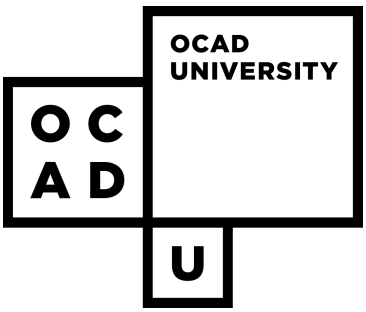

An Audience of One:
Building an Interactive Narrative Experience for Mobile Devices

by

John Andrew Forbes

A thesis exhibition presented to OCAD University
in partial fulfillment of the requirements for the degree of

Master of Fine Arts
in
Digital Futures

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Masters of Fine Arts, 2014
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Abstract

The purpose of this thesis was to explore the storytelling possibilities of cinema and mobile interactive technologies. As cinema has undergone major technological and theoretical shifts over its history, though particularly in the last three decades, the techniques and theories surrounding the way that a filmmaker can tell a story has laterally expanded. Similarly, technological advancements, particularly with regard to mobile technologies, have created presentation platforms which, until less than ten years ago, existed only in the realm of the fantastic. Storytellers, filmmakers and technologists are now exploring narrative possibilities by combining these three disciplines, as exemplified by Lev Manovich's *Soft Cinema*, works by Peter Greenaway, interactive music videos, movies and experimental projects. However, the move away from contextual representation of the story is a dangerous one, as meaningful interactions which were inherent in the linear presentation format of cinema seem to now be put aside in favour of interaction for interaction's sake.

I propose, as a response to this, an original dramatic work which is wholly conceived and developed exclusively for iPad delivery which blends meaningful interactions and narrative themes into a unique, complete, and personalized cinematic experience. This work combines traditional cinema theory and interactive practices developed through research and exploration of storytelling modes and techniques to generate a five-to-seven minute interactive movie for exclusive presentation on an iPad.

Keywords

Frame, Screen, Audience, Spectacle, Presence, Presentation, Time, Presentation Format, Cinematography, Photography, Mobile Technology, Film, Video, Media, Social Impact, Affect, Semiotics, Cultural Implications.

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As it is with all types of creative endeavours, one rarely works alone, finding strength and inspiration from peers, colleagues, friends and family. This thesis would not have been possible without the efforts of the faculty and staff at OCAD University. I would like to especially thank my advisors, Philippe Blanchard and Geoffrey Shea, for asking all the right questions when I needed to hear them. As well, my fellow Graduate Studies candidates in the Digital Futures program, particularly Torin Stefanson, Mitzi Martinez, Maziar Ghaderi, Lindy Wilkins and Demi Kandylis for listening to all the crazy ideas and theories as I developed this work. I would also like to thank Guy McCrum for his advice and demonstrated leadership and sound advice.

Dedication

For Mom, Dad, Dan, Brigitte and of course, Tessa.
I owe you all so much more than you know.

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An Audience of One

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Chapter 1 Introduction

The way in which we make and watch movies is rapidly changing. Over the past twenty years, technological advances, both on and behind the screen, have been redefining the norms by which we experience a motion picture and share in the storytelling process. The emergence of digital cinema, the unleashing of new distribution forms and experimentations in processes and narrative techniques have given rise to to new ways of creating, manipulating and delivering narrative media in ways which were once only imagined. These evolutions, both in acquisition and distribution, have changed the tools and ways in which we tell stories. We are experiencing a renaissance of cinema which is redefining what a 'movie' actually is, how it works, the ways in which it engages audiences and the cultural significance which they play in our lives.

I submit that by incorporating meaningful interactions which relate thematically to a story via digital interfaces, an audience may draw more meaningful and valuable inferences from said narratives through unique storytelling experiences. I propose to use this shift as the basis for investigating and developing a cinematic project which encompasses some of the changes to the industry. As such, this serves as a supporting document for an interactive film called *An Audience of One*.

