial visual effects that multiply the dynamics and dimensions of character's movements and camera angle (i.e. the matrix trilogy)… additionally, cinema incorporates the visual and physical experience of cyberspace … non-sequential writing in hypertext has stimulated experimentation with new narrative formats in film by generating a sense of open-endednesss … experimentation has further manifested itself in other cinematic formats that accommodate the simultaneous presentation of different perspectives of a given plot within the same frame (2003:57).

3.3 Interface

The most visible, and in some ways the most important, part of any digital application is its interface – the face that the application presents to its users. And digital art is all interface, defined entirely by the experience of its viewing or use. That is why digital art can provide such a clear test of the possibilities and constraints of digital design: it fails or succeeds unequivocally on the strength of its interface (Bolter and Gromala, 2003:11).

Key to the seamless narrative control and subsequent user experience of *Crossed Lines* is the telephone keypad and handset interface. Interfaces have come to be understood as the physical apparatuses or manifestations by which users can interact with or affect a computer game, a new media art work or instances of video; keyboards, mice, console pads and other control mechanisms are inevitably part of their respective experiences. As Lartigue, Gonzalez and Osawa (2007) proclaim; 'there is a dense interrelationship between the interface and the storyline. The interface determines how we structure our story and how we go about filming … this reciprocal interaction between interface and content creates an entirely new dimension in filmmaking and story telling' (2007:182). At the extreme end of the interface scale, Jill Scott has carried out extensive artistic research into tactile interfaces utilising electronic sensory technology that raises the viewer's awareness of the interactive act and the environment. One such project; *e-skin*[1], is a wearable artificial skin that can detect a variation in temperature which in turn affects the volume of the surround sound within the interactive environment, pressure pads trigger different sound and graphics which are projected into the area, and vibration sensors control the speed of animation. These experiments raise interesting questions around the issues of body as architecture and this concept, along with other sensory interactions are explored in more detail in the following chapter.

The concept of interface has also been debated extensively in the realm of computer usability, accessibility and design principles (Mullet and Sano, 1995; Rumsey and Watkinson, 1993; Laurel, 1990). The introduction of the ubiquitous graphical user interface (GUI) to computational technology in 1981[2], advanced debates in relation to interface and inspired many artistic interventions, which explore different approaches to the notion of interface. The satirical video works of artist Jeremy Bailey such as *Video Terraform Dance Party*[3] and *SOS Preview*[4] exemplify the constant quest and obsession of commercial computer companies to make the graphical user interface more accessible and appealing to the user. Bailey's works involve the artist playing the part of an enthusiastic computer demonstrator, for example, in *SOS* he parodies a showcase of a brand new visual operating system in which 'the rectangle shows you things, the circle analyses

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[1] http://www.e-skin.ch/start.html
[2] The first company to introduce a commercial GUI was Xerox with their 8010 Star Information system
[3] http://www.youtube.com/watch?v=vNO0l4ppgIY
[4] http://www.youtube.com/watch?v=dLcwu3cm7y0&feature=related

things and the triangles edit things'. All shapes are artificially intelligent and can talk to one another and to the user - 'our file has a face' he proclaims. In a similar satirical vein, *Video Terraform Dance Party* parodies the creation of and user participation within virtual environments. By using a head mounted device which reacts to his movements as he bobs up and down to create a landscape on which to build, he also launches missiles to destroy other virtually created nations. 'As you can see we're in the apocalypse mode and the artists has sixty seconds to dance to enjoy what they have achieved and then the simulation resets'. The resetting entails a missile dropping from above to annihilate the island that he has created; 'population 6,000 dead, but we learned something'.
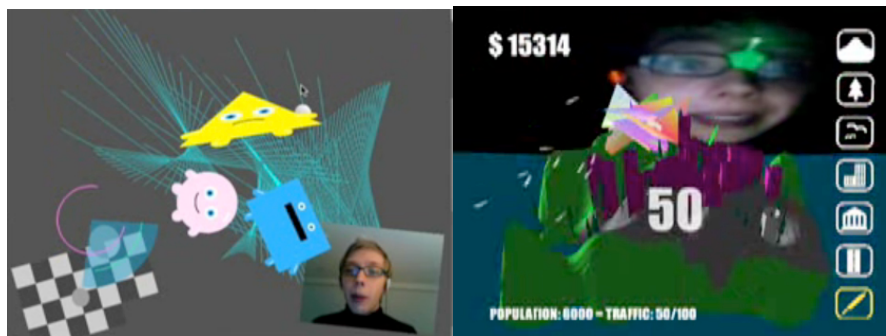
Figure 3.1: SOS and Video Terraform Dance Party (2008, Jeremy Bailey)

3.4 Screen

In an ongoing discussion of apparatus the object of the screen has often come to be regarded as the interface in itself, which users engage with during an encounter with a video based interactive artefact.

> If computers have become a common presence in our culture only in the last decade, the screen, on the other hand, has been used to present visual information for centuries – from renaissance painting to twentieth-century cinema (Manovich, 2001:94).

Developments in touch screen, sensing and tracking technology have all contributed the sense of an invisible, intuitive interface, but as Bolter and Gomala have argued 'no interface can be or should be perfectly transparent … if we only look through the interface, we cannot appreciate the ways in which it shapes our experience' (2003:26-27).

Jeffrey Shaw discusses his work as having the potential to 'violate the boundary of the cinematic frame – to allow the image to physically burst out towards the viewer to virtually enter the image' (Hansen, 2004:47). Wood discusses the screen

extensively in relation to new media art, the screen is 'not only a place through which we enter the fabulous dimensions of story-worlds; it is equally a site that can inform us about our experiences of technological interfaces' (Wood, 2007:71). Gianacchi again draws parallels with the cinematic screen, whilst also referring to the interactive screen as the hypersurface 'where the real and the virtual meet each other … a liminal space in which the viewer can double their presence and be in both the real and the virtual environment simultaneously' (2004:95). This notion is reminiscent of Deleuze and Guttari's rhizome 'always in the middle, between things, interbeing, intermezzo' (1988:25).

Wood also discusses interface as architecture:

> Architecture as a physical spatial organisation and the structural relations of competing elements…the problem with such a view is that it only approaches the spatial structure of the textual elements, saying nothing about the temporalities of a viewer's encounter. The idea of architecture can be expanded to include all the potential interactions a viewer may have with a structure (2007:86).

In Chapter 2, the theoretical debates surrounding the dichotomy between immersion and interactivity were discussed, primarily alongside the assumption that a state of immersion was discussed in terms of it being a mental state, in a purely rhetorical sense. However, a physical sense and state of immersion can be achieved by technology, which actually physically immerses and envelops the user, within an actual physically immersive environment.

> Although previous art critics and historians have described art reception as immersive or absorbing, this notion was used metaphorically, to describe the degree to which one was emotionally or intellectually involved with a work of art. Today, this metaphor, and the ideal it represents, is replaced with an actual technological immersion in the lived space or theater (Recuber, 2007: 320).

In the manifestations of cinematic apparatus, this practice of attempting to physically immerse the viewer emerged in the 1950s within the technologies of *Cinerama* and *Cinemascope*. These systems included directional sound and large curved screens. This practice of visual immersion can be traced as far back as 'the baroque vertigo of the *trompe l'oeil* ceiling to the pre-cinematic inventions of the panorama, the diorama and stereoscopic photography' (Thomsen, 2002:39). Oliver Grau (2003) also discusses immersive new media installations in relation to

Baroque ceiling panoramas of the 16th and 17th century. The panorama as an architecture or environment for dramatic content has also been explored within the QTVR software by artists such as Perring, Waite, Cayley and Cape in *What We Will*[5] (2003), by Roderick Coover in his work *Something that happened only once*[6] (2007) and Hugo Glendinning and Forced Entertainment's *Nightwalks* (2000).

Further manifestations of the immersive cinematic form include the *Cine 2000*, which was an attraction in theme parks in the early eighties. The film was shown in a large dome, being projected onto around two-thirds of the inside. The movie itself was made up of specially filmed scenes of roller coasters and racing cars, and critics at the time such as Gunning noted how 'recent spectacle cinema has reaffirmed its roots in stimulus and carnival rides in what might be called the Speilberg-Lucas-Coppola cinema of effects' (1986:70). The first IMAX cinema was actually opened in 1971, but has since become a more popular attraction with screen sizes exceeding 29x35 metres, and 3D movies being produced and screened.

> The attention of the audience was drawn to the novelty of the apparatus itself. The greater realism produced by the new technology was understood, it would seem as a kind of excess, which was in turn packaged as spectacle (Belton, 1992:160).

Ivan Sutherland first introduced fully immersive industrial VR, in 1968 with his invention of the Head Mounted Device (HMD) dubbed *The sword of Damocles,* on account of its cumbersome nature. The user would wear the device over the head through which simple wire frame room structures could be viewed. In 1974, Myron Krueger created *Videoplace,* an artificial reality laboratory which surrounded the user and responded to their movements without the need for any wearable device. Examples of HMD VR projects such as *Osmose* will be discussed in chapter 4. 'VR functions as an ant-environment that boosts our awareness of conditions that already exist in our culture, but to which we have become, if not completely numb, at least increasingly resigned and mute' (Laurel, 1993:211).

Within the artistic realm, several artists have worked with creating immersive environments, in which to view cinematic and video content. The 360-degree work,

[5] http://www.z360.com/what/
[6] http://www.unknownterritories.org/SomethingThat.html

Landscape One by Luc Courchesne (1998), invites the viewer to enter a space in which they are surrounded by projected video imagery.
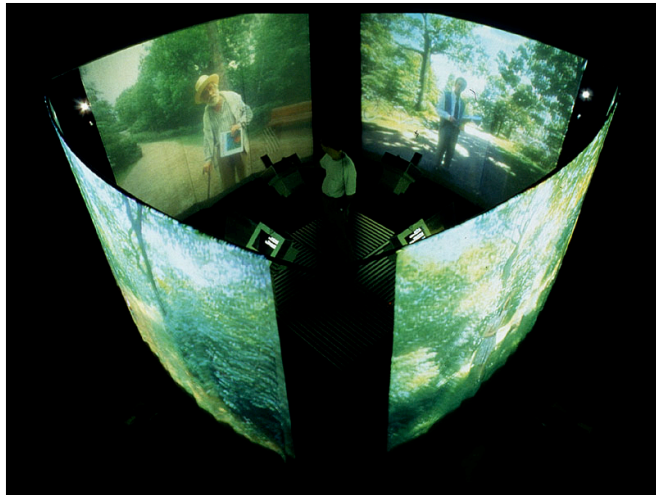
Figure 3.2: Landscape One (1998, Luc Courchesne)

A recent example of immersive cinema was created at the *icinema* laboratory, *T Visionarium* (2004, Brown, Del Favero, Shaw and Weibel), a project which is delivered within the *Advanced Visualization and Interaction Environment* (AIVE). AIVE is a 360-degree, three dimensional stereoscopic projection room which can accommodate 30 viewers at a time. It is linked to a video database that contains over 20,000 clips of video, each of which has been tagged with metadata. The material which was taken from a weeks worth of Australian free to air transmission, has been deconstructed from its original linear presentation and fragmented into short blocks of conversation and individual narrative elements or narrative building blocks; components that can be restructured and reordered. Within the AIVE environment the clips appear to float in 3D space and by using a physical interface, the user can control the projections by utilising the inbuilt search engine.

Figure 3.3 T Visionarium (2004, Brown, Del Favero, Shaw and Weibel)

3.5 Multi-screen

Within the realm of the two-dimensional screen, there are many practices in which the anatomy of the screen itself is divided and subdivided. This aesthetic is familiar and commonplace within the computer 'windows' of the PC operating system itself, which enables viewing of multiple screens of applications at one time within one screen environment. This is also now evident in TV viewing particularly through interactive television services where, for example, multiple camera angles can be accessed in sports programming, and multiple news feeds can be viewed simultaneously. However, it has not been the norm within traditional fictional cinema to present visual imagery in this way. As Boyd Davis has theorised:

> Polyptychal approaches survive, indeed flourish, in some kinds of factual television, where the agenda is a quite different one from that of fictional narrative… In the classical film, only temporal, not spatial, juxtaposition of separate views is generally permitted (2002:76).

The multi-screen televisual aesthetic works 'in contrast to cinema's sequential narrative, all the 'shots' in spatial narrative are accessible to the viewer at once' (Manovich, 2001:322-323), but as Manovich has also argued, spatial montage has not been systematically explored in cinema, apart from early notable exceptions such as *Napolean* (1927, Dir: Abel Gance) in which three images, a triptych, were projected side by side, in a format that Gance called *Polyvision*. A number of films used the technique in instances throughout a traditional narrative presentation; *The Boston Strangler* (1968, Dir: Richard Fleischer), *The Thomas Crown affair* (1968, Dir: Norman Jewison) *Numero Deux* (1975, Dir: Jean Luc Godard) *The Pillow Book* (1996, Dir: Peter Greenaway). Andy Warhol's *Chelsea Girls* (1966) continually consisted of two images side-by-side, the audio switched from left to right for the duration of the film. This aesthetic, in part due to developments in digital non-linear editing and postproduction technologies has led us to 'an epoch of simultaneity: we are in the epoch of juxtaposition, the epoch of near and far, of the side-by-side, of the dispersed' (Foucault, 1997).

An explosion of this use of the multi-screen in fiction film occurred in the late 1990s and early 2000s including *Run Lola Run* (1998, Dir: Tom Twyker), *Requiem for a Dream* (2000, Dir: Darren Aronofsky), *My Little Eye* (2001, Dir: Marc Evans), *The Laramie Project* (2002: Dir: Moises Kaufman) and *Hulk* (2003, Ang Lee). As Talen has noted, 'the splintered aesthetic of multi-channel storytelling – once the

province of the '60's avant-garde is suddenly everywhere' (2002). In addition to technological innovation, the proliferation of this aesthetic has also been attributed to 'both surveillance imaging and internet technology that has possibly been the most prominent aesthetic influence to date' (Griffiths, 2003: 19). In the documentary *Surveillance* (1993, Dir: Chris Petit) 'Petit breaks the panoptic illusion by inserting the possibility of doubt, multiplicity, and contradiction into the experience of real-time vision' (Murri, 2002).

This is evident in *Timecode* (2001, Dir: Mike Figgis), which presents the film on a screen split into quarters, and involves 20 characters whose screen space and stories overlap and shift throughout the 90-minute feature, which was shot by 4 cameras in real-time. It is perhaps the observational and improvised style of the acting and the handheld filming in which this sense of surveillance is most defined. The use of surveillance technologies is both the subject matter and the apparatus for filming, (and also presentation) is in *My Little Eye*; where static locked off digital cameras were used, restricting camera movement to slow zooms, and mechanical reframing characteristic of CCTV cameras. The DVD release of the film allows users to view the content through the interface of a web browser, and the cinematic version often went into a splitscreen mode to show different perspectives of action. This will be discussed in further detail in chapter 5. TV drama series, which have also adopted this aesthetic have been the UKs *Trial and Retribution* (2002) and *24* (2002) in the US. Director Stephen Hopkins says he first got the idea for *24* because 'there were so many phone calls in the script that these people would never share any screen time together … I loved the idea of showing what people were saying on the phone but also what they didn't want other people to see' (Talen, 2002).

3.6 Nine-screen interfaces
There have been a number of moving image projects that have utilised the nine-screen interface. This is not surprising, since the three by three screen layout alludes to the rule of thirds, a photographic and film principle by which the photographer/cinematographer splits the screen into a grid in their mind's eye in order to achieve a satisfying composition. The premise of this rule is that the subject or object should never be positioned in the centre square, rather they should be placed on one of the lines that marks the screen into thirds.

Nine[7] (2003) by Jason Lewis is an interactive poem presented as a 9-screen interface, which is operated as a tile puzzle. When the viewer clicks on one of the tiles, it slides to reveal text, and as the tile moves, it fades to reveal another image underneath its surface.
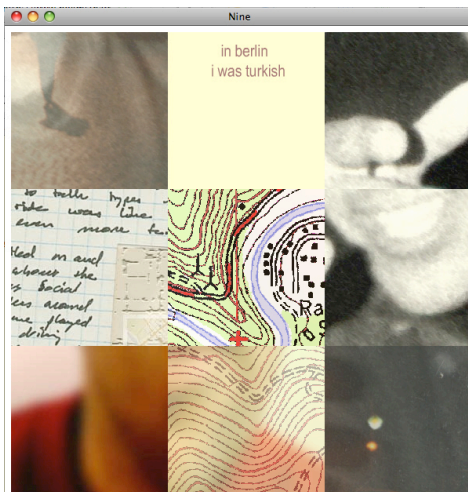
Figure 3.4: Nine (2003, Jason Lewis)

In *New Book* (1976), a short film *by* Zbigniew Rybczynski, the screen is again divided into nine different squares with each one representing one place. All action runs parallel, as if in real-time, yet linked in a linear way at the same time through the narrative of the action. We see a bus traversing the different locations shown in the nine screens including a café, a bookshop, the interior of a bus, and five street scenes. The camera is static in each of the nine screens throughout the film.

Figure 3.5: New Book (1976, Dir: Zbigniew Rybczynski)

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[7]http://www.poemsthatgo.com/gallery/fall2003/nine/nine.htm

Pretend (2003, Dir: Julie Talen), an independent feature film, is presented as multiple frames and complex graphics to provide the narrative exposition. Some screens show multiple camera angles of the same scene, whereas others show images of different locations. *Pretend* demonstrates a complex relationship between the storytelling form and the story being told. The screen is not always

Figure 3.6: Screen shots from Pretend (2003, Dir: Julie Talen)

displayed in the three by three configuration and changes depending on the scene. The story involves a family, in which the parent's relationship is breaking down. The sisters overhear an argument in which the father is going to leave. Having witnessed a similar news story in which a boy has been kidnapped, the older sister formulates a plan with her younger sibling to hide in the woods, pretending that she has been kidnapped to stop her father from leaving. The older sister is prone to bouts of fantasy, and vivid imaginings based around the woods in which the sisters play. In two works by Chris Hales, *Bliss* (1998) and *Grandad* (2000), nine movie streams are displayed simultaneously, in the three by three grid. In *Bliss*, each grid contains an image depicting order and tranquility: a baby at peace, a hot bath running and a gramophone playing. By interacting and clicking within each scene, it is possible to maintain a state of order, 'but each scene has a tendency to go out of control such that a lack of attention and interaction brings about chaos and destruction' (Hales, 2002:116). For example, if a click is not initiated in time by the user, then the baby will start to cry or the bath will overflow. A recent commercial feature film release, *The Tracey Fragments* (2007, Dir: Bruce McDonald) is another example of multi-frame narrative presentation. The story is also based on the loss of a younger sibling, and the journey of Tracey, the older sister, to find him, and contains insights into her fantasies. Instances of frames become more frenetic around events of high action or emotional turbulence, which are in some cases repeated. The configuration and arrangement of the multiple

frames, dynamically shifts and changes throughout the scenes of the film, and rarely remain static. Frames of moving video images constantly appear and disappear. It is only in the resolution of the film that there are no instances of splitting the frame.

Figure 3.7: Screen capture from The Tracey Fragments (2007, Dir: Bruce McDonald)

3.7 Narrative architectures

The notion of architecture within a new media narrative context is understood as a technical construct used to describe the structure and construction of the elements within a storytelling system. 'Architecture is an application design structure which not only defines a program's boundaries, but identifies how a user may interact within those boundaries and what kind of control the user has in accessing those boundaries'. (Wimberley, 1995:120) Open architecture refers to 'an application design structure which permits the end-user to navigate freely from one path, event, scene or location to another, no matter where those choices may appear in the hierarchy of the program'. A closed architecture refers to 'an application design structure which insists that the end-user choose a path, event, scene or location by retracing the current path until they reach a point in the program which offers the user a new event, scene or location to choose from' (Wimberley, 1995:120).

Within the practice of *Crossed Lines*, the notion of developing an interactive storytelling architecture was experimented with, whereby different video content, other than that which was shot for this piece, could be placed within the interactive structure. This capability has previously been presented within software applications such as *Storyspace*, which is a commercially available product for interactive textual authoring. The software is described as a hypertext programme,

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which 'is both an author's tool and a reader's medium'. The interface consists of hyperlinked text boxes, called lexias in which the user can input text and story elements, and then define a navigational structure through them. More recently, contemporary projects have adopted these principles in attempting to propose architectures for the presentation, navigation and interaction of multi-media and video element. These include projects such as *Hypervideo, MediaLoom, Mutable Cinema*, *Virtual Cinema* and *Soft Cinema.*

The *Hypervideo* engine was designed by Nick Sawhney and David Balcom in 1996, and was authored using Macromedia Director. This is also the software that was chosen to author *Crossed Lines*. *Hypercafe* was developed by Sawhney and Balcom, as a prototype of a general hypervideo, using the principles of linked hypertext and was an attempt at 'combining digital video with a polyvocal, linked text' (1996, Sawhney, Balcom and Smith). The authors state that:

> In Hypercafe we deal with the presentation of temporal links within a continuity based on film aesthetic … In hypercafe, the video sequences play out continuously, and at no point can they be stopped by actions of the user. The user simply navigates through the flow of the video and links presented. This aesthetic constraint simulates the feeling of an actual visit to a café where the 'real-time video' of the world, plays out continuously (1996).

The authors avoided using any visual cues or menu systems within the interface to achieve this real-time sense. This is also emphasised in the video response to a user's particular temporal position in the narrative, which shifts the content of the concurrent video streams to correspond with the user's particular position.

As discussed in Chapter 2, within their theory of remediation, Bolter and Grusin (2001) defined a double logic of remediation: of the hypermediated and of transparent immediacy. These concepts are captured within the hypervideo project, since the authors are attempting to build a sense of transparent immediacy within the response to the users interactions whilst eradicating the sense of the hypermediated, although it is not clear from their writings (and Hypercafe was not available to view online) how the user physically interacts; one presumes using a mouse and cursor system to point and click. Although it is indicative in Tolva's comments that the multi-channel aesthetic intrinsic to the

hypervideo experience, the hypermediated nature of the presentation is very much apparent:

> Multiplicity and simultaneity are key elements in hypervideo. The single presentation of a full-screen image and long, continuous streams of video are extremely rare … rather than aspire to a quality of cinematic (or VR-like) immersion, hypervideo presents a field of video clips to be looked at and treated in relation to one another, not unlike the elements of the interface of the computer itself (Tolva, 1998).

MediaLoom, is an interactive authoring tool for working with hypervideo[8] which was conceived by John Tolva. As with *Stoyspace*, *MediaLoom* presents pre-scripted interactive storytelling structures, which allow the user to insert their own content, using a Graphical User Interface, but in the instance of *MediaLoom*, video elements are inserted as opposed to text. *MediaLoom* actually uses a graphical environment that has been modelled on *StorySpace*. The *MediaLoom* architecture actually allows the temporal linking to a specific point in the video, which the original system of hypervideo did not permit. Tolva proposed three modalities that such an environment should support when users attempt to interact with the video content: Pause-and-launch, satellite stills and character slider. The system proposed to produce a film called *LetterBox,* which was to be scripted and produced tailored to the authoring environment.

Mutable cinema is the latest example of this form and is a participatory narrative engine proposed and conceived by Lartigue, Gonzalez and Osawa at the DIMEA conference 2007. The graphical user interface is displayed as an installation, which allows the viewer to perform live editing of a movie in front of an audience using the graphical user interface pictured in figure 3.8. There is a three-tier process of interactivity; the user firstly selects an event, then secondly chooses a plot line within that event, and then thirdly can cut between the available camera angles of that event. The tools that are available to the user, all allude to the conventions of cinema; devices such as flashback, foreshadowing, crosscutting, point of view, voice-over, repetition, transition, and colour correction are all available to manipulate. This experience could be compared to the phenomena of VJing – the live remixing of video assets as pioneered by artists such as DJ

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[8] http://www.ascentstage.com/medialoom/

Spooky (who recently famously performed *Rebirth of a Nation* – a remix of D.W Griffiths film) and Peter Greenaway, who performed *Tulse Luper* in 2005.
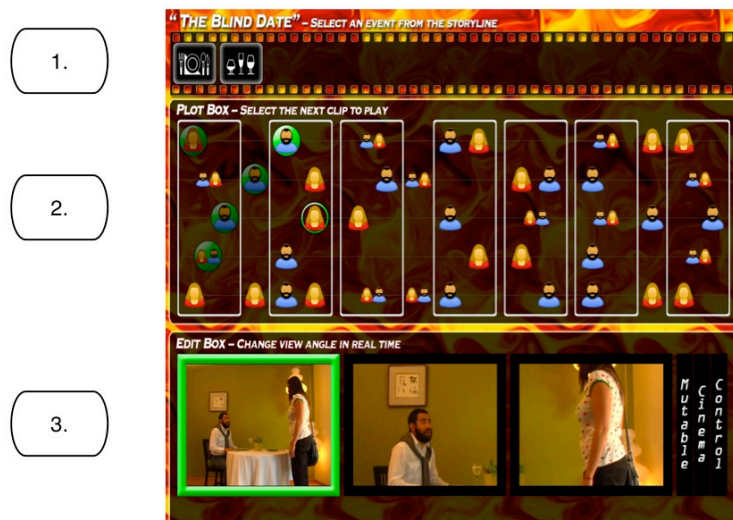
Figure 3.8: Mutable Cinema Interface (2007, Lartigue, Gonzalez and Osawa)

Blind Date (2007) is the first film (or set of video assets) to use the *Mutable Cinema* engine. 'Game play involves choosing from multiple parallel story paths and selecting different camera angles and points of view … as the player explores the database, he or she generates a linear montage that becomes the narrative viewed by the audience' (Lartigue, Gonzalez and Osawa, 2007:181).

Virtual Cinema[9] *a* commercial interactive authoring product, developed by Greg Roach and Hyperbole Studios was used as the authoring tool to create the *X-Files* computer game for Fox Interactive (1998). Hyperbole claim to have created 'an intuitive and immersive user-controlled storyworld that embraces the dramatic and emotional language of film, married with the structure of a role-playing game'. It is a cross-platform, object-oriented environment that uses a fourth generation visual authoring approach which allows authors, designers or film makers intuitive access to its features and power. *Virtual Cinema* claims to increase the verb set of the interactive experience that are normally limited to the physical options of run, jump, shoot and so on, to include 'just about anything that a character in a film or television show might do'. The engine's powerful real-time video stream manipulation capability can be used to alter the look of the video (brightness, colour, contrast, tint, gamma, and saturation) in response to prevailing psychological states.

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[9] http://www.virtualcinema.com/
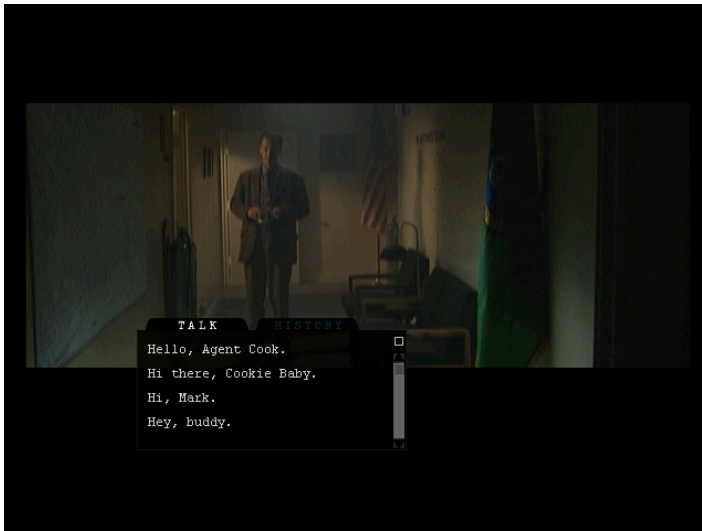
Figure 3.9: Virtual Cinema Screen Shot (1998, Hyperbole Studios)

The *Korsakow-System* was designed by Florian Thalhofer for the creation of database films, which, as described by the author, are interactive, rule-based and generative. A number of films have been authored using the *Kosakow* system and are available to view and interact with online. These include *The Korsakow Syndrom* (2002, Dir: Florian Thalhofer), *7sons* (2003, Dir: Florian Thalhofer and Mahmoud Hamdy) and *The Love Story Project* (2003, Dir: Florian Thalhofer and Mahmoud Hamdy). The authoring software is also available to freely download and use, and is perhaps the most recent working example of a hypervideo authoring environment (see figure 3.11). Users are able to insert and build navigational structures into their own video content, which can then be viewed within the environment depicted in figure 3.10.
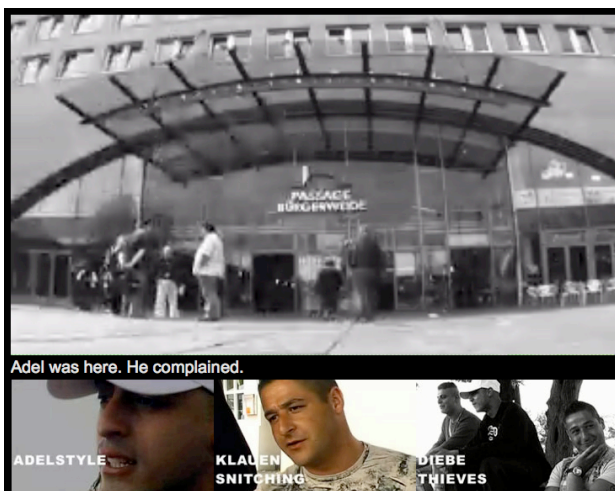
Figure 3.10: Still from 7sons authored using Korsakow (2002, Dir: Florian Thalhofer)
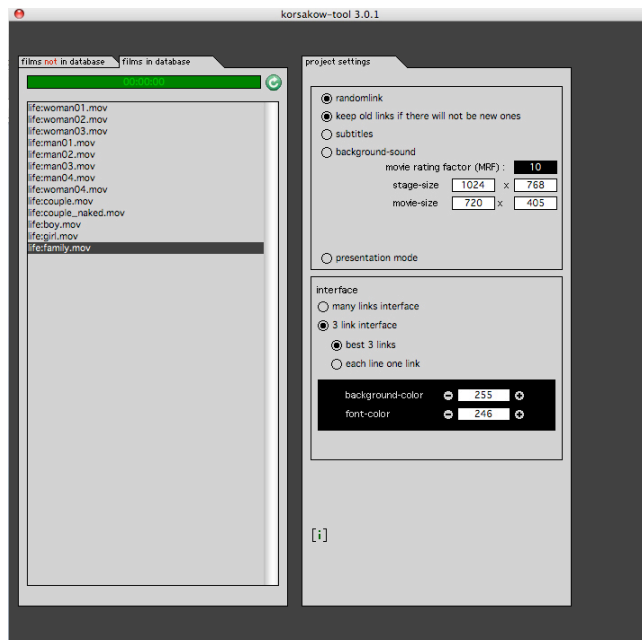
Figure 3.11: Korsakow authoring interface (2002, Florian Thalhofer)

The architectures *Hypercafe*, *MediaLoom*, *Mutable Cinema*, *Virtual Cinema* and the *Korsakow System* all allude to the closed database architectural system as defined by Wimberley (1995) at the start of this section. Interactive film/video environments, which offer an open structure, are database environments, which can be illustrated in the example of *Soft Cinema* and the previously discussed *T-Visionarium*. *Soft Cinema*[10], a culmination of three years of research into database cinema by Lev Manovich explores four ideas; algorithmic editing, database narrative, macro cinema and multi-media cinema. The software system executes dynamic editing of the footage based on prior direction that the user has inputted. The material is sourced from a database of clips which have been named and have keywords attached to each clip or asset – this is the multi-media element, since clips include graphics, text and audio as well as moving image.

> Database narrative refers to narratives whose structure exposes or thematises the dual processes of selection and combination that lie at the heart of all stories and that are crucial to language. The selection of particular data (characters, images, sounds, events) from a series of databases or paradigms, which are then combined to generate specific tales (Kinder, 2002:6).

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[10] http://www.softcinema.net/form.htm

Figure 3.12: Soft Cinema screen shot (2002, ZKM)

This type of dramatic storytelling device alludes to Murray's vision of interactive dramatic narrative:

> By generating multiple stories that look very different on the surface but that derive from the same underlying moral physics, an author-directed cyberdrama could offer an encyclopaedic fictional world whose possibilities would only be exhausted at the point of the interactor's saturation with the core conflict (Murray, 1999:208).

Soft Cinema uses 'rules defined by the authors, the software generates variable screen layouts and selects video clips from a database that is unique to each film'. Each user then becomes the director of his or her own film. This is demonstrated in the DVD accompanying the publication; three different films have been created by three different directors.

The notion of a database cinema is one that can be aligned to the theory of the intertextual, a term coined by Julia Kristeva in her translation of Mikhail Bakhtin's notion of the 'dialogic' (as previously discussed in Chapter 2). Stam relates these comments to the cinema; 'In the case of film, it is as if both filmmaker and spectator were members of a vast audio-visual library' (1985:23). This vision has been realised within the projects of *T Visionarium* and *Soft Cinema*.

3.8 Environments

Advances in computing and networking technologies have opened up countless opportunities for creating virtual environments, or story worlds in varying immersive intensities. These, dependent on their nature may permit the total presence of the user's physical body in the environment, as a projection or a representation of the user's body, in which human senses are extended into

technologies. The virtual environment projects discussed in the remainder of this chapter move beyond the scope of the practical explorations that were undertaken within *Crossed Lines*, but remain important to the theoretical investigations of interactive narratives as they represent significant contributions to interactive storytelling practices in new media environments.

These story worlds extend earlier text-based environments created for role-playing games such as Multi-User Dimensions (MUDs) and Multi-Object-Oriented (MOOs) environments, where different users could interact and collaborate with one another in networked space to create and build stories. A forerunner to this type of user interaction was the Oz Project[11]. The Oz Project was an early project conceived as a system architecture that would allow authors to create interactive drama in a simulated environment and we are now witnessing 3D graphical environments working on the same principles. The most famous and commercially successful of these is *Second Life*, an online multi-user virtual environment (or MUVE), and home to 13,000,000 virtual residents as recorded in May 2008. Other examples of MUVES include *Active worlds* (launched 2006), *Habbo*[12] (launched in 2000, aimed at teenagers), and most recently *Google Lively*[13] *(*launched 2008).

As well as receiving much commercial and press attention since its launch in 2003, the *Second Life* environment has already been subjected to a number of academic studies (Meadows, 2008 and Boellstorff, 2008), in addition to innumerable guide books and instruction manuals. The subject of the avatar has also received much critical commentary and debate (Scola, 2006; Slater and Steed, 2001; Wolfendale, 2007; Schroeder, 2001 and Geser; 2007).

The concept of the avatar (a moveable graphical icon representing a person) and the creation of virtual identities can be aligned to the theories presented by Roy Ascott, who has coined the term the 'syncretic self', which he defines as 'the union (or attempted fusion) of different systems of thought or belief' (2008). He notes that the motto of the USA of the last century was the Latin term 'e pluribus Unum', which translates to 'out of many, one'. This century Ascott proposes the more appropriate motto of 'ex uno plures' which translates to 'out of one many', to account for the non-linear, bifucturing and the variable reality that is characteristic

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[11] http://www.cs.cmu.edu/afs/cs/project/oz/web/oz.html
[12] http://www.habbo.co.uk/
[13] http://www.lively.com/html/landing.html

of the digital society in which we now live, in which people can constantly shift between (real and virtual) worlds, and can effectively be in two different places at once. 'It lies in our ability to be many selves, telematically in many places at the same time, our self-creation leading to many personas and serial identities' (Ascott, 2008). These ideas echo the work of Sherry Turkle, in her earlier discussions of identity and the Internet, in which she claimed that people have the opportunity to 'play with their identity and try out new ones' which 'makes possible the creation of an identity so fluid and multiple that it strains the limits of the notion one can be many' (1995:12). The *Crossed Lines* project practically investigates this notion in the user's ability to simultaneously view (and in one sense, 'occupy') nine geographically distinct locations and to instantaneously and seamlessly traverse those locations.

Eva and Franco Mattes (of *0100101110101101*)[14] in their *Synthetic Performances* project illustrate the complex relationship between the self and the construction of serial, parallel identities. Their first life personas have created second life avatars who re-enact seminal performance works from the 1960's–80's of other first life artists within the *Second Life* virtual environment. Re-performances or remediations of performances, include *7000 Oaks* (1988, Joseph Beuy), *Seedbed* (1972, Vito Acconci) and *Shoot* (1971, Chris Burden). *The Second Life Cable Network*; (SLCN)[15] remediates the televisual form 'in-world' within the *Second Life* environment, as the largest and most successful television station established in 2007. (Wisniewski, 2007) Broadcast live from *Second Life*, the channel outputs live and vision mixed studio based content, including music review shows, current affairs and chat shows. The station also produces live sports events coverage of games, which are played in the world, such as hockey and football matches.

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[14] http://0100101110101101.org/home/performances/index.html
[15] http://slcn.tv/

Figure 3.13: Second Life Cable Network: Giant Snail Races (2007)

Examples of interactive arts based work created within this environment are highlighted within Chapter 3 (a site-specific interactive audio installation is discussed), and in Chapter 4 (an interactive text based installation)

3.9 Modification

The practice of Modification or Modding, has been an interactive trend prevalent in all forms of engagement with new media artefacts, from the minor modifications of the personal appearance of avatars within gaming environments such as *Grand Theft Auto* and virtual environments such as *Second Life*, to full blown modification of computational source code to create whole new elements and levels of game play within gaming and virtual environments. This practice is characteristic of the inherently malleable form of new media and digital environments, which echo the theories of Barthes and his proclamation of *the death of the author*. There have been several examples in which commercial game engines have been used to modify and develop existing game architectures, environments and experiences. The original example was the game *Doom* (1993, iD Software) a first-person shooter played in a multi-player networked environment which, from 1997 onwards, allowed users access to the source code to modify the software through scripting in order to create different levels of game play, which could then be uploaded and made available to other players. *Counter Strike (1999, Minh Le)* is the first example of a commercially successful entire game modification created in the original game environment of *Half Life (1998, Valve Software).* 'With a published version of *CounterStrike* now available for purchase, things have gone full circle - audience members are now part of the next phase of production'[16].

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[16] http://zero.newassignment.net/filed/interview_michela_ledwidge_modfilms

Since then both gamers and artists have exploited this technology; Joseph De Lappe a computer-based artist has engaged in a number of games based online performances. In Dead-in-Iraq[17], De Lappe enters the US Army recruitment computer game America's Army[18] which was launched in 2002, under his username, *Dead-in-Iraq*, and then, using the in-game text system, proceeds to enter the name, age and date of death from a list of 4,000+ US service men and women that have been killed during the Iraq conflict. This type of in-depth engagement and involvement with the authoring process exemplifies a contemporary shift in new media networked technologies since originally: 'The computer field was structured to lock out both the interactive applications and the people that wanted them' (Nelson, 1977:219). These concepts of user-generated modification have more recently been taken up by the filmmaking world.

WaxWeb[19] by David Blair is an example of an on-line object oriented framework in which users are given access to media content to re-order, manipulate and modify it. *Waxweb* is a hypermedia version of the feature film; *Wax or The Discovery of Television Amongst the Bees (1992, Dir: David Blair)*; it is a science fiction film about a Beekeeper who becomes kept by his bees. *Waxweb* was launched in 1994 and branded by Blair as 'image processed narrative'. Interaction with the story can occur on three levels; overview, medium detail and shot by shot. *Waxweb* has had many manifestations, as a film, an online film and a MOO, (an object oriented multi-user dimension). The multi-user software has an architectonic interface – the text appears within linked boxes 'that establishes waxweb as a place where visitors can readily navigate and work alone or with others'.

> It's a strange story, but it is a story, and we've made a lot of effort to translate the time-based version into this stop and go medium. You don't get the clock-based flow, but you get an exponentially larger amount of association and detail that are important parts of this narrative style which you can't get enough of with time-based media just yet, not until controllable multiple streams become available. Metaphorically, I like to think that the real narrative to all this exists somewhere in the 4th dimension, from where it casts a variety of shadows of itself in various media – onto film, on web, onto CD ROM, onto videotape etc. (Blair, 1995).

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[17] http://www.unr.edu/art/DELAPPE/DeLappe%20Main%20Page/DeLappe%20Online%20MAIN.html
[18] http://www.americasarmy.com/downloads/
[19] http://www.iath.virginia.edu/wax/
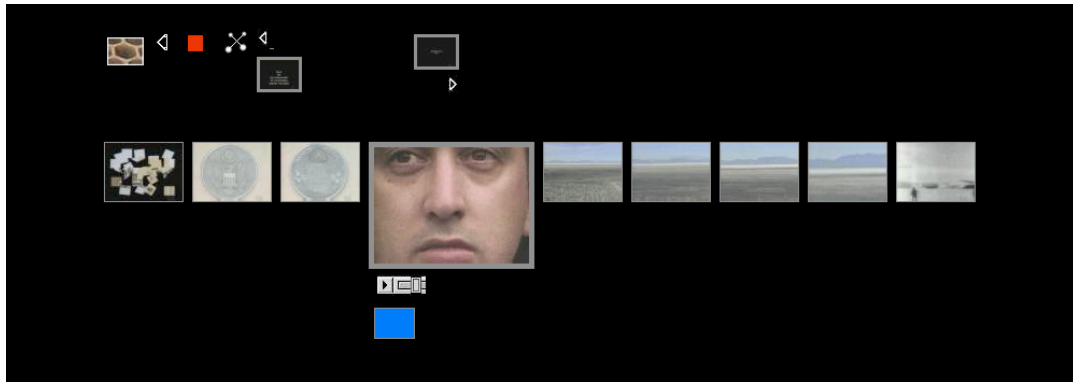
Figure 3.14: Waxweb web version (1994, David Blair)

> The re-engineering of existing, commercial systems (such as game engines) or
> their inversion and subversion have also increased, although this territory arguably
> remains under-explored. Considering the potential of the digital medium, there are
> still relatively few works that create open systems by allowing users a
> sophisticated reconfiguration or rewriting of the system itself or by relying on
> networked communication processes in challenging ways[20]

This concept of modification and its influence on film and video production will be
discussed further in chapter 5.

3.10 Machinima

Documentation of game and virtual world environments and their modifications
has been carried out through the medium of *Machinima* (the term is a combination
of two words, machine and cinema coined by Hugh Hancock in or around 1996,
during which time, Hancock also founded machinima.com). Machinima is a
relatively new and fast evolving art form in which films are produced through and
within game engines. There is currently little critical commentary about the form
although it has recently become a focus within the field of game theory (Natkin,
2006 and Lowood, 2006).

Although machinimatic filming techniques are not employed to create interactive
works per se, the very act of engaging in such processes and navigating and
recording virtual worlds as an avatar is an interactive form in itself. The
machinimatic moment occupies the liminal space between film and game
production. The first example of the Machinima form is *Diary of a Camper*, which
was produced within the game world of *Quake* (a first person shooter), by a group
known as *The Rangers*. *Diary of a Camper,* as with other examples of early

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manifestations of this form, is a visual record of the player's game, which would tend to be the result of computer gamers recorded using capture software to demonstrate (and show off to their peers) how quickly they could complete a game level. This was a rudimentary example of the form, but it quickly developed when producers of such content started to edit and post-produce the works, which led to the introduction of dramatic elements, a form of digital puppetry, in which creators directed avatars to move and behave in certain ways in order to create stories and dramatic moments. Examples of the form were originally almost all short films in episodic form; this has been attributed to the distribution model of the net where longer form stories are divided into shorter portions to hold the user's interest. Many game companies now actually bundle game capture software with their games, to encourage users to record their work and distribute it, which in turn advertises and promotes the game. As with traditional feature film, examples of machinima adhere to codes and conventions of genre and style. *A Few Good G Men* is a machinima remediation of *A Few Good Men,* shot within *Half Life,* with the machinimatic output overlaid onto the original dialogue and sound track of a *Few Good Men*. A parody on the 1950s instructional style video called *Male Restroom Etiquette*[21] (Zarathustra Studios, 2006) *is* a 10-minute film made in the *Sims* gaming environment.
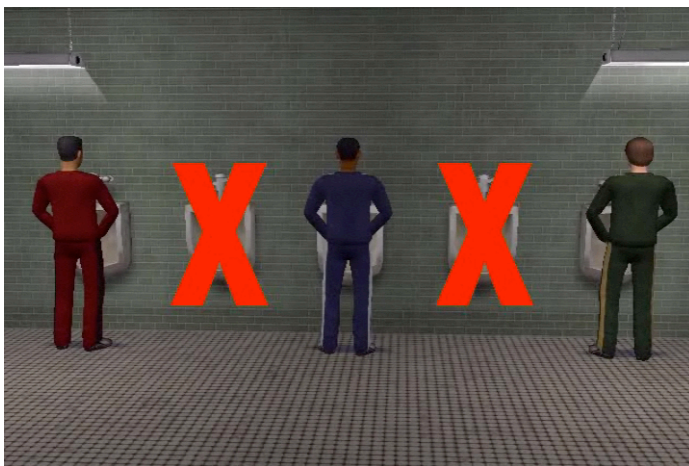
Figure 3.15: Still from Machinima short Male Restroom Etiquette (2006, Zarathustra Studios)

The film is a dark comedy about the perils of not observing the unwritten laws of behaviour in male toilets. Friedrich Kirschner a German filmmaker produced *The Journey (*2003)[22], which was made within the game environment *Unreal Tournament*. The work is an artistic experimental composition overlaid with a music soundtrack.

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[21] http://z-studios.com/films/mre/
[22] http://journey.machinimag.com/

Figure 3.16: The Journey (2003, Friedrich Kirschner)

The first recognised *Machinima* short film to be produced and shot in *Second Life* is entitled *My Second Life: The Video Diaries of Molotov Alta* (2007, Dir: Douglas Gayeton – the co-creator of *Johnny Mnemomic*) which documents the video dispatches of a *Second Life* traveller named Molotov Alta, which we are told, is the same name as a first life resident who disappeared from his Californian home in January 2007, after 'uploading the entire contents of his life to that world'. The rights of *My Second Life* have been brought by the American network HBO, with plans to release seven episodes in the format, documenting different subcultures that are resident in-world, including Cyberpunks, Sex Slaves and Neo-Luddites. On the official Molotov Alva web-site[23], the documentary is presented as 10 episodes of 4-5 minutes in location, two of which, at the time of writing, are available to download and view. The character Molotov introduces us to the aim of the documents, which are to examine his identity in a world where everything is changeable. Themes of essentialism and biological determinism are investigated. The Molotov Alta videos could be described as the closest example of an ethnographic film within a virtual environment.

Figure 3.17: Screen shot from The Video Diaries of Molotov Alta (2007, Dir: Douglas Gayeton)

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[23] http://www.molotovalva.com/

3.11 Conclusion

Within this chapter's initial discussions of interface, the interrelationship between the interface and the access to story content has been explored and it was concluded that the interface was an intrinsic facet of the interactive experience. The concept of the human body as an interactive architecture has also been explored within the discussion of examples such as Jill Scott's recent 'sk-interface' work; *e-skin*. From the latter explorations of this chapter into narrative architectures, virtual and gaming environments, modifications and machinima, it becomes clear that in new media interactive texts; the user also forms an intrinsic part of the relationship, blurring the boundaries between form, content, artists and user(s). In her article, *Will the real body please stand up*?, Stone (2000) attempts to address the issues of the self in relation to virtual presence:

> No matter how virtual the subject may become, there is always a body attached. It may be off somewhere else – and that 'somewhere else' may be a privileged point of view – but consciousness remains firmly rooted in the physical. Historically, body, technology and community constitute each other (2000:524).

The notion of consciousness will be explored more fully in the following chapter in the realm of Artificially Intelligent (AI) narratives, as will further investigations into examples and content of interactive fictional narratives.

Chapter 4: Interactive fiction modes and forms

4.1 Introduction

> We will soon see works for reading and visual exploration, adventures and stories
> for the screen that are like movies, cartoons and comic strips; and interactive
> diagram wonderlands. All of these, of course, will branch, allowing the user to
> make a variety of choices (Nelson, 1977:146).

During the 30 years since the publication of Ted Nelson's seminal text *The Home
Computer Revolution* (1977), there have been many and varied interactive digital
storytelling paradigms in both the commercial and artistic realms, which have
spanned a wide palette of forms and genres. Some of these have already been
cited in the previous chapter, and this chapter will go on to investigate and
elaborate upon further examples drawing parallels between project manifestations,
technical developments and computational innovations, and identifying common
themes and theoretical debates that have been stimulated by the works. Figure
4.1 on the following page which I have compiled, charts some key developments
from their beginnings up until June 2008, undoubtedly there will have been further
examples during the completion and publication of this thesis.

INTERVENTIONS

INTRODUCTION OF TECHNOLOGIES
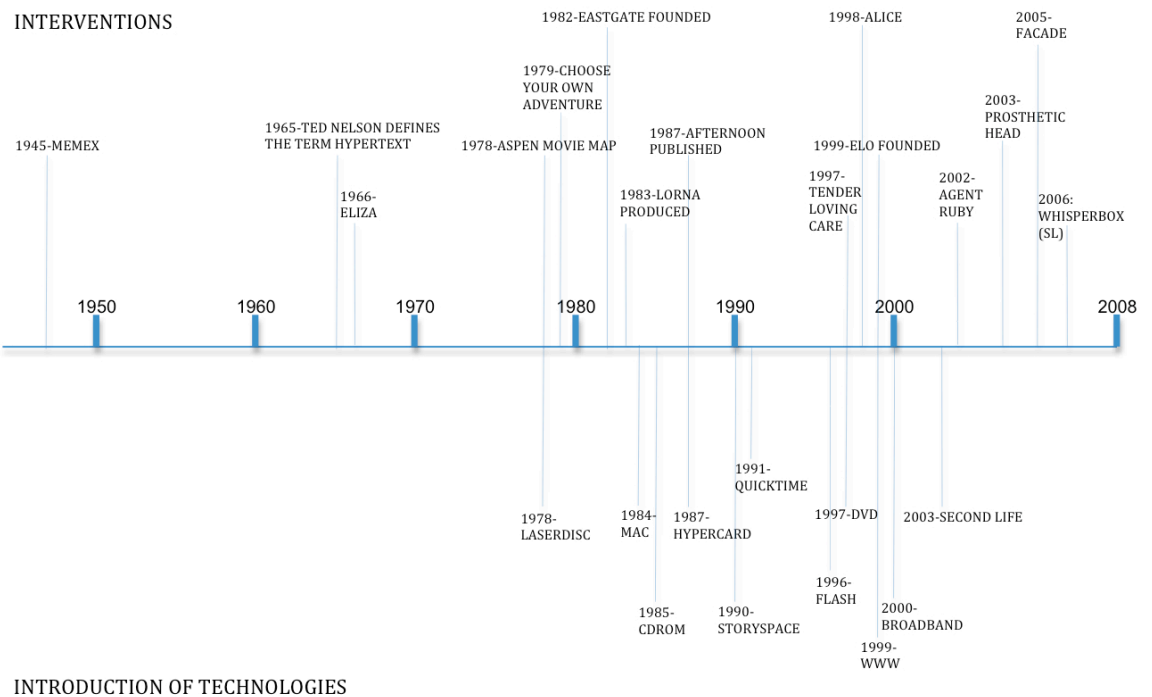
Figure 4.1: Timeline of key interactive interventions and technologies

4.2 Hypertext beginnings

The theoretical and philosophical reflections upon the hypertextual form have already been highlighted in Chapter 2. The first *physical,* albeit conceptual manifestations of hypertext were the *Memex* ('memory extender') (Vannevar Bush, 1945) and *Project Xanadu* (Ted Nelson, 1965) both of which were conceptual manifestations which, at the time of their conception were not realised. These were both hypertextual database navigational systems as opposed to interactive fictions. The former was an electromechanical hypertext system housed within a desk which would allow the user to view and add to, a library of microfilm data within which the user could create and follow links and notes, which could have also been created by previous users. Within, *Project Xanadu,* Nelson proposed a networked hyperlinked system, with unbreakable links, which would store and deliver all archived literature, acknowledging and preserving authorship and ownership of copyright of all documents. Nelson states that *Project Xanadu* is often misunderstood as an attempt to create the world wide web: 'The web trivialised this original Xanadu model, vastly but incorrectly simplifying these problems to a world of fragile ever-breaking one-way links' (1992). These two projects signified the beginnings of the wide reaching practice of the digitisation of text and image sources.

Digitalization is introducing a new mode of temporality into the modern literary system. It does not and will not impose new cultural forms (Hesse,1996:32).

Through my investigations, which have led me through various forms of electronic literature and examples of fiction native to the computer, there have been many genres, which belie and contradict Hesse's claim. Examples of Flash based literature, hypertext, interactive drama, site-specific installations and site-specific mobile works are indicative of the various digital interventions within literature, and are arguably both in themselves and collectively, 'new cultural forms' since they utilise novel systems and paradigms.

4.3 Print-based interactive literature

The first forms of print-based interactive literature are often cited as *The Choose Your Own Adventure* series of children's books, which were first published in 1982 by Bantam Books, and are often quoted as the first paper-based text example of the form. Within these texts, readers were positioned as the first person, and given options at the end of each chapter on what action to take: in the first published example *The Cave of Time* (Packard, 1982) there are 40 possible endings to the story. However, my research has uncovered two earlier examples of the print-based interactive literature form, which were both published in 1969. The front cover of *State of emergency* (Guerrier, D and Richards, J) describes the contents as 'a programmed entertainment, the first do-it-yourself novel in which the reader directs the course of action'. The format of the interaction with the text does not strictly pertain to the branching choices characteristic of the *Choose Your Own Adventure* form; instead there are two types of interaction offered to the reader. The first is that throughout the text there are various references to the appendix in which additional material and information is provided to support the reader's decision-making process which is not based on the premise of the first person; instead the reader is positioned as an adviser to the central character, the Prime Minister of Lakoto, Toumi Okobo, although the adviser is never acknowledged as such by the text. The second mode of interaction is that as the reader follows the course of action as an observer, at the end of each chapter he/she is given a choice to make and an associated page to turn to dependent on their choice. Invariably, there is a prescribed course of action, and the reader only investigates the alternative choices available. This is apparent very early on in the story, when a certain choice is made and the text states 'you are right'. If the reader is 'wrong',

they are subjected to a 'fold back scheme' (Crawford, 2005) and directed back to the original choice point where they are instructed to rethink and make a new decision. The other example of print-based interactive literature is *The Unfortunates* (Johnson, B.S 1969 – reissued in 2004). This 'book in a box' is presented as a series of twenty-seven unbound pages and pamphlets. Apart from the two documents labelled *First* and *Last*, the rest of the papers can be shuffled and mixed into any order by the reader before reading. The novel will make narrative sense in any order; the story is based upon the memories invoked within the mind of a sports journalist who is travelling to and reporting upon a football match.

4.4 Hyperfiction and Electronic Literature

During the 1970s the genre of Hypertext fiction emerged, a text based digital form navigated through the computer, using a series of hyperlinks, so that elements of stories could be read and navigated in a non-linear manner. Wardrip-Fruin (2004) states that in the late 1970s and early 1980s a new computer art manifestation which was called the 'adventure game' or the 'text adventure' also came to be known as interactive fiction. *Adventure* (1975-76) is the original work in the form. It allowed players to move about in this simulated space by means of simple sentences.

Umberto Eco (1996) describes three conceptions of hypertext; the technical version provided by Landow, the closed system where a number of exploratory opportunities are present, and the unlimited and infinite system offered by Joyce in which every user is able to input into the story. Landow discusses the different applications and contexts for hypertext; linking texts, simulations, world wide web links, 'the hypertext link-in transforms the printed work, when translated into this new form, into a kind of open-ended, permeable, velcro text in which Bakhtinian multivocality seems more appropriate than does univocal voice characteristic of much print work' (1996:225). *Eastgate Systems,* founded in 1982 by Mark Bernstein in Cambridge, MA are the major commercial publishers of hypertext fictions and also develop software for hypertext writers including *Storyspace,* which was discussed in Chapter 3. The genre has been pioneered by writers such as Michael Joyce, in his seminal work *Afternoon, a story* (1987) and Stuart Moulthrop in his work *Victory Garden* (1991) both of which were authored in the *Storyspace* writing environments. Both examples of the hypertext form are

available on CD-ROM, and allow the user to read the text in a non-linear fashion, using embedded links within the text itself to access the different boxes or 'lexias' of text, therefore experiencing a different reading of the story upon every viewing.
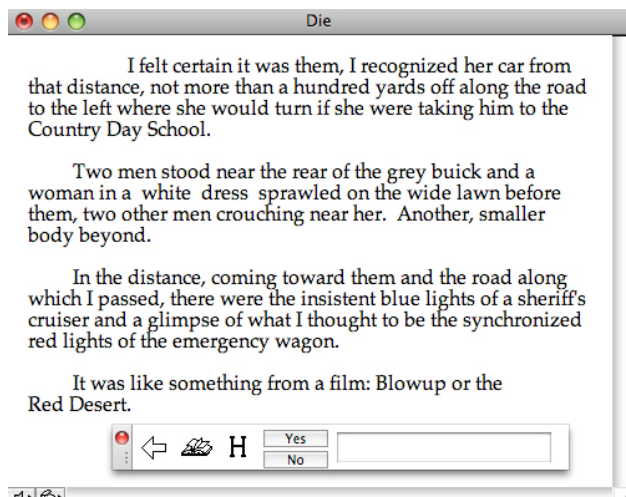
Figure 4.2: Afternoon, a story (1987, Michael Joyce)

Text based input systems such as *Hors Categorie*[1] (2007, Chris Calabro and David Benin) and *Book and Volume*[2] (2006, Nick Montfort), both of which require the download of a Z-machine interpreter in order to interact with the text, place the user as the first person. In these examples, the reader does not just follow links in order to access different elements of the story, they actually need to input commands or instructions in order to drive the narrative forwards.
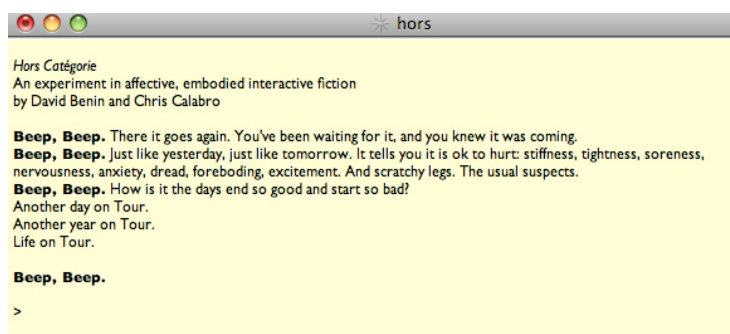
Figure 4.3: Opening screen from Hors Categorie (2007, Chris Calabro and David Benin)

[1] http://www.cs.ucsd.edu/%7Eccalabro/hors_categorie/index.html
[2] http://nickm.com/if/book_and_volume.html
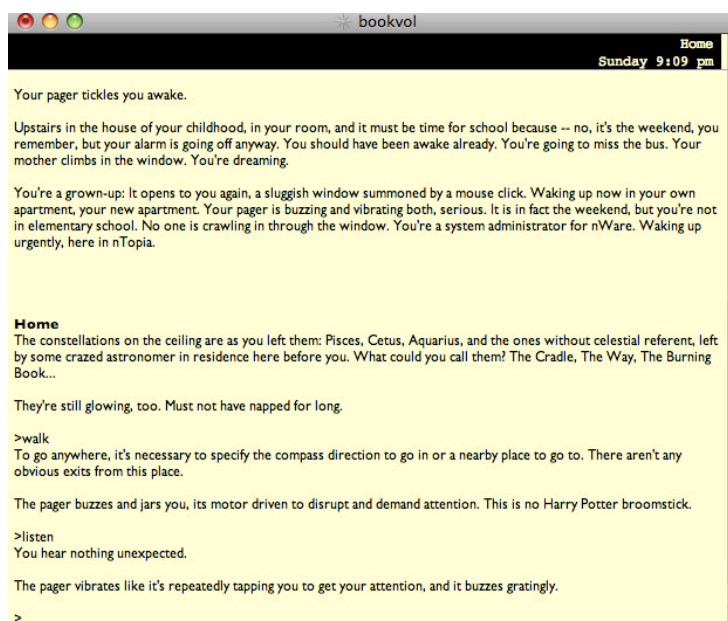
Figure 4.4: Opening screen of Book and Volume, (2006, Nick Montfort)

The mode of interaction that is utilised in both *Hors Categorie* and *Book and Volume* is similar to that used in first person Adventure Gaming. In adventure games such as *Myst* (1993, authored in the Mac based system *Hypercard),* the player explores a mythical world in the first person which is described and then text based commands are inputted to direct the players' actions such as 'go north' or 'pick up object'. Interestingly, both of these examples start with a noise that you need to respond to, in the former example an alarm clock beeps, in the latter, the pager buzzes as a call to action to engage with the story. They are also based in the real world rather than the fantasy worlds of most games within the adventure genre.

The *Electronic Literature Organisation (ELO* established in 1999) has also been at the forefront of supporting and nurturing work into this field. ELO aims 'to promote and facilitate the writing, publishing, and reading of literature in electronic media'[3]. Recent examples within the genre were exhibited at the *ELO's* international media art show, hosted by the Washington State University in Vancouver, WA in May 2008. These included a retrospective of works from the first generation of hypertext writers or *classical* period, 1990-1994, from writers such as Michael Joyce, Stuart Moulthrop, Deena Larsen and J.Yellowlees Douglas; most of which were authored on the mac based system *Hypercard*[4] or Eastgate's system *StorySpace*. They consisted of different paragraphs of text navigated by a simple

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[3] See http://directory.eliterature.org/ for a comprehensive listing of work in this area, accessed 24/07/08
[4] The hypermedia programming environment was released in 1987 and withdrawn from sale in 2004, further discussions of Hypercard and other interactive storytelling authoring systems will be discussed in chapter 6

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on screen button interface. Second generation examples of hypertext were also exhibited, the contemporary post-modern work from the period 1995-1999 which moved away from the 'print-based assumptions characteristic of first-generation works' (Hayles, 2002:13)[5]. This included work again from Michael Joyce, and his contemporaries Shelly Jackson, Stephanie Strickland and M.D Coverley. The largest body of work was exhibited from recent examples in the form. They included works from artists Judd Morrisey; *The Last Performance*[6], Mark Amerika; *FilmText*[7], and Alan Bigelow; *When I was President*.[8] All of these examples were authored in Flash, and are multi-media in their content and approach, including elements of graphics, sound and imagery.

A group of web based artists working under the name of *Young-Hae Chang Heavy Industries* author and present digital poetry synchronised to a music soundtrack. One such example is *Dakota*[9] (2002), an online poem authored in *Flash.* Although not an interactive piece, it is one worthy of discussion from the perspective of the prevalent trends and aesthetics of e-literature. Large format text is flashed onto the screen, no more than four words at a time. Sentences are therefore spread across a number of different screens, rendering the act of reading a disturbed and fractured experience. The flow of text stops and starts and is paced and punctuated by the beat of the music. The poem can be viewed in four different languages and the iconography and formal aspects of the text itself are emphasised through this approach.

THEN WE SAT BACK,   KICKED UP DUST,

THE MØTØR RUMBLING,   WE CRUISED CRØSS- CØUNTRY.
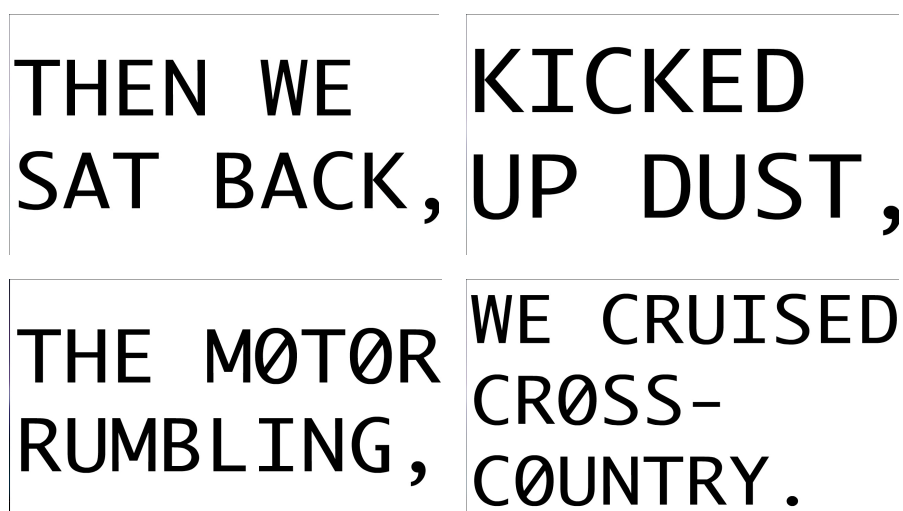
Figure 4.5: Four separate concurrent screens from Dakota, (2002, Young-Hae Chang Heavy Industries)

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[5] Keynote Address; State of the Arts, ELO Symposium proceedings
[6] http://thelastperformance.org/title.php
[7] http://www.markamerika.com/filmtext/
[8] http://www.wheniwaspresident.com/
[9] http://www.yhchang.com/DAKOTA.html

'The scaling powers of electronic text create an extraordinary allegory, almost a continual visual punning, of the stage sets implied by written discourse' (Lanham, 1993:42). Although not referring to this particular work, Lanhams' observation is particularly pertinent when applied to the visual style and form of this piece. *Dakota* could also be described as an example of what Hayles defines as a *Technotext*; 'a term that connects the technology that produces texts to the texts' verbal constructions' (2002:26). In *Writing Machines*, Hayles maintains:

> When a literary work interrogates the inscription technology that produces it, it mobilizes reflexive loops between its imaginative world and the material apparatus embodying that creation as a physical presence. Not all literary works make this move, of course, but even for those that do not, my claim is that the physical form of the literary artefact always affects what the words (and other semiotic components) mean (2002:25).

Hayles' definition of a technotext can be aligned to Stam's classification of reflexive works, which 'break with art as enchantment and call attention to their own factitiousness as textual constructs' (Stam, 1985:2).

A further examples of Technotext whereby readers interact with the iconography of text itself; is the celebrated *Text Rain* (1999, Camille Utterback and Romy Archituv), a two-dimensional site-specific installation in which users stand in front of a projection screen to create a shadow. Lexicons of projected text letters seemingly fall from the top of the screen onto and around the outline of the users shadows. The formation of the letters that fall are not purely random; the letters form lines of disjointed poetry, which the user is able to occasionally decipher, before the letters break up and scatter off screen. A further example of this form of interaction with physical manifestations of text and lettering is *Babelswarm* (2008, Justin Clemens, Christopher Dodds and Adam Nash), which is currently exhibited in *Second Life*, having first been staged there in April 2008.
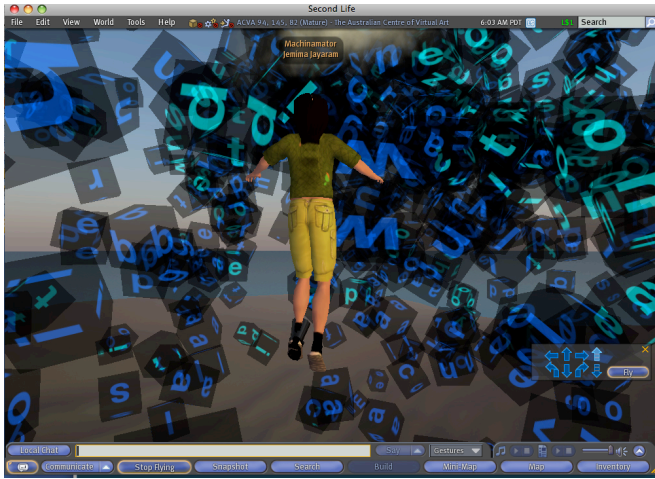
Figure 4.6: Babelswarm, (2008, Justin Clemens, Christopher Dodds and Adam Nash)

The 3D online installation is available for avatars to interact with and explore, as they walk and fly through a lexicon of random letters, and the letters respond in much the same way as *Text Rain* to accommodate the users presence within the environment, although they remain in a purely random state in *Babelswarm.* The event of Babel is 'the fable of the origin of the irreducible multiplicity of mutually incomprehensible human languages' (Clemens, Dodds and Nash, 2007) and the concept of swarm 'binds together the chaotic profusion of primal atoms, demonic activity, fallen human fantacism, and the punishment plagues sent by God'. The concept of swarming in the context of new media narratives will be discussed again in Chapter 5, albeit in a different sense.

4.5 Graphical Hypermedia

Jeff Noon is one example of a hypermedia author using graphics to navigate through a non-linear fictional text. In *217 Babel Street*[10] (2008, Jeff Noon Susanna Jones, Alison MacLeod and William Shaw), the interface of an intercom system is used to allow the reader non-linear access to different elements of the story. Criticisms that have been levelled at this form and its interactive limitations, for example, Sloane, in her book *Digital Fictions* argues that; 'despite the promise that hypertext fiction realises – the promise of malleability, bifurcated plots, and reader-driven selection of events – texts like *Afternoon* and *Victory Garden* lack the dramatic tension, the purposes and causes, the trajectories between concatenating events, which Forster identifies as central to good plots' (2000:127). But despite the criticisms levelled at the more traditional manifestations of hypertext fictions, the genre has provided a firm foundation on which future

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[10] http://www.217babel.com/

interactive narratives in which the user/audience affects the plot and outcome of the story can be built.
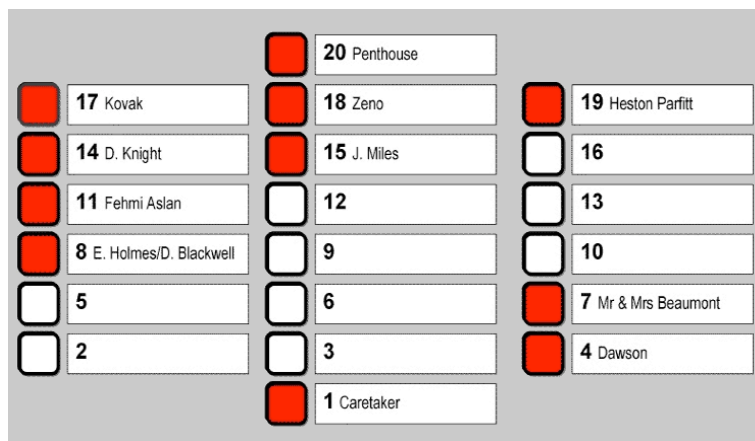
Figure 4.7: 217 Babel Street interface (2008, Jeff Noon, Susanna Jones, Alison MacLeod and William Shaw)

These works signify a paradigm shift away from purely text-based systems, into those which incorporate other elements of media, such as graphics, sound and moving image. Scott McCloud has undertaken explorations into comic book fictions including his online work, *The Right Number*[11] (2003) that remediates the comic book form in an interactive web-based Flash presentation.

Visual map-based interfaces are common in non-linear interactive fictions as a mode by which to navigate to different elements of the story. Indeed the cartographic language of 'navigating' such hypertext spaces is indicative of the ubiquity of geographical mapping on which hypertext and interactive fictions have been transposed. Examples include *253* (1997), a set of narratives based on a tube train by Geoff Ryman[12] and *Mass Transit*[13] (1996) by Freedom Baird, a story based on Manhattan Island. This need for a visual representation of a reader's environment could be attributed to the disorientation that can be felt when entering the fictional worlds, as in the case of hypertext fictions such as Joyce's *Afternoon*, where 'the reader never sees this diagrammed structure…Instead, the reader must gain an intuition of the spatial structure as he or she proceeds in time' (Bolter, 1991:127). Maps therefore give the user a sense of place and location, and avoid a tendency to become 'lost in space' (Conklin, 1987:38) or indeed 'lost in hyperspace' (Moulthrop, 1991: 125) and Manovich has discussed the importance of notions of navigable space in relation to the Internet:

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[11] http://www.scottmccloud.com/comics2/trn/
[12] http://www.ryman-novel.com/
[13] http://web.mit.edu/course/21/21w765j/Final_Project/Freedom/FB_nonlinear/mass_transit/

From the 1980s concept of cyberspace to 1990s such as Netscape Navigator, interacting with computerised data and media has been consistently framed in spatial terms (Manovich, 2001:272).

He notes that the terminology itself; for example naming browsers *Navigator* and *Explorer* emphasises the computer user's need to draw parallels between virtual and geographical space.

The human desire to translate perception into a visual graphic order is understood to predate most forms of written language. The earliest known map is generally agreed to be a Babylonian clay tablet dated around 6,200 B.C (Pappenheimer, 2006:35).

This behaviour has been noted within the realm of Hypertext fictions within Moulthrop's reworking of Jorge Luis Borge's *Garden of Forking Paths*:

Students had given up trying to find verbal clues after a few nodes, and had opted instead to browse the text with these spatial operators. They were intuitively reconstructing the map they could not actually see. The student readers did not think of 'forking paths' as a continuous stream of language but as labyrinthine structure existing in two-dimensional space (Moulthrop, 1991:128).

Figure 4.8: 253 navigational map (1997, Geoff Ryman)

Figure 4.9:
Mass Transit navigational map (1996, Freedom Baird)

Nelson has noted that:

On the interactive screen we deal with a special new virtuality: architecture in virtual space … this conceptual architecture of screen space is a new realm where we are combining feelings and effects, as in a movie, and the need to be clear, as on a map (Nelson, 1977:221).

The *Aspen Movie Map*[14] developed in the late 1970s, and one of the first interactive installations of its kind established this sense of mapped narratives that have an intrinsic and embodied sense of space in the interface. A set of hypermedia videodiscs simulated a journey through the streets of Aspen, Colorado. The system used two screens; a map displayed on one and the video on the other. The viewer could either manually navigate the streets by moving through them, or could click a specific point on the map and be taken there instantaneously. This sense of travel is also prevalent in Jeffrey Shaw's *Legible City (1989)* in which a user physically navigates a simulated textual landscape using the actual physical interface of a bicycle. The user rides the bicycle in front of a projected screen, and traverses the landscape in the first person. The physical interface, which plays an intrinsic part of the user's experience of an installation by providing seamless control, is reflected in the use of the telephone interface within *Crossed Lines*. This will be discussed in further detail in section 6.10.

The most recent example of the transposition of users physical movements into a virtual environment took place in *Second Life* within the work *The Salt Satyagraha Online*[15] (2007). The artist Joseph DeLappe re-enacted Mahatma Ghandi's protest journey which he undertook in protest of the 1930 British salt tax. DeLappe actually walked the 240-miles over 26 days on a treadmill in a New York gallery; his steps were translated through a motion-sensing system and were then simultaneously mirrored by his *Second Life* avatar which he had modified to look like the figure of Ghandi. The emphasis on the map and the visualisation of geographical positioning within other forms of contemporary interactive fictions will be discussed shortly.

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[14] Created in 1978-80 at MIT, http://www.naimark.net/projects/aspen.html
[15] http://www.unr.edu/art/DELAPPE/DeLappe%20Main%20Page/DeLappe%20Online%20MAIN.html

Figure 4.10: The Salt Satyagraha Online (2007, Joseph DeLappe)

There is also a preoccupation not only to spatially position narratives, but also to place them in a referential time-base.

> Actualities obliged the film-maker to create, even as he (sic) records an event, a specific sequential or spatial logic, which becomes in some sense the event's (intensified) abstracted representation, as opposed to reproducing its (extensive) duration (Elsaesser, 1990:17).

The digital ticking clock motif is often depicted, as seen in the split screen presentation of the US TV series *24* (2002) and in the running scenes of *Run Lola Run* (1999). These examples signal a shift from the user interacting with text on screen through the keyboard and mouse interface towards sophisticated physiological forms of interaction. Ryan has argued that:

> the marriage of immersion and interactivity requires the imagined or physical presence of the appreciators body in the virtual world – a condition easily satisfied in a VR system but problematic in hypertext because every time the reader is asked to make a choice she assumes an external perspective on the worlds of the textual universe (2001:20).

4.6 Sensory interactions

There have been several artistic interventions which have attempted to use the body as the mode for interacting, and an advanced piece of research into this area was earlier cited as Jill Scott's *e-skin*. Motion detecting sensors have been commonplace in artistic installations for a number of years and have included David Rokeby, 1986: *Very Nervous System*, Sammy Spitzer, 1996: *Birds,* and Toni Dove, 1998: *Artificial Changelings. WhisperBox,* a 21st century folk song was

created by *Second Life* avatar Robbie Dingo through an interactive audio installation, which consists of seven inward facing speakers, which was first installed at the New Media Consortium in *Second Life* in 2006.

> When the installation is active it listens for conversation from near-by avatars. If detected, it will pick out certain words and/or letters and interpret these as different pitches for short percussive sounds which are distributed as a looped pattern of notes or rests around the seven speakers. The pattern created is directly influenced by local conversation in real time.[16]
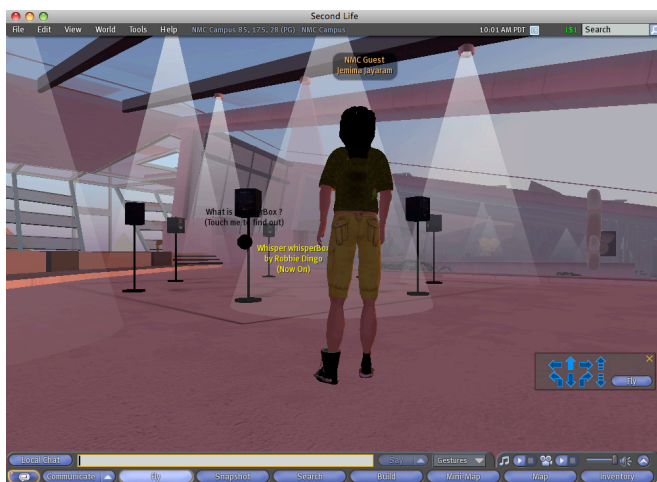
Figure 4.11: Whisper Box (2006, Robbie Dingo)

The installation is a compelling example of both an interactive motion detection system and also of the interactive potential of *Second Life*, reliant on the active participation of avatars. Examples, which have utilised similar physiological response systems, have included *The Breathing Wall*[17] *(2004)* by Kate Pullinger, Chris Joseph and Stefan Schemat. The interface is a headset with an attached mouthpiece through which the user breathes. This allows the reader to interact with the text on different levels: their breathing pattern dictates the depth of access they have to the different elements of the story. The software authored by Schemat - *The HyperTrance Fiction Matrix* processes the readers breathing, the more relaxed they become, the deeper they breathe and the greater the depth of access they achieve.

Osmose (Char Davies, 1994) is a virtual reality installation, which is also accessed and interacted with by the user through the depth and pattern of their breathing. The user wears a waistcoat and a large helmet; the waistcoat contains sensors

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[16] http://sl.nmc.org/2006/07/27/new-audio-art-installation-in-spohrer-center/
[17] http://www.thebreathingwall.com/

that measure the users chest diameter, to measure levels of breathing. The VR helmet incorporates a stereovision display and surround sound speakers. The user can then control their (visual) virtual upward and downward movement through landscapes by breathing in and out. The user has the sensation of floating in space amongst images, for example, trees and clouds, and what has been described by one user as an 'eerie' soundscape (Hutchinson, 2003: 68). Davies describes *Osmose* as 'a spatiotemporal arena, wherein mental models or abstract constructs of the world can be given virtual embodiment and then kinaesthetically (i.e. via motor perception) and synaesthetically (i.e. via a mixture of visual, auditory, and motor perception) explored through full-body immersion and interaction' (Morse, 1998: 208) These examples explore the themes of embodiment, and disembodiment. Hutchinson describes the experience in which when you look down, you cannot see your feet, rather the environment that is played through the wrap-around headset.

Artists have also used eye movement as a key to unlock interactive moments within new media artistic texts. Andrea Polli produced a number of audio and video based pieces, a CD ROM – *Gape* (1996), and an installation *Inside the Mask* (1998) which used eye-tracking software to prompt instantaneous differentiations in the audibility of voice samples instantaneously. Such non-command-based (Jacob, 2007) technologies could be introduced into the home cinema realm in order to prompt changes in filmic narrative content, both in its ordering and pace dependent on both user's conscious and unconscious physical responses. This mode would attempt to create an environment of transparency, where all conscious decision points are removed.

4.7 Interactive audio fiction

The BBC's first-ever interactive radio drama was *Wheel of fortune* (2001) written by Nick Fisher, which consisted of three plays, or streams of configurations based around the same story. The listener had the ability (through the web) to switch between these plays every minute throughout the diegesis of the parallel narrative. Radio listeners without access to the Internet, were able to access two streams of the story by switching between the FM frequencies of Radio 3 and Radio 4 using their radio tuners. Two years later, an interactive play, also produced by the BBC using a similar parallel structure, *The Dark House*[18] (2003) was 'a chilling mystery

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[18] By Izzy Mant, Nick Ryan and Mike Walker http://www.bbc.co.uk/radio4/arts/darkhouse/

story', which allowed listeners to choose to favour the perspective of one of three characters at different points in the story. The first five minutes set the scene. From that point on votes were cast through text message and a telephone poll, to give the entire audience a new point of view and a new source of information. *The Dark House* was recorded using a binaural recording technique. Based on the principals of human hearing, binaural recordings are made by placing microphones near the actor's ears. Listeners therefore experience spatial, immersive 3D sound.

Figure 4.12: *Darkhouse* web based audio interface (2003, BBC)

4.8 Locative, Pervasive and Augmented Narratives

> In the case of VR, the user works on virtual simulation; in the case of AR, the user works on actual things in actual space. Because of this, a typical VR system presents a user with a virtual space that has nothing to do with that user's immediate physical space. In contrast, a typical AR system adds information that is directly related to the user's physical space (Manovich, 2006:224-225).

Augmented reality narratives, sometimes known as mixed reality, tend to take on two forms: audio-based or visual-based. Many audio location-based augmented narratives have been written and produced by artists such as Janet Cardiff and Stefan Schemat, some of which have incorporated GPS technologies. *Missing Voice* (Cardiff, 1999) is an 'audio walk' based in Whitechapel, London in which the user is provided with headphones and a Discman and guided around the streets of the East End by Cardiff's voice. In Schemat's work, *Infection*, a *Roaming Novel*, the user is also provided with a GPS device, which tracks the user's movements and responds with relevant audio excerpts which refer to the user's exact position in the storytelling environment. Visual based augmentation is achieved through the use of black and white markers as depicted in figure 4.13, which can be positioned anywhere in an actual environment. The user can then hold a PDA with a webcamera or a mobile phone with a camera with the relevant software over the markers, in order to view both real and virtual reality elements.
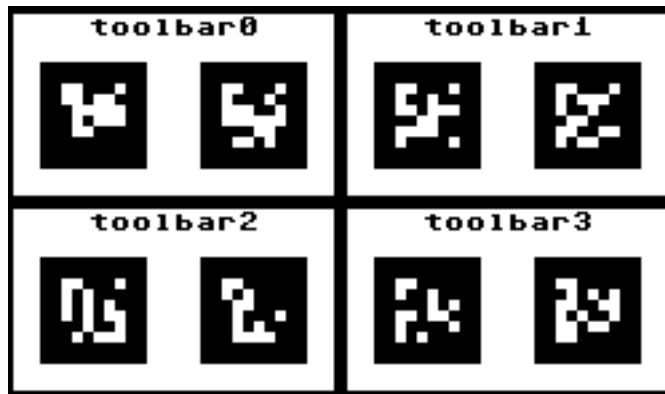
Figure 4.13: Augmented Reality Markers

The location awareness paradigm is ubiquitous in the mobile technologies that are being used, and the map-based paradigm intrinsic to locative technologies is where the locative genre comes into its own. For example, *PacManhattan*[19] (2004) is a computer game taken onto the grid-defined streets of New York. The game involves street players being tagged with GPS devices and being guided by players with mobile phones to direct the player playing the Pac Man character to escape the players playing the ghost characters, and the ghost characters to chase the Pac Man character in the physical area of the streets of Manhattan.

An audio based wireless storytelling project called *mumure*[20] has been installed across several international cities including Edinburgh, Toronto, Dublin and Vancouver. Users are provided with the map of the city, which are marked with various hotspots at different locations. When the user is close to a hotspot, they are able to dial a number on a printed sign posted in that area and hear pre-recorded audio messages, which relate to reflect upon the users geographical location. In 2005, *teletaxi*[21], a touch-screen GPS system installed in taxis was employed to play certain video clips to the taxi's passengers at certain locations.

Blast Theory have created a number of first person interactive experiences, which have involved elements of video content, interactivity and drama. Founded in 1991, *Blast Theory* have created a number of projects, which include performance, mediation and communication based computer technologies. *Kidnap*, a 1998 project, marked the point at which the performative nature of *Blast Theory's* work moved onto the street and the technologies of the internet were used for the first time. Two people were kidnapped, the results of which were documented live in

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[19] http://www.pacmanhattan.com/
[20] http://murmure.ca/
[21] http://www.year01.com/teletaxi/index2.html

chat rooms and using webcam technology. In 2001, *Can You See Me Now*, was an online game with actors on the streets of Sheffield while users played on line following 2D maps tracking the actors movements, interleaving a real city with a virtual one. *Uncle Roy All Around You* (2004) developed this parallel concept, of a real and virtual world game so that the public could be the performers on the streets. An in-depth 3D world was created online which mirrored the actual cityscape in which the street game was taking place. Figure 4.14 shows the example of Manchester, UK. The structured goal-oriented location-based game in which players search for the uncle that can never be found demonstrated a hybrid of games, theatre and mobile technologies. Using GPS technology, the street player's locations were mapped onto the virtual map, and online players were able to see their virtual avatars and communicate with them directly using text, to either help them in their quest to find the elusive Uncle Roy or to mislead and misguide them.

Figure 4.14: Uncle Roy all around you, screenshot from Manchester game (2004, Blast Theory)

4.9 Artificially intelligent narratives

> A work of interactive fiction is a programme that simulates a world, understands natural-language text input from an interactor and provides a textual reply based on events in the world (Montfort, 2004:316).

The principle behind AI within interactive digital entertainment genres is that the game/film engine can create a story in real time response to the reader's choices or actions. A clear problematic of such an approach to storytelling is the successful production of meaningful stories and narratives within an environment of complete and absolute user agency.

The most frequently cited Artificial Intelligence characters/agents/chat bots are *Eliza*[22] (1966) and ALICE[23] (1998) (The Artificial Linguistic Internet Computer Entity), which utilises AIML (Artificial Intelligence Mark-up Language). Both systems, which are available to access on the Internet, allow the user to input a question using a keyboard, to which an 'intelligent' response is immediately provided. In the case of *Eliza*, the user's question is reworded into another question, which is asked back to the user, mimicking the typical response of a psychotherapist. Simplistic in its execution and approach, *Eliza* elicited many debates in relation to fiction and literature;

> Eliza shows how the computer, like all other writing technologies, directs the reader back to his or her own resources in a quest for meaning (Bolter, 1991:178).