Background & Social Context of the Problem

For the past decade, I have worked as a cinematographer on dramatic feature-length and short films, documentaries, and more recently, web-based and interactive works. Cinematography is a collection of technical, artistic, scientific and semiotic skill sets which, when applied in conjunction with other filmmaking disciplines, establishes the visual structure and tone of the story and transmits themes and ideas with the aim to emotionally link audiences with characters and plots. In many ways, the art of cinematography stands alongside photography as something much more than simple visual representation, however a fundamental difference between the two art forms is that it includes time (or rather a representation of it) as part of the cinematic presentation process, which in turn fundamentally alters the relationship between the viewer and the images onscreen.[1] The goal, writes John Hora, ASC, is a 'creative and interpretative

[1] The American Society of Cinematographers, one of the most respected cinematographic societies around the world, have published a detailed list of the responsibilities of a cinematographer in the *American Cinematographer Society Manual - 10th Edition* (as of this writing), which outlines the position in great detail.

process which culminates in the authorship of an original work rather than the simple recording of a physical event. The images that the Cinematographer brings to the screen come from the artistic vision, imagination and skill of the Cinematographer as he or she works within a collaborative relationship with fellow artists.' (Hora, 2001) In order to achieve this, I rely on my understandings and applications of techniques through practices which, as described by American Cinematographer Society Past President Richard Crudo, represent the artistic side of the craft.

> *'Our primary tools are light, composition, movement, and supervision of the final look in the lab or digital mastering suite, and our efforts are in the service of what we feel is appropriate for the material.' (2005, 10)*

Of course, this project is not exclusively focused on cinematography and its technological advances (which have been many, especially within the past decade). Rather, I aim laterally explore not only other filmmaking departments, but also storytelling as a whole under the new scopes of technological interaction. Outside of my academic pursuits, I am constantly striving to better my own understandings of the storytelling process: it feeds my knowledge, which in turn is reflected in my work, where together with the entire filmmaking community, we strive to push the ways we tell stories further. The focus of this study will provide a framework in which I can fold my professional experiences into an unencumbered examination into some of the changes which are occurring throughout the film, television and media industries.

Today's media-savvy audience is more perceptive than any screen-based audience which has come before. The cinema presents a magical window into the dreams and imaginations of storytellers, who in turn stove to engage and affect their audiences with images; there is, of course, the mythological screening of the Lumière Brothers' *L'arrivée d'un train en gare de la Ciotat* (1896), where a panicked audience believed the images of a train arriving at a station in Ciotat, France, would actually crash through the screen into the crowd. While this is an extreme example, it points to the visceral relationship audiences share with the cinematic screen. Over the past century, audiences have become increasingly aware of both the illusions being presented to them and more recently, the techniques and process which create them. Production techniques and technologies are no longer ethereal mysteries: 'movie magic' has begun to reveal its tricks to the public. On the surface, this exposure may seem to be a detriment to the production process, but it is, in fact, a benefit: an audience's comprehension of the filmmaking process, when combined with ever-widening presentation formats, have raised the cinematic bar. The 'wow' factor of viewing a work is not the same as it was thirty, fifty or one hundred years ago, and since the tricks are more clearly understood as processes and practices rather than magic, filmmakers are now finding innovative ways to explore the storytelling experience. Technologies are being developed which can be appropriated, reworked and repurposed to explore presentation techniques, which in turn allow for even more creative stories to be told.

Over the history of cinematography, a sophisticated visual storytelling language developed which is at once distinct from and behoving to editing and montage, which is exclusively a cinematic discipline. A dialogue between these, and other practices, has developed which encompasses semiological cues, presentation order and authorship to generate and propel meaning to a viewer. As the technological advancements have changed (and continue to change) the way that movies and serial shows are being seen, so the language evolves too. Historically, filmmakers could rely on presentation formats which guaranteed certain semiological and behavioural cues (i.e. the theatre and television) which controlled the presentation of their stories, but we find ourselves now with tools which have moved far beyond those norms. These technological advancements have fundamentally diverged from standardized presentations, which in turn are expanding the lexicon of the cinematographic and editing language. Today, alongside theatres and television, we should also include online distribution, interactive narratives, gamification of narratives, virtual reality as well as augmented reality and mobile presentation as part of this list. We are truly in the midst of a cinematic revolution.