ELIZA - a friend you could never have before

You: i'm hungry

Eliza: Does it please you to believe I am hungry?

[   ] (Submit)

Figure 4.15: The Eliza Interface (1966, Joseph Weizenbaum)

Human: not good
ALICE: What's wrong, unknown person?
Human: my name is sarah
ALICE: Hi there sarah.
Human: who are you
ALICE: I am ALICE. Who are you?
Human: you know who i am
ALICE: You are sarah, seeker.
You say:
[   ]

Figure 4.16: The ALICE interface (1998, Richard.S.Wallace)

ALICE, produced over 30 years after *ELIZA* is a more advanced appropriation of AI technology. The artist, Kenneth Feingold, has applied these technologies within the gallery environment for *sinking feeling* (2001) and *if/then* (2001), which use mechanised heads, text-to-speech software, and speech recognition with the viewer interacting with the heads. Stelarc's project *Prosthetic Head 2003*[24] is 'an automated, animated, reasonably informed and somewhat intelligent artificial head that speaks to the person who interrogates it' (Stelarc, 2007). Again, the user inputs a text question into a field, to which the video projection of the 3D head speaks an answer. *Agent Ruby*[25] (2002) created by Lynn Hershman reverts back to the screen input interface, and invites the user to input questions to which Ruby

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[22] http://www-ai.ijs.si/eliza/eliza.html
[23] http://www.alicebot.org/about.html
[24] http://www.stelarc.va.com.au/prosthetichead/index.html
[25] http://agentruby.sfmoma.org/indexflash.html

delivers a prompt answer. It is a 'self-breeding autonomous artificial intelligence web agent shaped by encounters with users' (Tromble, 2005:92). *Agent Ruby* develops through 'cumulative virtual use, reflecting the global choices of Internet users' (Tromble, 2005:94).
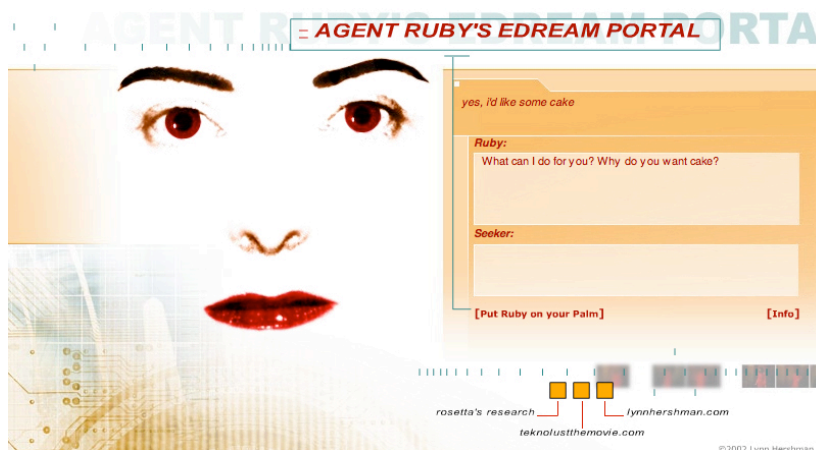
Figure 4.17: Agent Ruby (2002, Lynn Hershman)

Th*e Listening Room*[26] interactive installation uses webcam tracking technologies, speech recognition and synthesis software, a dialogue management system, microphone arrays and directional sound sources in order to generate real-time intelligent conversations with visitors to the exhibit. The webcams detect a user's presence, and also the colour of their clothing so that the disembodied character/agent/chabot *Heather* can comment on it during conversation. The system detects keywords from the visitor's voice in order to incorporate them in the spoken reply, which is broadcast through directional speakers. As with all the examples of these AI agent systems, there is no defined task or outcome of the user's interactions.

One of the most sophisticated and advanced artificial intelligence systems to date within the digital storytelling realm has been the interactive, downloadable, graphical one-act drama *Facade*[27] (Andrew Stern and Michael Mateas, 2005).

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[26] Created by Alexa Wright, Alun Evans, Alf Linney and Mike Lincoln
[27] http://www.interactivestory.net/

Figure 4.18: Façade (2005, Andrew Stern and Michael Mateas)

Once downloaded and run, the programme invites the user to enter their name, from a predefined list. They then navigate themselves in the first person to the door of Trip and Graces' flat. The user can type in dialogue throughout the experience, which although is not replayed aloud, is responded to by the characters, who also continually address the user by the name that they inputted at the outset. The user can move around the flat, pick up objects and perform gestures such as hugging, comforting and kissing the characters. The premise of the narrative is that the user has been invited to the flat for dinner, and upon arrival overhears a disagreement between Grace and Trip. As the evening progresses, the atmosphere becomes more and more hostile, and the viewer is caught up within the arguments. Depending on how the user responds and which character they affiliate with will affect the course of events that follow. '*Façade* is meant to be replayed several times. Each run through takes about 15 minutes, and reveals to you about 25% of the things that can happen'. (Mateas and Stern 2005:3)

The compelling nature of *Façade* can be attributed to the fact that it contains examples of both local agency and global agency; 'agency essentially means meaningful control' (Mateas and Stern, 2005:6). Local agency is experienced through the immediate reaction to the viewer's engagement, for example, when the characters respond to the viewer's speech or gesture, and refer to them by name. Global agency is experienced by the long-term sequence of events being affected over time as a result of the viewers' behaviours. For example, provocative things that the viewer may have said are stored in the system and are brought back later in the scripting (known as the 'crisisblowup beat'). Dramatic beats are defined by Mateas and Stern as being 'focussed narrative situations', which last between 30-90 seconds. There are 27 beats in Façade, but the viewer will only get

to see 15 of them in one viewing. There are also various other scripting values and behaviours. Mateas and Stern's formulaic interpretation and reconfiguring of a dramatic script is not a new concept specific to the scripting of interactive narratives. It echoes several approaches to traditional script and screenwriting, and David Freeman's *Beyond Structure*[28] course typifies this approach of tried and tested scriptwriting formulas. Freeman has actually trademarked a script technique called 'emotioneering', as a method by which to engage viewers with computer game characters.

4.10 Conclusion

This chapter has acknowledged the beginnings of the interactive fictional form and has provided some in-depth case study investigation into some of the range of examples which have been created within the form. The interactive and multi-path nature of the various case studies suggests that they can never be investigated fully; that is, a complete experience of their entire content can never be achieved since certain content can only be accessed at certain points dependent on the action of the user at a particular time. This is most evident in the AI examples, which respond directly to user input, and the augmented reality examples in which users play such an active and physical role in the creation of the narrative. But this also applies to a limited extent to the navigational forms of early hypertexts in which the branching-nodal systems can take the reader in any number of directions. As Bolter maintains, one does not have endless time and patience to investigate every possible actuality and instance:

> In the world of electronic writing, there will be no texts that everyone must read. There will only be texts that more or fewer readers choose to examine in more or less detail (Bolter, 1991:240).

The *Crossed Lines* project is a video based manifestation of the interactive fiction form, and the next chapter will devote itself entirely to productions, experiments and investigations within that form.

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[28] http://www.beyondstructure.com/start.php

Chapter 5: Video based interactive fiction

5.1 Introduction

This chapter focuses on those forms of interactive narrative which use video as their primary medium. Explorations which specifically integrate video and audio into interactive fictional storytelling frameworks have spanned the last twenty years and have been evident in the following areas: CD-ROMs, DVDs, gallery-based installations, interactive television, online interactive projects (arts-based, experimental, advertisements and promotional campaigns), modifiable film and also hybrids of one or more of these categories. The chapter examines each category in turn referencing examples and reflecting on their contribution to the interactive fiction genre, whilst drawing comparisons and parallels to the *Crossed Lines* project.

5.2 CD-ROM

CD-ROM arts-based projects and video games have been limited in fully exploring interactive video modalities by their comparatively small storage capacity. There have been a large number of commercial games and a proliferation of arts-based projects, which have utilised this medium, mostly using the Macromedia Director authoring environment, from its availability in the mid-1980s to the late-1990s. The form was then superseded by the DVD-ROM and DVD-Video. Notable CD-ROM commercial games that have incorporated video, otherwise known as FMV (Full Motion Video) games, have included *7th Hour* (1993, Trilobyte) *11th Guest* (1995, Trilobyte), *Johnny Mnemonic* (1995, Sony) and the *X-files game* (1998, Fox Interactive). Arts-based projects have included *Puppet Motel* (1995, Laurie Anderson), *Windows Ninety Eight* (1998: Igloo), *The Worst of Connnaski* (1998, Loïc Connanski), *Phony* (2001: Susan Schupli) and *Cocktails and Appetizers* (2001, Michelle Citron). Throughout the production process of *Crossed Lines*, there has been the ongoing search for comparable projects, which may have incorporated a similar paradigm or storytelling device. The closest example identified within the CD-ROM form was *Phony,* which used a traditional rotary dial telephone interface within the interactive CD-ROM, the numbers of which the viewer could click on and access different areas of content on the disc. The narrative content of the story was an exploration into the history and technology of the telephone.
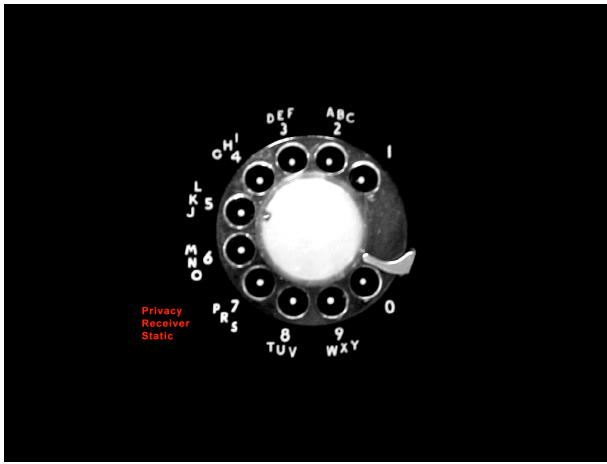
Figure 5.1: Phony interface (2001, Susan Schupli)

5.3 DVD

I'm Your Man (1992, Dir: Bob Bejan) and *Mr. Payback* (1995, Dir: Bob Gale) are examples of commercial interactive feature films produced by *Interfilm* technologies to be screened in custom-built cinemas in the US. The seats were fitted with pistol grip devices that allowed viewers to vote on which characters' perspectives that they would see the stories from and also to choose which narrative pathways that the three protagonists could take. This interactive cinema platform technology, which Lunenfeld branded as 'a much-hyped hybrid that never did quite make it' (2002:145), was short lived and there are is a notable absence of other titles released for this platform.

Prior examples of interactive cinema include the first known interactive cinematic system, the *Kinoautomat,* which premiered at Expo '67 in Montreal.

> In a specially constructed voting cinema, the 124 audience members at each
> screening could vote on how Mr Novak should act at five key moments in the film
> by pressing red or green buttons on their seats (Hales, 2005:55).

The second instance of an interactive cinematic system is cited as the cinematic presentation of *La Hora de los Hornos* (Argentina, 1976, Dir: Fernando Solanas and Octavia Gettino) translated as *The Hour of the Furnaces*. The film did not contain any opportunity for interactive decision making, instead, the four-hour film, which was projected on a series of film reels, was stopped at the end of each reel. In the time that it took to reload the film spool into the projector, debate was instigated in the audience.

Figure 5.2: Examples of I'm your Man interactive choice points (1992, Dir: Bob Bejan)

I'm Your Man and *Mr.Payback* were subsequently released on DVD (in 1998) translating the access of the optional interactive content from the cinema seat pistol grip devices onto the remote control interface. The structure of the story at both the cinema and on DVD meant that the narrative had to be halted for the viewer to make a conscious decision, an example of what Crawford cites as a 'constipated story' (2005:130). The interactive mode of *I'm Your Man* is one of character perspective; the story is stopped at several points through a direct camera address from one of the three protagonists to request some form of guidance. In the case of *I'm Your Man* the choice with the most votes would be the one screened in the cinema. The content of the *I'm Your Man* DVD comprises a series of separate films, which can be accessed at nodal choice points through a standard menu system which allows the viewer to utilise their remote controls to make narrative path decisions. These come in the form of a primary address from one of the characters direct to camera asking the viewer for some form of direction. The branching system of *I'm Your Man* is operated in a context-free manner and previous user choices are not stored.

Marie-Laure Ryan (2001) has noted that no matter what choices the user made in the past, the same range of options remains open at any decision point. As Ryan confirms, 'one of the most serious architectural problems is the shot that fails to keep its dramatic promise in all possible developments' (2001:277). This structure of parallel narrative (Favre, 2002), also known as perspective narrative, or the multi-form story providing 'a single situation or plotline in multiple versions' (Murray, 1999:30) allows the viewer to follow the story from the perspective of a selected character. The viewer cannot change the outcome of the story or influence events but can change from one character to another.

Other notable attempts at the creation of interactive feature films on DVD during the turn of the 21st century include *Tender Loving Care* (1999, Dir: David Wheeler), *Silent Steel* (1999, Dir: Toney Markes) *Point of View* (2001, Dir: David Wheeler), *Stab in the Dark* (2001, Dir: David Landau), *Real Time: Siege at the Lucas Street Market* (USA, 2001, Dir: Max Allan Collins) and *Switching* (Denmark, 2003, Dir: Morten Schjødt). There are also examples of traditional films which have incorporated interactive content within their DVD release such as *My Little Eye* (2002, Dir: Marc Evans) and *Final Destination 3: Thrill Ride Edition* (2006, Dir: James Wong). Both of these films produced additional content during the feature film production phase to offer viewers an alternate and interactive viewing experience on DVD. These different types of interactivity follow two distinctly different modes in their approach to altering the viewer's experience of the narrative:

1. The viewer's interactions cause a variation of perspective - either through a character or through the mechanics of the production process such as changes in the camera angle or audio stream;

2. The viewer's interactions cause a variation of plotline and story outcome.

Within the interactive DVD version of *My Little Eye*, a graphical user interface is overlaid onto the film, from which two interactive features can be accessed. The first allows the user to switch between multiple cameras. This option is restricted to four specific scenes within the film. When this option is available to the viewer, a red camera icon flashes in the bottom frame of the interface.
(Figure 5.3) The viewer can then press the camera angle button on the remote control to switch the between 4 or 5 cameras. (Figure 5.4)
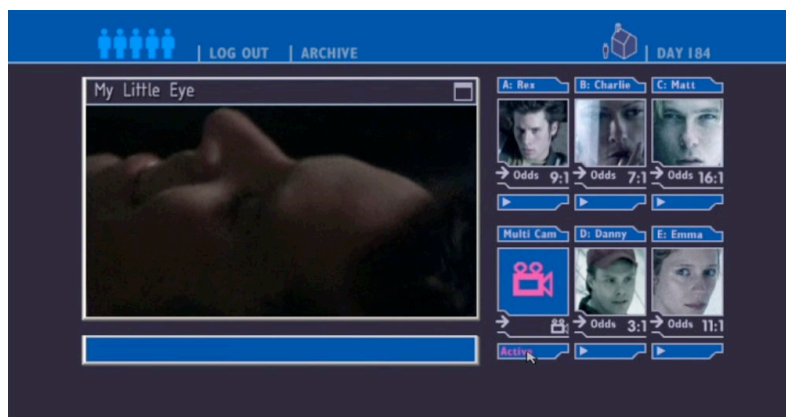
Figure 5.3: My Little Eye (2002, Dir: Marc Evans) allows the viewer to switch from ordinary viewing mode to multi-camera mode
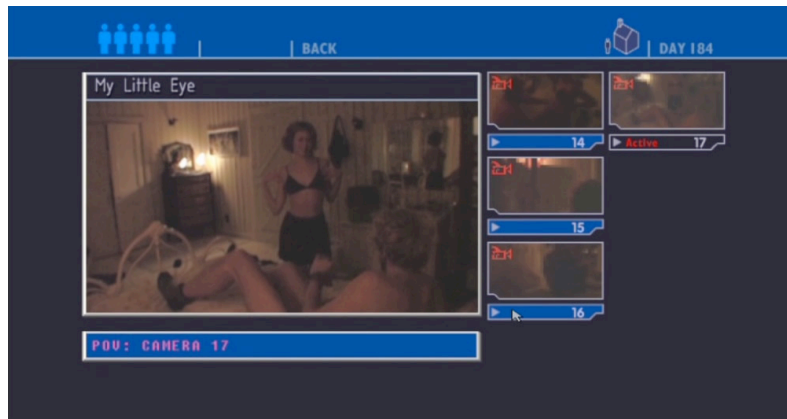
Figure 5.4, My Little Eye (2002, Dir: Marc Evans) allows the viewer to switch to different camera angles of the same scene

Illusions of interactivity within each of the four camera angle selection points are prevalent, since upon closer inspection, in all four instances, the camera sources are not simultaneous multi-camera action. Footage from different camera sources is chosen deliberately to look as if it is live action, but it is not. This implies that this interactive DVD feature was perhaps an afterthought on the producer's part, and did not form part of the director's pre-visualization process. The other interactive feature enables viewers to switch the audio stream by using the remote control. This is the same technology available on standard DVD presentations whereby users can switch on a Director's Commentary and listen to an additional audio channel, or audio dubbing in an alternative language where the existing soundtrack is replaced by another version. The viewer can then hear covert exchanges between two characters from the fictitious 'company' on walkie-talkies on audio stream 2. This reveals the actual nature of the five main protagonists' imprisonment inside the house, and substantially alters the perspective of the viewer's experience of the film. The theatrical version works on the premise of a twist toward the climax of the film, whereby we discover the fates to befall the housemates. One of the characters (Rex) discovers the web site of which they are a part and the characters see the gambling odds against their names. This is the point at which they realise that they are the subjects and potential victims of a snuff web cast. As a viewer of the cinematic release this is the same point in the narrative at which the viewer makes the same discovery. However, within the interactive DVD version, the plot is revealed by the very nature of the interface. We are viewing the content as if through the same fictional web browser as depicted in the film (see figure 5.5) When the viewer first accesses the 'site' they have to input a four digit code found on the sleeve of the DVD in a 'credit card' field.
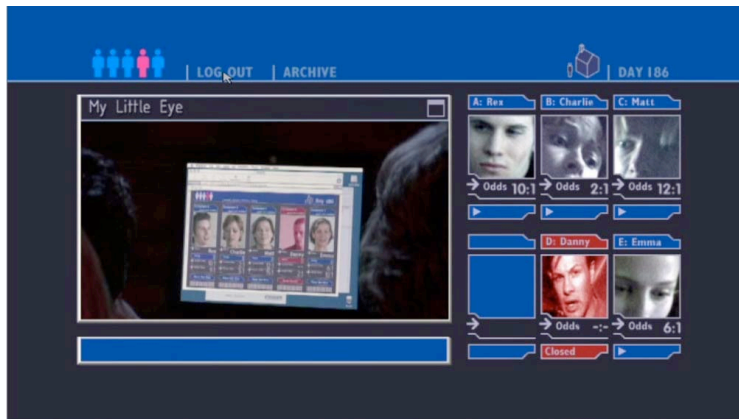
Figure 5.5: My Little Eye (2002, Dir: Marc Evans) The moment at which the housemates discover the site and the gambling odds against their names

The viewer's interactions within *My Little Eye* do not offer the opportunity to affect or change narrative pathways in any way. Instead access to additional footage on the disc is permitted as an intrinsic part of the viewing experience. Through the design of the interface, the viewer enters into the world of the snuff web cast. This is a design technique, which has been used before within the horror genre. Within the DVD release of *Se7en* (Dir: David Fincher, 1996) the menu system has been designed as if by John Doe himself, giving the viewer a further insight into his world and imaginings. In these examples what the viewer is experiencing is an enhanced narrative (Favre, 2000). *My Little Eye* has parallel (perspective) narrative tendencies to a limited extent, and the viewer experiences a sense of user agency and immediacy as they can switch between the parallel sources instantaneously as if they are viewing live action. However, the double logic of remediation (immediacy and hypermediacy) is apparent since 'even webcams, which operate under the logic of immediacy, can be embedded in a hypermediated web site' (Bolter and Grusin, 2001:6).

The *Final Destination 3* DVD promotional posters state; 'You're in control of the movie! Change the course of the film and the characters' fates'. The *LA Times* believes that 'this is the first time that has been done on a DVD from a major motion picture studio' (Dutka, 2006). The DVD version of the film is viewed in its traditional presentation, as opposed to the graphical overlay method that *My Little Eye* employs, but is preceded with a series of instructional slides stating that at various points the viewer is faced with storyline choices. The storyline choices that appear as graphical slides are far more subtle and integrated into the viewing experience in comparison to *I'm Your Man,* although the narrative is still halted at

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certain nodal points (six times – see the diagrammatical visualization in figure 5.8) in exactly the same way for the viewer to make the decision.

Figure 5.6, Final Destination 3 (2006, Dir: James Wong), DVD Choice Point 1

There are no direct-to-audience addresses from the main characters as there are in *I'm Your Man*, and the choices are far more abstract and unspecific. We do not actually get to choose how six characters die as stated in the promotional literature. We choose to do 'something', which will trigger a different set of events that precede the fatality of a character. The example in figure 5.6 is the first choice point in the film, whereby a coin is tossed by one of the characters. As the coin is flipped into the air, live action visually transforms into the slide and the viewer has a set amount of time in which to respond. By following the *Heads?* route, the path of the original feature film is followed. If *Tails?* is selected, the story is concluded and the viewer watches a series of graphical slides in which it is discovered how the four survivors of the accident go on to lead happy and fulfilling lives, followed by the feature film's end credits sequence. This is then halted, and the viewer is presented with a menu choice, and is given a second chance to select *Heads?,* which if selected will lead to them rejoining the feature film at the point at which they exited it. The viewer is here subjected to a foldback scheme (Crawford, 2005:126), whereby the storyline is folded back to a predetermined path - in this case, to the point before the roller coaster action takes place. There are six such instances where this happens, (see Figure 5.8) and the viewer is able to select an alternate path through the narrative. Apart from the second death scene in which Ashley and Ashlyn are killed at a tanning salon (in the theatrical release, both are burnt alive, in the alternate scene, Ashlyn escapes and they are both electrocuted as she tries to pull her burning friend Ashley from the sun bed), there are no alternative deaths, and we are not actually able to 'change the characters' fates' as promised.

The film's use of the DVD scripting technology is advanced in terms of the GPRMs being utilised. Viewer's choices can be recorded and additional content offered accordingly within the context of the previous choices that have been made. This occurs at both point 5a and 8a in figure 5.8. Floating graphical buttons appear for timed instances at these points, which, if selected, allow the viewer to access additional content. In the former example, we can look at Frankie Cheeks camcorder footage, which was shot as an integral part of the feature film production, as an intentional extra for the DVD (Figure 5.7). In the former, we can read a newspaper article detailing the events of the previous film in which the highway crash is reported. These interactive events are only accessible to viewers dependent on their previous choices.

Figure 5.7: Final Destination 3 (2006, Dir: James Wong), A temporal floating graphical overlay, which allows access to additional footage if 'yes' is selected. This part of the disc is only available to viewers who earlier selected to save Frankie at choice point 4.

In *Final Destination 3*, the viewer is faced with a series of 'constipated moments' in which the narrative is halted until a selection has been made.

Drawing on the idea raised earlier in chapter 4, in which location mapping was discussed, Stephen Mamber (2003) has proposed a system of narrative mapping, which he defines as an 'attempt to represent visually events that unfold over time' (2003:145). He proposes such a system would be useful for complex narratives, ambiguous, multiple and elaborate temporal constructions. I have devised and authored a mapping system for the two examples of *My Little Eye* (figure 5.9) and *Final Destination 3* (figure 5.8). I will also propose a mapping for the purpose of reference and discussion in chapter 6 for *Crossed Lines*. Mamber also suggests that 'narrative can shift into becoming its own interface – in fact, I think a well-

designed narrative map cries out to be an interactive mechanism leading one back to the source' (2003: 148).
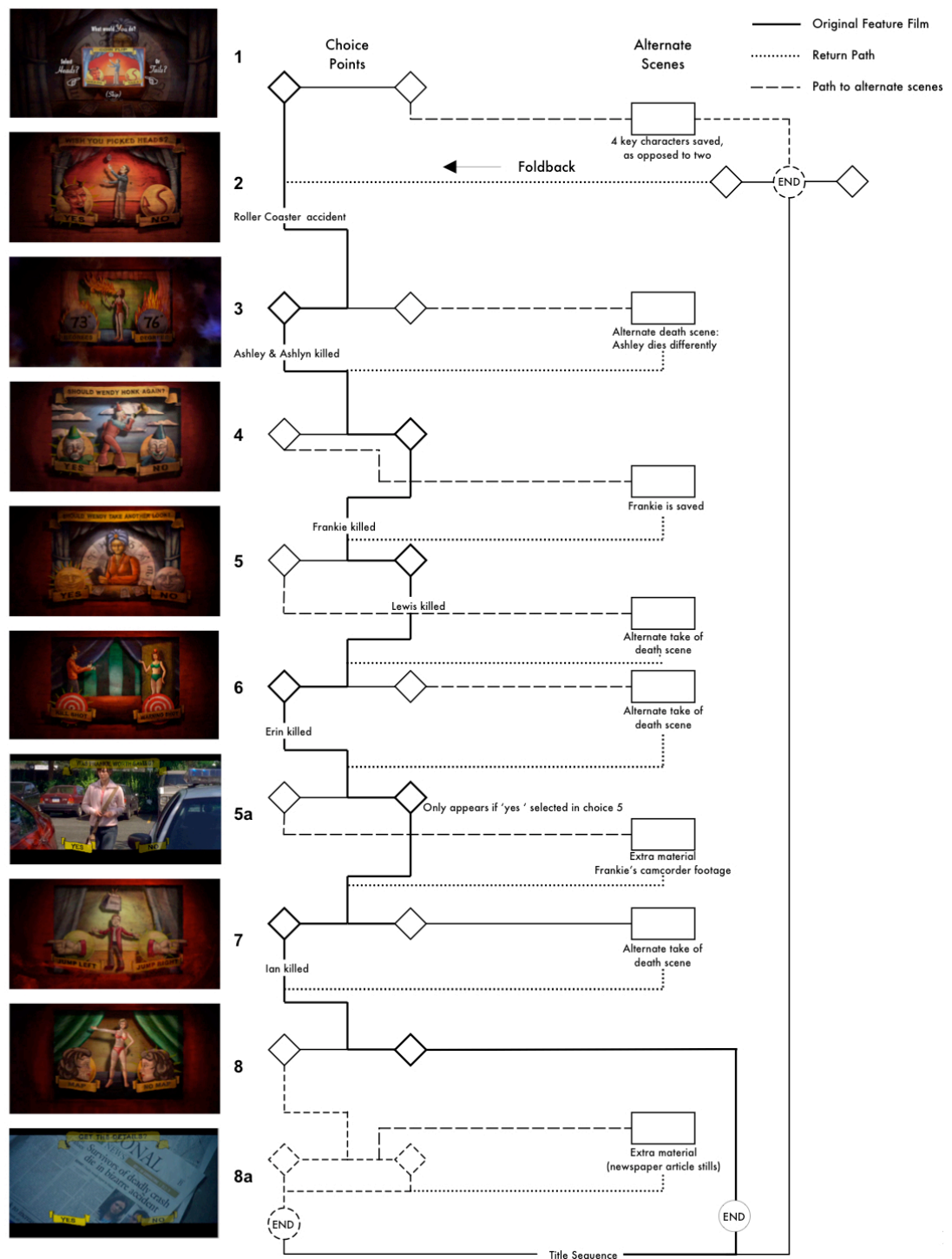
Figure 5.8 Structure of Interactivity and narrative mapping of Final Destination 3 (2006, Dir: James Wong)
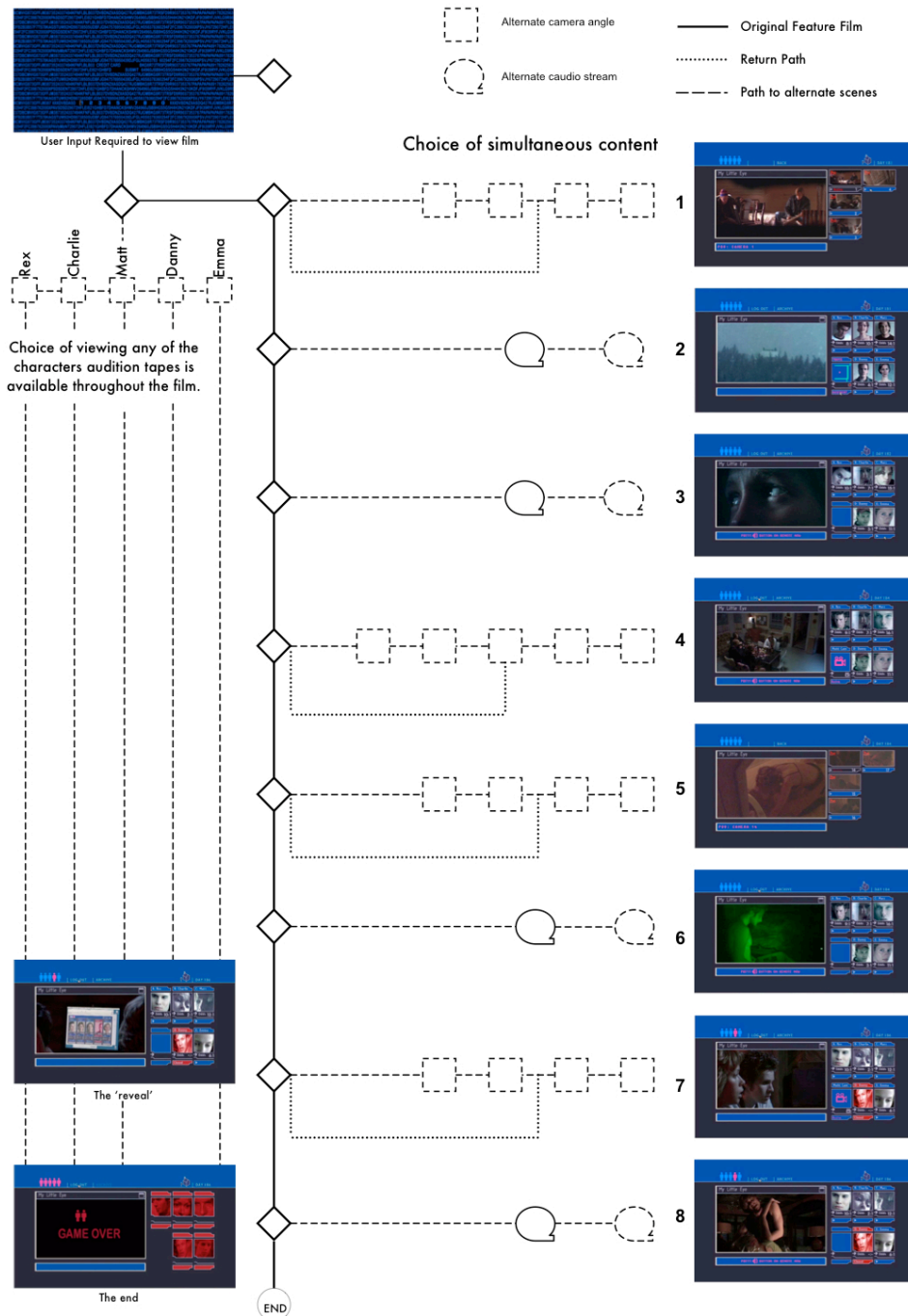
Figure 5.9: Structure of interactivity and narrative mapping of My Little Eye (2002, Dir: Marc Evans)

The interactive DVDs directed by David Wheeler, *Point of View* (2001) and *Tender Loving Care* (1999) have attempted to address the problematic interrelationship between immersion and interactivity. Instead of the action halting to present the viewer with a conscious choice, there are interludes whereby the viewer is taken out of the film to answer a series of questions within thematic apperception tests. The narrative is then apparently tailored to the viewer's 'psychological profile': 'The viewer's psyche is the invisible director of the tale, determining both character and plot development every step of the way'[1]. Despite these claims, actual narrative

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[1] http://www.aftermathmedia.com

intervention is minimal. An analysis of the video media contained on the disc reveals that there is little variation in plotline, and an alternate viewing experience dependent on psychological responses is limited only to a choice of different endings.

The most recent example of interactive DVD form is *Late Fragment* (Canada, 2008, Dir: Daryl Cloran, Anita Doron and Mateo Guez), which avoids forcing the viewer to make conscious decisions at set points. The DVD starts with a thirty-second direct camera address in which the presenter tells the viewer that there are a thousand different paths through the same story and the user can access these through chapter or character. *Late Fragment* tells the stories of three characters, Kevin, Faye and Theo who are brought together by the restorative justice meetings which they all attend. The alternate content can be accessed through the DVD menu system in which chapters or characters can be selected, or different meetings can be viewed. There is also the opportunity for users to select enter on the remote at any point to switch between streams. There are looped action points in which the shot angle can be switched from one character to another with no dialogue spoken, and selecting 'enter' triggers the next instalment of the selected characters narrative journey. This approach is very similar to the looped 'waiting scenes' of *Crossed Lines,* which will be discussed in Chapter 6*.*
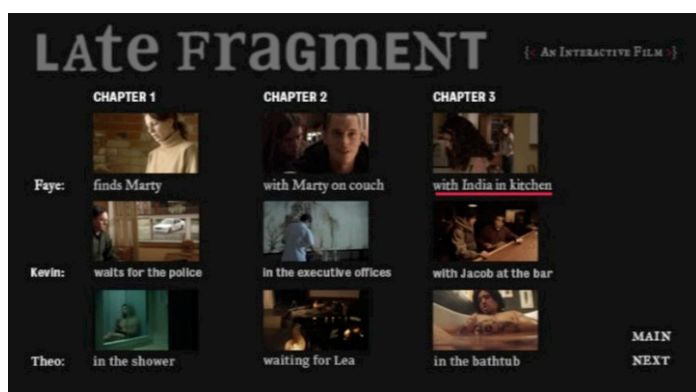
Figure 5.10: Late Fragment (2008, Dir: Daryl Cloran, Anita Doron and Mateo Guez), DVD navigational menu

Independent arts based interactive films have been delivered on DVD-ROM, and examples include *Tracing the Decay of Fiction* (2002, The Labrynth Project) and *Bleeding Through: Layers of Los Angeles, 1920-1986* (2003, Comella, Kratky and Klein). A compelling example of this form is *Uncompressed*[2] (2000, Substanz), the author of which has stated; 'By combining the interactivity of a video game with the depth of the film environment, interactive moviemakers are redefining the

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[2] www.substanz.net/uncompressed

traditionally passive role of the theatre audience' (2002, Margi Szperling). Within *Uncompressed*, the user can access an index of 6 buttons to select a character. This is available at any time to the user; who can also select from six chapters divided into six sections. When they are viewing a section they can pause, rewind, fast-forward or play, but they cannot sidestep into other characters narratives; to select another path, they must exit the story and select either a character or a chapter.
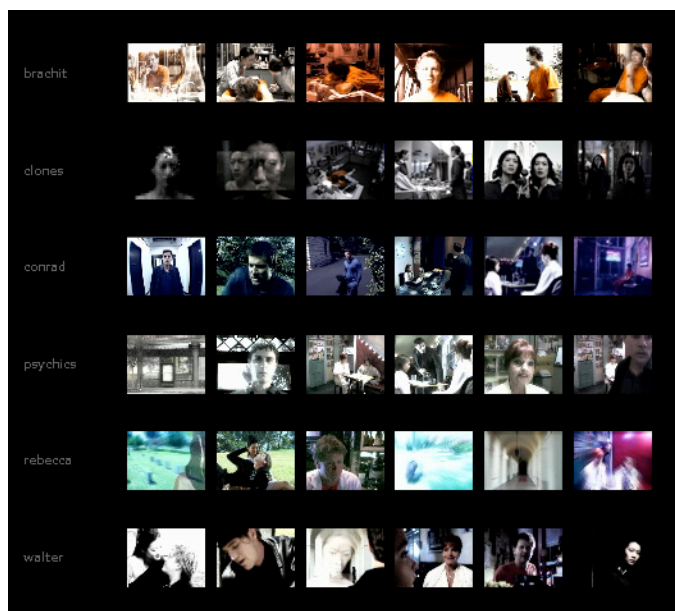
Figure 5.11: Uncompressed (2002, Margi Szperling) Interactive Chapter Interface

5.4 Interactive television drama

> Interactive television embraces control systems that shift communication away from one-way institutionalised broadcast models to two-way instruments that bridge communities and bridge the groups within those communities (Tafler, 1999:71).

Writing in 1999, Frank Boyd stated that 'no-one has yet developed a convincing format for interactive narrative'. Since that time, there have been many dramatic projects broadcast on TV and interactive television platforms. In a Saturday night broadcast of *Casualty* (UK, 2005, BBC) viewers were invited to decide on the outcome of a life and death scenario of a character through a telephone poll. Two endings to the episode were shot and the one with the most votes cast was broadcast. There has also been the successful *Dubplate Drama* (2006-2008, Channel 4, UK), which has now run for two series of six episodes. The drama, based within the rap and 'grime' subculture of tower blocks of South London, was broadcast on Channel 4 and on digital channels, and additional 'extended' content was also made available to view on the Sony PSP console and 3G mobile

telephones. Each episode ends with a dilemma of two choices for the lead character, Dionne, played by female rapper MC Shystie, and it was left to the viewers in a text phone poll to decide the next course of action. For example, in episode one, series one, she has to decide between getting into a stranger's car or running away and hiding drugs for her cousin or not. The stories revolve around drugs, clubs, pirate radio stations, relationships, and the grime music scene.
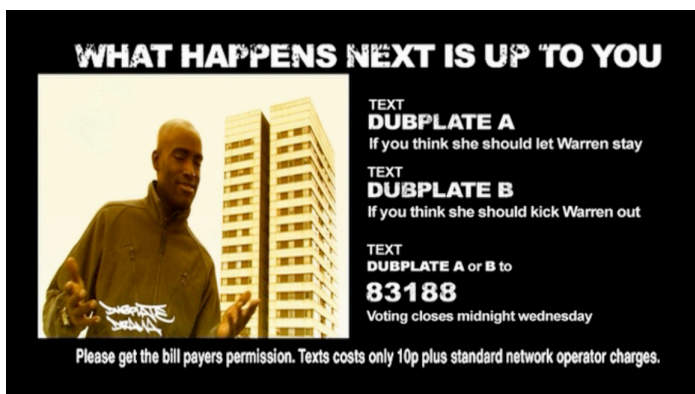
Figure 5.12: Outro sequence of Dubplate drama episode (2006, Channel 4)

Accidental Lovers (2006, YLE- TV1 channel, Finland) is a dark musical comedy series based in Helsinki that can be changed in real time by mobile text messages sent by television viewers. The countless variations of each twenty-eight-minute episodes are made possible by a media database that responds to keywords in text messages. About eighty video scenes and eight hundred and fifty voice-overs are further regulated by a computer programme that understands plot continuity, rhythm and mood. The narrative engine allows twelve plot variations and innumerable ways to construct events in each plot. When the moderator has chosen a viewer message to broadcast on the television screen, she marks it either with a red or blue heart according to its content. The red messages warm up one of the two character's hearts and make him or her fall in love. The blue messages cool the characters' feelings. The characters respond with a voice over thought to the viewer's message. Viewers get a personal message in response from the characters.

Figure 5.13: Accidental Lovers (2006, YLE- TV1 channel, Finland)

In December 2006, *Emmerdale* online invited users to solve the mystery of who killed the character Tom King. This 'extended' narrative experience was an attempt to migrate the audience to an alternate platform. (The category of the extended narrative is not one offered by those theorists discussed in chapter 1; this could be attributed to the fact that it is a relatively new phenomenon in which additional film and television content is made available on a number of different platforms). Within this example, online viewers became virtual residents of the *Emmerdale* community and were cast in the role of an honorary officer in the Yorkshire police force. They were provided with their own virtual cottage, which would be used as a hub for clue collection, and the investigations continued over a month long period until the case was resolved within the television version.

Fat Cow Motel[3] was a thirteen-episode mystery interactive TV series, delivered across the web, television, mobile, email and dial up platforms. Users were called to action at the conclusion of a broadcast, to go online and to search for clues that would earn points, and to solve the mystery before the resolution would be revealed at the beginning of the following episode broadcast on TV.

5.5 Gallery-based installations

Intuitive response systems have already been developed within the experimental filmmaking realm, and are prevalent within multi-media installations and audiovisual art with examples including David Rokeby, 1986: *Very Nervous System*, Sammy Spitzer, 1996: *Birds,* and Toni Dove, 1998: *Artificial Changelings*. Within Dove's compelling interactive cinema installations, the theme of time travel is prevalent. Users are able to interact with a physical motion-tracking interface, which in turn affects the visual images that are projected. By stepping on a motion

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[3] http://www.abc.net.au/tv/fatcowmotel/default.htm

sensor floor mat in the installation *Artificial Changelings* (1998) users are able to step in and out of different time zones and to travel back and forth in time. There are obvious visual signifiers imbued in the different character's costumes that communicate to the user the frame of time which they are in; future or past. A number of artists using response systems have worked with video, incorporating user interaction and the most prolific of these who has been working throughout the previous thirty years is Lynn Hershman. Her work investigates themes based around spectatorship and surveillance through the medium of video.

Lorna (83-84), the first interactive video art disc is described by the artist as a self-referencing game; an interactive branching system of multiple narratives, multiple soundtracks and multiple points of view. *Lorna* was presented within a physical environment with which to interact using the television remote control that mirrored the environment of the character, Lorna's living room. Hershman's *Deep Contact* (84-89) was the first interactive sexual fantasy videodisc and *America's finest* (94-95) was an installation in which the user looks down a gun sight to see themselves as both the victim and the aggressor. In *Paranoid Mirror* (95-96) users approach a portrait and floor sensors trigger the picture to respond. *Room of ones own* (90-93) is described as 'a reverse peep show in which the viewer's gaze both determines the narrative and is captured in the act of surveillance'. Modelled on Edison's peepshows, the viewer becomes a double voyeur; their eyes are projected onto a small monitor within the scene that they watch. This motif is also prevalent in Andrea Zapp's installation *Human Avatars* (2005) in which users can enter the environment of a shed whilst in another area of the exhibit; a smaller model replica exists in which other viewers can look in and see the projection of the smaller inhabitants; the image of their eyes is then projected onto the internal windows of the full scale structure.

Pre-recorded video is used by Luc Courchesne, who in 1990, produced *Portrait No. 1*[4] in which the viewer can talk with Marie in one of six languages, and she responds to them through a series of film clips.

A series of interactive video portraits, which respond to a user's presence, have been created by Orit Zuckerman[5]. In *Portrait of Gaia*, a little girl hides behind her hands, until motion sensing technologies detect a viewer's presence, and then the

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[4] http://www.fondation-langlois.org/Artintact2/
[5] http://web.media.mit.edu/~orit

girl peeks out to look at them. In *Portrait of Cati II* (2006) the portrait responds differently depending on the viewer's gender. When a viewer approaches the portrait, a video camera detects whether the viewer is male or female and responds accordingly. If a man, Cati responds with shy gestures if female, she behaves far more openly, laughing. In *Portrait of Cati I* (2002), 'a portrait with a sense of its personal space' the portrait responds to user positioning and gesture. As the user gets closer, Cati's expression is exaggerated; if approaching the portrait from the left, Cati's glance meets the viewers. If the user's gesture is aggressive or exaggerated, Cati responds in a similar manner. In Zuckerman's work, the piece responds to the user. The images remain static without the presence of a user. In *Spotlight* (2005) 16 individual screens, four by four, consist of head and shoulders portraits and the individuals look at one another across the landscape. If a user interacts and touches one of the screens, the attention of the 15 subjects is focused on that screen, and they turn their heads to look at the viewer-selected portrait, which responds with a gesture, acknowledging that they are the centre of attention.
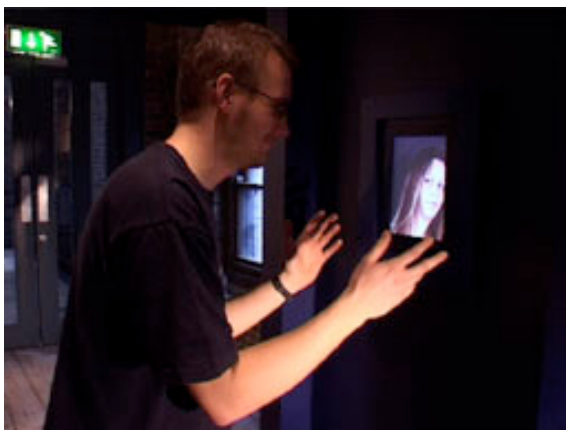
Figure 5.14: Portrait of Cati II (2006, Orit Zuckerman)

Figure 5.15: Spotlight (2005, Orit Zuckerman)

Jill Scott in her work *Beyond Hierarchy* (2000) projected the large-scale video images of 6 workers on the walls of a high atrium. The actions of these moving

murals were triggered by joysticks which users could manipulate, which Scott called the secret handshake interface. In *Frontiers of Utopia* (1996), 8 women's stories are told and viewers can interact by asking the characters questions, making contact with items in suitcases and by joining characters together to talk.

5.6 Interactive drama and performance installations

Interactive drama has been the subject of much technical debate within the field of automated story generation (Iuppa and Borst, 2007) and designing interactive drama architectures (IDA), (Szilas, 1999 and 2000 and Magerko, 2000, 2003 and 2007) whereby 'these systems have focussed on offering the user a compelling dramatic experience with the user as a main character in the narrative' (Magerko and Laird, 2003:1). These examples have tended to be related to the study of algorithmic and computational dramatic architectures such as the AI example *Façade* cited in chapter 4. N. Katherine Hayles has described interactive drama as 'site specific (works) performed with live audiences in gallery spaces in combination with present and/or remote actors' (2007:8). For the purposes of this discussion, I will be discussing a small number of examples which use video as the central medium and that align with Hayle's definition.

Avatar Body Collision, an online performance group of four female members was established in 2001 with the aim of creating globally dispersed live theatre in real time through the Internet. Their performances in different geographical locations were broadcast across the web using webcam technology. *Unheimlich* (Dixon, Fuchs, Sermon and Zapp, 2005) branded as the world's first interactive play, was a telematic performance using video conferencing technologies in which actors in a UK based location performed and interacted on a blue screen stage with audience members in the USA. The remote actors and audiences were composited together with 3D imagery of virtual environments (keyed into the bluescreen) broadcast over the web.

Paul Sermon has worked extensively creating live telematic performative installations, which rely on the presence of a number of users in order to function and come alive. Works include *Telematic Dreaming* (1992), in which two beds in two separate locations are captured on camera, and the interactors who lie on the bed are composited together into one single image. *There's no Simulation Like Home* (1999) is an installation in which separate audiences cohabit the same

virtual environment of a house. More recent works *Peace Talks* (2003) and *Headroom* (2006) introduce a conversational dimension into the installation, where interactors are composited in a face-to-face setting and can engage in verbal dialogue with one another. Each of these examples involve interactors in different locations coming together to communicate through the use of blue screen and video conferencing technologies and align to the theories of multiple identities and the syncretic self as discussed in chapter 3.

5.7 Online Advertising Campaigns

The widespread introduction of domestic Broadband services, through the technology of ADSL, which was launched in 2000, has led to the exploration of the potential of on-line video. It has been suggested that TV advertising has been losing its impact for years and McKinsey (1998) projects that by 2010 it will be barely one-third as effective as it was in 1990, 'thanks to rising costs, falling viewership, ever-proliferating ad clutter, and viewers' TiVo-fueled power to zip through commercials'. Several advertising campaigns have been created which utilise interactive technologies to engage the user in the process. In Spring 2004, *BurgerKing* released its subservient chicken campaign in which viewers could type in requests underneath the video frame of a man dressed in a chicken suit, which would then be performed as long as keywords could be linked to a bank of four-hundred pre-recorded videos. In Spring 2005, the US car company Chevrolet, in their bid to increase sales of their new SUV model, the Tahoe, released a website inviting users to create their own thirty-second advertisement. Stock footage was uploaded to a website which viewers could access and edit together and add their own text captions. This resulted in numerous counts of sabotage where users subverted the material and employed their use of text to convey messages of environmental concern and protest.

> While interactivity often entails a built-in capacity to transform, shape or customise the text in accord with an author's wishes, it spurs on and sometimes encourages a desire to transform the text in ways that are out of the hands of the author and in accord with the individual wishes of an audience member or user (Cover, 2006:141).

Figure 5.16: Examples of Chevrolet Tahoe user-created advertisements

A similar campaign was available in the UK in 2007 by Volkswagen Golf[6] in which all of the moving image footage of their original television advertisement was available to edit using the on-line editing software, Jumpcut[7]. Finished versions could then be uploaded and entered into the competition to win the car. A counter movement to these types of campaigns has been created within online communities such as *Trailer Mash*[8], users of which can remix, modify and upload commercial film content. This is also evident in collaborative film projects which use original content generated specifically for the purpose of remixing, will be discussed in section 5.11 of this chapter.

5.8 Online interactive films

A drama entitled *17 life fables* (2007, Dir: Charly Braun and Matias Guisado) is an independent online interactive film project. The creators compare the experience of viewing their film to the *Choose Your Own Adventure* series, which was previously discussed in Chapter 3. The film stops at four different points in the film giving the viewer two options on how to progress, and offers 16 different endings. It is constructed of short films that operate within the branching structure, each approximately one to two minutes in length. The story revolves around a male character Pete, whose actions and encounters the user follows through the separate thirty-one films. In the first, a female character initially approaches him for help in a café and the first choice point is whether he agrees to do so or not.

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[6] http://www.night-driving.com/
[7] http://www.jumpcut.com/
[8] http://www.thetrailermash.com/

Figure 5.17: 17 Life fables (2007, Dir: Charly Braun and Matias Guisado)

In 2005, Samsung launched Anytimefilms.net[9] to provide a showcase of short films by new directors, which can be downloaded and viewed on Samsung mobile phones. It also screens an interactive film, described as follows:

> 10 characters. 1 event. A mysterious suitcase. A strange fascination with underwear. 10 possible endings. 11,000 different ways for the story to play out. Samsung brings you the future of entertainment. Configure and reconfigure the story to pick up different clues as you try to figure out exactly what happened.
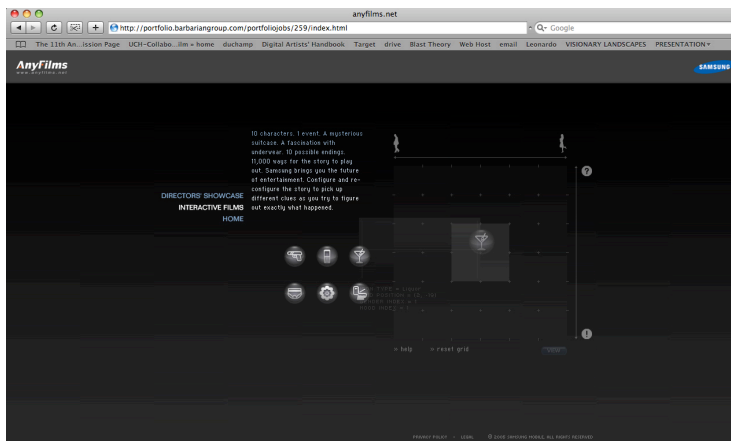
Figure 5.18: Anytime film interactive movie interface

The user is able to configure the interface by dragging and dropping four of the six icons at a time into the grid above, then dependent on the configuration of the icons, the film's plot, style, mood and content changes.

An online interactive film called *The Secret Location*[10] (2007, Dir: James Milward) is used as a demonstration by an interactive agency, and is an example of an infinite looped narrative. *Letters from the Home Room*[11] (2000, Sparklelab) is an

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[9] http://portfolio.barbariangroup.com/portfoliojobs/259/index.html
[10] http://www.thesecretlocation.com/
[11] http://www.lettersfromhomeroom.com

on-line interactive film which the user navigates to follow the story of two high
school friends.
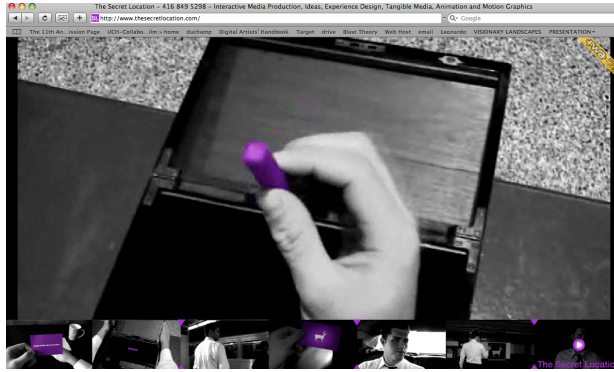
Figure 5.19: The Secret Location (2007, Dir: James Milward)

Jack Point Jack (Germany, 2002, Dir: Michael Stelzer) is a 40-minute film
broadcast online at T-Online in 2002, and then aired on TV in March 2003. There
were three points in the narrative in which the audience could vote with ten
possible plots and five possible endings. *Dual* (USA, 2002, Dir: Buckley Hubbard)
a web-based interactive short film invited the viewer to instruct the main male
protagonist on the different courses of action that he can take, based on a choice
point selection system at set points in the story.

Figure 5.20: Dual - online interactive film (2002, Dir: Buckley Hubbard)

In branching tree interactive narrative structures, users cannot sidestep through
the story, they are only able to move forwards limited by the 'dual' (or more)
choices made available to them. In projects with longer running times, this also
presents the producer of the content with a branching explosion, in which vast
numbers of alternative scenes would need to be recorded in order to satisfy the
various different narrative pathways that could be followed.

5.9 Online interactive games

There have been a number of interactive games created as promotional extras for television programmes or feature films, to extend the action into other platforms. These have included *Spooks Interactive* and *CSI interactive*[12]. They include excerpts of real time video intercut with *Flash* animated puzzles to engage with and resolve before the next narrative segment is played. *Doctor Who – Attack of the Graske*[13] is an on-line fully playable interactive game in which Doctor Who addresses the viewer to use the remote control as the sonic screwdriver as an aid to solve simple visual puzzles. Graphical bottoms are over laid onto segments of video. Common genres within this mode tend to be the science fiction and the detective genre in which the activity of puzzle solving and clue finding befits the narrative content, in which the user is positioned as a first person character driving the narrative forwards.

Figure 5.21: Spooks Interactive

Figure 5.22: CSI interactive

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[12] http://forensics.rice.edu/
[13] http://www.bbc.co.uk/doctorwho/games/graske/geoip/host.shtml

Figure 5.23:Crimeface

Figure 5.24: Doctor Who, Attack of the Graske

5.10 Socially Networked Narratives

Kate Modern[14], *Lonely Girl 15*[15]*, The Gap Year* (all delivered through the social networking site *Bebo*) and *Online Caroline*[16] are all high profile examples of this form, which have been popularised by the proliferation, and wide use of social networking sites. *Trixi*[17], launched in August 2006 was a twelve-week on-line drama in which the fictional character, Trixi, encouraged viewers to engage with the Yahoo 7 'priority products' (including Instant Messaging, podcasts and radio) and is an example of the ways companies use the interactive narrative form to advertise to their customers. The site reportedly attracted an accumulated audience of forty-four million people. The premise of the story is that Trixi's sister

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[14] http://www.bebo.com/katemodern
[15] http://www.lg15.com/lonelygirl15/?p=639
[16] http://www.onlinecaroline.com/
[17] http://au.yahoo.com/trixi/

Max is missing and she directly addresses the audience to help to find her; to watch webcams for clues; to intercept emails and listen to voice mails, during which time there are weekly podcasts and the character is broadcasting through a *Yahoo 7* music radio station. Advertised through the Australian television network, on the Channel 7 station's soap opera, *Home and Away* characters wore t-shirts bearing call to action slogans, and other slogans were sprayed on streets and pavements (à la *Blair Witch*).

5.11 Modifiable/Remixable Film and Video

A new interactive genre of film modification (originating from the practice of games modification or modding as discussed in Chapter 3) has attempted to adapt these practices into the processes of film production. Examples of video based modification are evident within the *You Tube* community, where video is segmented, remixed and 'mashed-up'.
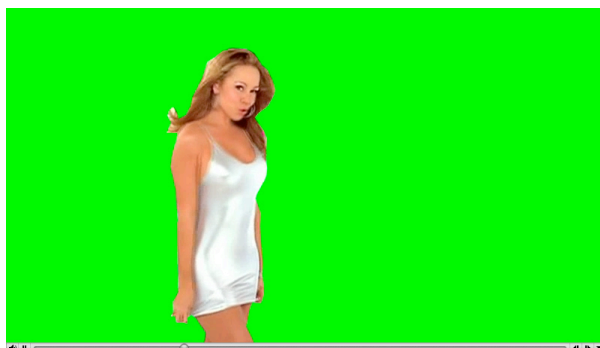
Figure 5.25: The modifiable version of Mariah Carey's Touch My Body (2008, Olivier Laric)

The artist Olivier Laric has released a modified version of Mariah Carey's promotional music video for her single *Touch My Body*[18] (2008). In this version Laric has replaced all visual content apart from the figure of Mariah, with green screen. This allows any user to replace the background content with alternative images using keying technologies available in most non-linear digital video editing packages. Users can then upload their own personal versions to *You Tube*.

The re-mixable film exists within a hypermediated environment and its essence is encapsulated within the *mod film or modifiable film* born from the Video/Vision Jockey (VJ) culture. A recent example is *Sanctuary* (2008) written and directed by Michaela Lewidge. Currently in postproduction it is the first film of its kind, and will be released both as a theatrical feature, and in a remixable form. The remixable

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[18] http://oliverlaric.com/touchmybody.htm

release will be available online through *Creative Commons*[19] and will involve all the films assets being available to the viewing public to download, modify and remix.

> Re-mixable films are films designed to permit explicit sampling of film assets. A film MOD (or modification) is like a game MOD, a modified version which you can experience as a bolt-on (or replacement) to the original experience[20].

Within the example of *Sanctuary*, the CG character *Customisable Dude (CD)* can be manipulated and controlled, as can environments in which exchanges between characters take place (made possible by the fact that a majority of the scenes were shot against blue screen) These affects can take place on an individual user level, and can then take place collaboratively online to create a collective experience, which so far has not been achieved through interactive film productions:

> Interactive narrative games favour a single user with the time and the solitude to solve puzzles and make choices (Bolter and Grusin, 2001:94).

Other collaborative film projects currently under development include *Stray Cinema*[21], *Open Source Cinema*[22] and *A Swarm of Angels.*[23] These examples function within a different premise to the modifiable film in that they are based on the concepts known as crowdfunding, and crowdsourcing. Padgett (2008) has described the concepts as follows; 'Want to start a T-shirt business? Why not have the masses submit designs (crowdsourcing) and finance the ones they like (crowdfunding)?' This is clearly a commercial reading of the recent phenomena within advertising and promotional campaigns, but they can be adopted within the creation of new media texts.

Director Matt Hanson has coined the term Cinema 2.0 as an obvious reference to Web 2.0 to describe this new approach to film making within his project *A swarm of Angels;* 'I use Cinema 2.0 as a tongue-in-cheek label, but it conveys the idea that this is an amalgam of digital-age filmmaking techniques coupled with the social power of the Web. This is a way to create media and large-scale free cultural works. It's also about pushing the aesthetics and innovation of

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[19] www.creativecommons.org.uk
[20] http://www.modfilms.com
[21] http://straycinema.com/
[22] http://www.opensourcecinema.org/
[23] http://aswarmofangels.com/

filmmaking'[24]. Hanson is currently developing two fictional scripts, the first *The Unfold*, which he will upload to a wiki so that members of the swarm can amend and add to it. The second, *Glitch* has been developed by allowing the swarm the opportunity to vote on which story elements to retain and which to delete. The *Open Source Cinema Project* is currently creating a collaborative feature length documentary about copyright in the digital age. The director, Brett Gaylor, invites users to upload their own video content and then enables them to create online remixes of the footage using a mixer interface available through the web browser. Similarly, Stray Cinema operates under the same principles; users can download and remix content from the site to create their own edits of the fictional film. These can then be uploaded and entered into the competition, which is judged by visitors to the site. These examples are formalised and structured versions of the form as presented by the artist Olivier Laric, but also provide a marginal and artistic perspective to those commercial projects such as the car advertisement campaigns. Another collaborative film project is the *1-second film*[25]. This does not allow any user control over content, but instead merely alludes to the income generation model of crowdfunding, giving the users the opportunity to donate $1, in return for a producer credit to be added to the titles.

5.12 Conclusion

There have been many different examples of the use of interactive fictional video and film in both the commercial realm (which has predominantly been led by advertisers and high profile film or web projects) and the independent realm. Non-profit making independent production has been characterised by the politicised or subversive nature of collaborative projects, which have been inspired and created by the social networking power of the web. This relatively new phenomenon has opened up the opportunity for film and video makers, computer programmers and hackers to collaboratively exploit the tools and concepts of the commercial world, such as crowdfunding, to create independent, innovative artistic projects.

The closest example of a production with a structure and presentation comparable to *Crossed Lines* is *Uncompressed* which involves multi-linear paths through a series of narratives and offers alternative character perspectives to those narratives. Other similar tropes to the *Crossed Lines* project are evident in examples such as *Late Fragment* and *17 Life Fables.*

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[24] http://zero.newassignment.net/filed/interview_matt_hanson_director_crowd_funded_open_s
[25] http://www.the1secondfilm.com/about

Compiling a study such as this, which has been documented in the previous three chapters, is by no means exhaustive, but is extremely useful in reflecting and engaging with my own practical explorations. It enables benchmarks and comparisons to be drawn, which will in turn prompt claims to be made and evidenced regarding differentiations of the *Crossed Lines* project with other forms and ultimately provide evidence of the project's originality.

Chapter 6: Crossed Lines: The creation of a multi-form, multi-screen interactive film

6.1 Introduction

This chapter investigates the multi-form, multi-screen interactive film installation *Crossed Lines* (2002-2008, Dir: Sarah Atkinson). *Crossed Lines* amalgamates multi-form plots, a multi-screen viewing environment, an interactive interface and an interactive story navigation form. This chapter probes the challenges of designing, authoring and scripting the piece, drawing comparisons to traditional approaches to screenplay authoring and traditional modes of fictional production. Various theories and paradigmatic perspectives are referenced whilst reflecting on the extensive creative developmental and production processes of the filmic installation.

6.2 Overview

In 1987, Joyce and Bolter imagined fictions in which:

> Stability and certainty…disappear (and) there may no longer be one plot but several, and characters may no longer develop in a consistent fashion. The structure and rhythm of the text will be different for each reading (with) every element…subject to electronic fragmentation and reconfiguration (1987:130).

Crossed Lines explores and advances such debates by exploiting developing technologies which allow multi-channel video to play in synchronicity and to be interrupted and re-ordered by the user. *Crossed Lines* is a multi-form (or multi-plot) film telling the stories of nine characters in a way that the viewer can constantly explore and switch between all nine characters and their associated narratives, and can simultaneously witness the presence of all of the characters between their nine remote locations. The starting point of the piece was to conceive a series of narratives that could be viewed as individual stories, but would also reference and link to the other stories, as is the case of the multi-plot film genre. As McKee has noted 'multi-plot films never develop a central plot; rather they weave together a number of stories of subplot size'. (1998:227) The difference with *Crossed Lines* is that it is delivered through an interactive interface paradigm, meaning that the viewer has the power to navigate and order the stories themselves, and to create a story of varying complexity depending on the number of different characters which are selected through the interface.

6.3 Influences

Multi-form plots have already been explored extensively in the commercial cinematic realm. For example, *Shortcuts* (1993, Dir: Robert Altman) traces the actions of twenty-two principal characters, both in parallel and at occasional points of connection. In *Magnolia* (1999, Dir: Paul Thomas Anderson), nine separate yet connected storylines are investigated. *Run Lola Run* (1999, Dir: Tom Tykwer) depicts three alternate realities triggered by the same event. Filmic examples in which the narrative has included multiple points of view of the same events include *Rashomon* (1950, Dir: Akira Kurosawa). Other influences to *Crossed Lines* have been films using non-linear time structures such as *Memento* (2001, Dir: Christopher Nolan), which is told in two separate narratives, the first is a series of black and white scenes shown in chronological order which is intercut with the second, a series of colour scenes which are presented in reverse chronological order; the two narratives converge at the film's climax. Influences also stem from multi-screen presentations as previously discussed in Chapter 3. The split screen has been used on numerous occasions throughout cinematic history in which to show two sides of a telephone conversation simultaneously. Perhaps the first example of this was in 1901 in Williamson's *Are you there?* (Salt, 1983:57).

Interactive film presentations have also been created through cinematic, DVD and computer interfaces. The viewer of such content 'is thus no longer merely an observer but a user of the film' (Himmelsbach, 2003:236) and examples of these have already been discussed at length in Chapter 4. Interactive interfaces have become commonplace within the DVD mode of delivery. Films such as *My Little Eye* (2002: Mark Evans) discussed in chapter 5, have been presented in an alternative screen interface on DVD, in this case through a web browser to enhance the narrative, which is centred on a reality webcast. Interactive story navigation systems have also been delivered on DVD where the format's architecture allows 'additional content to be embedded into the experience of watching a feature film, similar to hyperlinks within a web page'. (Atkinson, 2007:22) One such example, *Tender Loving Care* (2000, Dir: David Wheeler) also discussed in chapter 5, allows the viewer to navigate and witness alternative content dependent on questions that they answer after each chapter of the film. These types of films in both their content and story design in the former examples, and in their form in the latter, challenge the dominant conventions of traditional

classical film, and are far removed from 'normative diegetic exposition' (Grieb, 2002:157). This is precisely the area in which the conception of *Crossed Lines* was posited.

> There's a conflict between interactivity and storytelling. Most people imagine there's a spectrum between conventional written stories on one side and total interactivity on the other. But I believe what you really have are two safe havens separated by a pit of hell that can absorb endless amounts of skill, time and resources (Platt 1997:195).

6.4 Installation

Crossed Lines is presented on a large-scale monitor showing nine screens of simultaneous video, which is controlled by the use of a physical telephone interface. The nine numerical buttons of the telephone keypad mirror the layout of the nine video screens establishing a firm visual relationship between the interface and screen (see figure 6.1). A familiar, simple and efficient user interface is used intentionally since it is a ubiquitous piece of hardware that can be operated intuitively, with no or very minimal instruction for the user. As McLuhan states, 'the telephone demands complete participation' (1997:267) and is 'an irresistible intruder in time or place' (1997:271).

In *Crossed Lines* the user presses one of the keys (numbers 1-9), and the result of their action is then immediately apparent on the corresponding screen in that a dramatic action is triggered, for example, a phone rings or someone walks into frame, thus giving the operator an immediate sense of user agency. The user listens to the audio and dialogue through the telephone earpiece. In technical terms, what the user's key press actually activates is a switch in video streams. The corresponding screen (numbered 1-9 in exactly the same way the phone keys are positioned; the numbers run chronologically from left to right, top to bottom) changes to a new scene, as does one or more of the other screens depending on which characters are in conversation. This is consistent throughout the entire piece. It is therefore apparent to the user early on in the experience that they are ordering and constructing the narrative. The software works in such a way that the scenes are chronologically ordered for reasons of narrative coherence, and once a scene has been viewed, it is no longer accessible to the viewer. On the nine screens, the user is faced by nine characters (Figure 6.2) each of whom are seen or will be seen as the narrative progresses, on the telephone, and then

communicating with one another solely through the use of the telephone. The approach taken to the production of the installation was to purposefully heighten and enhance the experience of the multiple narratives; and to encourage user engagement and immersion.

> With the telephone, there occurs the extension of ear and voice that is a kind of extra sensory perception. With television came the extension of the sense of touch or sense of interplay that even more intimately involves the entire sensorium (McLuhan, 1997:266).

The comparison to the television implied here is of note, since the aspect ratio of the screen depicted in figure 6.2 is more akin to a television set and it's 4:3 dimensions than it is to a 16:9 cinema screen. The use of DV also contributes to the installation's televisual aesthetic. The mode of viewing and interaction is also a contributing factor to this:

> …the possibility of simultaneously observing a few images that co-exist within one screen can be compared with the phenomenon of zapping – the quick switching of television channels that allows the viewer to follow more than one programme (Manovich, 2001:97).

Figure 6.1: Crossed Lines Interface

Figure 6.2: Crossed Lines: Nine Screens

desk with chair

Telephone USB interface

Flat Screen Monitor 23"

Computer Base
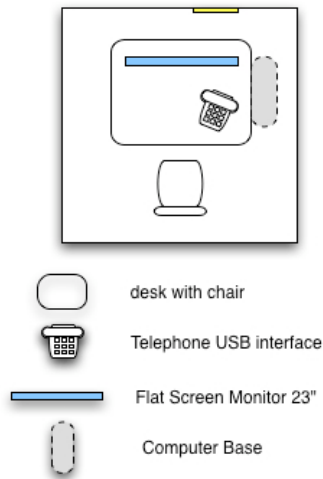
Figure 6.3: Crossed Lines Installation

6.5 Interactivity

There is no instruction presented to the user on the screen. Aside from the nine video streams, there are no additional on-screen buttons or visual cues, and the visual composition to that illustrated in figure 6.2 is not changed at any time. As Boyd Davis has noted in similar interactive pieces;

> The elimination of screen-furniture, together with the intuitive simplicity of the interaction, seem to hold some promise of making even an aggregate display feel natural. What is offered to the user is another segment of the diegesis, not an extra-diegetic button or control (2002:79).

This sense of the natural is of paramount importance to the piece and will be discussed further in a moment. It is difficult to escape from the 'vending machine paradigm' mode of interactivity in such installations (Hales, 2005:61), where there is a sense that there is nothing of any valued significance happening other than the pressing of a button to select an item. However, this was tackled in *Crossed Lines* by the use of the interface being an intrinsic element of the viewer's

experience of the narratives, to allow a sense of 'transparent immediacy' (Bolter and Grusin, 2001); as if the viewer is listening to the intimate exchanges in real time, it is as if they themselves are experiencing the result of a crossed line, as they enter the installation space and pick up the phone to listen in. The action of listening to the intimate exchanges on the screens also mirrors the actions of the characters and the stories that unfold on the multiple screens adding a further sense of narrative enhancement. Mateas and Stern have proposed that: 'stories with looser, sparser event structures (plots) will be easier to implement in an interactive medium (require less generativity)' (2005). Bruckman differs, suggesting that 'a balance must be struck between giving the viewer freedom and maintaining narrative coherence' (Garrand, 1997:68) and *Crossed Lines* was conceived as striking a balance between these two viewpoints. A definite methodological intention of the piece was to develop a more fluid interface and storytelling experience, allowing the viewer to explore the stories, rather than to make decisions at forced points. This has been the case with several other web and film interactive projects, which were discussed in chapter 5, in which the viewer is subject to a branching tree structure in which they can select a different storyline. Dixon has noted the problems of the commercial viability of interactive cinema;

> To give enough breadth to differentiate different plotlines and to follow the stories of different individual characters takes vast amounts of film, and consequently vast budgets, and the key problem is that most of it will not be seen. (2007:577)

6.6 Genre

The narrative was purposefully focussed as a naturalistic piece, borrowing certain codes and conventions from British television drama in its choice of storyline and characters. It was grounded in real life ideas as opposed to fantasy, which is characteristic of many interactive projects, which tend to be far more stylised and experimental. The challenge of *Crossed Lines* was to design an experience that had sufficient openness and freedom of navigation whilst maintaining the naturalism of the storylines and of the user experience, and also communicating a coherent and engaging narrative. As Naimark has claimed, the 'movie world understands realness but not interactivity and the computer world understands interactivity but not realness' (1990: 456-457) and Platt has commented that 'realism isn't a luxury in interactive entertainment' (1997:197). This was an area

that was a primary investigative focus of the piece and a key aim was to actively challenge this notion through practice-based experimentation. As Gilligan has noted in commenting on other interactive projects, humour, which is not a commonly used form of expression in interactive works, could be achieved by 'contrasting characters and information' (Garrand, 1997:78). This is certainly the case in scenes when the character Phillip is positioned into two of the more serious storylines, that of Gary and Bob, with humorous results. Viewers of *Crossed Lines* can therefore choose to follow the genre of their choice through the representative character or mix and match through varied choices. Naturalism is the overarching and consistent narrative style in terms of acting and settings, but the individual narratives span various genres: thriller, comedy, crime drama and social realism.

6.7 Themes: Time

To emphasise the theme of voyeurism and surveillance within the piece (which is discussed in detail later), each individual scene was shot as one continuous take with no cuts in either sound or picture, to give the viewer the impression that they are experiencing the events in real time. This is not a usual aesthetic of the cinema, with only rare examples of a director choosing to favour long continuous takes, as opposed to cutting and reframing action; a classic example is Alfred Hitchcock's *Rope* (1948) and more recently this technique has been used in both *Timecode* (2001, Dir: Mike Figgis) and *Elephant* (2003, Dir: Gus Van Sant) to recreate a real-time sense of events. Deleuze's concept of the 'time-image', which characterises films that use different forms of montage to manipulate the relations between time, space and the duration of the movie, is absent within these examples and also within *Crossed Lines*. Events appear to play out in real and in correct chronological time order. If editorial cuts were to have been executed to structure scenes and if changes in shot size and camera movement were to be included, not only would the staging of real time be ruptured, the sense of 'authenticity' and 'actuality' of the piece would also be compromised.

The passage of time in *Crossed Lines* was initially signified through the motif of a clock, which was positioned within the shot used in frame 8, above the head of Bob, the old man character. But this frame was tightened during the postproduction phase in order to be of comparable size and composition to the other eight screens, as incorporating the clock meant that the shot was too wide

(figure 6.4). The two exterior scenes are now used as the key signifiers of the natural passage of time from early evening, to dusk, to nightfall (figure 6.9 on page 129). These changes happen in tandem with one another, again to emphasise the real time experience of the piece, to indicate that the action of all nine screens is occurring in the same time frame. Obviously faster, impulsive viewers will experience this passage of time at an accelerated rate compared to slower more methodical viewers.

Doane has noted how 'time is indeed *felt* – as a weight, as a source of anxiety, and as an acutely pressing problem of representation' (Doane, 1997: 137) and this sense of time, of trying to beat the clock is central to some of the narrative path-ways within *Crossed Lines*. The pressure of time is felt by most of the characters, who are all governed by time within the narrative. Several characters refer to the time of day, or an arrangement that needs to be executed at a particular time, with a sense of implied consequence if a deadline is not met, for example, Julie arranges to meet Mandy at a particular time and both characters become visibly stressed as it becomes apparent that Julie is going to be late and Philllip arranges to carry out a favour with Brenda at 9pm.
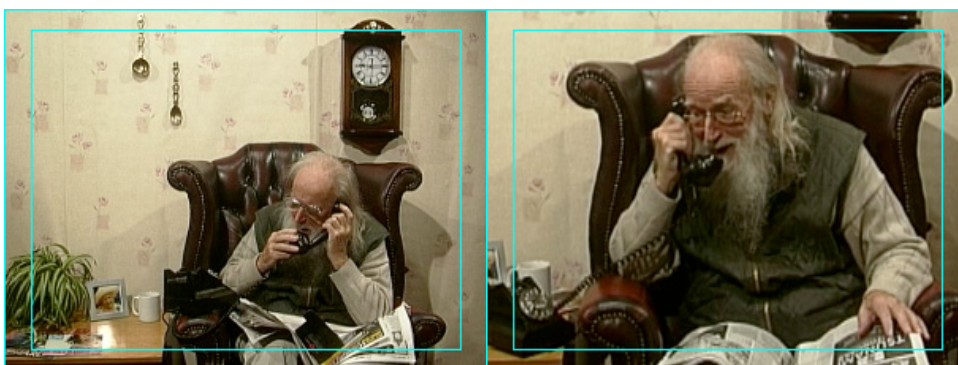
Figure 6.4: A change of frame size; initially the time on the clock corresponded with the actual screen time of the events taking place in each of the nine screens.

6.8 Themes: Surveillance

In addition to its study of story structure and interface, *Crossed Lines* also explores concepts of surveillance and voyeurism as critical metaphors and also as dramatic motifs. The camera is locked off in each of the nine screens ensuring that the nine frames are static throughout. This was a conceptual and thematic decision and functioned as a narrative device since the locked off and passive camera connotes surveillance. This is also emphasised in the fact that *Crossed Lines* does not break the 'fourth wall convention' which differentiates it from many examples of

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interactive narratives whereby the user is directly addressed by a character in a call-to-action scenario (examples include *I'm Your Man* (1992, Dir: Bob Bejan) *Tender Loving Care* (1997: Dir: David Wheeler) and *Stab in the Dark* (2001, Dir: David Landau). The convention stipulates 'that actors treat the open stage as a fourth wall without betraying any awareness of being observed, [which] places the spectator in a voyeuristic position'. (Stam,1985).

The objectified position of the viewer in *Crossed Lines* is also reminiscent of the experience of viewing cinematic narratives, and to the notion of the dominance of the cinematic gaze articulated within psychoanalytic film theory. In Laura Mulvey's (1975) seminal *Visual Pleasure and Narrative Cinema,* she discusses the experience of being forced to view the film from the point of view of the central male protagonist. The theme of the dominance of the gaze is evident in *Rear Window* (1954, Dir: Alfred Hitchcock), which arguably contains many parallels to the viewing experience of *Crossed Lines*. Stam (1985) refers to the windows through which the central character of the film, L.B.Jeffries observes his neighbours as 'framed genre pantomimes' and aligns his analogy to Foucault's description of the cells of the panopticon 'so many small cages, so many small theatres, in which each actor is alone, perfectly individualised and constantly visible' (Stam, 1985). These observations could both be applied to the aesthetic and content of *Crossed Lines,* within which the nine frames represent nine windows depicting nine separate tableaux where the characters play out their lives within the confines of the space and the genre to which they have been prescribed. In parallel with previous observations discussed in this chapter with regards to the similitude of *Crossed Lines* and television, the comparison of the *Crossed Lines* viewing experience to traditional cinematic narratives is problematised, since the notion of the cinematic gaze works in opposition to television's mode of viewing, which has been referred to as the 'regime of the glance' (Ellis, 1982). The notion of the televisual will be discussed shortly in relation to the interface. The theme of surveillance is also prevalent in the use of the viewer's listening or eavesdropping device; the telephone handset.

6.9 Point of view

The balance of characters was deliberate in order to allow the viewer a choice of a favoured point of view dependent on their own subjective experiences and preferences. On point of view, McKee argues that 'the more time spent with a

character, the more opportunity to witness his choices. The result is more empathy and emotional involvement between audience and character' (1998:364). There have been notable examples within cinema of using multiple points of view as a narrative and thematic device and several examples have already been discussed in chapter 5. There are nine points of view in this film, and each are presented equally in both form and content. The aim of this is to enable user empathy and emotional involvement to be experienced on comparable levels with each of the nine characters. They are each given equal attention in terms of character complexity, three dimensionality, screen time, and dramatic action. Their stories are clearly delineated and they each progress on their own specific narrative journeys, with each character's story reaching a satisfying narrative closure. As Dancyger has argued, 'underlying the experience of the linear narrative is the invitation for the viewer to identify with the main character' (2007:155) and in the case of *Crossed Lines,* nine 'main' characters are depicted and developed, and the viewer is given the option of which character(s) to identify with. All nine characters are present to the viewer at all times, in that they are constantly on screen either engaged in conversation with one of the other characters, or in some form of looped waiting state. The parallel of *Crossed Lines* to a gaming environment has been drawn in previous discussions, and so it is helpful and interesting to make comparisons here with the four different modes of points of view within computer gaming environments. These are the first person view (for example when driving a car, the user sees the dashboard and steering wheel) the third person view (for example, the user watches his/her character reacting to their actions on the control interface, usually from behind as in the case of the first person shooter), the god view (for example, in games such as *The Sims* where the user has a full world perspective and can see all characters) and cinematic view (for example, the game action is replayed from a number of different camera angles and effects such as slow motion are employed). In aligning the visual experience of *Crossed Lines* to the grammar of gaming, it most suitably alludes to the god view typology.

6.10 Telephone Interface

On the one hand, the telephone opens up new spaces that were not as easily accessible as before, on the other, it does so by destroying space, namely the space between two points, maintaining and joining the telephone holds together what it separates (Ronell, 1989).

> The simultaneity of this new medium allowed for temporal immediacy and its spatial isolation and brought cyclical connection in spite of physical separation (Sconce, 2000:7).

The telephone interface plays an intrinsic part in the user experience of *Crossed Lines* providing the user with a means to seamlessly engage and interact with the work. This interactive paradigm is reminiscent of works such as Jeffrey Shaw's *Legible* City (1989) cited in section 4.5. In this work, the user traverses the on-screen narrative landscape by physically pedalling and steering the bike in the installation setting. Similarly, in *Crossed Lines,* the use of the telephone provides an obvious interplay between form and content. The title *Crossed Lines* makes specific reference to the telephone interface chosen and the device of a telephone exchange 'crossed line' is used at certain points in the piece. Attitudes towards chaos and confusion lying behind crossed lines are central to the narrative, and an example of this occurs in Scene 6 in which Phillip (screen two) and Gary (scene seven) are connected together. This type of literal crossed line dialogue was used to emphasise the agency of viewing interaction. An intriguing exchange takes place in which an argument develops where the characters are attempting to ascertain who telephoned whom, and then Gary confesses to an act of violence that he has recently committed. Instances of physical crossed lines also occur towards the climax of some of the narratives, in which characters enter other character's frames (see example in figure 6.3) At the climax of Scene 28 Julie abandons her car in screen three, and then in Scene 31 enters the phone box in screen seven. Martin leaves his screen also in Scene 28, to enter Julie's car in screen three in Scene 29 at which point James from screen one visits Brenda in screen four, during which time Phillip from screen two enters James' flat in screen one.

By using the telephone paradigm as a cutting device, scenes are effectively actioned and sliced in two by the user: the author does not act as the editor, instead the user enacts that responsibility. If cuts had been put in, *Crossed Lines* would also have emulated a conventional film. Whilst arguably, this still remains the case, there is less of a sense of stage management and manipulation. The classical cinematic codes of using different shot sizes to control the dramatic tensions within a film is absent, for example, cutting to a close up to raise the

viewers awareness of heightened emotion within a character or scene. In this sense, the comparison of the installation to the television can again be drawn, with the telephone keypad acting as a remote control.

> Television is encountered through techniques such as channel hopping, muting, and multi-screens, through multiple association in different contexts or fragmented through time-delay and by report (Brown, N, Del Favero,D, Shaw, J and Weibel, P, 2003:312)

This analogy is particularly relevant since viewers can choose to continually favour one character by repeatedly pressing the corresponding key on the telephone keypad, or they can explore the multiple strands by pressing a different key at each interactive juncture. These are the points at which a conversational interchange has finished, and each of the nine screens reverts back to looped 'waiting' states. Viewers can also interrupt the story flow at any time, by pressing any key to intercept another conversation. *Crossed Lines* therefore addresses and reflects upon viewer's contemporary modes of viewing and reception. This type of fractured viewing behaviour is also comparable to viewers' experiences of television serial dramas in which they have become well versed in the archetypal characters, episodic structure and predictive storylines. Viewers are able to skip action, to miss whole weeks of episodes and yet still be able to pick up from their point of narrative departure, since they have developed an awareness and fluency in the language of the medium. The ability to channel surf, to pick and choose, or to make random selections, obviously has a profound effect on the different readings of the visual text and the different narratives that are revealed by the users choices. This is investigated further during user analysis of the piece, which is discussed in Chapter 7.

Figure 6.5: Crossing boundaries: In screen three, Julie has left her car and has appeared with Gary in screen seven. Julie's mother Maureen in screen six tries to calm Gary down unaware that her daughter has just entered the phone box. A simultaneous exchange is also taking place between James, screen one and Mandy, screen nine. Paramedics tend to Bob in screen eight, in a failed attempt to resuscitate him.

6.11 Narrative structure

Exploring an alternative to the branching tree form of exposition, to allow increased opportunities for user freedom of choice and navigation was key in designing and defining the interactivity of *Crossed Lines*. This was of paramount concern in the scripting of the piece, and the subsequent structure of the storylines and scenes. The nine narratives in *Crossed Lines* are designed to run alongside one another, and to intersect with one another at strategic points. The user is never restricted by the amount of choices that are available to them, only in the sense that they have a choice of nine buttons to press. Various combinations of the story can therefore be viewed, and this will almost always be an entirely different experience for every user. The user inevitably will make choices through the narrative and structure their own experiences and journeys through the set narratives. This interactive dichotomy presented in the comparison of branching tree structures and the one utilised in *Crossed Lines* is illustrated in Peacock's definition of interactive media being characterised in two ways, as redundant or entropic;

> Redundancy is a term used to refer to the viewer's experience of a sequence of
> events that is highly predictable, where options are closed… entropy refers to

experiences of sequences which are unpredictable, where options are open and remain open, possibly appearing to be discontinuous or disconnected (2000:23).

In this sense, the intention was certainly to explore the entropic possibilities presented by the structure of *Crossed Lines.* In the first section of *Crossed Lines*, (see figure 6.6) the same scenes can be accessed at different points. The scenes were therefore carefully scripted to ensure that all expositions make narrative sense regardless of the order the scenes are viewed in; all scenes within this section occupy the same temporal space. Once a scene has been viewed, even partially, the user cannot revisit the same scene, unless the installation is reset at any point by the user pressing the 0 key on the telephone handset. This restriction was imposed to maintain a sense of real time, and of 'reality' and to create an environment in which the user could not transcend time boundaries.