By exploring capabilities inherent in these new devices and platforms, I propose to explore some of the ways that this language is changing by creating a work which examines and exemplifies some of these techniques and theories: specifically, I am interested in the emergence of mobile technologies, such as iPhones, iPads and mobile tablets as vehicles for cinematic presentation.

Objective & Rationale

A multitude of factors have led to, are currently influencing, and predicting where these processes may lead: while it is too bold to propose a universal prediction of what is to come, I am interested, both personally and professionally, in some of the avenues which will most definitely affect the type of work I will produce in the future.

I am particularly interested in exploring how a fundamental shift in audience perception will relate to image creation and the ways in which it will change, enhance, or possibly detract from the narrative viewing experience. It is my intention to investigate the elements which contribute to meaningful interaction between the story and the screen as it pertains to mobile technologies through tablet-based interactions, as well as to develop an artefact which speaks to my findings. I will also consider whether this type of interaction is worthwhile to explore beyond the scope of this study and continue to develop interaction-based narratives which aim for meaningful engagement.

In recent years, there has been a growing emphasis throughout the film industry to pursue technological paths which incorporate storytelling frameworks with interface design, sensors and data input to enhance the narrative capacities. These new models implement game theory and the advanced computational ca-

pacities of mobile devices, such as smart phones, tablets, microprocessors and haptic inputs to determine certain elements which become interactive or are changed by the specificities of the user. Some examples of this include choose-your-own-adventure style interactive movies on YouTube, interactive DVDs, and other deliverable formats. Other companies are actively developing new devices altogether, such as the Oculus Rift, the Leap Motion, Xbox Kinect, Google's Project Tango or Meta's Space Glasses, where their aim is to produce device-specific content which can only be truly experienced through their technologies. Alongside these developments, cinema continues to evolve in its own way - adapting, incorporating and delineating its place amidst the expanding landscape of visual storytelling. With all this activity and development occurring, what contribution might I, as an artist and technician, offer to the industry at large? I submit that the best way to contribute to the evolving storytelling medium is to explore, experiment, reflect and present my impressions through an interactive movie. It is, after all, still about telling a story.

Scope & Delimiters

Due to the myriad of devices, techniques, practices and technologies which are currently being implemented through the industry, it is virtually impossible to create a work which would apply as a universally accepted model. I have therefore decided to limit the area of study to mobile devices and touchscreen interfaces, specifically with regard to devices and tools which are readily available to the public and are capable of incorporating current technologies which bridge the gap between 'traditional' media delivery systems and emerging technologies.

In 2007, Apple released the iPhone. In addition to combining a portable music player, mobile phone and internet communications system into a single device (Apple, 2007), the company revealed its multi-touch widescreen interface: a revolutionary component which eliminated hard keyboards and styluses which, up to that point, had dominated the smart phone design industry. This dramatic interface redesign was quickly incorporated into competitors' devices and users immediately began to explore the possibilities of direct on-screen interaction through games, apps, and internet experiences. Today, Apple is now onto its fifth-generation iPhone and has expanded multi-touch interfaces throughout its product lines with iPads and iPod Touches. Over the past seven years, these devices have evolved quickly and have seen significant increases in computational power, the integration of a Retina display (a screen with resolutions of over 200 pixels per inch (ppi) as opposed to previous standards of 72 ppi) and increased touchscreen sensitivity which has set them apart from similar competitor models. With 51 million iPhones and 26 million iPads sold in the first quarter of 2014 alone[2], it is one of the leaders within the smart phone and mobile tablet industries. A significant portion of my research on mobile devices identified trends which are associated

[2] Apple published their Q1 earnings report on January 27, 2014. Figures were accessed on February 18, 2014 at http://www.apple.com/pr/library/2014/01/27Apple-Reports-First-Quarter-Results.html.

with smaller screen sizes, locative abilities of sensors and data packets and interactivity and computational processes. Therefore Apple devices were chosen as a suitable presentation format for exploration and presentation of the final output.