Once the user has viewed all of the scenes for one particular character, they will move onto the second stage. The second stage exposition constantly moves forward as the user presses buttons and moves from scene to scene and there is a highly defined sense of narrative progression. The exterior scenes progressively darken to indicate nightfall, and the user progresses through to a chosen conclusion dependent on which button they press, ultimately ending the experience at the end credit sequence.
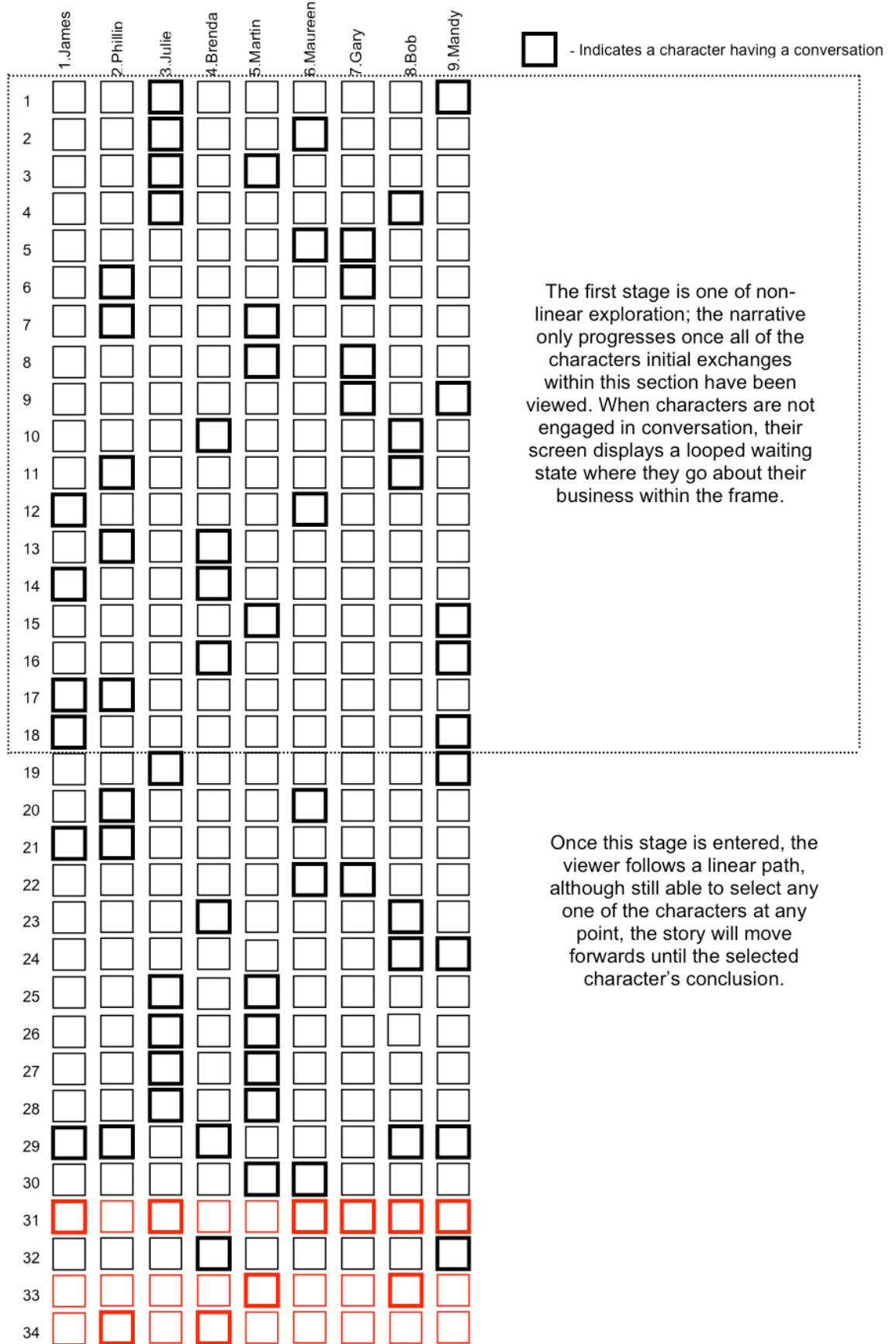
Figure 6.6: Structure of interactivity and narrative mapping of *Crossed Lines*

The first stage is one of non-linear exploration; the narrative only progresses once all of the characters initial exchanges within this section have been viewed. When characters are not engaged in conversation, their screen displays a looped waiting state where they go about their business within the frame.

Once this stage is entered, the viewer follows a linear path, although still able to select any one of the characters at any point, the story will move forwards until the selected character's conclusion.

☐ - Indicates a character having a conversation

6.12 Process: Scriptwriting

> To write procedurally; to anticipate all the twists of the kaleidoscope, all the actions of the interactor; and to specify not just the events of the plot but also the rules by which those events would occur. Writers would need a concrete way to structure a coherent story not as a single sequence of events but as a multi-form plot open to the collaborative participation of the interactor (Murray, 1999:185).

The writing of the screenplay was approached by firstly developing nine identifiable and clearly defined characters and then by mapping the various different and complex relationships between them (see figure 6.7 for brief character descriptions and relationship details). Contrasting character types were strategically chosen and developed: strong affirmative types, (James, Phillip, Julie and Brenda) were purposefully placed against weaker or more disturbed characters (Gary, Martin, Mandy, Maureen and Bob). There was a definite balance of ages and gender and there was also a balance of genres albeit in a subtle sense, in terms of the characters that were used to represent the specific types of narrative genre. Phillip is the embodiment of the comedic, Julie, Bob and Gary exemplify the victims of tragedy and Martin personifies a representation of the villain in a thriller. The boundaries between the genres become blurred as different characters from different genres engage with one another.

The identity of James, the tarot reader, shifts throughout the narrative, initially he is presented as a fraud who is not a medium, or a physic, but acts as a counsellor or a shoulder to cry on for lonely, troubled women. However, at the climax of the narrative, this turns itself on its head as he begins to see and feel the fates that befall some of the other characters. This aspect of his character and the telephone, which in this case is used as an interface to the 'other' world (when he places the handset on the receiver, the visions cease) can be paralleled to the early use of the technology:

> Thomas Watson's early experiments with the telephone included using the apparatus to try and contact voices from the dead. Bell's demonstration of the first telephone, were met with scepticism and fear from an audience dislocated from their points of origin. These early metaphors of haunted technology and ghosts in the machine continue to inform contemporary notions of telepresence and disembodiment (Schupli, Phony CD-ROM, 2001).

	Mandy *Sex line operator* Sullen and preoccupied	Bob	Gary	Maureen	Martin	Brenda	Julie	Phillip
James *Tarot card reader* A confident womaniser	Mandy calls James for anonymous tarot readings.	James calls Bob from Brenda's phone when he discovers that he is a victim of her fraudulent credit card activities.	No connection.	Maureen calls James for an anonymous tarot reading.	No Connection	James and Brenda are having an on-off sexual relationship. Brenda is seeking revenge for an affair she suspects James is having.	No connection.	Phillip calls James as part of his plot with Brenda to seek revenge. He also enters his flat at a later scene in the narrative to sabotage his tarot cards and to steal his wallet.
Phillip *Catalogue call centre agent* Camp and quick witted	Phillip speaks to Mandy from James' phone when he enters his flat to take his credit card.	Bob calls the catalogue order line from his Sunday newspaper and is connected to Phillip.	Crossed Line.	Maureen calls the catalogue line to place an order and is connected to Phillip.	Phillip calls Martin to let him know about Gary in the phone box. He knows him through Brenda's criminal connection.	Friends/ Conning Associates, they speak with one another in order to plot for Phillip to steal James' wallet.	No connection.	
Julie *Motorist stuck in her broken down car* Young, naivie and trusting	They are good friends and speak throughout as they are meeting That evening to go out.	Crossed Line.	They meet at the climax of the narrative, when Julie runs into the phone box to call for help.	Mother and Daughter. Maureen becomes increasingly worried for Julie's safety.	Martin intercepts Julie's calls for assistance and calls to taunt and stalk her.	No Connection		
Brenda *Credit card fraudster* Unpleasant and selfish	Mother and Daughter; a troubled and distant relationship.	Brenda targets Bob to dishonestly obtain his credit card number.	No connection.	No connection.	No connection.			
Martin *Telephone hacker and stalker* Sinister and controlling	Martin phones the sex line to speak to Mandy.	Father and Son, they only speak in the conclusion of the narrative when Bob calls Martin for help.	Martin calls Gary in the phone box to taunt him, after being given the number by Phillip.	Maureen speaks to Martin at the climax of the narrative when he answers Julie's phone from her car.				
Maureen *Telephone Samaritan* Kind and well meaning	No connection.	No connection.	Gary calls the Samaritans and is confides in Maureen on a number of occasions.					
Gary *Alcoholic depressive* Aggressive and desperate	Gary calls the sex line from the phone box and speaks to Mandy.	No connection.						
Bob *Confused elderly man* Lonely and vulnerable	Bob calls Mandy from a number in his Sunday supplement.							

Figure 6.7: Grid of relationships and connections between the nine characters in Crossed Lines

Action between the characters was broken down into scenes or 'conversations' – the motivation point of the commencement of each scene/conversation is signalled by a telephone ring, (triggered by the viewer's key press), and is punctuated at the end by a characters' telephone being put down. It was essential to structure the narrative segments in this way, as O'Meara has observed, 'every experience in an interactive ought to be a tiny story or scene. Even if it's short, it still needs to have a beginning, middle and end' (Garrand, 1997:76). Given the problems that can arise within a potentially fractured viewing experience, in what has been scripted as a fully formed narrative, the challenge of ensuring that viewers received essential expositional elements was paramount.

> The same information will have to appear in a number of different scenes, but it can't be presented in exactly the same way or the player will become bored with hearing it on repeated viewings. Instead, the writer has to feed the essential information into all the possible story tracks but do it differently each time (Garrand, 1997:76).

The conversations are by their very nature 'dialogue heavy', since characters are inclined to explicitly state their intentions whilst conversing on the telephone. The usual screenwriting rule of using 'visual before aural' indicators (Costello, 2004:82) does not necessarily apply in this instance, especially given the fact that the conventional cinematic tools such as camera movement, shot changes, non-diegetic sound and music are also absent. Costello encourages the writer to omit unnecessary dialogue, if the same information can be given visually, but this economical approach to language was not appropriate given the nature of all the scenes and the emphasised actuality of the piece. Cinematic codes and conventions are once again not appropriate, again arguably making the piece more like television in its form, content and potential reception.

In terms of approaching the formatting of the script, Friedman claims that 'no clearly defined format has come to the fore such as those that exist for the film and television worlds' (2006:266) and Handler-Miller asserts that 'formats for interactive scripts vary widely. Sometimes they resemble the format for feature films, but incorporate instructions for interactive situations' (2004:197). Wimberley and Samsel have conceded that there may never be a universal format since 'the power and promise of interactive multi-media are that it shifts control to the end-user' and 'unlike feature films, multi-media titles have unique and varied structures depending on its category or purpose' (1995:x). In the case of *Crossed Lines* a traditional scripting format was followed, then additional elements not present in traditional scripts were employed to identify the scene numbers. These scene numbers precede the master scene line in every instance (see figure 6.8). The first digit refers to the grid number in which the scene is visible, and the second is a shooting script number, to identify the sequence of scenes to be shot during the principle photography stage.

```
                    NINE INDIVIDUAL SCREENS, POSITIONED IN A GRID THREE BY THREE
                    In each we see a character.

                    1.1.INT. JAMES' OFFICE - DAY
                    James sits at a candlelit desk, next to a telephone,
                    shuffling a deck of tarot cards.

                    2.2.INT. MARTIN'S OFFICE - DAY - SAME
                    Martin is in a darkened attic room; the light of a computer
                    screen illuminates his face as he frantically taps into a
                    keyboard; he stares intently at the computer screen, biting
                    his lip and concentrating.

                    3.3.INT. JULIE'S CAR - DAY — SAME
                    Julie is driving along in a car in an inner-city setting. She
                    taps, sings and dances in her seat to an upbeat house track
                    playing on the radio.

                    4.4.INT. MANDY'S OFFICE - DAY - SAME
                    Mandy is sitting at a desk in a very tatty office environment
                    next to a telephone. She is chewing gum, which she pulls in
                    and out of her mouth with her fingers.

                    5.5.INT. BOB'S LIVING ROOM - DAY - SAME
                    Bob sits on an arm-chair, fast asleep with his head tilted to
                    one side, with a telephone receiver cradled between his ear
                    and his shoulder, and a newspaper resting on his lap.

                    6.6.INT. MAUREEN'S OFFICE - DAY - SAME
                    We see a phone in an empty booth. There are self-help and
                    medical leaflets surrounding the phone. There's call centre
                    noise in the background.

                    7.7.INT. PHILLIP'S CALL CENTRE OFFICE - DAY - SAME
                    Phillip sits in a sterile office environment wearing a head
                    set. He looks around the office and chats to people, eats and
                    flicks through a magazine.

                    8.8.INT. BRENDA'S HOUSE - DAY - SAME
                    We see a chintzy hallway and a pseudo antique phone, fake
                    flowers and tacky ornament. There is no character visible in
                    the frame.

                    9.9.INT. PUBLIC TELEPHONE BOX - DAY - SAME
                    We see wide-angle view taken from the top corner of an empty
                    phone box in a quiet street.

                    INT. GALLERY INSTALLATION — DAY — SAME

                    Viewer/Listener picks up the phone receiver in the installation to listen.

                                    INSTRUCTIONAL V.O.
                            Welcome to crossed lines. There are
                            nine people within this telephone
                            exchange who communicate solely through
                            the use of their telephones. You can
                            activate their phones by pressing the
                            corresponding key on the telephone keypad
                            in front of you.

                    1.10.INT. JAMES' OFFICE - DAY - CONTINUOUS
                    James deals the cards that he has been shuffling into five
                    piles as if doing a tarot reading for himself. He is serious
                    throughout.

                    2.11.INT. MARTIN'S OFFICE - DAY - SAME
                    Martin's tapping and concentrating continues as he turns the
                    speakers up; the sound of police radios can be heard. He
                    starts to pick up what sounds like telephone conversations,
                    A man can be heard dictating directions as to his whereabouts
                    on the motorway.

                    3.12 etc…
```

Figure 6.8: Script excerpt from Crossed Lines

While a viewer is witnessing a conversation, action continues in each of the
remaining 'non-conversational' frames: we see the other characters in looped
action, waiting for a call or going about their business. For each scene it was

therefore essential that all nine screens were scripted in the way shown in figure 6.8, even if there was no dialogue for a particular character. A description of the action going on within their screen was essential, since, dependent on the point in time in the story, the characters in the non-conversational frames would be waiting in a different way, which would be indicative of their current narrative stage and psychological state in their own narrative journeys. In screen seven, for example, Gary, the inhabitant of the phone box, becomes increasingly agitated as the narrative progresses as he either swigs from a bottle of neat rum or props himself against the phone. Similarly Julie, in screen three, stranded in her broken down car becomes visibly anxious as night falls: her camera switches to night vision as the light levels lower increasing the sense of user surveillance. The viewer witnesses her increased anxiety as she is unknowingly, telephonically stalked by Martin, the character who inhabits his phone-hacking world within screen five.

In form and presentation, the script appears as any other, but this is only a hint at the final film, as it cannot encompass all of the narrative possibilities. The variation in order and structure of the script is set in motion by the viewer's various interactions. The script includes figure 6.6 as a visual guide indicating the layout and the corresponding numbering of the scenes to enable those working on the project to have a greater understanding of the structure of the piece. As Friedman states 'writing for interactive media will require a new layout to accommodate not only more elements of media production but also the non-linear form and the interactive possibilities of the program'. (2006:254)

Figure 6.9: The passage of time is illustrated in the piece by the changing lighting conditions in screens three and seven.

6.13 Process: Production techniques

All scenes were shot in the months of June and July 2003. Each character was shot individually in separate locations. The actors heard the dialogue to respond to through an earpiece. In later shoots, the actors heard the pre-recorded dialogue through the earpiece, with which they then had to respond to in complete synchronicity. Dialogue had to fit exactly and overlapping had to be avoided in order to eliminate any postproduction manipulation. The choice of a locked-off camera in all nine scenes provided consistency; each of the frames needed to be similar in both composition and shot size and action needed to be relatively equal, so that no one frame was favoured, and viewers could not be influenced in their selections on this basis. A mid shot was therefore selected as the most appropriate shot size since it provided a relatively close and detailed view of the character and also allowed key elements of the locale to be shown. In interactive works, says Garrand, 'special attention is paid to sets and props to provide exposition' (1997:76). This was also enhanced through the various atmospheric audio beds that were used to provide the viewer/listener with further environmental information. The sound of keyboards tapping, and constant talking in a multiplicity of voices can be heard in screen two to indicate Phillip's position of working in a busy, open plan office. In screen four, the viewer can hear constant background dialogue, but this is rather more subdued within Maureen's environment of a Samaritan call centre. These narrative techniques are crucial communication tools

in this type of narrative and as David Riordan points out, 'if you spend time introducing the characters, the viewer is not being asked to do anything. In interactive, that is death. Instead you need to discover the back-story more as you go' (Garrand, 1997:75). Voice-overs were required for Scene 9 and Scene 24 (which involved Mandy the sex-line operator – a recorded message is played to the caller warning that the service is for over 18 year-olds only) and Scene 20 where Phillip is required to undertake repetitive strain prevention exercises under the instruction of a voice heard through the office speaker system, which is also audible during Scene 13 where he is cut short by Brenda.

Figure 6.10: Production Stills, June-July 2003

6.14 Process: Postproduction

During Postproduction, all conversational scenes were matched and synchronised with one another using *Final Cut Pro* software and in the case of any overlapping dialogue, frames were trimmed to maintain audibility and fluidity. Audio beds were laid as well as additional sound effects. All phone rings were added, in addition to the voice-overs previously described. The waiting scenes also needed to be edited and looped, and scenes were reversed and edited top to tail with the original in order to disguise the loop point to the viewer. The separate movies were then exported at full frame resolution from *Final Cut Pro* using the *QuickTime* H264 codec.

6.15 Process: Interactive scripting

Ongoing prototype user tests were also undertaken throughout the interactive authoring period to gauge viewer perception, particularly around the issue of interactivity and how this was communicated to the viewer when they pressed a button on the telephone keypad. Except in some scenes where a phone rang, it was initially evident through user feedback that it was not apparent to the viewer which screens were becoming active at the start of a conversational exchange. Several remedies were applied to this problem, including visual cues and audible beeps that were triggered when the viewer pressed a button. Examples of these visible cues are illustrated in figure 6.11. Colour borders placed around the individual movies were experimented with along with applying a monochrome filter to those frames that were inactive, shown in the left hand example in figure 6.11. The white noise/interference effect was chosen as the optimum alert with an accompanying white noise sound effect, shown in the right hand example. A user commented that 'you notice it, but you don't notice it' and this effect is also consistent with the television analogy since the simulated white noise is associated with analogue signal interference.

Figure 6.11: Examples of selection frame alerts

The interactivity of *Crossed Lines* was authored in the *Lingo* scripting environment of *Director*. The software was chosen to be the most appropriate since many of the previously referenced interactive projects were authored in this environment, and it is commonly considered as the industry standard package for authoring interactive media elements, particularly when using video. This choice did not come without its problems, which were mainly focussed around the issue of keeping the nine video streams in complete and constant synchronicity, and without showing any black flash frames. The compressed *QuickTime* movies were imported into the

Director cast, and the 34 scenes were constructed in the *Director* 'score' (timeline) by placing each of the nine movies that constituted each scene as sprites within a frame of the timeline. When the first tests were run and tested for consistency and synchronicity, it was noted that the movies were losing sync with one another. It was confirmed that this was a result of not allowing the movies to run up to full speed, as in effect, when the user pressed a button, it took a second for the videos to play at their full frame rate. The solution to this problem was provided by re-editing each of the movies in the *Final Cut Pro* timeline with one-second worth of 'slug' (black screen) inserted at the head of each clip. All movies were then re-exported back into *Director*. Behaviours were then attached to each of the sprites, which indicated whether the sprite would loop the movie (in the case of a waiting scene) or whether the playhead would be directed elsewhere after the scene's completion (in the case of a conversation scene). These behaviours were individual to each sprite and included the specification of the running time in 'ticks' (60 ticks per second).
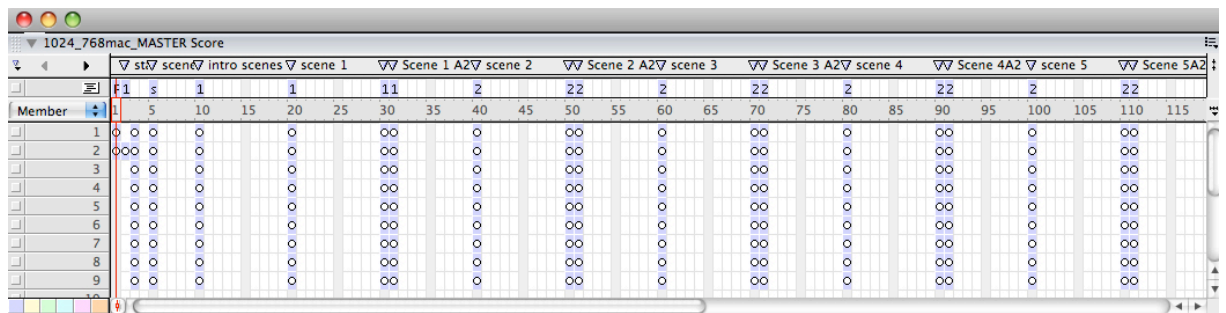

Figure 6.12: Director Score of Crossed Lines Project: The 9 Sprites of 9 separate movie files constitute a scene

```
case (keynumber) of
  1:
    if not getOne(pAlreadySeenList, 220) then
      go to frame(220)

    else if not getOne(pAlreadySeenList, 260) then
      go to frame(260)

    else if not getOne(pAlreadySeenList, 320) then
      go to frame(320)

    else if not getOne(pAlreadySeenList, 340) then
      go to frame(340)

    else

      go to frame(400)

    end if

  2:
    if not getOne(pAlreadySeenList, 120) then
      go to frame(120)

    else if not getOne(pAlreadySeenList, 200) then
      go to frame(200)

    else if not getOne(pAlreadySeenList, 240) then
      go to frame(240)

    else if not getOne(pAlreadySeenList, 320) then
      go to frame(320)

    else if not getOne(pAlreadySeenList, 380) then
      go to frame(380)

    else

      go to frame(400)

    end if
  3:
    if not getOne(pAlreadySeenList, 20) then
      go to frame(20)

    else if not getOne(pAlreadySeenList, 40) then
      go to frame(40)

    else if not getOne(pAlreadySeenList, 60) then
      go to frame(60)
```

Figure 6.13: Director Frame Script Example from Crossed Lines

The complex navigational scripting was then authored, and attached to each frame. The different elements of script defined an action for what would happen, depending on which of the nine keys would be pressed at the particular frame to which it was assigned. This would depend on where the viewer had come from and which scenes they had already viewed. This was defined in a generated file called the 'already seen list'. This ensured that viewers could not step back in time, or view the same scene twice in one session. An additional universal script was also written to capture data regarding the amount of time each user spent in a scene, and what scenes they visited in which order (discussed further in Chapter 7).

The main unresolved problem that has transpired during the interactive authoring and user testing of the piece is that there is always a black flash frame visible for a split second at the point at which a user presses a button and the video streams switch. The black frame is not visible in each of the nine video frames, only in those which switch (since the other movies were assigned the 'loop' behaviour to avoid this happening) and it has been attributed to the fact that the play head in the *Director* timeline takes a split second to reposition itself. Other artists, who

have been using the software to achieve similar ends, have previously encountered similar problems. Sawhney, Balcom and Smith (1996) commented that the choice of authoring environment caused many problems, as although the interface of the programme is based on the cinematic; organising as it does content into frames, scores, stages and casts, the linear motion of the playback head works against non-linear design principles. Although this is an unsatisfactory outcome for the author, it is important to note that none of the users tested have cited this as a problem or a distraction, indeed they did not even acknowledge that it occurred.

6.16 Conclusion

The overview of the creative process provided in this chapter demonstrates the insights of the various disciplines involved; from conception, to plotting, scripting, filming, directing, picture and sound editing and interactive authoring. *Crossed Lines* provokes debates and discourse surrounding alternative narrative structures, user engagement and interface. *Crossed Lines* is a multi-genre hybrid of film, television and game, which references and reflects upon its predecessors and looks toward new forms of interactive AV storytelling. It presents a malleable form of digital fiction, which takes into consideration the viewer's heightened awareness of narrative structure and plays to the sense of instant gratification inherent in the television and gaming audience. However as Sloane has noted 'the equipment used to present the story to the reader is not an adequate site for rhetorical analysis of how stories act on their readers' (2000:126).

To provide further analysis of the piece, audience engagement and reception need to be considered, since, as Tremblay has observed, when navigating through such 'narrative spaces, which present multiple perspectives and simultaneous levels, the user must bring his or her subjectivity into play'. (Tremblay, 2004) One of the aims of this thesis is to offer insights into methods of audience-based analysis suited to new media interactive narrative texts. As Bilda has stated, the 'level of engagement with an interactive artwork depends on various factors such as aesthetic satisfaction, and how the audience constructs meaning, pleasure and enjoyment. Evaluating such experiences remains an open research problem' (2007:364). Audience studies have been undertaken to gauge the reception of *Crossed Lines* and to build patterns of how the different story content has been

viewed and accessed. This will now be documented and discussed in depth in chapter 7.

Chapter 7: Crossed Lines user testing methodologies and results

> While the nature of audiencing is surely changing, just as surely will audiences remain central to the analysis of the new communication environment. (Livingstone, 2004:85)

7.1 Introduction

This chapter documents the research methodologies that were employed and the audience behaviours and user responses that were recorded throughout an extensive period of user testing of *Crossed Lines*. This chapter aims to detail the analytical process of the user testing of *Crossed Lines*, firstly by describing the various research methodologies that were employed to form an overall picture of the evaluation exercises. It will then discuss and evaluate the different results under the headings of the methodology type that they adhere to. These will then be brought together within five case studies selected from the sample to elaborate upon the overall viewing experience and subsequent user responses. The chapter will include discussions on the modes of spectatorship that were witnessed and documented through the various research methodologies. The chapter will end by drawing two sets of conclusions; the first will be in relation to the experience and viewing patterns of *Crossed Lines* itself, and the second in relation to the wider context of the investigation into the application and innovation of new media audience research methodologies.

7.2 Previous Research

There have been very few examples of audience studies into the reception of interactive narratives; only recently have papers been published which document user testing of such content. These consist of individual studies of a particular form of interactive content. As Magerko has noted, comparisons of different interactive systems 'are complicated by the fact that different systems are used to create different narratives; it is difficult to differentiate between the authored content and the system capabilities in an empirical setting' (2007:1). Hutchinson (2003) undertook a study of three interactive experiences: *Myst* (1993), *Osmose/Ephemere* (1995 and 1998) and *Everquest* (1999). These are from divergent interactive narrative fields; the adventure game genre, VR artworks and on-line multi-user role-playing environment respectively. Hutchinson applies a narratological/performance-based analytical model to the works, which

incorporates a key to decipher author and reader contributions to the work. Hutchinson developed this model from the separation of narrative work into three theoretical levels of analysis as proposed by Mieke Bal (1997) - fabula, story and text - and then makes an assessment as to what level the reader or author exercise influence over these elements. Perhaps the key weakness to this study is that there is an absence of commentary from user experiences aside from Hutchinson's own personal observations. Unlike Hutchinson's study, research into the *Crossed Lines* user experience places the approach of recording and assessing user experience at its core. Also unlike Hutchinson, it does not aim to draw comparisons between *Crossed Lines* and other studies, but rather to acknowledge them, to reference their methods, and to note and learn from their problems and shortcomings. In 2001, Vorderer, Knobloch and Shramm undertook a study of the effects of an interactive narrative suspense film on audience levels of entertainment, in which three versions of the content were tested: no-involvement, low-involvement and high-involvement. Their findings concluded that the ability to interact with a narrative might only increase entertainment levels within users of a higher cognitive capacity. Perhaps the weakness of this particular example was that the cognitive capacity of the users, which is itself exceptionally difficult to evaluate and capture, was defined in the testing process itself, whereby user response times were measured and the results of which used as an indicator of the cognitive capacity of the participants. In 2005, Vesterby, Voss, Hansen, Glenstrup, Witzner and Rudolph carried out a study of gaze-tracked interactive movies using vision tracking as their main methodology. They conducted an experiment involving eleven subjects influencing a two-minute film clip by their eye movements in two scenes. They studied the viewing patterns across a very small sample (only eleven users were tested). Obrist, Bernhaupt, Beck and Tscheligi undertook an eye-tracking usability test of interactive television content with a group of elderly respondents. Their aim was to integrate their findings into the design of interactive news broadcast screen interfaces to improve accessibility to all users. The elderly were focussed upon as a group unfamiliar with these interfaces. The tests were laboratory-based, giving the users a number of tasks to carry out, relating to navigating the interface and locating specified elements of information; their eye movements were tracked throughout. The group's findings concluded that on-screen visual cues should be more pronounced, and the use of visual metaphors from other information technologies should be kept to a minimum as it would disadvantage this particular test group, who tend not to have prior

knowledge of other IT environments. Eye-tracking has been used extensively in both visual research and arts based projects (Jacob, 1995; Polli, 1995 and 2001, Conlon, 2001). More recently, Hand and Varan (2007) conducted a study of the effects of interactivity in television drama. They tested a sample of eighty participants, using animated content from a computer game, which they edited and presented to include some narrative choices in a 'yo-yo' structure, which 'allows the audience a sense of agency without negating the narrative structure' (2007:58) to gauge and document how users responded to it. Their conclusions found that in their investigations of measuring interactive appetite, all gender and age groups enjoyed interactivity but this was more pronounced in the male 18-34 and 35-54 groups. They in part attributed this to the action crime programme genre used in the testing. The lowest response to interactive appetite was the male age group aged 55 and over.

7.3 Research Methodologies

Ongoing user evaluation and analysis was very much part of the developmental process of *Crossed Lines.* A piece of software called *Sophocles* was used during the scriptwriting phase for the purpose of ensuring equitable screen time and dramatic democracy. What was most useful for the purpose of my own research was the suite of analysis and visualisation tools available to provide statistical data from the screenplay document. Screen times and also character relationships could be identified and represented in both statistical and pictorial form. This ensured that all screen time and action time for the nine characters in *Crossed Lines* was equal; to ensure that during the latter phases of user testing, robust conclusions could be drawn with regards to storyline and character popularity, which would not be biased by the fact that some characters were on-screen, or had considerably more dialogue than the others. User tests were also carried out during the interface design of the 'conversation alert signal' as discussed in Chapter 6, whereby user responses were garnered to ascertain both the effectiveness and the potential distraction of a visual and audible cue that was used to signify to the viewer which characters had begun to engage in conversation.

The retrospective user testing process of *Crossed Lines* aimed to test the main areas of user levels of interactivity, levels of immersion, of engagement and of enjoyment. This was approached by employing various methodologies to attempt

to capture all of the factors that were at work during a user's engagement. This technique of mixing methodologies has become commonplace within contemporary research practice:

> Many researchers do not regard different methods as substitutable for one another since they associate them with very different theoretical perspectives and different conceptualizations of research problems, whereby different realities or different aspects of reality are observed and captured (Brannen, 1992:5).

An approach coined by Dicks, Soyinka and Coffey (2006) in an article of the same name, *Multi-modal ethnography*, aims to 'suggest an approach to ethnographic work which sees meaning emerging from the fusion of differently mediated forms into new, 'multi-semiotic' modes'. There is arguably a sense of the multi-semiotic within both the form and content of *Crossed Lines* and the multiplicity of methodologies employed to analyse and evaluate the project's different elements. There is the physical interaction of the user with the interface, the mental interaction of the user with the story content, the plot lines and the characters, and the combination of the mode of viewing with the thoughts and feelings evoked by the experience. The complexity of the user's experience therefore needed to be reflected in the complex methodological approach to capture and document the multifaceted viewing experience.

Figure 7.1: User tests of the installation

7.4 Overview of user tests

In order to track, measure and evaluate user engagement and experience of *Crossed Lines*, fifty users were tested, twenty five in an individual environment and

twenty five in a group computer laboratory setting. The sample was concentrated to fifty people, as it was not the intention to provide a major data analysis in terms of sample size, rather it was identified as important that methodologies were integrated into the project to enable me as a researcher to be able to analyse different aspects of the project to user perceptions. The multiple methodologies provide an overall picture of the user experience and the value of analyses they provide lies in the depth and complexity of an integrated approach. The users were sampled from a broad age range (18-67) and represent an equitable gender split.

7.5 Methods

The combination of four methods that were employed aimed to ensure that a rounded picture of the user experience was formed, providing insights into all levels and facets of the experience in both the physical and emotional interactions. This research does not favour one methodological approach over another; and their listing below indicates the order in which the test results are collated and is not intended to communicate a hierarchical methodological structure. As Brannen has stated;

> The notion of triangulation is drawn from the idea of 'multiple operationalism', which suggests that the validity of findings and the degree of confidence in them will be enhanced by the deployment of more than one approach to data collection (1992:63).

7.5.1 Method 1 – Director output file

A secondary level of scripting had been incorporated into the *Director* application of *Crossed Lines* for the specific purpose of enabling data to be generated concerning the time spent in the different scenes, the different routes chosen by different users, character and storyline popularity, and the overall length of the story experience for each user. This data has been visualised to build patterns of how the different story content has been viewed and accessed. The output of the *Lingo* scripting is generated as a simple text file as shown in Figure 7.2. Each time a user presses a button during their experience, the action is logged as both a time stamp – taking the data directly from the computers' internal clock – and as a position within the *Director* timeline – data taken directly from the scene label which has been assigned to each timeline position and correlated with the scene numbering within the screenplay (appendix 4). In order for this data to

demonstrate significance, the information has been translated into the length of time spent in each scene. In order for the data analysis to be meaningful, this was in turn calculated as a *percentage* of each scene, since all scenes ran for different lengths of time.

```
-- "Viewer started watching movie at: 10:08:37 "
-- "Viewer entered intro scenes at 10:11:46 "
-- "Viewer selected scene15slugfuzz at 10:12:26 "
-- "Viewer selected scene16slugfuzz at 10:12:39 "
-- "Viewer selected scene14slugfuzz at 10:12:59 "
-- "Viewer left intro scenes at 10:13:07 "
-- "Viewer entered scene 6 at 10:13:07 "
-- "Viewer left scene 6 at 10:13:49 "
-- "Viewer entered scene 1 at 10:13:49 "
-- "Viewer left scene 1 at 10:14:53 "
-- "Viewer entered scene 9 at 10:14:53 "
-- "Viewer left scene 9 at 10:16:06 "
-- "Viewer entered scene 12 at 10:16:06 "
-- "Viewer left scene 12 at 10:17:55 "
-- "Viewer entered scene 2 at 10:17:55 "
-- "Viewer left scene 2 at 10:19:16 "
-- "Viewer entered scene 3 at 10:19:16 "
-- "Viewer left scene 3 at 10:21:02 "
```
Figure 7.2: Director output file

7.5.2 Method 2 – Questionnaire

All users were given a written questionnaire of 52 questions to answer immediately after using the installation (appendix 5). The purpose of this was to ascertain various pieces of ethnographic data and also to build a picture of peoples attitudes and experiences. These questions have been processed and analysed using the *Statistical Package for the Social Sciences* (SPSS). This software is particularly useful when testing a representative sample of the population as it allows for the testing of statistical significance within the response to questions, and where this is evidenced, claims can then be made from the representative sample to be generalised to the entire population (albeit tentatively in this case since the sample is relatively small). 'Statistical significance is solely concerned with the confidence researchers can have in their findings. It does not mean that a statistically significant finding is substantively significant' (Bryman, 2001:237).

7.5.3 Method 3 – Interviews

A group of seventeen users were also questioned in further detail immediately after the experience on a one-to-one basis in an open format to express what they felt about their experiences. These interviews were recorded on video and transcribed.

7.5.4 Method 4 – Eye-tracking

Ten users were eye-tracked during their use of the installation. The *Visiontrak Global System ETL-600* with integrated *Fastrak* head tracking is a magnetic tracking system (with one transmitter and four sensors) developed by *Polhemus*. The head-mounted hardware and software system tracked the path of the user's pupil. This data has then been visualised to show the user's eye activity during the installation experience from the original XML file generated by the Point of Regard (PoR) head-eye tracking software.

-2001809170 -0.291203 0.292054 1
-2001809147 -0.49663 0.291273 0
-2001809142 -0.495831 0.289765 0
-2001809138 -0.49796 0.289571 0
-2001809134 -0.494354 0.2873 0
-2001809116 -0.49555 0.287939 0
-2001809110 -0.301713 0.374699 1

Figure 7.3: Eye-tracking XML raw text data

This text incorporates a date and time stamp, and the x and y coordinates of the user's eye position. Thirty lines of this data equates to one second of time, and there were approximately 80,000 lines worth of text generated for each user. The data has been cross-referenced to reveal any correlations between the user's point of interest and the decisions made to press keys at particular times. (The clocks of both analysis systems were synchronised to provide accurate time-stamps on data). The data has been visualised in the form of still images, which show the eye activity to and from a certain specified point.

> The generally accepted assumption behind eye tracking is that of a direct correspondence between where people look and where they focus their attention. Thus, by examining people's eye movements, we can gain insight into their attentional processes and learn more about what they find important, interesting, or confusing (Bojko, 2005).

Figure 7.4: User testing in progress using eye-tracking hardware

Video recordings of the users interacting with *Crossed Lines* were also undertaken in parallel to the eye-tracking tests. Upon review, the results of the recordings did not yield any additional benefits to this research method, since other physical responses were not apparent in any of the tests.

7.6 Testing Problems and Results Validity

Bringing the project to a user-testing phase from the interactive scripting phase faced several challenges. The first related to hardware; in order to display the movies at a larger frame size in order to maximise the capabilities of a 60" plasma screen, the movies were all exported at H264 compression with a 480 x 360 pixel aspect ratio. The original dual processor Apple Mac G5 purchased for this project could not play nine simultaneous video streams back in complete synchronicity. Frames were dropped and the movies staggered. It was paramount for the piece that all movies stayed in synchronisation in order for the conversations to make sense, to retain both realism and verisimilitude. A quad processor PC needed to be sourced in order to achieve this. A further issue arose in the intention to use an eye tracking software and hardware system since, as with much proprietary software and hardware there is restricted access to data and protocols. As a result, data is often hard to retrieve in real time. Since the software is closed source, adding support for different data to be outputted is prevented since extensions cannot be written. It was therefore necessary to work alongside an existing *University of Brighton* research project developing a Point of Regard (PoR) head-eye-tracking software which 'uses an open source library which takes as data input a users' head position, head orientation and eye data from any device giving the freedom to the developer for manipulating the resulting combined data' (Morris, Rodriguez Echavarria and Arnold, 2008).

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Several problems were encountered during the eye tracking testing process. Some subject's eyes could not be tracked, depending on the shape of their eye, the angle of their eye-lid and whether they were wearing make up. Some data sets were more reliable than others, since data had been lost at some points during the test process; if the user's head had moved, or the user had knocked the head set. In some cases, a user had laughed at funnier moments in the narrative and caused the hard-ware to shift position, again making the results unreliable. The key issue of validity to be acknowledged relates to the creator's presence throughout the testing process. This could have led to users behaving and responding in certain ways by way of politeness. Twenty-five users were tested anonymously, and not questioned afterwards; rather they completed the last section of the questionnaire anonymously. This data may well then provide an unbiased account, and will be considered carefully during the analytical stage of the chapter.