There was also a purposeful intent to remain within a fictional dramatic narrative structure and avoid documentary, experimental, music video and commercial genres. My experiences on set have crossed these boundaries many times (it is one of the reasons I love my work as much as I do) and in all genres, the drive to effectively and emotionally tell the story remains paramount. However, the modes and functions of these alternative genres do differ from traditional storytelling capacities and in order to produce a work which would speak directly to an audience, I felt that generating additional complications with regard to the structure and presentation of the final product would diffuse the story itself and reduce its impact with the viewer. Additionally, I am not interested in creating a gaming experience, multiple-stream or choose-your-own-adventure-type stories. I believe that the creator of a work should retain explicit control over the story's content, and while it may be argued that games are, in effect, just that, it is my opinion that a curated story experience does differ from a game. Play is obviously crucial when dealing with interactivity and the pleasure of the experience of gaming obviously holds significant value. However, in my own practice, I am chiefly interested in the particular relationship between the interface and the story exclusively, rather than creating an interface for goal-oriented narratives.

Outline of the Remainder of the Document

This thesis is composed of a total of ten chapters, including the Introduction. The remainder of the document is described below.

Chapter Two *The State of the Art*

In order to better understand the shifts in structure, format and philosophy of cinema and interactive devices, it is crucial to know, to some capacity, the historical context which has brought us to this point. Beginning with an overview of the evolution of cinematography from its roots in Plateau's persistence of vision theory, through the development of early photography and moving pictures, we may observe that there is historical evidence of varied forms and devices, both on the acquisition and presentation sides of the media process, which have yielded standardization. We can conclude that multitude of experimentations with form and function we are currently experiencing is akin to those experienced by both photographic and cinematographic technologies before it; this is, in a very real sense, a third level of technological evolution.

It is equally crucial to understand popular theoretical positions which have influenced, and continue to direct, large parts of the innovations which are currently being explored. Thus, the latter half of Chapter

Two is devoted to some the frameworks which construct and inform the relationship between the audience and the screen.

Chapter Three Research Questions & Methodologies

Chapter Three is devoted to the specific questions I plan on exploring as part of this thesis, specifically, how might an artist incorporate meaningful interactions, using technologies available to them as well as their audience, to tell a story? In order to explore this, I have adapted the Hypothetico-Deductive Research and Constructivist Research Models, aligned with the Recognition-Primed Decision Making Model, to conduct my development and reflections on an exhibited work which explores my research question.

Chapter Four Multiple Perspectives & Multiple Frames

Chapter Four summarizes my introduction to transmedia, the initial investigations which led to an interest in pursuing interactive storytelling using mobile devices, as well as a return to reaffirm my understandings of narrative structure. The path to develop a piece which reflects the research and considerations held within this thesis was, admittedly, a winding journey with major revisions to the concept and the prototypes. My initial concepts involved utilizing touchscreen interfaces to layer parts of images on top of one another to further explore the relationship between the images themselves, the audience which would be exploring the story through the interface and the overall effect of the entire experience. Using footage from a production I had been involved with prior to my studies at OCAD University, I explore the possibility of using footage which was produced for a linear narrative as elements within a multiple-frame storytelling experience.

Chapter Five Meaningful Interfaces

As the development of the exhibition piece proceeded, I found that there were fundamental flaws with the initial concepts which needed to be addressed. My goal of using found footage and repurposing it for experimentation encountered significant obstacles as I began working with it, resulting in my abandoning the footage altogether in favour of developing and producing an entirely original work. As part of the initial steps towards this new goal, I felt it was important to simultaneously explore the narrative structure and the interface design. Chapter Five highlights the research and development of both elements.

Chapter Six Orbits, Labyrinths, Eureka!

This chapter focuses exclusively on the major developmental steps which informed the final version of the presentation piece, including the alignment of the story itself to the interactive function of the experience. It highlights the elements which lead to the final overall design of the piece and the motivations behind them.

Chapter Seven *Familiar Ground*

With the interface design at an acceptable level of development, the focus shifted to producing the cinematic elements which would make up the assets for the project. Chapter Seven details the production process, including an unexpected trip to Winnipeg, Manitoba, in order to complete the principal photography for the project.

Chapter Eight *Reflections & Future Directions*

Based on my findings during this study, I present adaptations which I would like to implement on the next iteration of this project. These include working as part of a creative team on a project, further developing the complexity of the interface, experimentation with a variety of screens sizes and devices and more profound integration of the story structure.

Chapter Nine *Conclusion*

Chapter Nine is a summary of this study which compares the results of my experiences against the initial research questions. I compare the findings against my goals to determine the success of my work.

Chapter 2 the State of the Art

For more than a century, audiences have used cinema to expand the boundaries of their consciousness and their communities. Throughout its history, directors, cinematographers, editors and screenwriters have created works that challenge audiences to explore themselves and their worlds through experimentations with the medium, structure, format and form. The past three decades in particular have seen exponentially larger strides which push the bounds of how the creators of these works can tell stories. As a result of explosive technological, theoretical and presentation techniques, cinema has begun a metamorphosis into a myriad of new and exciting forms. Cinema's history, trends and techniques have been well documented in countless articles, books and documentaries, however these conceptual and technological evolutions, which has been gestating since the nascent days of the medium, are highlighting a fundamental shift in the very essence of 'cinema' which will continue to unfold in the coming years.

Filmmaker and artist Peter Greenaway, in his 2010 Townsend Centre for the Humanities lecture, summarized it thusly:

> *'… so if I'm very charitable, I'll say that we've had 115 years of prologue to cinema and now, ladies and gentlemen, let's begin again and really create, now, something which is autonomous, self-respecting which stands on its own legs. Not to be deconstructed into anything else, and begin a whole new cycle of something which will make a movie like* Casablanca*, a movie like* Star Wars*, a movie even like Eisenstein's* Battleship Potemkin *look like a late 16th century lantern slide projection.' (Greenaway, 2010)*

Greenaway cuts a swath through the current modes and techniques of cinematographic practice. His claim is that, essentially, cinema as we know it has been imprisoned in the shackles of other art forms, and only now, through both technological advancements (such as improved internet connectivity, interface design and production techniques) and shifts in audience perceptions (both in understanding and democratizing the filmmaking process), can we really begin to explore cinema as a standalone art form.

Greenaway's stated timeline points to 1895 and the patenting of the Lumière brothers' Cinématographe[3]

[3] The Cinématograph was a combination of camera and projector which revolutionized the process of filming by implementing sprockets to move the film through the gate. The same process is still used by filmmakers today, however with the onslaught of the digital cinema revolution, film is becoming less and less of a popular production medium.

as the starting point of what we now consider modern cinema.[4] The cinema began, in large part, thanks to the convergence of a wide gamut of practices and technologies which seem to have been simultaneously reaching out from their respective disciplines. Of course, one could return to the very foundations of pre-historic art to find roots of image-making and its influence in developing cinematographic techniques[5]. In the early days, inventors and created hundreds of devices which explored all manner of tools and practices until the early 20th century established standardized processes and formats and resulted in the cinema as we know it today: a single image projected on a screen in a darkened theatre. From its very beginnings, cinematographic processes have impressed some form of engagement -be it physical or psychological- and it appears as though current trends are now returning to, or perhaps evolving from, its fledgling roots into a new form altogether.

Cinema? Cinema!

Beginning in the early 19th century, a flurry of activity surrounding perceived motion and the phenomenon of persistence of vision, a term solidified by Belgian chemist Joseph Plateau, laid the foundation for the physiological requirements of cinematographic principles.

> *'If several objects which differ sequentially in terms of form and position are presented one after the other to the eye in very brief intervals and sufficiently close together, the impressions they produce on the retina will blend together without confusion and one will believe that a single object is gradually changing form and position.' (Taken from Crary, 19)*

In order to address and demonstrate the phenomenon, Plateau developed the Phenaksistiscope, a disc with looping illustrations which, when spun and observed through slits cut into the outer edge, would give an animated impression to the drawings.[6] What followed Plateau's invention was an onslaught of examinations into sequential movement. For example, William George Horner's Daedelum (or Zoetrope); Henry Langdon Childe's Dissolving View, which projected images but hid the lack of motion in glass plate projections from audiences; Franz von Uchatius' 1845 Lantern Wheel of Light; Robert Barker's Panoramas[7], (which may be singled out as very early precursors to IMAX formats or Cinemascope presentations) and

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[4] Greenaway does, over the course of the lecture, point much further back in time as the 'beginnings' of cinema can be found in the works of Caravaggio, Ruben, Rembrandt and Velasquez. The medium, which at one point was considered the convergence of all art forms, as pointed out during the same lecture. While some form of this argument will continue, Cinema can unfurl its own banner as a standalone art form but using recently evolved technological and presentation practices.