7.7 Director output file analyses

This was collected and analysed to garner the following data; the overall time users spent interacting with *Crossed Lines*, the overall length of time spent in each scene, and the overall route through the narrative which each user had taken. Of the fifty subjects tested, thirty-four reliable sets of data were produced.
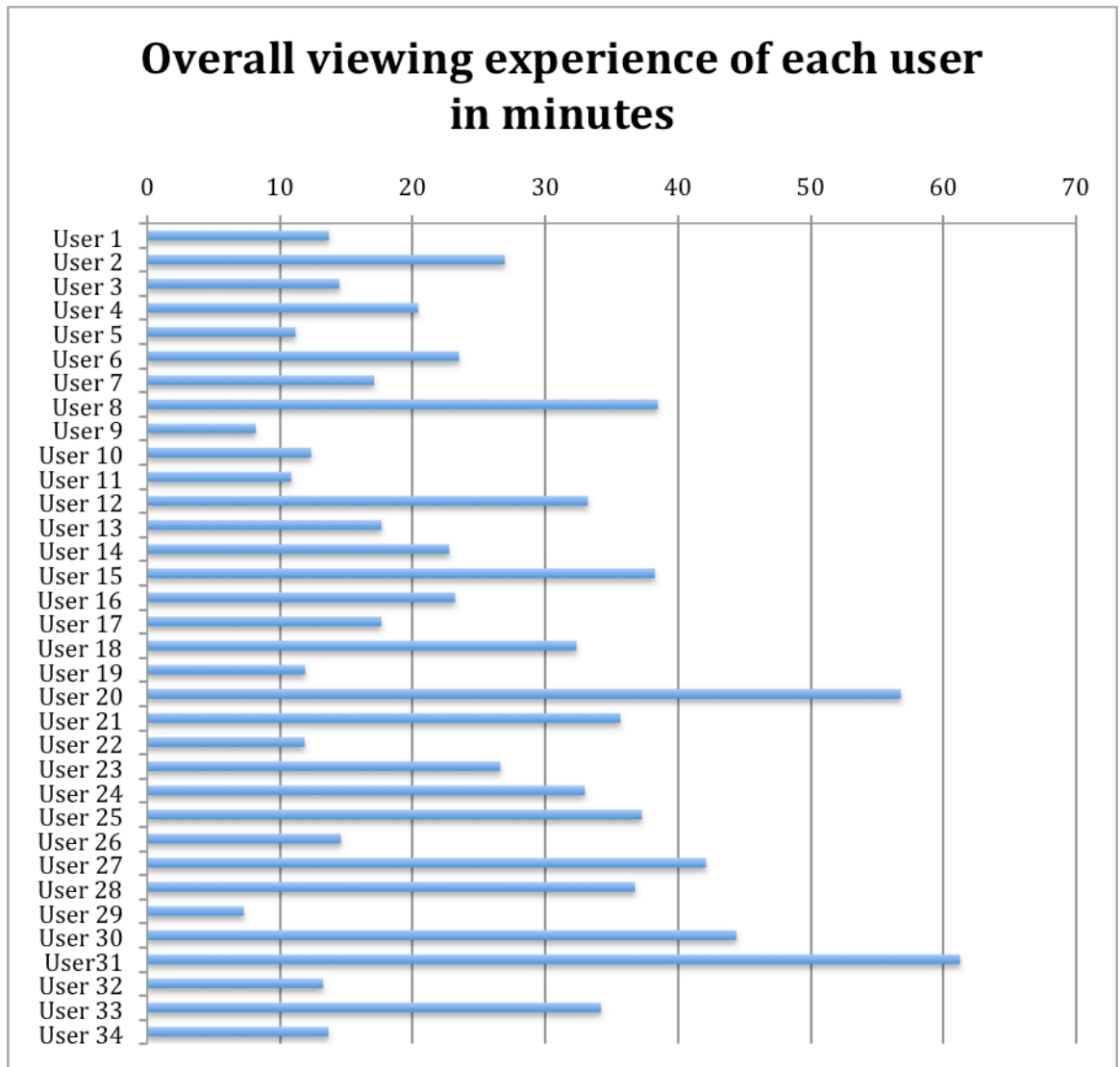
Figure 7.5: Overall viewing experience in minutes of Crossed Lines for each user

Figure 7.5 shows the viewing time of the overall experience for all users. It shows two users viewed for less than ten minutes (Users 20 and 44). Thirteen users viewed over ten minutes, a further six users viewed over twenty minutes, nine users viewed over thirty, two users viewed over forty minutes, one user viewed over fifty minutes, and one user over sixty minutes. The same key applies to each of the following sets of charts.
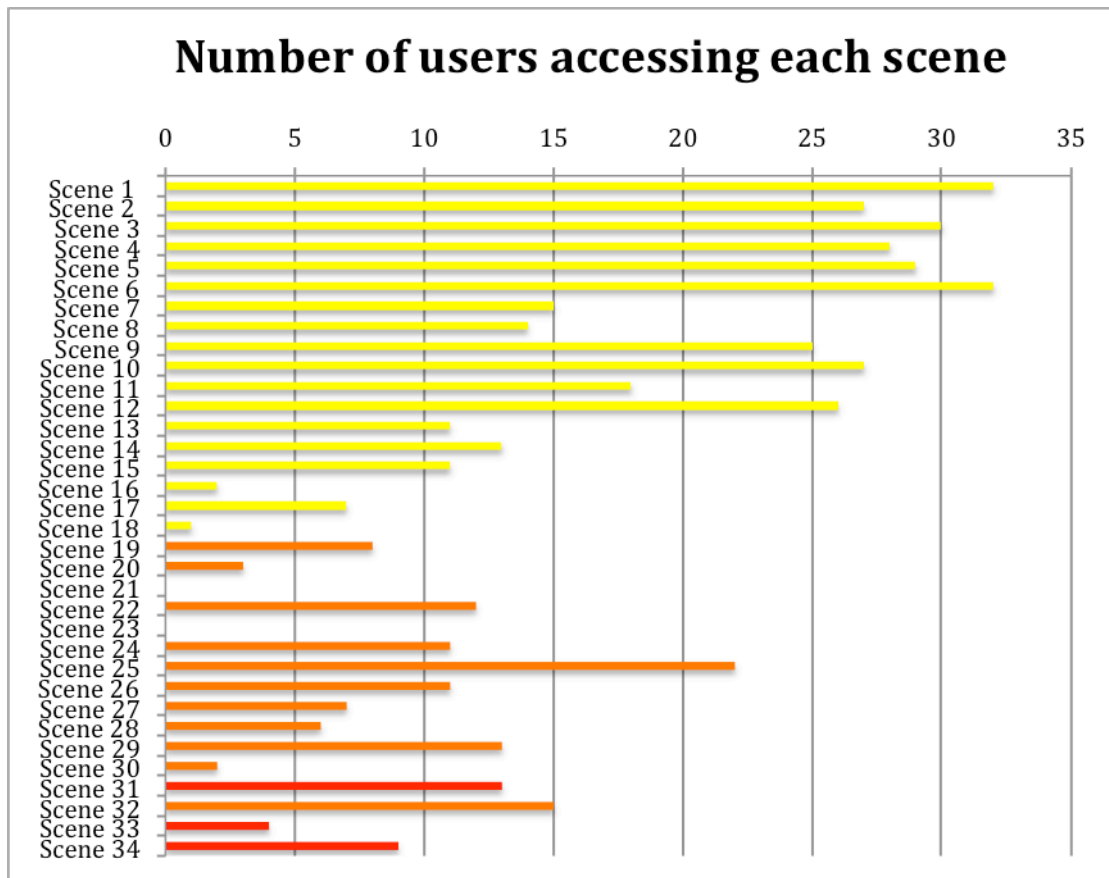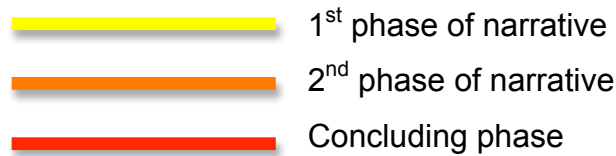
Figure 7.6: Number of users accessing each scene

Figure 7.6 shows the number of users who accessed each individual scene during each of the individual viewings by the thirty-four different users. The yellow lines depict the first phase of the narrative, the orange lines depict the second, and the red lines depict the concluding scenes (see page 121, figure 6.6 for a narrative diagram). There is a high level of activity in stage one in terms of the amounts of users viewing each of the scenes. This activity depletes towards the latter stages of the first phase of the narrative and as users enter the second stage. No users have entered either scene 21 (James and Phillip), or scene 23 (Brenda and Bob), which indicates that no viewer followed any of these four character's scenes in the first section. (The user would have to have done so in order to progress the narrative path into stage two). The orange line of the greatest length in figure 7.6 indicates that scene 25 (Martin and Julie) is the highest entry point into section 2 of the narrative, conclusively indicating that Martin and Julie's plotline was the most popular in the first narrative section.
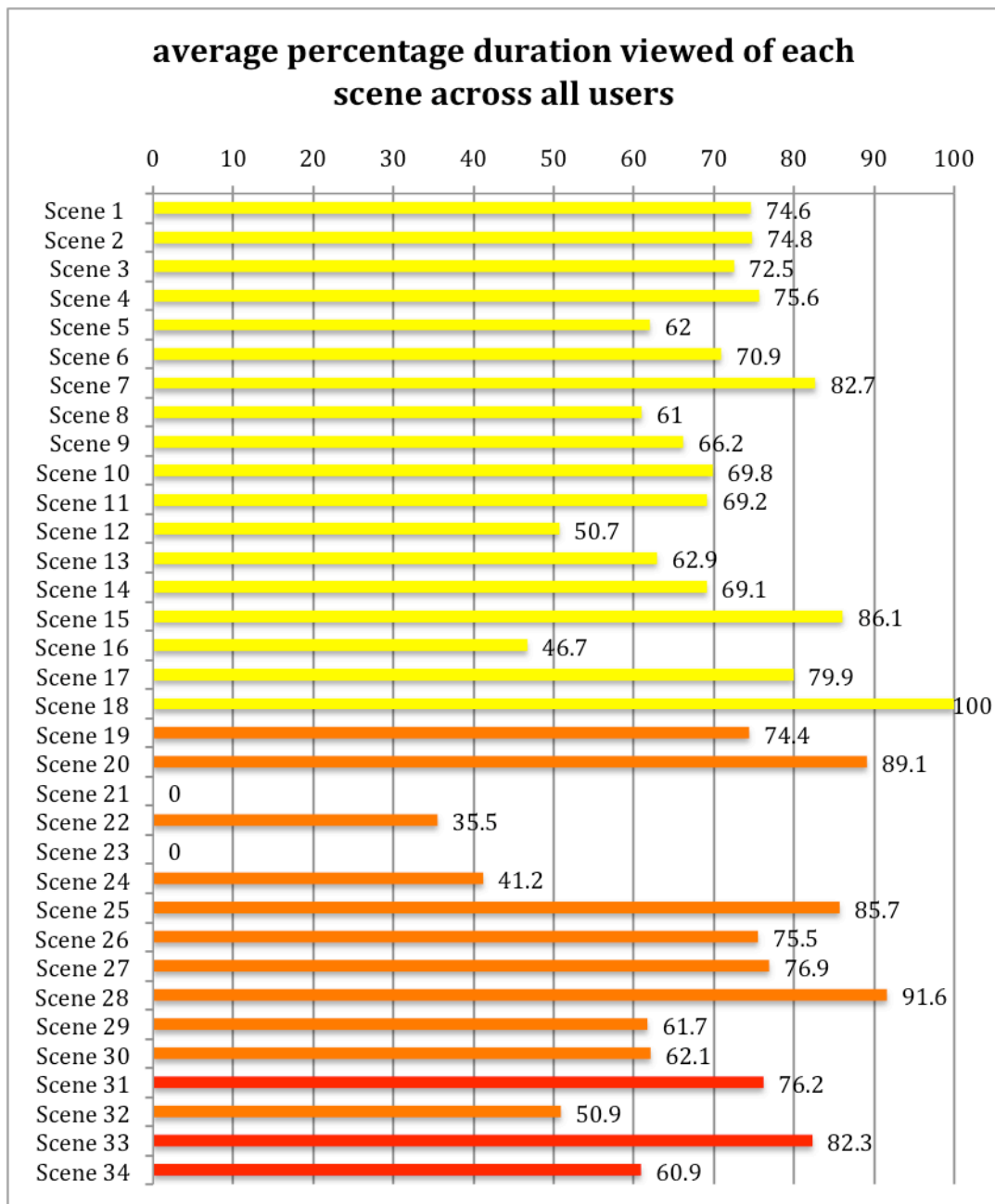
Figure 7.7: Average time spent in each scene (ignores zero values)

Figure 7.7 illustrates the average time spent as a percentage of the scene's entire duration of all users who have entered the scene. The decision to calculate and display the time as a percentage of a scene, as opposed to in minutes, was made to avoid meaningless output, since all scenes vary in duration. All zero values were omitted from the calculation to avoid misleading statistics. With the exception of 3 scenes -16 (Brenda and Mandy) 22 (Mandy and Gary) and 24 (Bob and Mandy) – all scenes, on average, have been viewed over half way, with a majority of them being viewed over 60%. Overall, figures 7.5, 7.6 and 7.7 indicate a high level of viewer engagement and involvement with the scenes and the overall installation.

The following series of line charts (Figures 7.8 to 7.39) break down and detail this information further, displaying the amount of time each user spent viewing a scene as a percentage of the total running time of each scene. The results depicted in these graphs will now be discussed In terms of the narrative content that they represent and the levels of user interaction that they illustrate, evidenced in the amount of time users spent viewing a scene.
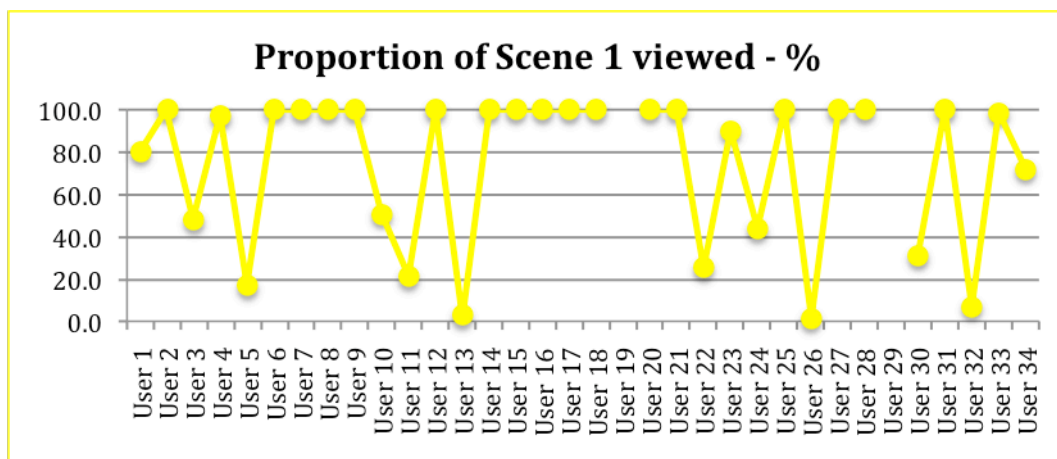
Figure 7.8: Scene 1 Julie and Mandy

In terms of character and storyline popularity, these graphs show that those scenes involving Mandy are not selected as much as those including other characters, with the exception of scene 1 in which she talks with Julie.
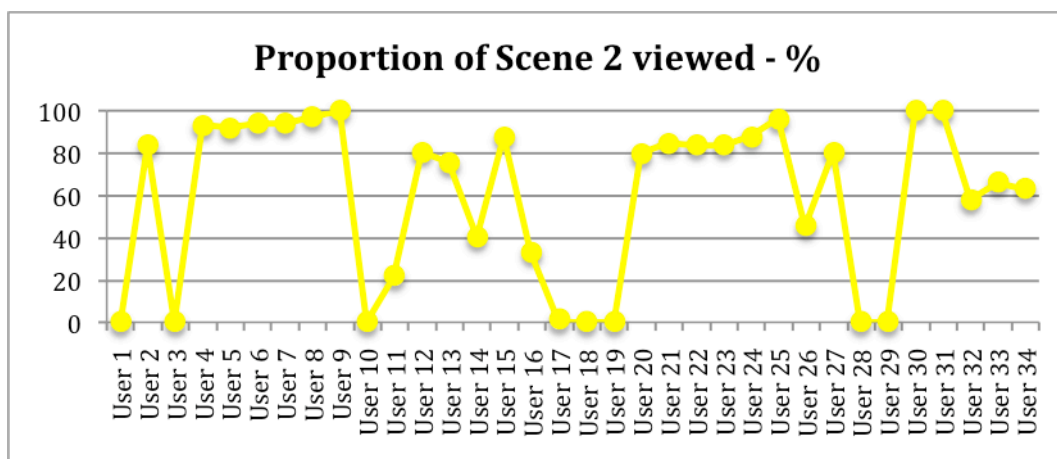
Figure 7.9: Scene 2 Julie and Maureen

Both scenes 1 and 2 show people electing to leave scenes before the ending. Twelve users of the thirty-two who selected this scene left the scene early in scene 1 and twenty three out of twenty eight elected to press a key before the scene's conclusion in scene 2.
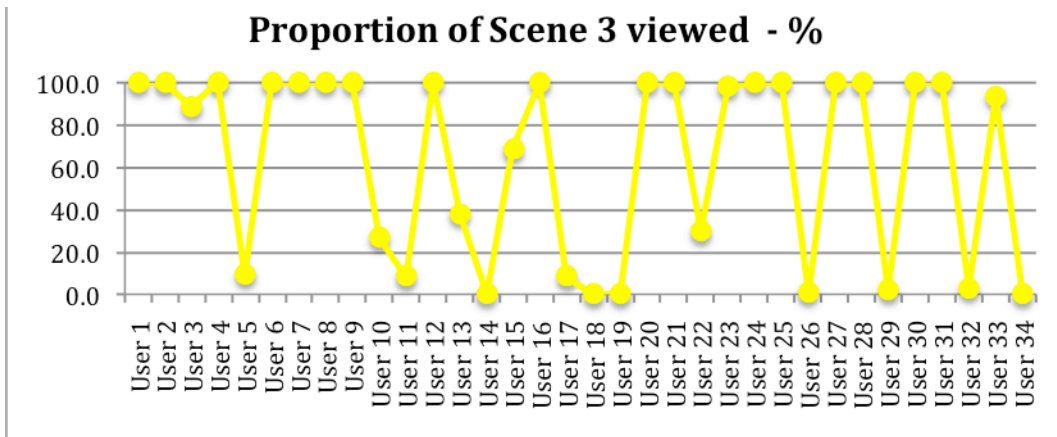
Figure 7.10: Scene 3 Julie and Martin
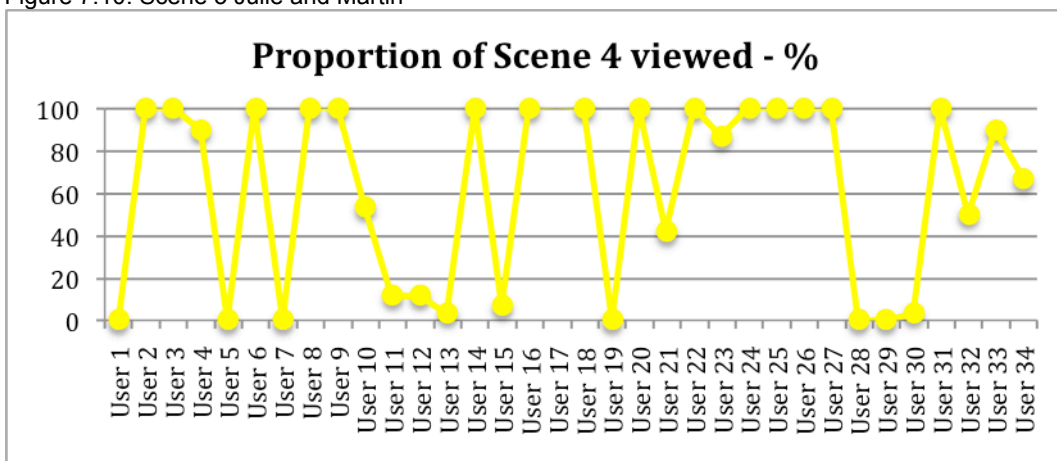
Figure 7.11: Scene 4 Julie and Bob
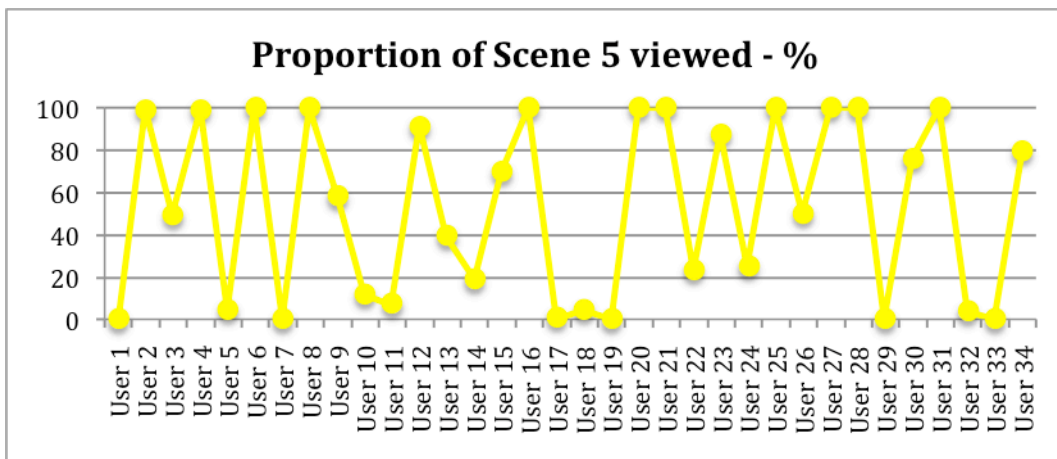
Figure 7.12: Scene 5 Maureen and Gary
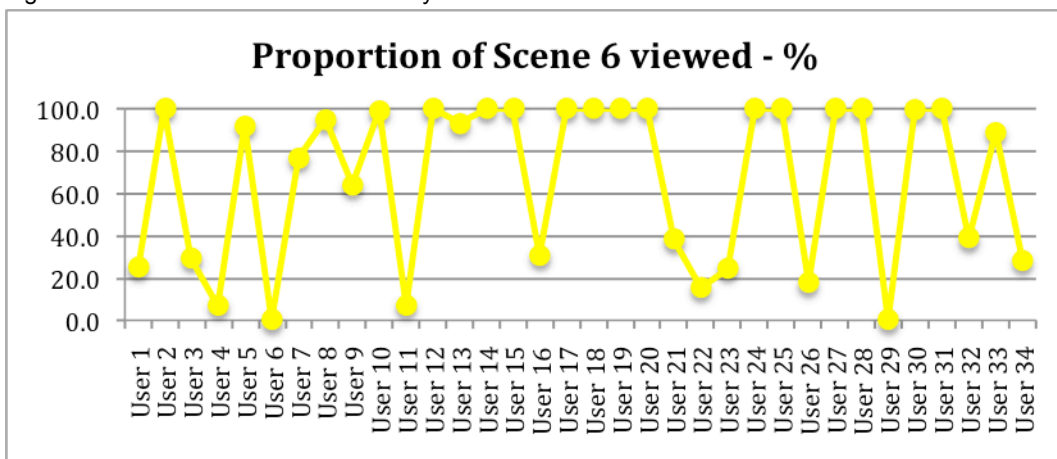
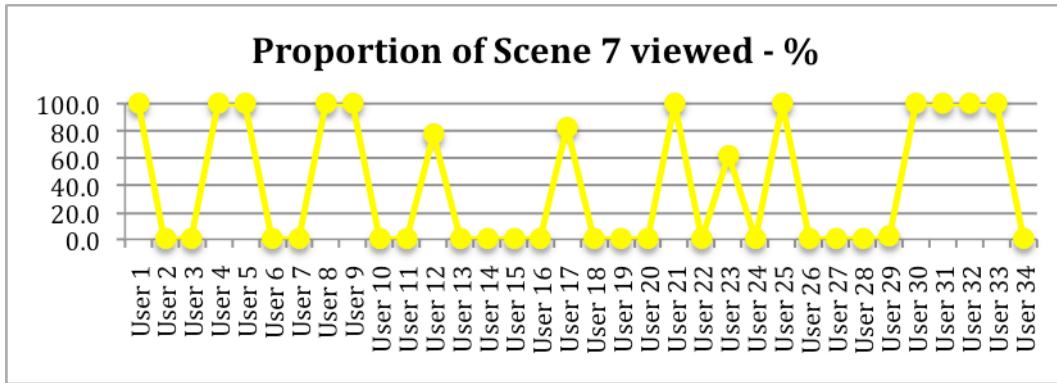Figure 7.13: Scene 6 Phillip and Gary

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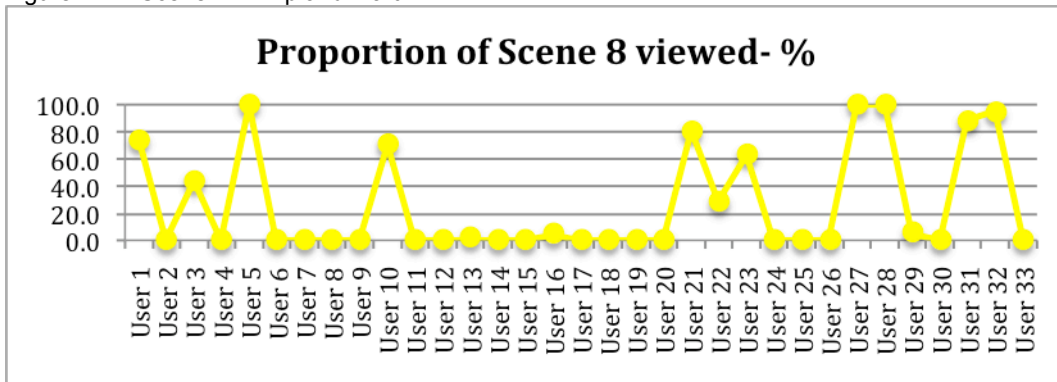Figure 7.14: Scene 7 Phillip and Martin
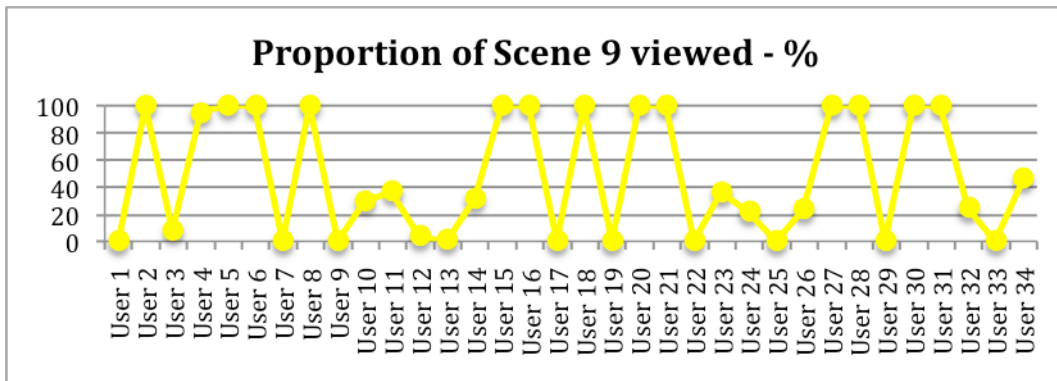

Figure 7.15: Scene 8 Martin and Gary

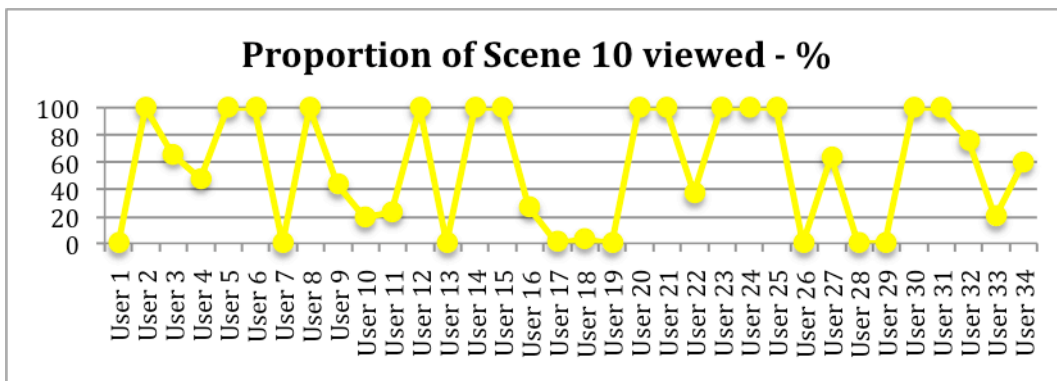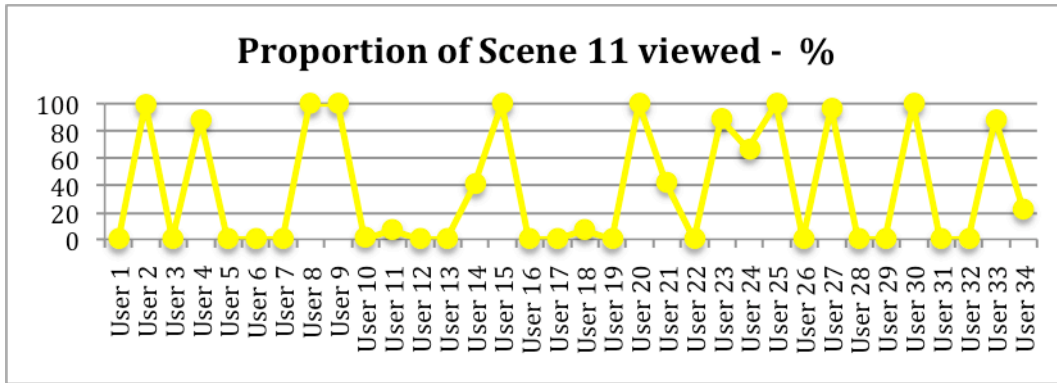Figure 7.16: Scene 9 Gary and Mandy

Figure 7.17: Scene 10 Brenda and Bob
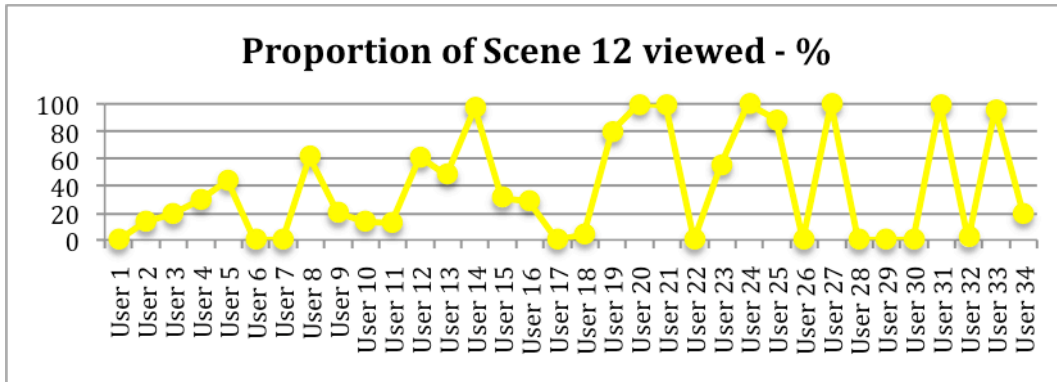
Figure 7.18: Scene 11 Phillip and Bob

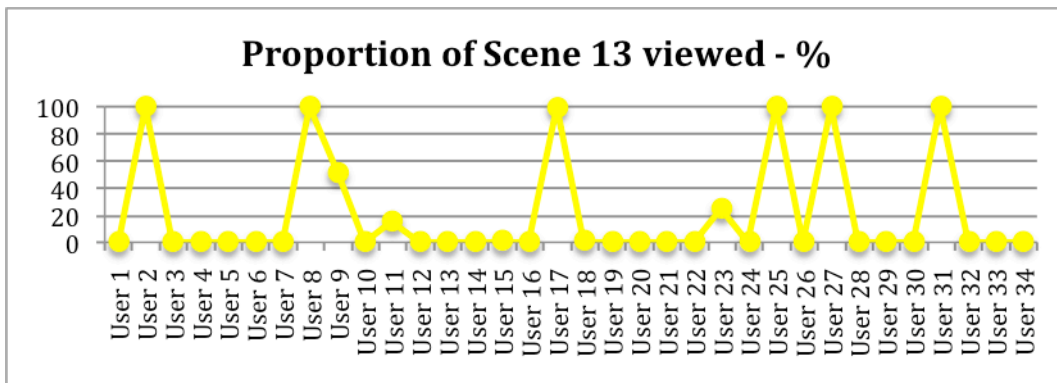Figure 7.19: Scene 12 James and Maureen

Figure 7.20: Scene 13 Phillip and Brenda

Scenes 6, 7, 11 and 13 were all watched to their conclusion by the majority of users that selected them. Each of these scenes involved the character of Phillip indicating that the character or the storylines with which he was involved were a popular choice for users.
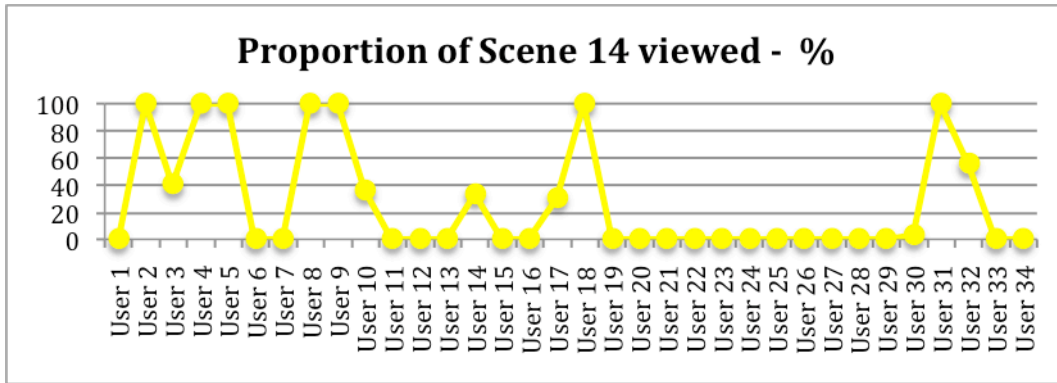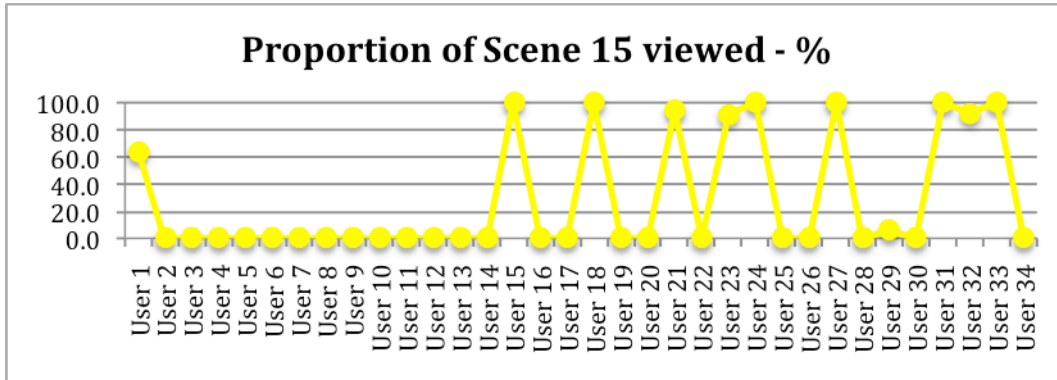
Figure 7.21: Scene 14 James and Brenda

Figure 7.22: Scene 15 Martin and Mandy

Scene 15 is the first scene which indicates a notable split in viewing behaviours between the first test group and the second group. Only one viewer from the individually tested group has accessed this scene between Mandy and Martin, whereas ten viewers from the group-tested sample have entered the scene, seven of whom have viewed it in its entirety.
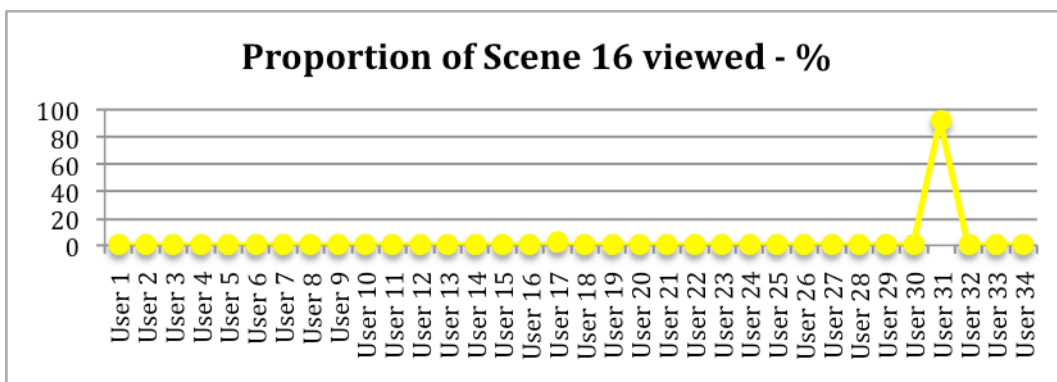

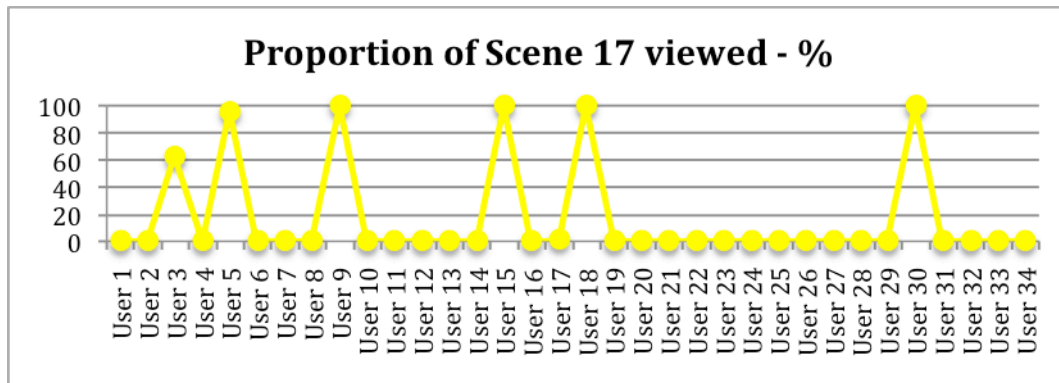Figure 7.23: Scene 16 Brenda and Mandy

Figure 7.24: Scene 17 James and Phillip
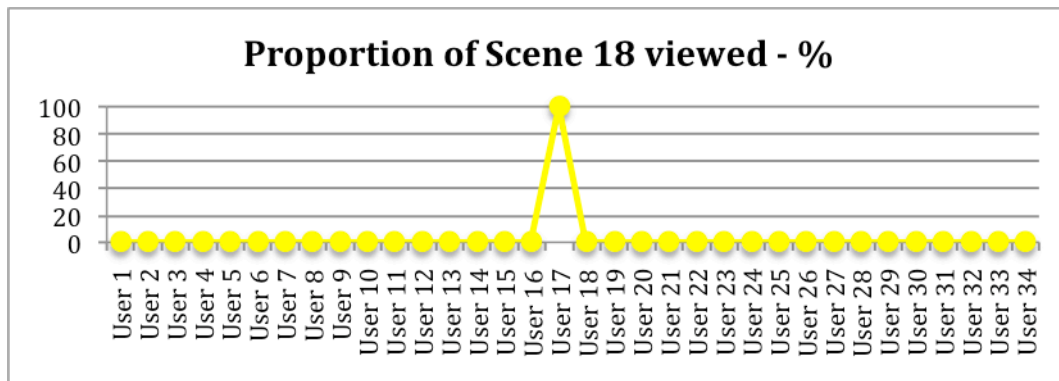
Figure 7.25: Scene 18 James and Mandy

Overall findings show that 12 users from the dataset of 34 reached the end credits, and a further 9 users reached a climactic scene, but pressed a button before the conclusion, therefore resetting the narrative back to the beginning as opposed to playing through the credit sequence. Therefore the conclusion can be drawn that 62% of the users tested followed the experience through to the conclusion of a narrative pathway.
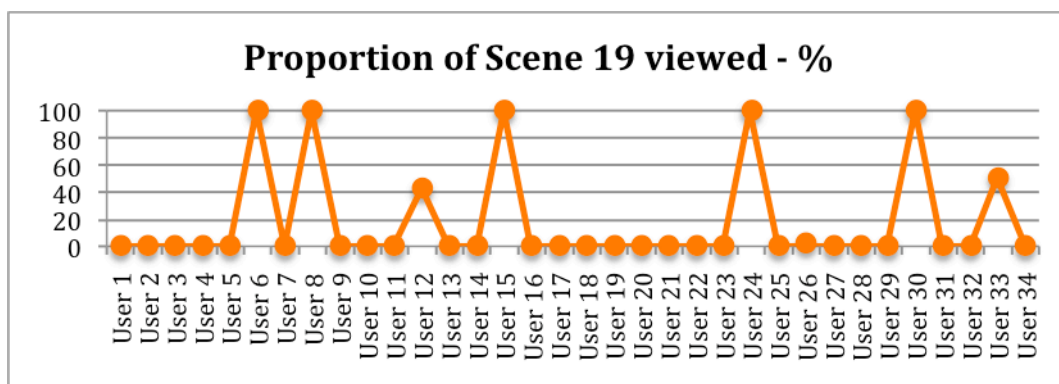
Figure 7.26: Scene 19 Julie and Mandy
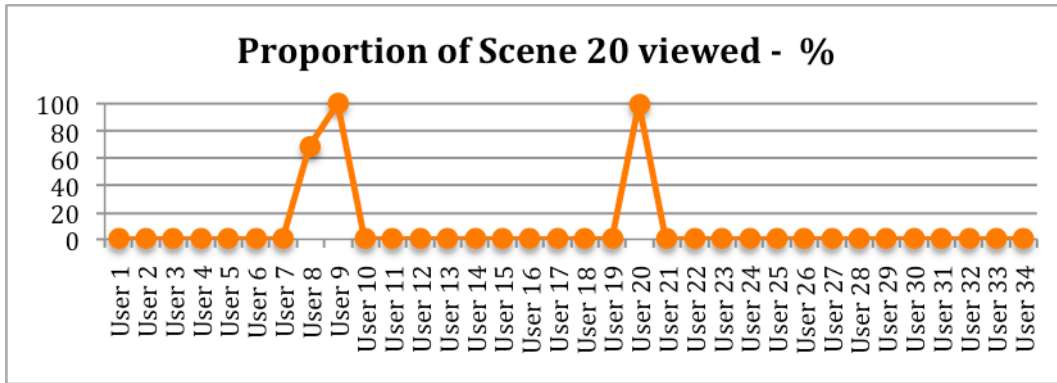
Figure 7.27: Scene 20 Phillip and Maureen
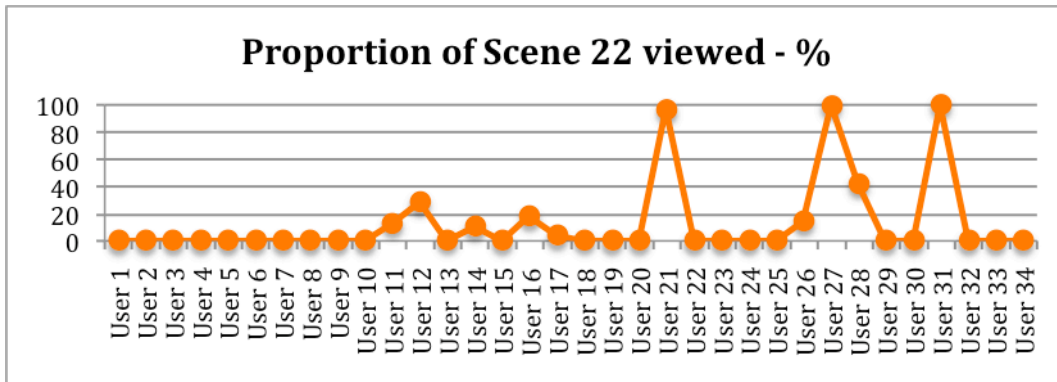
Figure 7.28: Scene 22 Maureen and Gary