[5] … and someone has! Paul T. Burns has generated an incredible history of cinematography which extends back to 900 B.C. at http://www.precinemahistory.net/index.html.

[6] In recent decades, there has been much maligning of the exact nature of the persistence of vision phenomenon: see Joseph & Barbara Anderson (1993) *the Myth of Persistence of Vision Revisited*, Gregory Currie (1996) *Film, Reality and Illusion*, Nicholas Redfern (2007) *Constructing Movement in the Cinema* for some of the arguments. None of the authors have considered the implications of the mechanics of video projection and presentation, which has eclipsed the vast majority of presentation formats. Since no one is complaining about not being able to 'see' an image on a screen, one must assume that their arguments fail to conclusively argue against Plateau's original statement.

[7] One example, *The Grand Moving Panorama of John Bunyan's Pilgrim's Progress,* painted circa 1850 was rediscovered in 1996 in Maine; at its full length, an eight-feet by 900 feet tapestry-like slide show, would have run for two hours and would have been accompanied by a live presenter.

the Phantasmagoria movement which ran throughout the eighteenth and nineteenth century were all concerned with the act of creating movement out of inanimate objects.

Alongside these innovations, photography exploded into the public consciousness. It too followed a wild and rapid evolution with inventors changing chemical experimentation, adjusting negative and plate sizes, lens designs and practices resulted in dozens of camera types, hundreds of patents and many unsung contributors to the art form who pushed the medium forward. In 1834, Henry Fox Talbot formalized a chemical mixture of silver chloride which was applied to paper to create reproducible 'negatives' which could be copied many times over, while the Daguerre brothers, building on the success of their Diorama designs of the 1820's developed the Daguerrotype, an astonishing glass plate image which, despite being difficult to work with and impossible to reproduce, dominated the early photographic market in Europe. (Coe, 1981, 39) The 1870's brought sensitive gelatine halide dry plates (the precursor to modern roll film) and handheld camera designs which resulted in major technological standardizations and an unprecedented access to amateur practitioners and professional photographers alike. (Ward, 515) All of this was motivated by the newfound capacity to reproduce reality *as it was*, to capture the essence of real life at any given moment, which completely shifted public consciousness surrounding memory and one's relationships with recorded events, places and peoples around the world.

Looking back, it now appears inevitable that the chemical and physical developments in photography would merge with Plateau's theories to create something wholly unique. The two processes developed simultaneously and many of the experimentations with form encouraged inventors from both fields to find ways of reflecting the world without 'artistic' interpretations. Plateau's original Phenakistoscope relied on drawings and paintings for content; his animations were crude renderings of approximated movement which resembled, but did not replicate, life as photographs could. Plateau himself, in 1849, suggested that photographs would better suit the movement perceived by users of his device (Buerger, 103). While experimentations which combined photographic techniques and sequential movement flourished, it was some time before a feasible combination could be worked out.[8]

The history, evolutions and social implications of cinema have been extremely well documented over the past century: Bazin, Merleau-Ponty, Jenkins, Arnheim, Eisenstein, Pudovkin, Campbell and a host of theorists have postulated ideas about everything from the *how* to the *why* of the filmmaking process. At first, the historians and theorists were filmmakers themselves: directors, writers, actors, editors and producers all contributed to the canon with insights and revelations into their theories and techniques. As time has

[8] Many of the initial processing and presentation experimentations were done using stereographic imaging: the display of two images, adequately close to the approximate distance of human eyes, which presents divergent perspective angles of the same scene. A fascinating history can be found in Ray Zone's Stereoscopic Cinema and the Origins of 3-D Film, 1838-1952 (2007).

worn on, the link between practitioner and theorist have divided: today, there are far fewer articles by the filmmakers themselves, who rely on historians and theorists to document and interpret the work. Both are symbiotically linked: obviously, one cannot exist without the other, but there are relatively few filmmakers who are interested in contributing to the theory, yet there are also many theorists who have never made a film. As a result, a discord between film *making* and film *theory* has led to heated discussions on the state of the art and where cinema is heading.