Julie, Martin, Maureen and Gary are the most popular choices as depicted by the amount of activity in the entry points of the second section of the narrative (shown as the orange line in Figures 7.26, 7.28 and 7.30 which represents activity in Scenes 19, 22 and 25 respectively).
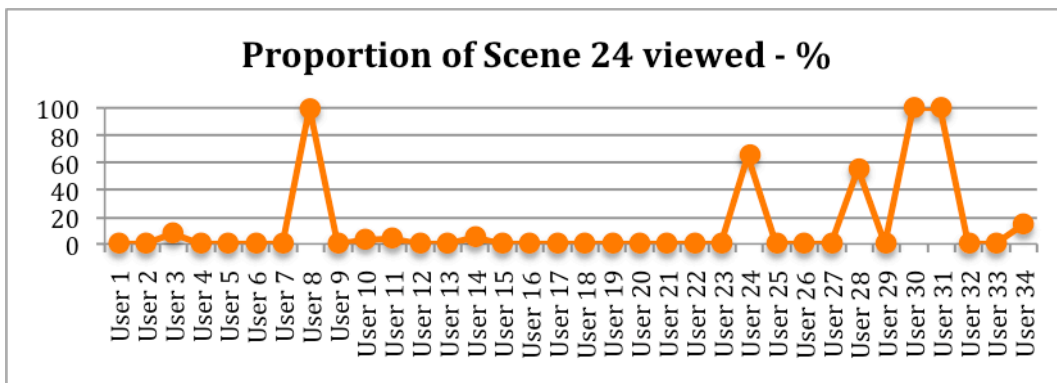
Figure 7.29: Scene 24 Bob and Mandy
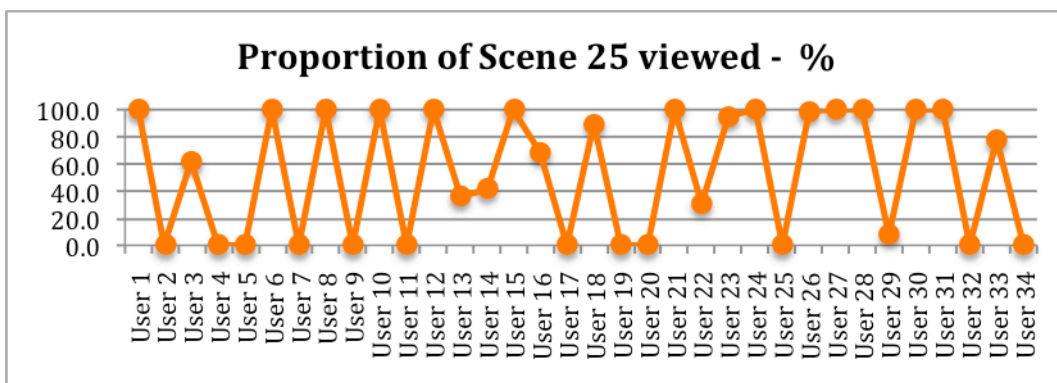
Figure 7.30: Scene 25 Julie and Martin
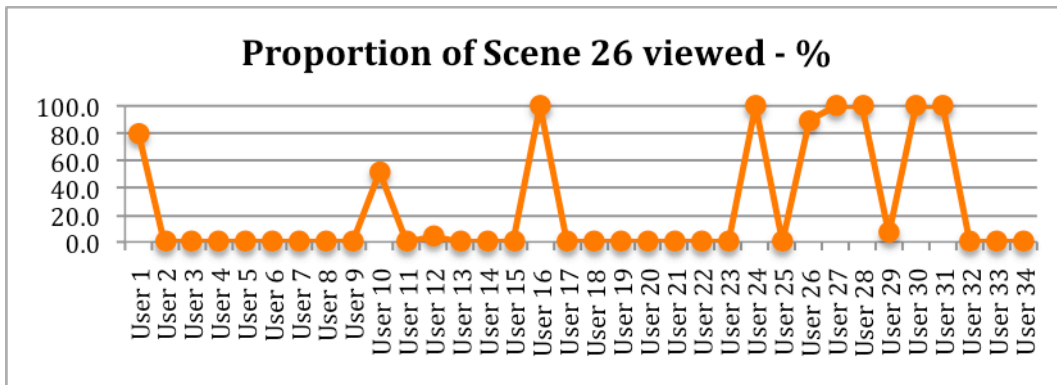
Figure 7.31: Scene 26 Julie and Martin
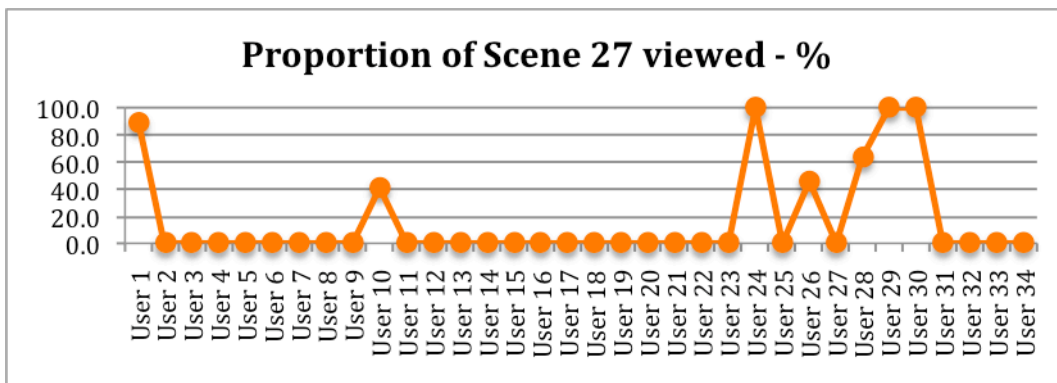
Figure 7.32: Scene 27 Julie and Martin
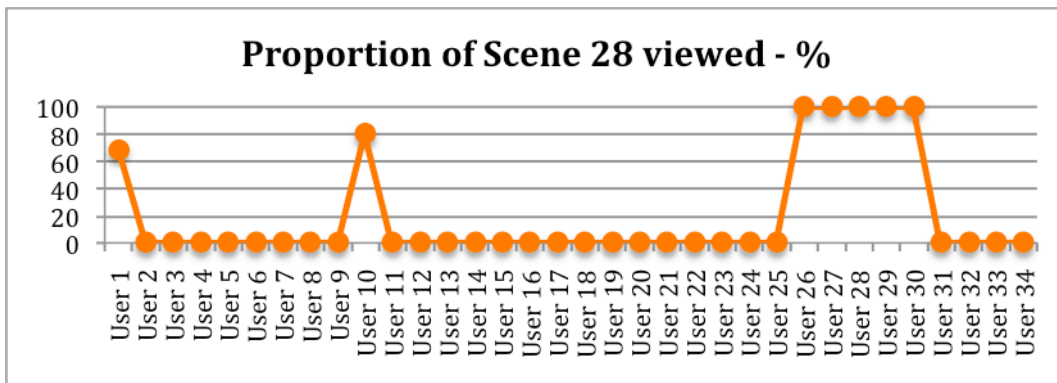
Figure 7.33: Scene 28 Julie and Martin
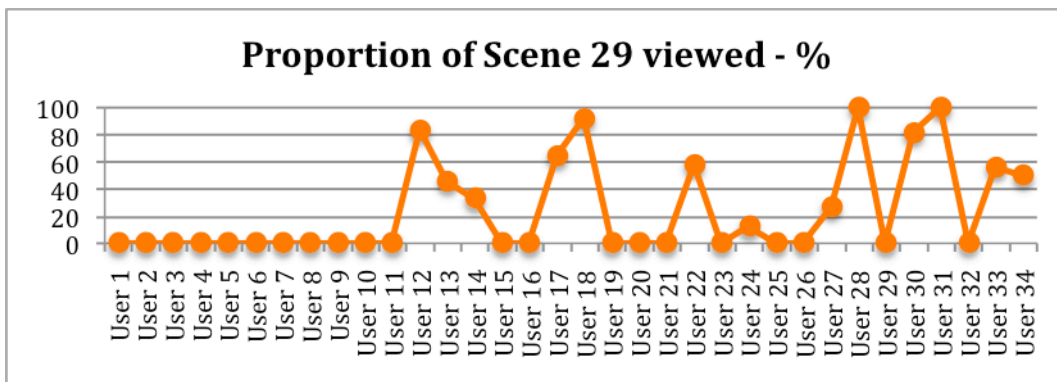
Figure 7.34: Scene 29 James, Phillip, Brenda, Bob and Mandy
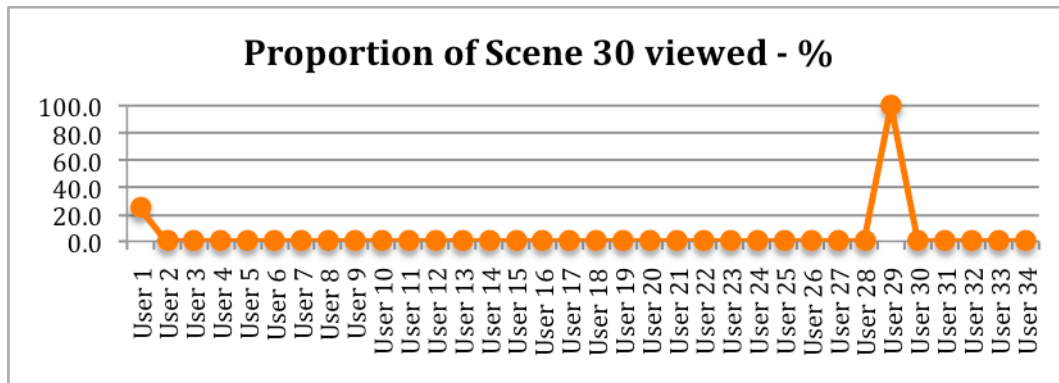
Figure 7.35: Scene 30 Martin and Maureen
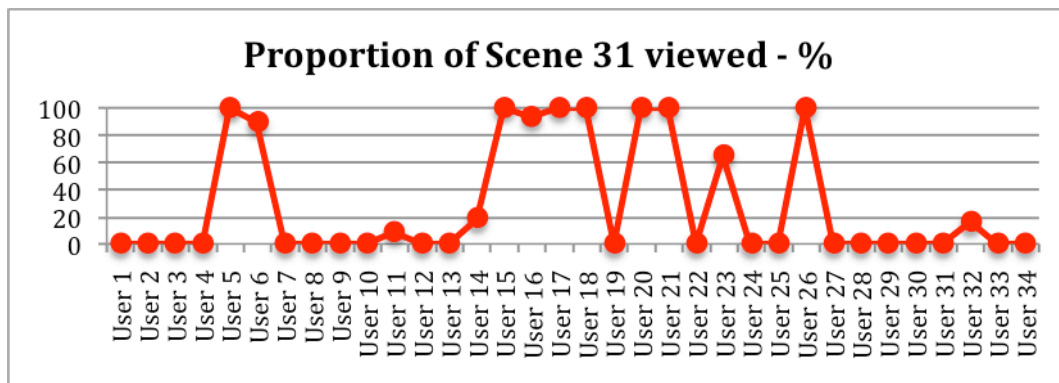
Figure 7.36: Scene 31 James, Julie, Maureen, Gary, Bob and Mandy

A majority of those users concluded their narrative journey in scene 31. The popularity of this particular narrative denouement can be attributed to the fact that this scene involved the resolution of five characters. Four users concluded their experience in the final scenes of Bob and Martin, and nine witnessed the final exchange between Phillip and Brenda.
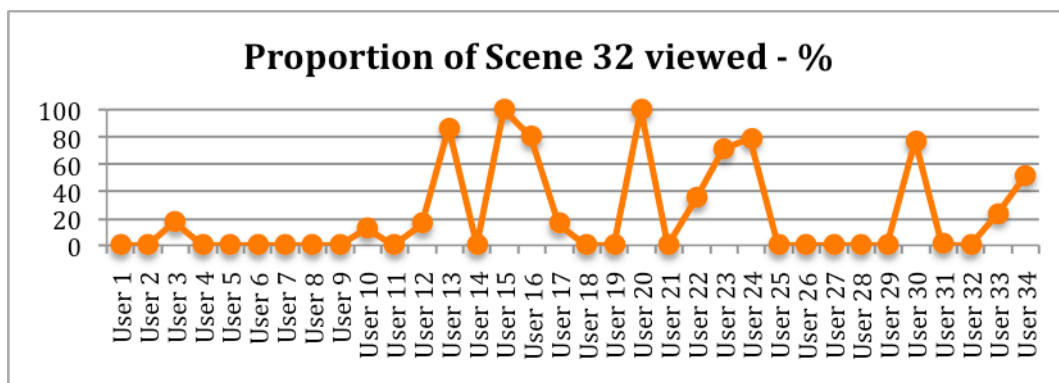
Figure 7.37: Scene 32 Brenda and Mandy
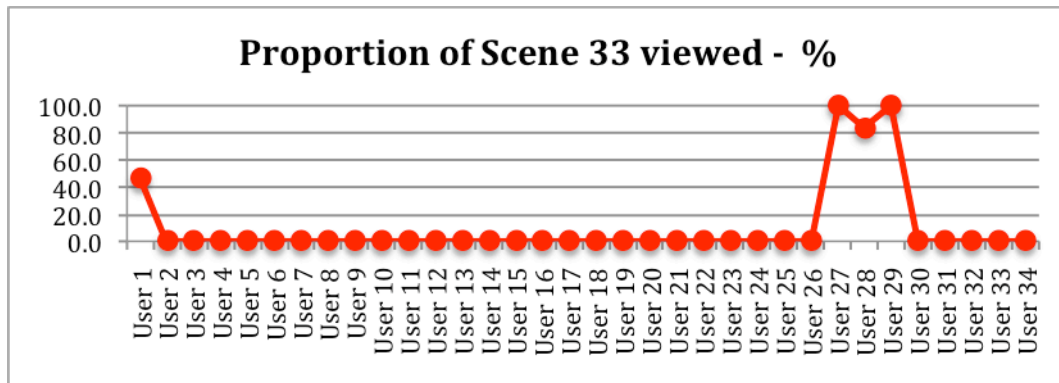
Figure 7.38: Scene 33 Martin and Bob
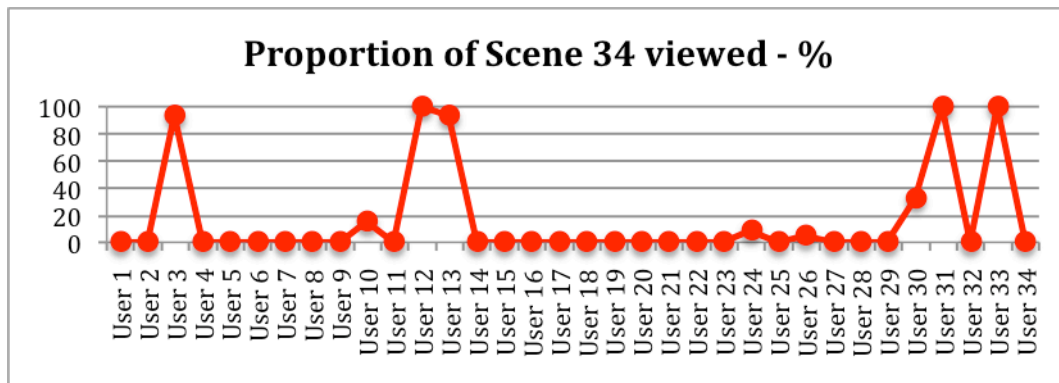
Figure 7.39: Scene 34 Phillip and Brenda

The results from the questionnaires will provide a narrative to account for some of the figures illustrated in these graphs. The following sections will reflect and refer back to these quantitative results.

7.8 Questionnaire results and analysis

Each of the fifty tested users completed a questionnaire immediately after they had finished the experience. Several analyses were run on the questionnaire data through SPSS. Those analyses, which displayed a statistical significance, are detailed and discussed below.

The users were asked to compare the experience of engaging with *Crossed Lines*, with the activities listed in figure 7.40 and were only given one choice from the list to do so.
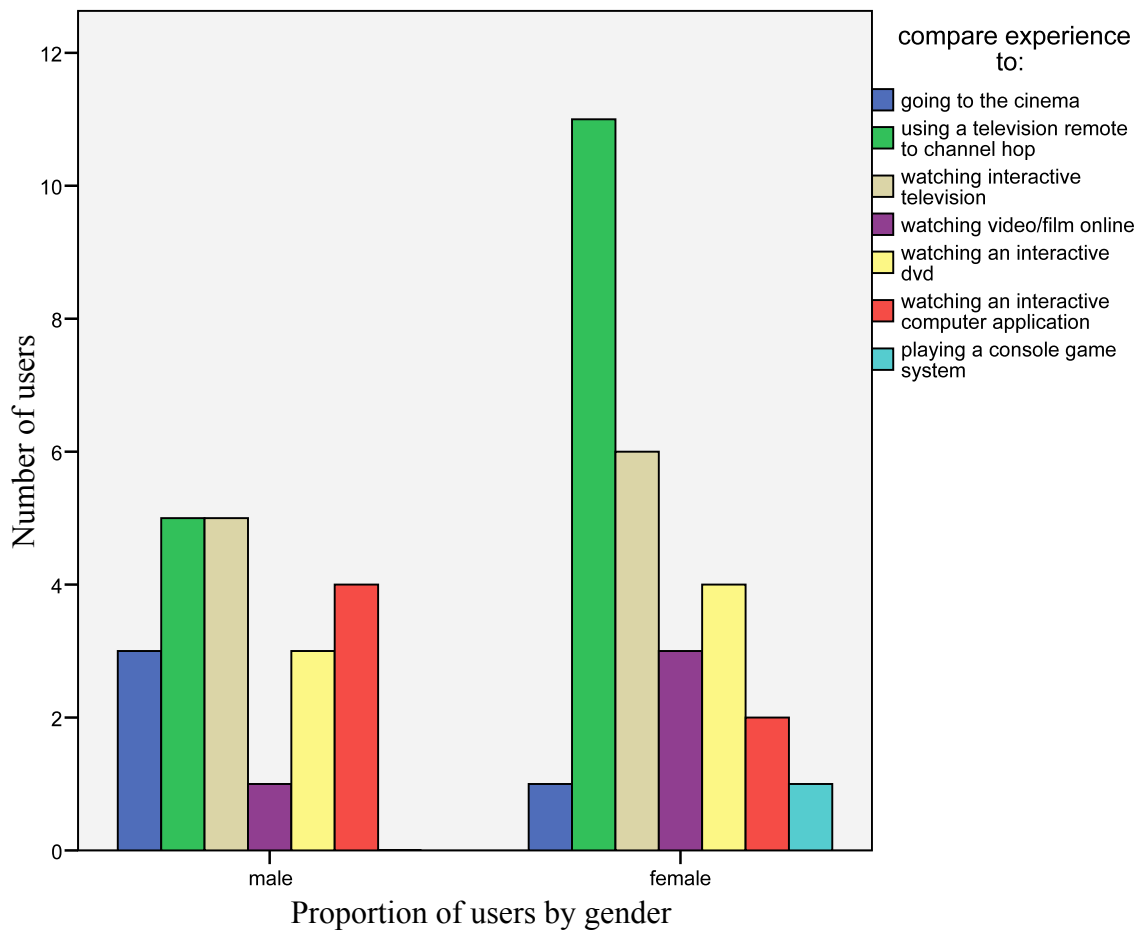
Figure 7.40: Graph showing male and female responses to the question 'I would compare this experience most closely to…'.

Figure 7.40 represents these responses and also provides a comparative illustration between male and female respondents. The abiding impression that users were left with, both male and female, after watching the experience, was that they associated it most with the televisual; to using a television remote control to channel surf, and to the experience of watching interactive television. This aligns with the reflexive analysis of the piece that was detailed in Chapter 6, in which parallels between *Crossed Lines* in both its form and content to televisual experiences and technologies were frequently drawn.

In question 38 of the questionnaire, respondents were asked, which, if any, of the characters that they chose to follow. They were allowed to select one choice of the nine characters. Figure 7.41 represents the result of those responses.

The characters followed [in percentages]

- James (tarot reader) — 3%
- Phillip (Call centre) — 23%
- Julie (car) — 18%
- Brenda (confidence trickster) — 9%
- Martin (computer) — 18%
- Maureen (Samaritan) — 3%
- 14%
- 6%
- 6%
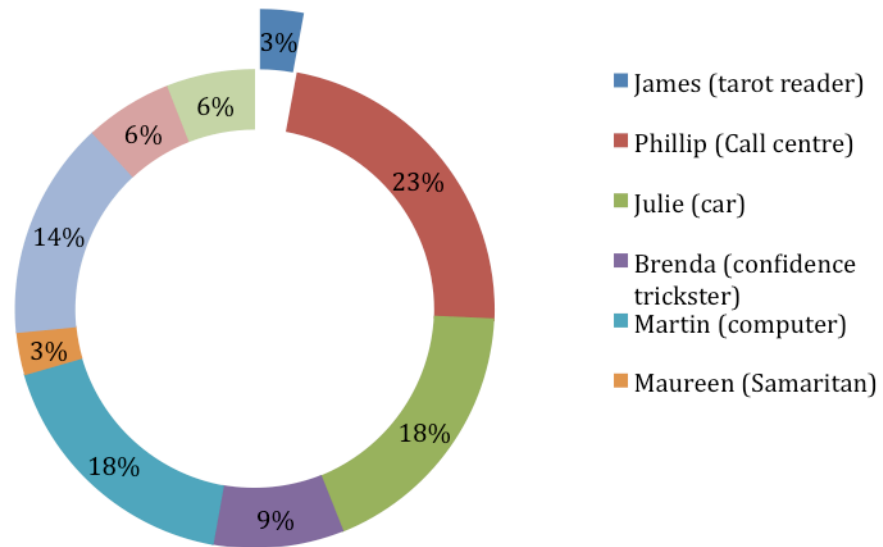
Figure 7.41: Chart showing the popularity of characters followed

There are clearly four defined characters which users stated that they chose to follow: Phillip, Julie, Martin and Gary. The least likely characters that users chose to follow were Maureen and James, followed by Brenda, Mandy and Bob.

Users were then asked in question 40 if they particularly disliked a character and they could only make once choice. Figure 7.42 illustrates the users responses.

Disliked Characters [in percentages]

- James (tarot reader) — 18%
- Phillip (Call centre) — 10%
- Julie (car) — 6%
- Brenda (confidence trickster) — 16%
- Martin (computer) — 16%
- Maureen (Samaritan) — 8%
- Gary (phone box) — 16%
- Bob (old man) — 8%
- Mandy (sex line operator) — 2%
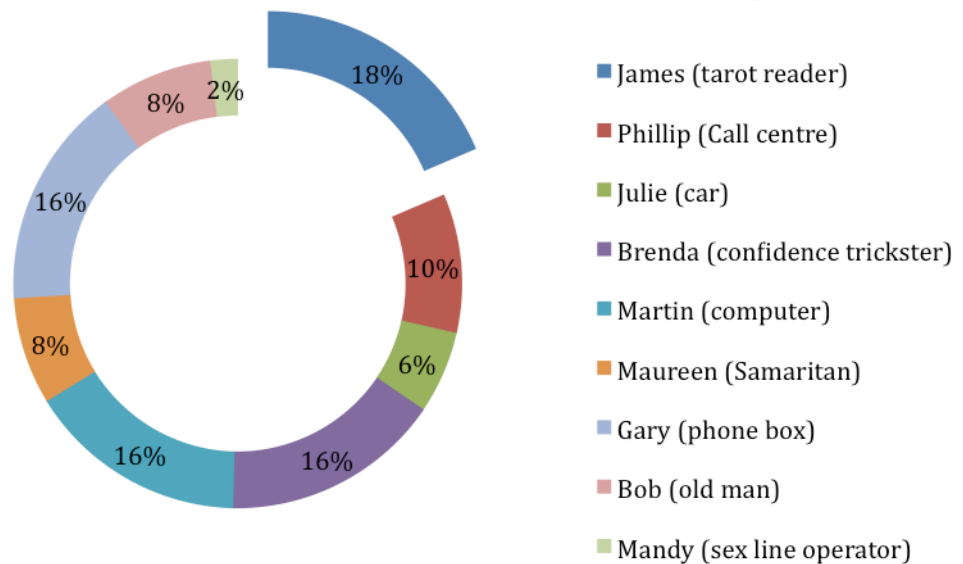
Figure 7.42: Chart showing the characters which viewers stated that they 'disliked'

There are clearly four characters which users claimed to 'dislike'. They are James, Brenda, Gary and Martin. Comparatively fewer users stated that they disliked Phillip, Julie, Bob, Maureen and Mandy.

There is a definite correlation detected between the characters that viewers chose to follow and those that were unpopular as displayed in the above two charts. Users tended to follow characters that they didn't 'dislike'; those popular characters included Phillip and Julie. The exceptions were Gary and Martin, who users answered that they followed even though they were both cited as being unpopular. The potential reasons for these exceptions are discussed within the users reflections of their experiences in the qualitative results section (7.10).

Three Kruskal-Wallis tests were run on the questionnaire data; a Kruskal-Wallis test (named after William Kruskal and Allen Wallis) is a one-way analysis of variance by ranks of data. The non-parametric method was deemed the most suitable method of analysis for the data collected within the *Crossed Lines* questionnaires since the questions were interrogating user preferences. The test can be used in instances where there is one nominal or ordinal variable which has at least four categories, and one ordinal variable which has three or more categories, and one ordinal variable which has at least four categories, to test a relationship between questions. The results from the first Kruskal-Wallis test suggest that there is a significant age effect occurring in the eavesdropping variable. Analysis of age and eavesdropping on private conversation is statistically significant (H=0.001).

This was ascertained by asking whether the users felt as if they were eavesdropping on the conversations. The statistics infer that those who were younger enjoyed the experience of eavesdropping on characters' conversations. The Mean Rank in the first table of Figure 7.43 shows a scale that infers that the younger respondents felt a sense of eavesdropping, whereas older users were likely to dismiss this; which could indicate higher levels of user immersion and engagement amongst a younger audience.

Ranks

	age	N	Mean Rank
Eavesdropping on private conversations	18-25	23	16.91
	26-40	10	30.75
	41-55	12	30.54
	55-65	4	40.50
	Total	49	

Figure 7.43: Kruskal-Wallis Test 1

The second test revealed those users who answered in the questionnaire that they did not like this type of narrative experience also answered that they did not gain a sense of satisfaction or narrative comprehension. It was found that those respondents who did not understand the contexts of the conversations did not like options in fictional narratives. This was statistically significant (H=0.016)

Ranks

	not like options in fictional narratives	N	Mean Rank
Did not understand the contexts of conversations	strongly agree	1	1.00
	agree	5	23.70
	neither agree nor disagree	10	24.40
	disagree	25	22.06
	strongly disagree	7	37.29
	Total	48	

Figure 7.44: Kruskal-Wallis Test 2

Significantly, those that answered that they felt a sense of immersion with the story also answered that they maintained a sense of freedom; that they could step in and out of characters' plotlines, without affecting their sense of immersion. This finding can be discussed within the context of the interactivity versus immersion debate, in which it has been argued that giving a viewer a decision point in a narrative, such as a branching choice point, forces them out of the narrative, and disrupts their sense of immersion.

Analysis suggested that those respondents already familiar with engaging with this type of narrative were more likely to enjoy and engage with *Crossed Lines*. There was a statistical significance evident in feeling immersed in the story and feeling free to step in and out of characters' plots (H=0.028).

Ranks

	Felt free to step in and out of characters	N	Mean Rank
Felt immersed and engaged with story	strongly agree	17	18.44
	agree	22	26.32
	neither agree nor disagree	4	25.13
	disagree	4	39.38
	strongly disagree	1	25.50
	Total	48	

Figure 7.45: Kruskal-Wallis Test 3

When something is statistically significant, it can also be generalised, so when the data indicates that respondents who were more used to interactive narratives felt a greater sense of immersion when playing *Crossed Lines*, it implies that the rest of the population would feel this way. A word of caution is that although the analysis indicated statistical significance, the sample of the population was relatively small, and so the statistical significance is less stable than if a larger sample was tested.

7.9 Combination and comparisons of quantitative data sets

Gender data from the questionnaires and the *Director* -generated text files were coded and inputted into the same data sheet. Several analyses were then applied. This was to ascertain whether there were any gender effects within the data, and whether these factors had any influence in the ways in which users engaged with *Crossed Lines.* Figure 7.46 represents a comparison between males and females and the scenes that they visited.
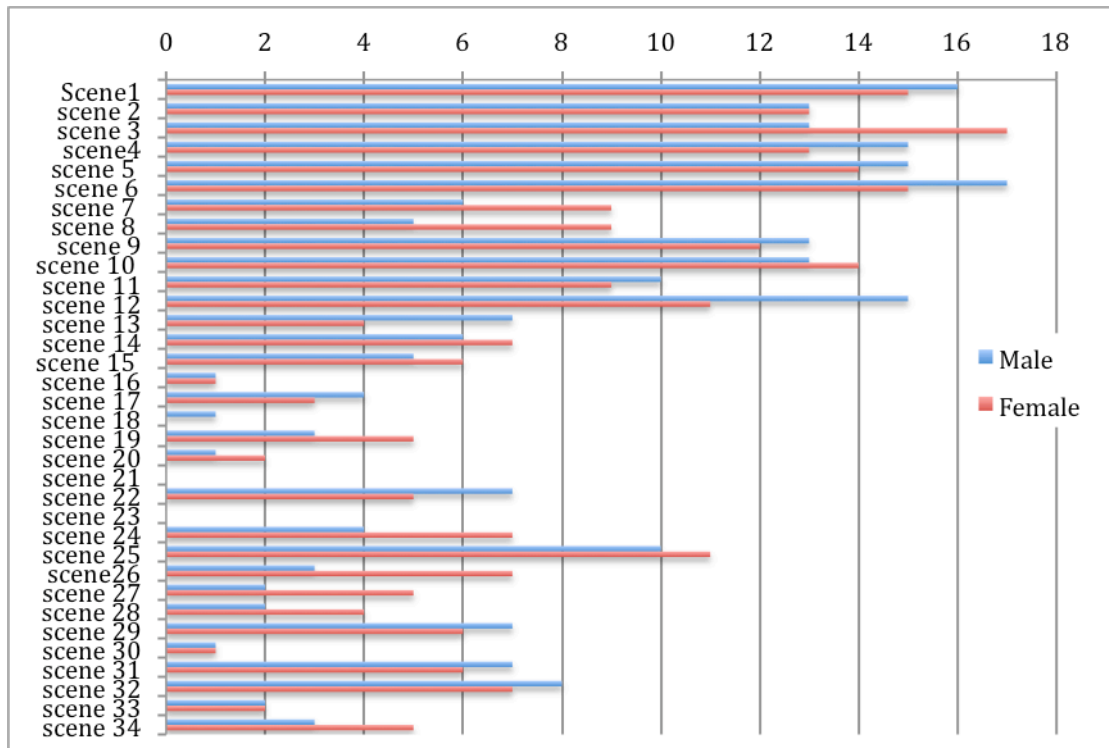
Figure 7.46: Comparison between Males and Females of scenes visited

In a majority of cases, there are a similar amount of both genders accessing each of the scenes. There are some notable differences between scenes 4 (Julie and Bob), 6 (Phillip and Gary), 12 (James and Maureen) and 22 (Maureen and Gary) where significantly more males were watching; and in scenes 3 (Julie and Martin), 7 (Philip and Martin), 8 (Martin and Gary), 19 (Julie and Mandy), 24 (Bob and Mandy), 26 (Julie and Martin), 27 (Julie and Martin), 28 (Julie and Martin), and 34 (Phillip and Brenda) where significantly more females were watching. There is a significant difference in the characters and storylines that the users were selecting; the females are clearly closely following the Martin and Julie storyline. There is not such a defined popularity of storyline within the male examples, although they have favoured the character of Gary, more than the females. There is also a sense that female users were more likely to be more involved in the latter parts of the narratives as there is evidence of more female activity in the later scenes.

7.10 Qualitative Data

There was a section at the back of the questionnaire forms for users to elaborate in writing their experiences. In depth discussions were also undertaken with some participants on an individual basis immediately after they had completed viewing *Crossed Lines*. This data has been collated and considered under the following themes: character engagement, experience/feeling, multi-screen viewing, narrative subjuncture, narrative progression, adaptation of viewing behaviour to

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environment and medium comparisons. All respondents were asked a very open question at the beginning of the interview process, and that was to describe and summarise their experience. They were then prompted to discuss and reflect around the areas listed below. 'I.User' refers to a user that was verbally interviewed after the test and 'Q.User' refers to a user that has given their response in written form within the questionnaire.

7.10.1 Character Engagement

As previously discussed in section 7.7, there was a noted exception to the clear correlation between the characters that were cited as unpopular and the users' likelihood to view them in the characters of Martin and Gary, who, although unpopular as a character, had popular storylines. This was discussed by a number of different users when referring directly to the character of Martin:

> '…It made me realise that I am far more interested in the unsavoury characters, although I didn't like them …I guess I just love a thriller!' (Q.User 21)

> '…I was following the violent storylines, the phone box and the creepy guy in the middle…' (I.User 46)

> '…I guess the guy in the middle cos he's got that kind of weird fascination…it really appeals to everyone's voyeuristic…I felt really nosey, but I quite liked it…' (I.User 10)

These comments highlight the user's motivations to follow dramatic storylines, and most notably, these are all comments made by female respondents. This correlates with the quantitative data documented in section 7.9. It was noted that statistically, females were following the Martin/Julie storyline more than males.

7.10.2 Experience/Feeling

Respondents discussed how it felt to view *Crossed Lines*. Examples of comments included;

> '…The use of the phone added to the sort of eavesdropping. It felt that the characters were bugged and you were sort of watching them… it was also interesting listening to narratives and watching something else, like the tarot reader to see if anything was going to happen… It was almost as like you have dreams and you wake up and you've had snatches of dreams, it's almost like that. ..' (I.User 40)

> '…I felt like I was surveying these people, into some sort of surveillance thing, so I liked that…' (I.User 9)

These comments reflect the commentary in Chapter 6, which discusses the installation in terms of the theme of surveillance.

> '…it was quite interesting to sort of see how things developed and the sense that you had some control over which scenes you were watching and when. I'm not necessarily sure that I thought the plot would change as a result of what I was doing, I think the outcomes were probably going to be the same, but it was just the idea that you could dip in and out, a bit like remote control switching on TV. I quite enjoyed it…' (I.User 38)

7.10.3 Multi-screen Viewing

The multi-screen viewing environment of *Crossed Lines* has been emphasised as a key facet of the viewing experience discussed at length in Chapter 3 in relation to other multi-screen dramatic presentations, and also in Chapter 6 when commentating on the design of *Crossed Lines*. This was an element that I wanted to explore with the users during their responses to the experience. Responses tended to be split between the sense of appreciation at having the visual freedom to explore the different scenes that the nine-screen interface offered and a sense that there was too much to look at. Positive comments included;

> '…In fact when you were listening to somebody, you were checking out to see if there was anything else going on that was interesting that you wanted to have a look at. So it was actually like being in a sweetie shop … I enjoyed being in nine separate places at the same time'. (I.User 37)

> '…I jumped off to see if anything else was happening, just in case my eyes saw something more was going to happen, either with the tarot reader or the lady who had broken down…obviously there's a lot going on, you're listening and also watching and see that something else is going on'. (I.User 40)

> 'I like Trial and Retribution where it's split screen, I really like watching that on television, it felt like you were watching split screen'. (I.User 8)

These comments indicate an enjoyment and appreciation of the experience, and also a sense of their familiarity of the screen splitting as a narrative device. Negative perspectives on the experience indicated that the option was preventing users focussing on one particular storyline;

> '…it was quite difficult just to concentrate on that one, you want to see if there's anything else going on…you kind of want to challenge yourself to do the puzzle, to like link everybody up as well, so its quite difficult to just stay with one plot, cos you just want to know what's going on…' (I.User 44)

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Another commented on the sensation of information overload:

'…there was too much visual stimulation for me…' (I.User 22)

The users experience of the multi-screen presentation will be explored further when evaluating the eye-tracking data.

7.10.4 Narrative Subjuncture

There was a sense of narrative subjuncture (a sense of awareness that something was going on elsewhere) evident for some users and it is clear from the following comments that viewers felt that they wanted to go back and find out more about the plots that they had missed:

'…you kind of like get to the end and you almost want to step back and go and fill in the blanks…' (I.User 1)

'…you kind of think, can I go back and have another go at it, cos if I could have then I would have gone back and checked on where the call centre guy came in and the tarot reader, because neither of those appear to have come in at all…' (I.User 6)

'…I would love to have spent more time, and been able to fill in the gaps' (Q.User 33)

This sense of missing out resulted in further negative comments from some users:

'…depending on the order of numbers I pressed, key pieces of narrative were missed, which is disappointing…the credits started rolling, so I assumed I'd finished the experience, but after talking with friends, I missed a lot of endings and consequences' (Q.User 30)

'…I felt I had missed a lot of the narrative with some of the characters and when discussing the experience after I realised I had missed lots (Q.User 28)

'I don't watch TV or play computer games so I'm not used to this type of thing …Watching Crossed Lines made me feel very confused especially at first and I pressed too many keys too quickly. I felt I should understand how the characters all related to each other, but had not understood even by the end of the film'. (Q.User 32)

This proliferation of responses predominantly communicated in the written questionnaires, (indicated by Q) which reflect directly upon the viewer's sense of narrative subjuncture, could in part be attributed to the fact that the tests were

undertaken in a group scenario. Twenty-five users (cases 23-47) had access to the content in a lab setting, and so inevitably began verbal discussions with one another comparing their experiences immediately after the test. This then led to the realisation of participants that they had each had very different experiences, and had seen elements of the narrative that others had not and vice versa. This also explains why this level of discussion was not apparent in the first test setting, in which only one user was present in the room at the time, where they had less understanding that they had necessarily missed a great deal of content, as there was no other user present to make them aware of this. Only in cases where they had witnessed a character's climactic moment without seeing much of their previous narrative content, did they make these types of comments as seen so frequently on the group tested questionnaires.

7.10.5 Narrative Progression

Although the dominant trend was that users were relatively engaged with the stories, and followed characters through to their conclusions, some users implied dissatisfaction with their experience in terms of not having a sense of narrative progress:

> '…The other sort of abiding impression is I haven't got a sense of progress'. (I.User 4)

> '…it just felt like it was on a loop, that it was never going to end. It would keep going and it would keep entwining as it were'. (I.User 8)

These cases are explored in more detail within section 7.10.5; the users viewing patterns are illustrated to investigate whether there is an evident correlation between their viewing experience and this sense of lack of narrative progress.

7.10.6 Adaptation of viewing behaviour to environment

It was noted within the discussions of figure 7.5 that users were tending to watch more scenes and for longer times during the initial section of the narrative. This was attributed to the assumption that users were gaining a familiarity of both the characters and the mode of viewing available. The following comments support this assumption:

> '…I think you start going through it more quickly to test how things link up so I get a sense that I do more clicking as I go through…' (I.User 43)

'…I actually began to get much more engaged in the narrative and what was happening with it … my curiosity began to supersede my sense, it ceased to be an artwork if I can put it like that, and actually became something that I could engage with…' (I.User 6)

7.10.7 Medium Comparisons

Many responses compared the experience of *Crossed Lines* to familiar forms of drama content:

'…what it reminded me of most was the children's card game that you get where you try to match up pairs … it felt as though I was going through it; at first I'd just be able to look at individual squares … then connections were made one to one and that continued, and then, as it developed, more complex connections in threes, the pairs were speaking over each other, so it felt as though what it progressed to were natural endings, a sort of cacophony at the end which was quite interesting, not quite predictable, but it felt natural...'(I.User 46)

Comments that compared the narrative content to forms of television drama were also frequent:

'…it's very much like single camera drama … you're not controlling where the response is, you're controlling which character you're looking at, but you're not controlling the response to which character their interacting with, so it was really, to follow somebody's story and keep with their story, where in TV drama you have to go wherever the cuts are, so you felt more in control'. (I.User 8)

'…Maybe its things like Casualty and Hill Street Blues before it and things like that that have got people used to complex interweaving of storylines and quick cuts between them, so maybe it doesn't feel quite as strange as it might have done say five years ago, not that far from the sorts of things that are happening on TV now…' (I.User 46)

'…in a soap opera, everything is strained, everything is desperate but also the other thing that in terms of narrative that made it feel like a soap opera, is that, the same way that a soap opera, rolling narrative is such that somebody, a regular viewer can go on holiday for three weeks, then come back, watch it, and instantly know what's going on…' (I.User 41)

'…I do listen to radio drama quite a lot, and for some reason, even though we were looking at the screen, I felt a similarity there, where you had to do a lot of listening, and close listening, and also because I listen to drama on my mp3 player so its almost like that, because there's not a lot to look at on screen, although its nice to see some body language, especially when some of the conversations were getting more intense, so in a sense, it was more like radio…' (I.User 2)

'…I also realised when I was watching it that although I think I haven't watched much stuff, I think that actually I have…' (I.User 45)

Significantly, there were no comments relating to a sense of 'character amnesia' which has been defined by Abba (2008) to account for when players entering a gaming environment experience a sense of amnesia, since they enter an established world which they have no knowledge of, and very quickly have to gain that knowledge in order to become successfully involved in game play.

7.11 Eye-Tracking Visual Data

The use of this data aimed to provide a visual impression through the implementation of a 'gaze plot' of how the user viewed and reacted to the entire nine-screen display, and whether their eye position correlated to the key that they pressed before entering or leaving a scene. The eye-tracking produced a set of visualised data, which depicts a gaze plot overlaid onto a still image of the *Crossed Lines* visual interface.

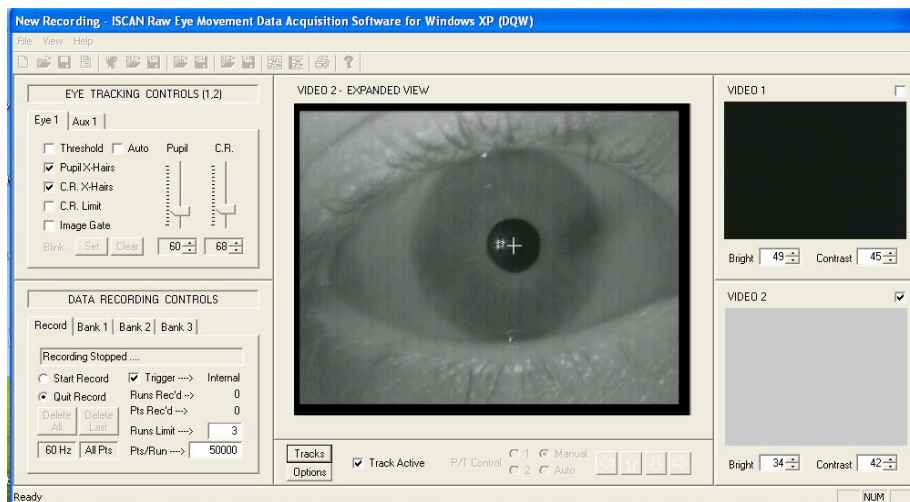Figure 7.47: Eye-Tracking Software

Five data sets have been taken and further analysis applied to them. They needed reliable data in terms of the eye-tracking and the script from the application. Users also needed to have watched the same scenes so that comparisons could be drawn in their behaviour. A representative age and gender spread was also required.

The users are as follows:
User 3 – Male, aged 41-45

User 4 – Male, aged 51-55

User 5 – Female, aged 51-55

User 8 – Female, aged 31-35

User 10 – Female, aged 21-25

The images below represent a visualisation of the sum total of a viewer's eye activity within the entire duration that they have spent viewing a scene. Every second, a plot point has been marked (in blue) to indicate the position of the users pupil at that particular time. In instances where there is a relatively small amount of eye trace, it has been noted that this correlates directly with the minimal amount of time spent by the viewer watching that particular scene.

The data has been viewed to ascertain whether there are patterns of viewing behaviours between the subjects, and within their own behaviour and approach to viewing the scenes.

The aim of utilising this particular methodology was to observe how viewers looked at the screens; whether their visual attention was focussed on the characters that were in conversation or whether they were looking at other characters. Their choice has been recorded and noted from the *Director* output file of which scene they chose to enter after leaving the pictured scene. It can then be discussed whether there was a pattern in behaviour concerning whether the viewer watched, then actively selected, a different character based on the position of their gaze.

7.11.1 Scene 1 (Screens 3 and 9: Julie and Mandy)
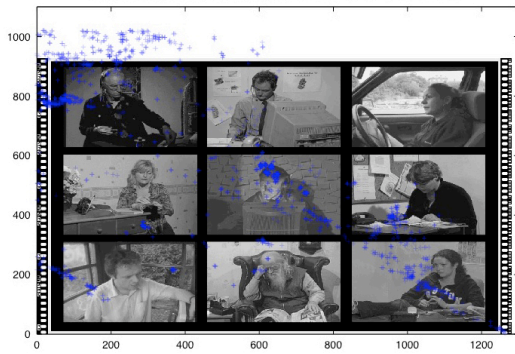
User 3

34 secs

went to scene 5
(6 & 7 – Maureen and Gary)

User 5

12 secs

went to scene 3
(3 & 5 - Julie and Martin)

User 8

71 secs

went to scene 4
(3 & 8 – Julie and Bob)

Observations

This is the first scene that the viewers chose to enter, selecting either 3 or 9 to view the conversation between Julie and Mandy. In two out of the three cases, users chose to follow Julie after watching this initial scene. We see scattered viewing in all three cases. Only in the case of user 8 is there pronounced eye activity over the character of Julie.