Greenaway, during his Townsend Lecture, speaks to the divide between theories and practices surrounding the role of the audience. The focus of his lecture, aptly entitled *Cinema is Dead: Long Live Cinema*, postulates that we entering an age where the form of cinematic narrative is primed to make a leap away from other art forms and come into its own through a variety of means. Chief among those is that, thanks to production and distribution democratization, the creators of works are now empowered to deliver content though a variety of channels and forms which can be found by those looking specifically for that thing: 'YouTube is the greatest thing that could happen in the last ten years, because -in a curious way- the filmmaker is now in much more direct association with their audience.' (Greenaway, 2010) He is simultaneously dismissive of the group experience trope while exalting its role in our understanding and appreciation of cinema:

> *'No, cinema is not a social activity. It might be social when you go, or when you come away or the tea party afterwards, but the essential activity, surely, when you watch a film -and maybe this is one of the reasons you do it in the dark- is to be entirely on your own, in an island of appreciation, enthusiasm and fascination with what's going on on the screen. And this is why it strikes me that a DVD might be a much better way to watch a movie than a situation like this.' (Greenaway, 2010)*

As Greenaway speaks to the paradox of attending the cinema in order to have a unique viewing experience, we can now begin to examine how the veil of community viewing has been adjusted: first, through the theatre, then cinema, through to television, which encompasses VHS and DVD, and now to YouTube. It is worth noting that the distribution channels have expanded even further to include platforms such as Netflix and Vimeo, and more pertinently, technologies which have been developed to create and present content have leapt exponentially forward in the four years since delivering his lecture.

Just as we currently find ourselves in the midst of a flurry of formats, codecs, resolutions, platforms and channels, we can see that this is merely the first steps towards standardizing the next generation format. The screen has undergone radical changes throughout history in its attempts to create a relationship with its viewer. For example, W. K. L. Dickson's Kinetoscope (attributed to Edison) was designed to be a single-viewer experience: essentially, it was a fifty-foot looping 35mm film that the viewer would see through a magnifying lens at the top of the device. (Coe, 1981, 64). Kinetoscope screening parlours, containing

dozens of these machines, were the only way that audiences could see moving pictures. Before long, projectors which had been used for phantasmagoric and diorama presentations were redesigned to incorporate reels of film and installed in playhouses throughout Europe and North America, which allowed crowds to experience the movies together. In very short order (and principally as a moneymaking scheme) 'cinemas' eclipsed screening parlours and the drive for larger audience numbers increased the size and orientation of the screen to become the multiplexes we know today. However, to follow Greenaway's posit, we are returning -or at least acknowledging- to the single-viewer mentality. Television was the first step, as it offered channels which encouraged the viewer to customize their viewing experience. With the advent of the Beta, VHS, DVD and Blu-Ray platforms, one could then control not only the contents of the screen, but the content itself. The most recent addition, streaming video platforms such as YouTube and Netflix, holds millions of videos are now readily accessible to any user, dramatically shifting the physical act of viewing a film from a formal, controlled experience to one which is entirely within the scope of the individual audience member.

The Screen: Frame or Window?

Most filmmakers and technicians subscribe to the conceit that within a linear narrative framework, only one single image may ultimately be seen by the audience at any given moment- that is to say, it is well understood both by the creators and the viewers that one individual frame will follow the next in a finite, ordered presentation; in North America, this is 24 frames per second.[9] That is not to say that time cannot be actively manipulated within the structure of the work, nor through the presentation of the work itself, but rather this understanding of the progressive presentation structure is inherent to all forms of film and video. As one produces a story (particularly while actually shooting the material), careful considerations have to be made by the production team with regard to what components are essential to the overall narrative and thematic structure of the story. In a very real sense, the elements within the frame are akin to the words that create a sentence; the scene becomes a paragraph, the act becomes the chapter and the complete work speaks to the message. These messages are unique to the film and the filmmaker, and so at the micro level, much care and attention is taken to ensure that each shot is not so much about being 'right' (for how can an image be *right*?), but rather *appropriate* for the emotional and narrative context which will ultimately be passed to the audience.