7.11.2 Scene 5 (Screens 6 and 7: Maureen and Gary)
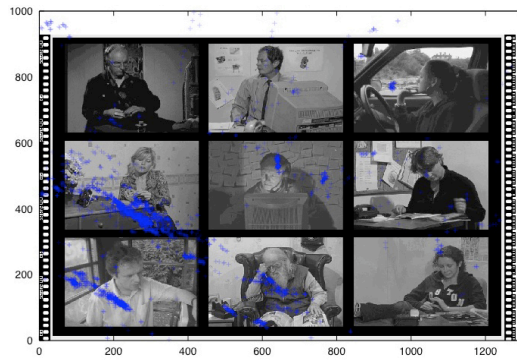
User 3

55 secs

went to scene 10
(4 & 8 Brenda and Bob)
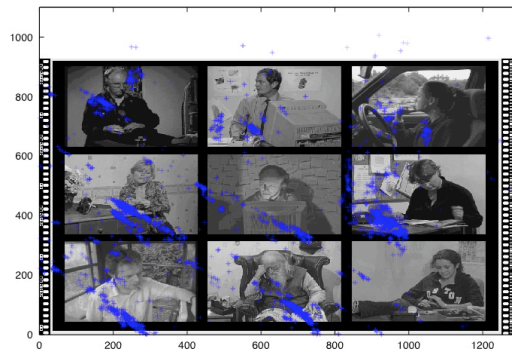
User 4

111 secs

went to scene 4
(3 & 8 – Bob and Julie)

User 5

5 secs

went to scene 6
(2 & 7 Phillip and Gary)
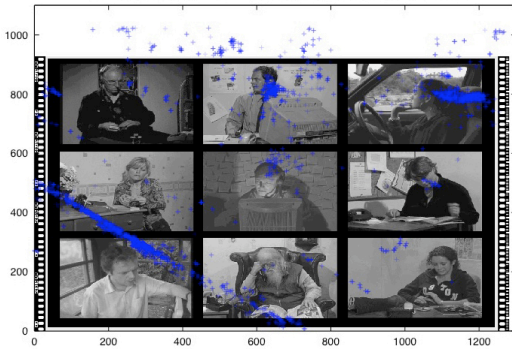
User 8

112 secs

went to scene 9
(7 & 9 Gary and Mandy)
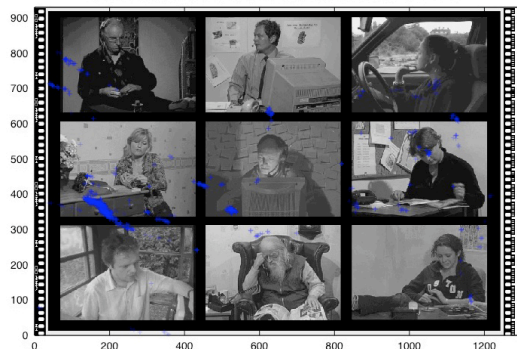
User 10

13 secs

went to scene 10
(4 & 8 Brenda and Bob)

Observations

This scene demonstrated a prolonged viewing experience in 3 out of the 5 cases. In all cases viewers demonstrated a scattered approach, and observed other character's activities. User 4's gaze plot is particularly scattered and illustrates that the viewer has paid visual attention to all nine characters. In all cases, eye activity correlates directly with the viewer's next choice of scene; in all five cases they were already observing the character before selecting them.

7.11.3 Scene 6 (Screens 2 and 7: Phillip and Gary)
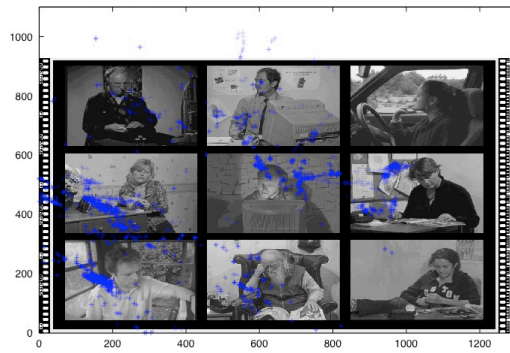
User 3

50 secs

went to scene 4
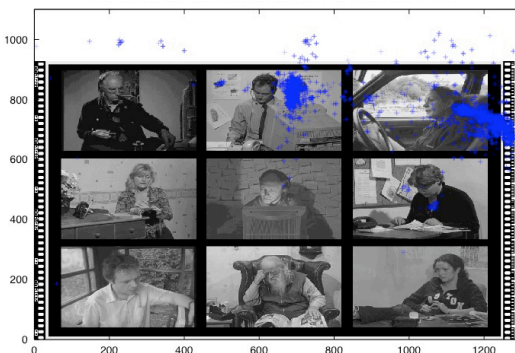(3 & 8 – Bob and Julie)
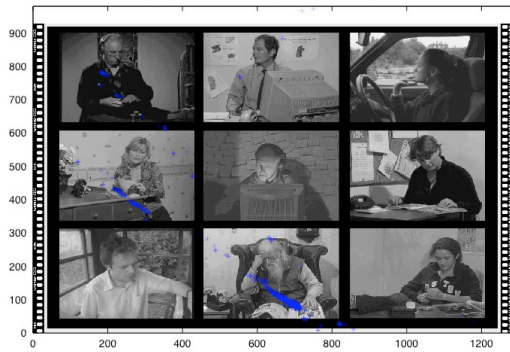
User 4

12 secs

went to scene 5
(6 & 7 – Maureen and Gary)
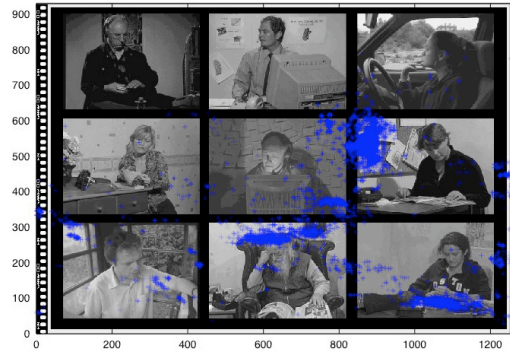
User 5

157 secs

went to scene 10
(4 & 8 Brenda and Bob)
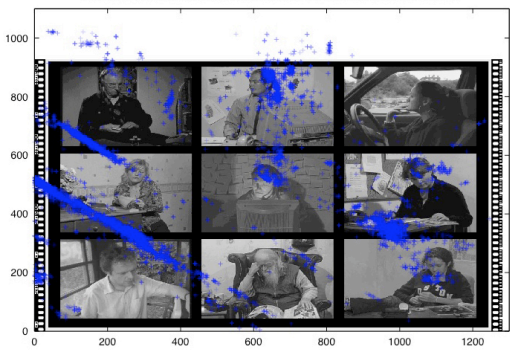
User 8

162 secs

went to scene 1
(1 & 9 – Julie and Mandy)
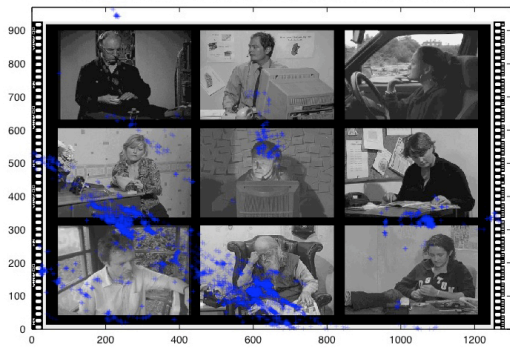
User 10

169 secs

went to scene 12
(1 & 6 James and Maureen)

Observations

During the scene, in all cases viewers did not necessarily view the characters that were in conversation with one another (Phillip and Gary) and tended to be concentrating their gaze elsewhere. Viewing has become more sporadic than in the previous two scenes, but this is unsurprising since the users have now become accustomed to the screen environment and mode of viewing.

7.11.4 Scene 10 (Screens 4 and 8: Brenda and Bob)
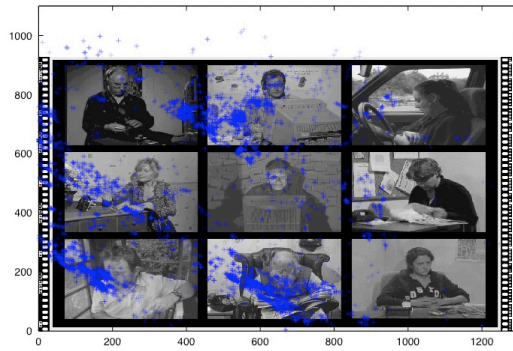
User 3

128 secs

went to scene 12
(1 & 6 James and Maureen)
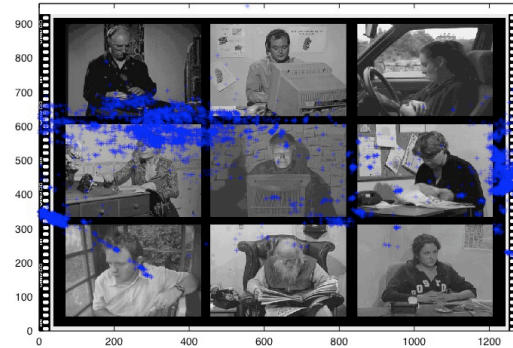
User 5

195 secs

went to scene 14
(1 & 4 James and Brenda)
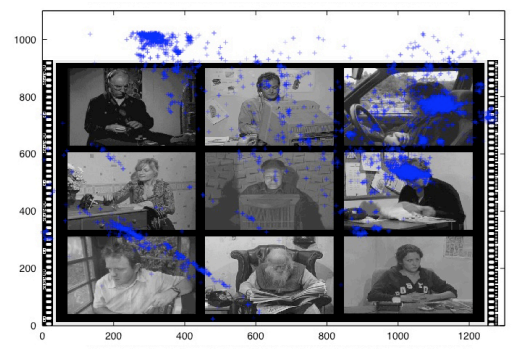
User 8

195 secs

went to scene 14
(1 & 4 James and Brenda)
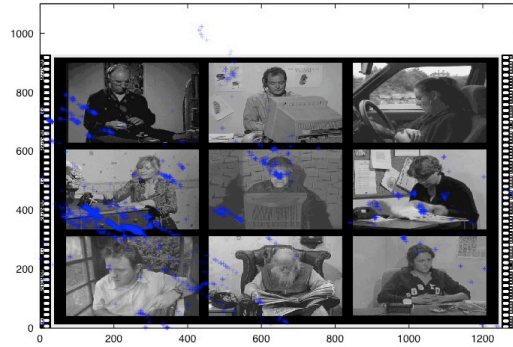
User 10

37 secs

went to scene 6
(2 & 7 Phillip and Gary)

Observations

This was a scene watched at length by most viewers, in the case of users 12 and 17, the older female viewers, it was watched in its entirety, and watched the least amount of time by the youngest user.

7.11.5 Scene 12 (Screens 1 and 6: James and Maureen)
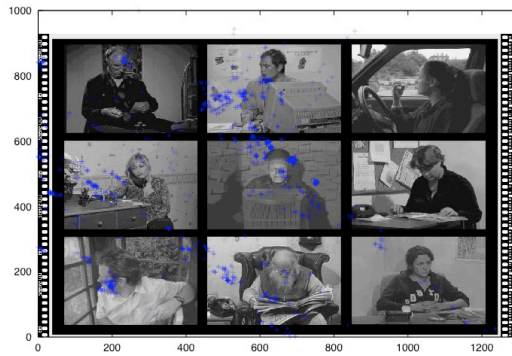
User 3

37 secs

went to scene 17
(1 & 2 James and Phillip)
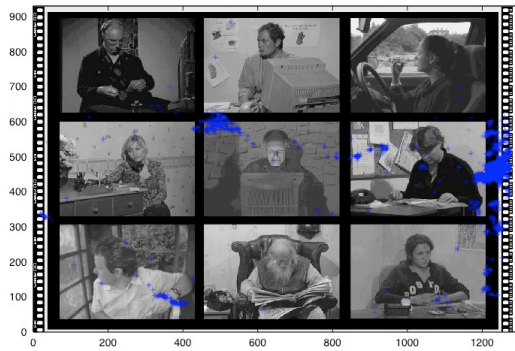
User 5

87 secs

went to scene 10
(4 & 8 Brenda and Bob)

User 10

27 secs

went to scene 14
(1 & 4 James and Brenda)

Observations

Eye activity is significantly minimal compared to previous examples. The two characters in conversation, James and Maureen, have been noted as being unpopular characters within the results of the questionnaires, which could account for the viewer's lack of engagement. Even the user who spent the most time in this scene (user 5) did not demonstrate increased eye activity. Two out of the three users chose to follow the same character, James after viewing this scene.

7.11.6 Eye-Tracking observation conclusions

There is a pronounced visual indication that viewers were not accessing material randomly, and the eye data showed in numerous cases that viewers were paying particular visual attention to characters. The conclusion can be drawn that users who displayed this behaviour were engaged with the narrative; and did pay visual attention to character. It has been demonstrated that viewers could listen and digest the information from one exchange, whilst viewing action within the other characters screens, in readiness for their next interactive decision. This is seen clearly in scene 6. This is common behaviour across all users regardless of gender and suggests that they were attempting to pre-empt action throughout the experience.

7.12 Case study user observations

The observations within the following in depth case studies bring together data obtained from all of the four research methodologies; the quantitative data taken from the *Director* output file, questionnaire responses, interview transcript data and eye-tracking visual data.

7.12.1 User 3 observations
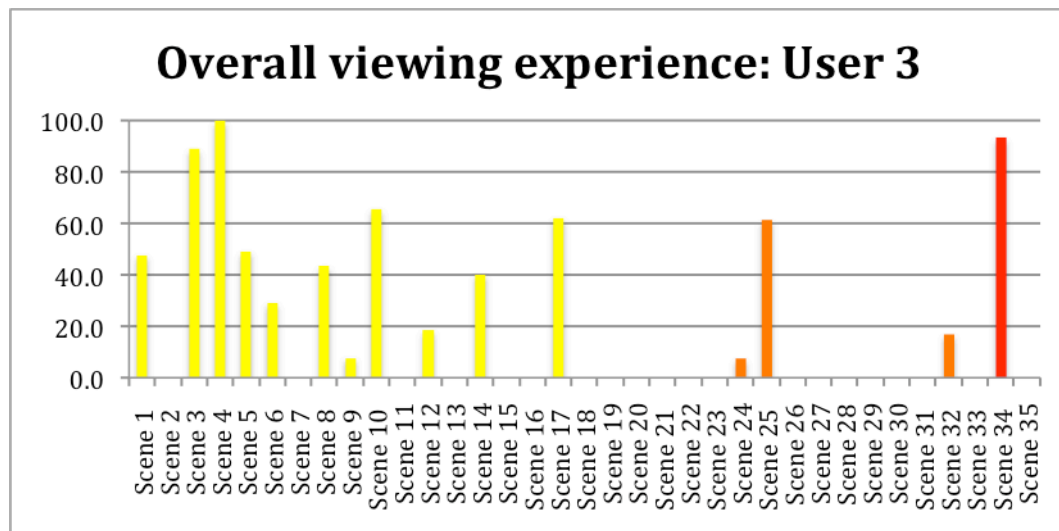
Figure 7.48: User 3: Overall viewing experience, showing number and percentage of scenes viewed

The gaze plot generated from the eye tracking data for this user illustrates a slower paced viewer who tended to watch scenes and had scattered gaze patterns; no one specific character was visually favoured; instead the user took a very exploratory approach.

This is also reflected in the viewing pattern shown in Figure 7.48, which is indicative of 'grazing' behaviour (Eastman and Newton, 1995) whereby the viewer is clicking from one scene to the next without viewing it in its entirety and exhibiting 'remote control' behaviour. The user only viewed one full scene in its entirety of the fifteen visited. This could be read as the user being bored, restless or dissatisfied, but during interview, the user commented:

> '…, I was involved right from the beginning … I find it really intriguing, I liked the fact that there were immediately people talking to each other, there were dialogues that were set up and I can't remember when, but at some point I realised, that there was gonna be the interaction, I think it started with the two youngest women there and at some point it switched and there started to be interactions between other characters, and that was very intriguing. I felt I wanted to know more…'

User 3 engaged with the experience for 14.48 minutes and viewed 21% of the video content available within *Crossed Lines*.

7.12.2 User 4 observations
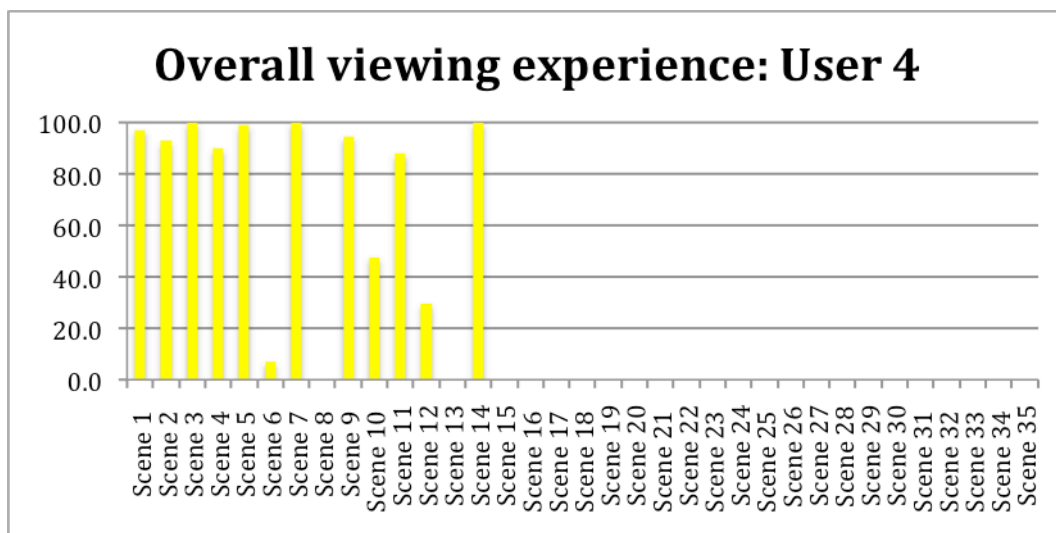
Figure 7.49: User 4: Overall viewing experience, showing number and percentage of scenes viewed

Figure 7.49 shows that although the user viewed all of the scenes that they selected in their entirety, they chose to leave the experience within the first narrative phase, having experienced 27% of the narrative content available, over a period of 20.41 minutes. In the two eye-tracking outputs that are available for this user (scenes 5 and 6), the users' eye patterns are scattered across the nine-screen interface. The user commented on their approach:

> 'You're trying to work the structure of the thing out and what have you, and in some sense that's almost more important to me than concluding the dramatic narrative or whatever

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because once I've got the structure I can sort of guess how its going to end or what's going to go on and I suppose that's what I was trying to do with this I was trying to sort of well what's the structure of this thing um and unfortunately that probably meant I missed the narrative in some sense because obviously this is too confusing to do that to…'

7.12.3 User 5 observations
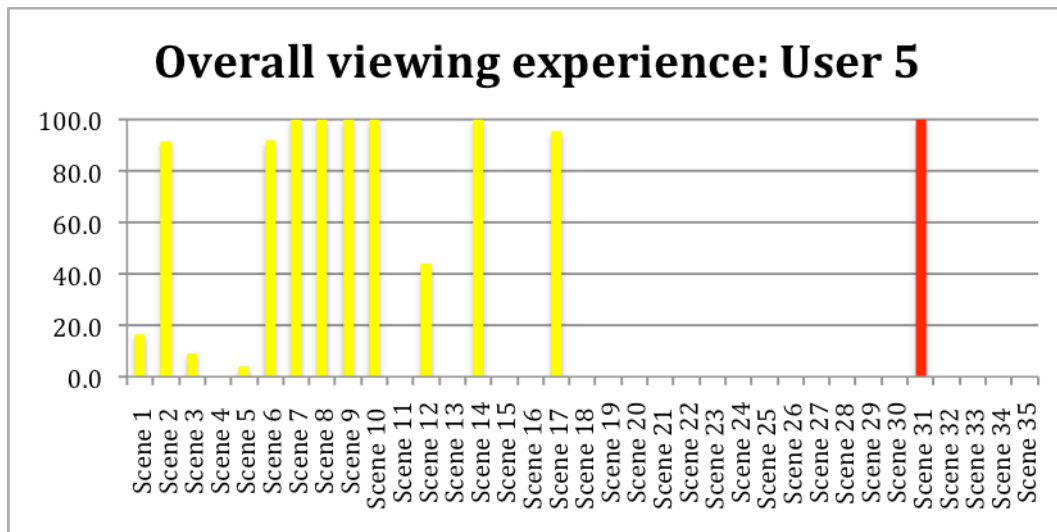
Figure 7.50: User 5: Overall viewing experience, showing number and percentage of scenes viewed

Within the eye-tracking data, it was noted that this user tended to stare more intently at fixed places; the gaze patterns were fixed and focussed; suggesting that the user may have been using their peripheral vision to look elsewhere as they commented on their viewing approach;

> '…it was following storylines I suppose…there was a sense of what was happening elsewhere, and how did that link in, if at all, so there's a sense of keeping half an eye on all of it and trying to work out what was happening…it's the kind of thing you could go back and do again…'

The eye-tracking data showed that the user tended to focus more intently on the two characters in conversation. Figure 7.50 shows that apart from a few scenes, this viewer tended to watch scenes in their entirety, suggesting a thorough and methodical approach, although the user only accessed and viewed 27% of the available video content with a viewing time of 11.18 minutes.

7.12.4 User 8 observations
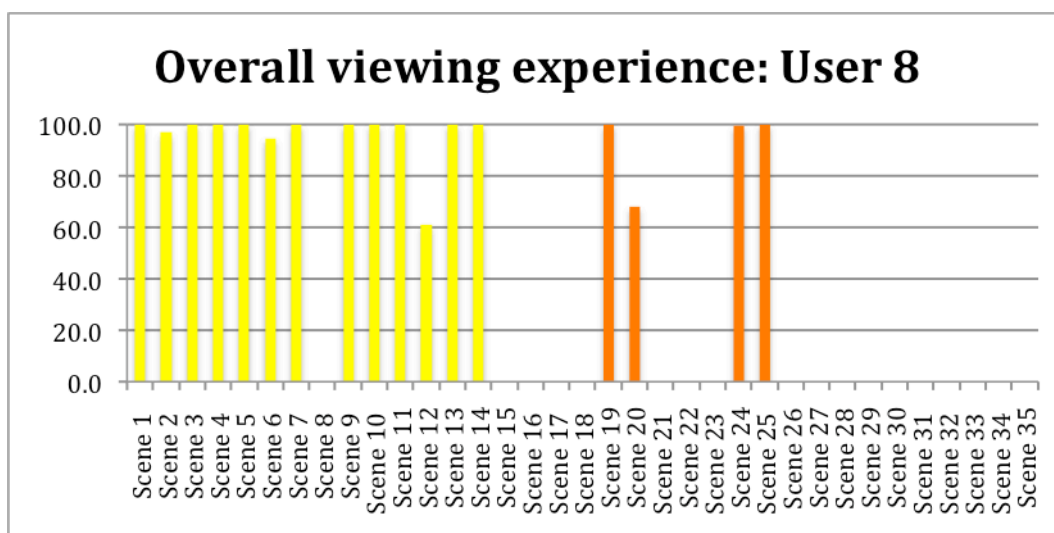
Figure 7.51: User 8: Overall viewing experience, showing number and percentage of scenes viewed

The gaze plot illustrates pronounced eye activity throughout the scenes, in which the user constantly scrutinised the entire 9-screen interface. There was also strong evidence of visual scrutiny of other characters during conversations in which they were not involved. Figure 7.51 shows a very methodical and thorough approach to the material in which many character paths are followed and scenes are viewed in their entirety.

> '…I wouldn't want to leave a conversation, once I'd got into it, half way through because you were gripped by what's going on, you want to know the conclusion, of that little scenario…'

This viewing pattern also correlates directly with the user's comment during interview; that they felt as if action was on a loop, having spent the most amount of time of any of the five case studies, viewing 49% of the available video content, and a viewing time of 38.48 minutes.

7.12.5 User 10 observations
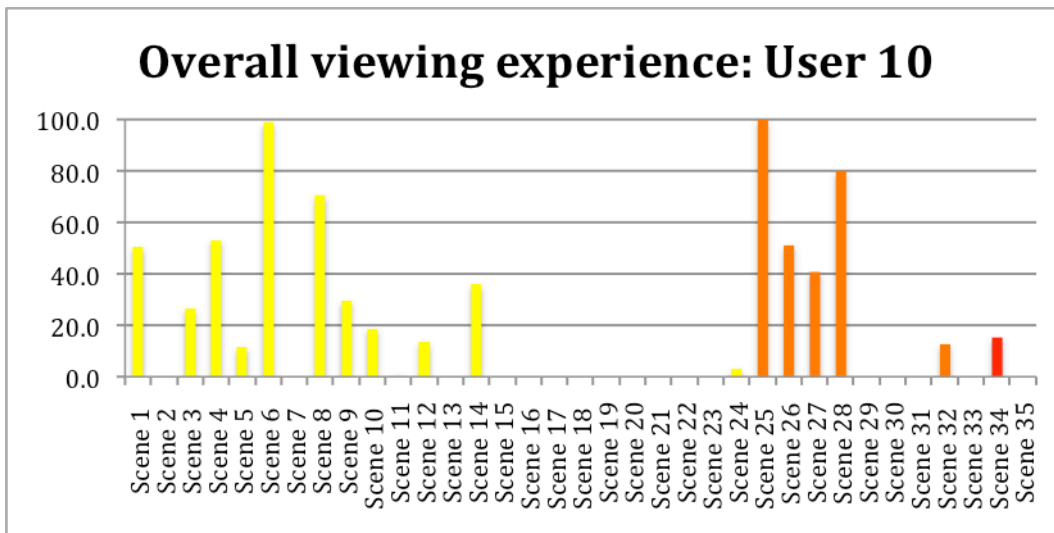
Figure 7.52: User 10: Overall viewing experience, showing number and percentage of scenes viewed

In the eye-tracking data, this user displayed very impulsive viewing behaviour. They didn't watch scenes in their entirety and tended to graze; to jump from one character path to another. Vision tended to be quite scattered across the nine frames, and intense spots were never on the two characters engaged in conversation. The user was consistently paying visual attention to other characters and leaving the scene to follow the character that had received their attention. For example, this was the case in scene 5 where her main focus was screen 4, button 4 was then pressed.

> '…I didn't know that I was kind of making it go faster…I didn't realise that if I kept on pressing like that, it was gonna end sooner, I probably wouldn't have done that, I would have been more patient, but I'm not very patient…'

This user viewed the least amount of content of the five case studies at 20% and a viewing time of 12.36 minutes.

7.13 Testing conclusions: Crossed Lines

There have been some significant findings gleaned from the rich data that has been gained from the user testing process. As stated in the introduction, *Crossed Lines* aimed to test the main areas, or variables, of user levels of engagement, levels of user immersion, levels of user interactivity and levels of user enjoyment. The small sample group means that universalism and the establishment of user typologies should be avoided. As the initial quantitative data suggested, there were high levels of engagement amongst users. This was measured and indicated by the duration of time spent within the overall experience, and the percentage of time that was spent in each individual scene. Findings with regards to the

immersive variable are apparent in both the quantitative and qualitative and the statistical analysis provided some significant findings. The length of time users spent in scenes, and the rate at which they pressed keys to enter different scenes indicated high levels of interactivity. This is also indicated in the gaze plots generated by the eye-tracking data. Overall enjoyment of the experience was gauged by the qualitative comments collated from the questionnaires and the one-to-one interviews. There were some negative comments evident in the feeling of a sense of what Weinbren had termed 'narrative subjuncture'. Negative user responses are also evident within the relative failure of some characters. This was confirmed through data revealing that users chose not to follow them or they did not evoke a response from viewers. These characters were character one, James, and character four, Brenda. There is a definite overall sense that users are adept at navigating, processing and understanding multi-linear and multi-screen flows of information. Adaptation of viewing behaviour to the environment was also evident in the interview data where it was confirmed that users became quickly aware of their viewing technique. The interview data was an invaluable source for providing justification and explanation for the results gathered from the quantitative sources; for example, in one of the case studies, the user displayed erratic and unsettled viewing behaviour by frequently jumping from one scene to the next. The user's response during the interview belied this conclusion, as the user stated feelings of immersion and engagement with the plot lines and the overall experience. Scenes of high drama tended to elicit more pronounced and frenetic eye activity amongst participants, demonstrating an engagement and immersion in the overall viewing experience. There were some conclusions to be drawn in relation to gender and age. Females demonstrated a higher level of engagement and a tendency to become more involved in the drama than the male sample.

The most significant finding when looking at the individual case studies, which were a culmination of the different research methodologies, are the diversity of viewing methods employed and of the overall user experience. Users took away with them a range of different experiences, which was largely dependent on the story content that they viewed. From the data gathered we can see that each user, although viewing a complete narrative path to its conclusion, only accessed a little over 40% of the content.

7.14 Testing conclusions: Research Methodologies

The combination and interrelation of the different methods was clearly a key strength to the approach in the rich data that was gathered during the testing process. The multiplicity of data sets and the associated problems of evaluating and drawing together the diverse results have proved fruitful in this case.

> …With multiple methods the researcher has to confront the tensions between different theoretical perspectives while at the same time considering the relationship between the data sets produced by the different methods (Brannen, 1992:33).

In some cases, this led to the manifestation of new data specific to the methodology, and in others similar findings were apparent in multiple methodologies, which added weight to the findings and the associated arguments that were inferred.

There is a notable difference between users subjected to different testing environments; the individual environment and the group. The group's experience became a very social one; as they compared notes during the tests (by looking over one another's shoulders) and after the test in which they underwent comparative discussions of their experiences. Seaman and Williams who have carried out investigations into the potential of hypermedia ethnography have argued that:

> Textual and audiovisual information made interactive will be able to provide the scholarly apparatus of referencing and contextualisation necessary to create new forms of academic publication and knowledge dissemination (1992:300).

This type of research into interactive audience behaviours calls for a multiple methodological approach, as singular methods are inappropriate for building a robust picture of a complex user experience. Levels of immersion cannot be measured simply by making the assumption that the longer a user remains in a scene, the more immersed in the story they are, as this is not indicative of their emotional experience. Similarly, intensified and inert eye activity cannot be an indicator that the users are engrossed in a particular character.

This type of multi-modal testing and analysis provides rich data, which can be exploited to inform future projects, which employ similar technologies and modes

of interactivity. Such an approach could also be equally informative in the testing phases of interactive prototype projects in both the artistic and commercial realm, to facilitate the decision making process before full production commences.

Chapter 8: Conclusion

8.1 Introduction

> Postmodernists object to presenting research results in a detached and neutral way. The researcher or author of a report should never be hidden when someone reads it; his or her presence needs to be unambiguously evident in the report. Thus a postmodern research report is similar to a work of art. Its purpose is to stimulate others, to give pleasure, to evoke a response, or to arouse curiosity. Postmodern reports often have a theatrical, expressive, or dramatic style of presentation. They may be in the form of a work of fiction, a movie or a play. The postmodernist argues that the knowledge about social life created by a researcher may be better communicated through a skit or musical piece than by a scholarly journal article. (Neuman, 2003:89).

Chapter 2 began by contextualising the practical and theoretical work undertaken within this thesis within broader theoretical debates, the first of which was cited as postmodernism. It is therefore apt to begin this conclusion with Neuman's observation, and to place the outcomes of this research process within the context of postmodernism where there is a fundamental acknowledgement of both the opportunities and potential problems that arise from the author being engaged, involved and indeed an intrinsic player in the research process. However, the outcome of the research is not just a practice-based response as Neuman suggests is the case; it is the interrelationship and tight alignment between the two trajectories of theory and practice which has ensured a detailed, thorough and original response to the initial research problem.

8.2 Evaluation of practice-based approach

Through the conceptual methodologies, practical execution, exhibiting and user testing of *Crossed Lines*, this thesis has sought to fuse and interrelate theory and practice, providing insights, which could not have been captured through non-practice traditional study. This thesis has attempted to address several questions that were defined within the introduction through a practice-based approach, in order to achieve the aims and objectives of this research. The findings that have been gathered and articulated are specific to the methodology of approaching this area from both a practice-based and theoretical/contextual perspective. Many of the questions that were raised during the process of the research were prompted by the problems that were encountered in realising *Crossed Lines* from conception

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to completion. Moreover, the research process enabled the identification of several parallel trajectories between my own practical explorations over the last seven years and those followed by other artists (for example in the interactive cinematic examples of *Late Fragment* and *Uncompressed*, and the multi-screen narratives *Pretend* and *The Tracey Fragments*).

8.3 Evaluation of questions, objectives and aims

A number of questions were proposed in the introduction to the thesis, which will now be summarised and evaluated.

- How are different modes of interactive AV storytelling employed and received?

This inquiry was addressed in Chapters 3, 4 and 5 and was approached primarily using narratalogical and theoretical perspectives. Case studies were detailed and discussed in relation to interactive aspects, aesthetics and narrative content of the various different examples, but research revealed that there have been very few investigations and insights into their user/viewer reception. The relatively few audience studies that have been undertaken into interactive media examples within the scope of this study were detailed in Chapter 7, and highlight that this is relatively new territory. This will be discussed further in section 8.5.

- What aspects affect different levels of user engagement?

This was difficult to answer in relation to other projects, due to the lack of audience studies and reception into the works. This prompted (and emphasises the originality and significance of) this research's adoption of a number of different quantitative and qualitative research methodologies to evaluate user engagement and response to *Crossed Lines*. The processes employed and the research results and findings are summarised in detail in Chapter 7.

- How do different interactive dramatic and narrative techniques affect story telling processes and experiences?

This question was addressed through discussion of a number of examples and case studies within the field of interactive narrative that have been analysed

throughout the written thesis. The question has also been core to the decision-making processes underlying the conception and production (including navigation and interface design) of *Crossed Lines*. The importance of the interface as part of the interactive narrative experience was discussed in detail in chapter 3, where the nature and specific experience of the interactive interface was shown to significantly reflect and inform the content of the narratives; this was demonstrated in the work of other artists as well as in this research's practical work.

- How can non-branching structures be employed effectively within interactive storytelling paradigms?

A number of examples of effective non-branching interactive narratives have been presented, evaluated and researched particularly within Chapter 5's investigations into video-based interactivity. The non-branching structural paradigm of *Crossed Lines* was discussed and analysed in Chapter 6, and its efficiency was evaluated through the user testing methodologies in detail in Chapter 7.

- What interactive storytelling architectures can be devised to ensure equitability of characters within a multi-plot narrative?

This research question was central to the conceptual and practical methodologies employed in the creation of *Crossed Lines*, where methods were designed and employed to maintain character equitability through, for example, giving each character comparable lengths of screen time and levels of character action. The equitability of screen time was also ensured through the nine-screen presentation, by which all characters could be viewed simultaneously and the equitability of action time of characters was measured and imposed during the scriptwriting phase. However, one of the interesting findings to arise from this research was revealed during the user testing phase, where different levels of character popularity became evident through the unequal viewing times noted between the different characters.

- What techniques can be developed and/or employed to track and evaluate user navigation and engagement?

A multi-modal approach combining both qualitative and quantitative research methodologies was adopted to address this question, and the findings are

presented in detail in Chapter 7. The multi-modal approach was favoured both because of the relative lack of user testing and evaluation within the field (as discussed in section 8.3) and because a singular research method would not offer the same insights and findings that a multiple method ensured, especially in relation to this type of narrative in which there are multiple factors at work.

In attempting to answer these questions through both practice-based and theoretical/contextual research methodologies, I aimed to successfully meet all the objectives of this research project (identified in section 1.2):

- To investigate and analyse key critical and theoretical perspectives and issues related to this field;
- To analyse different theoretical perspectives and practical approaches to interactivity;
- To identify different modes of interactive storytelling in digital form;
- To conceive and produce a series of fragmented fictions that when navigated and pieced together by the viewer form a complete narrative;
- To develop an alternative to branching tree interactive storytelling structures;
- To conceive a series of fragmented narratives which can only be viewed in their totality through user engagement;
- To propose methods of tracking and evaluating user interactivity and narrative engagement;
- To provide new insights into the field.

The following aims of the research project (identified in section 1.2) have also been met:
- To investigate, analyse and contribute to the field of digital fictional interactive storytelling
- To create and develop an original and distinctive interactive AV storytelling installation
- To offer insights into methods of audience-based analysis suited to new media interactive narrative texts.

The final aim: 'to advance debates and practice concerning the intervention of new media technologies and practices into cinematic forms and filmic narratives' has in part been met through dissemination of the practice-based *Crossed Lines*

installation which includes exhibition within University contexts and at the 2008 *Electronic Literature Organisation* conference and the 2008 DIMEA conference, where the work has also been included in the conference proceedings.

8.4 Summary of findings

At the end of chapter 7, a number of conclusions were drawn in relation to the user experience of *Crossed Lines* itself, and also to the wider context of the application of a combination of traditional research methodologies to a new media investigation. Perhaps the most crucial finding of each of these channels was that interactivity was witnessed to occur on numerous concurrent levels relating to both the mechanics and the mental/physical experience of the user. This highlights and brings together the debates around the definitions of interactivity first discussed in chapters 1 and 2, such as Huhmato's argument that: 'Media products cannot be defined as interactive merely because they use or have access to certain kinds of hardware and software. The crucial question is one of contextualisation, both at the level of institutionalised practices/applications and of discursive formats' (1995:87). Alongside this central affirmation established within the user testing of *Crossed Lines*, several other conclusions can be drawn in relation to the three strands of research that were defined in the introduction.

The proliferation of new media narrative forms delivered in short 'webisodic' structures and the use of multi-screen viewing environments in cinema and television, are indicative of a recent shift in viewing behaviours. This is clearly changing in relation to people's interactions with online and hypermedia paradigms and their adoption of multi-tasking lifestyles, where they no longer focus on one singular event at any one time. This echoes the postmodern notion that the grand narrative has become obsolete, and people choose to engage in several stories or events concurrently at the same time. Episodic examples of this discussed within the thesis included the social-networked narratives of *Kate Modern* and *Trixie* cited in chapter 4 and in chapter 5, and machinimatic films, which are delivered as 'webisodes'.

These shorter exposures to content are being considered increasingly as more commercially satisfactory since they attract an audience's continued engagement with a product or service, maintaining the viewer's interest and subsequent custom. In arts-based examples, the interactive web film *17 Life Fables,* which

was cited in chapter 5, consisted of several short films, each approximately 2 minutes in length. These behavioural patterns were also evidenced in the findings of *Crossed Lines;* that users attributed their sense of immersion not to the fact that they viewed one character or story for an extended length of time, but to the fact that they could weave in and out of character paths and storylines at will. Our increasing desire and ability to be in several places at once extend these behavioural and viewing patterns and account for the popularity of virtual worlds, in which we can simultaneous operate as several avatars, and through online participations.

Crossed Lines aims to make an original contribution to the field, and it was noted in chapter 5 that the closest comparable example to its interactive structure was the interactive DVD film *Uncompressed*, but this was comparably limited in terms of its freedom of navigation and consequent user engagement. There were instances of multi-screen interaction available within *Uncompressed,* but only in a chapter selection screen, and interaction between these paths was limited and navigation intensive since the viewer had to switch between the main story screen and the navigation screen in order to switch between elements of content.

8.5 Summary of problems

In some senses, the key strength of this research which has been identified as the researcher being involved and absorbed within the creative process, should also be acknowledged as a weakness. Being so involved and attached to the process has rendered an objective viewpoint when analysing and discussing the work very difficult and the challenge of stepping above the work in order to provide objective insights has had to be overcome on numerous occasions. Most notably, these were encountered during the writing of chapter 6 in which insights into the developmental and production processes of *Crossed Lines* were examined. For example, in section 6.12 and 6.13 where the scriptwriting and production processes are discussed, aspects of theoretical relevance were initially overlooked as a result of my familiarity with the process and a high level of creative intuition in which decisions are made and trajectories followed unconsciously on my part. The development and scriptwriting process was broken down retrospectively into linear stages (where in actual fact in reality the stages overlapped and were worked on concurrently) in an attempt to articulate the creative processes to the reader. These included character development, relationships between the characters, scene writing, dialogue conventions and formatting.

The issues raised within the field of new media audience studies has posed several problems for the researcher of such works, as the nature of audience behaviour and response becomes difficult and complex to define and capture in new media and multi-user environments. This issue was foregrounded as a contemporary problem within the field in the keynote address at the 2008 *Electronic Literature Organisation* conference in which Sue Thomas described 'the people formerly known as the audience'. Several researchers have also raised this issue of the problems of defining who the actual audience of new media texts are (Livingstone, 2004; Allor, 1988, Bird; 1992; Lull, 1988).

Problems of the interactive approach within the mode of video have been described as narrative subjuncture, which Weinbren defines as the viewer being 'constantly aware that things could have been otherwise' (1995). This has been resolved by some content producers by subjecting the viewer to a fold-back scheme (Crawford, 2005:126), whereby the storyline is folded back to a predetermined path. Other problems have been identified in relation to issues around narrative closure and conclusion; but as Joyce has argued; 'I consider the finished story, the narrative parabola, as the death we must fight against'. (Joyce, 2002:144)

Other problems that were encountered have been those associated with technical issues and in some senses the demands of the work (such as the requirement to run nine concurrent streams of *Quicktime* video in synchronicity). The conception and initial tests of the work, which were undertaken in June 2005 indicated that the installation was ahead of developments in computer and graphics card processing power. The video streams staggered, dropped frames and lost synchronicity. Fortunately, with the improvement and availability of faster processors and graphics cards, these issues have been resolved, with the installation now able to run on faster machines.

Problems in providing universal claims about the work were foregrounded in chapter 2; including reflection on the theories of Barthes, and his assertion that texts tend to be 'citations, references, echoes, cultural languages which cut across and through it like a stereophony'. (1971:160) Writers such as Murray have also insisted that;

> This wide range of narrative art holds the promise of a new medium of expression that is as varied as the printed book or the moving picture. Yet it would be a mistake to compare the first fruits of a new medium too directly with the accustomed yield of older media. We cannot use the English theatre of the Renaissance or the novel of the nineteenth century or even the average Hollywood film or television drama of the 1990s as the standard by which to judge work in a medium that is going through such rapid technical change. (1999:28)

In 1991, Bellour, writing for *Traffic,* a new cinema journal aimed to develop 'new theoretical propositions and new ways of writing about film and other media in the post-cinema landscape' (2000:xiii), urged that no images should be used in 'an attempt to challenge the writer to find the language to write about image regimes that are increasingly complex and difficult to describe' (Bellour, 2000:xiii).

8.6 Current trends

Recent years have seen a proliferation of work in the area of interactive storytelling using new media interfaces and cinematic techniques, while cinematic practices has increasingly adapted and absorbed new media technologies and aesthetics in its form, production processes and content. The proliferation of split screen presentation in feature films and television programmes, which were discussed in chapter 3, is indicative of computer mediated storytelling practices being absorbed into the world of film. Interactive storytelling technologies in television, web, and extended entertainment forms which are delivered across multiple platforms have proliferated in the art world, across public broadcasting platforms and within the mainstream commercial realm. Collaborative film projects, which were initially part of the new media artistic fringe, have since been absorbed into the mainstream. The BBC have recently launched a new project *To be continued...*[1]*,* an online collaborative drama aimed at a youth audience who are invited to contribute to the scripting and production process.

The last ten years have also seen new types of theoretical discourse to articulate and provide account for these rapid developments. These responded to the appeals of artists and commentators in the mid 1990s such as Graham, who in 1996 discussed the shortcomings of video theory in relation to the artworks using interactive tactics: 'current mainstream criticism doesn't appear to have got much beyond the recognition of interactive computer-based art as amusing cultural

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[1] http://www.bbc.co.uk/tbc

artifact within postmodern theory' (1996:9). Others, such as Bill Seaman aimed to 'critically examine the new relationship created between viewer and artwork by technology-based media alongside existing platforms' (Graham, 1996:4). Three years on from these statements, Poster concluded that new theories 'must commence from an appreciation of the dissemination of these software-hardware systems throughout social space and the installation of interfaces that unite humans and machines in new configurations of agency' (1999:58).

As discussed, such new theories are beginning to emerge in response to the range of interactive narrative productions and developments considered within this thesis, and the growing number of specialist conferences such as *Interactive Storytelling* (held in Germany, November 2008) is indicative of the increasing academic attention and importance afforded to the field of interactive cinematic narrative.

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Appendix 1:

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Appendix 2, 3, 4 and 5:

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