One of the most obvious shifts in presentation over the past three decades has been the adjusting of the frame to new technologies. The frame has long been determined by the technological limitations of the tools which created the images; throughout the history of cinema, a wide variety of aspect ratios, projec-

[9] Or, through the video revolution, 23.976 frames per second.

tions and organizing elements have waxed and waned in popularity although the roots of these developments have traditionally been based in response to some major technological shift. Cinemascope, for example, which emerged in the 1950's with a projected ratio of 2.35:1, was a direct response by film studios and theatres to the emergence of television and its rise in popularity. More recently, we have seen a shattering of standards and formats in cinema projection, from the resurrection of 3D cinema to .gif videos, computer screens as televisions and online streaming services which can be displayed any number of ways. Erwin Panofsky, in his seminal essay *Style and Medium in the Motion Pictures*, states that cinema is a 'technical invention which gives rise to the discovery and gradual perfection of a new art.' (Panofsky, 1936/2003, 69). Within the form of each medium, audiences have developed a substantial visual language which generates meaning and understanding when applied by the filmmakers: semiotics, hermeneutics, psychology, sociology and art theory contribute some of the vocabulary, but as the medium evolves and new formats are introduced, so too does the language which accompanies it.

Pudovkin (1954) spoke of the compositional elements within a frame as a canvas which 'must be organically enclosed in the boundaries of its space. The same is true of the work of the film director. No movement, no construction is thinkable for him outside that piece of space, limited by a rectangular contour and technically termed the "picture."' (81) This is echoed by Anne Friedberg, who describes the screen as a 'closed system.' (2009, 241) It is 'a primary container for inset secondary and tertiary frames that may recede in *mise-en-abyme*, but also converge to reunite within a grander but still bounded frame.' (ibid.) There is, to be sure, a separation between its contents and its viewers, the elements within it, as well as a impression of of what other elements -real, virtual or imagined- lie beyond its boundaries.

Audiences are no longer fooled into believing that the images they see are real: it has been a long time since we genuinely feared that trains would crash through screens into crowds. Today, most consider the cinema to be a window into a fictional or manufactured world; the modern viewer understands that what they are seeing is a representation of reality in some form, which provides enough suspension of disbelief to engage with the images.[10] However, as it is with all manner of artistic mediums, experimentations with form have been explored since the very beginning. Cinema is no different.

Aside from a very small number of experiments, the cinematic gaze has been exclusively monoscopic. The frame, which has obviously undergone significant evolution since the 19th century, has maintained a singular perspective despite the divergent formats. What has shifted with each format is the viewing rituals and characteristics that determine the nature of our interactions with the image. Movie theatres, for instance, are a place of formal ritualism: we choose to enter into a darkened room, our sole focus is the giant

[10] See Boorstin's *Making Movies Work: Thinking like a Filmmaker* (1995) for a wonderful investigation into the ways that we 'see' movies.

screen before us, we are there for a specified time and interact with the image is well defined ways. Television, on the other hand, provides an informal communication and democratization between the viewer and the content - the channels are there for us and we choose what we would like to watch. The newest additions to this family are computational and mobile formats, which begins where television ends: they expand the 'database' of content by presenting only that which is tailored to the individual user and requiring near constant engagement. Perhaps the most significant differentiation between these and traditional formats is that computational and mobile formats encourage multiple perspectives and contexts *because* of their forms. To put it another way, one could say that cinema requires us to move to a defined space and time in order to be 'transported,' television delivers the content to you at home, but mobile media brings it all with you, wherever you happen to be: no matter where or when, you are able to find some relevant content for you, by you or about you.

While there are many other art forms which have explored theories surrounding multiple perspectives, cinema has remained relatively singular in its physical presentation, relying instead on modes, montage techniques and semiotics to explore multiple perspectives. Despite its perceived newness, works that incorporate multiple frames as narrative devices have been evolving since the beginning of the medium. Recent examples include Mike Figgis' often-cited *Timecode* (1999), which divides the image into quadrants so to be able to simultaneously follow characters and their paths as the interact. David Hockney has used photographs, polaroids and video in his multiple-perspective works since the mid-1980s; Zbignew Rybczynski worked extensively with multiple exposure and optical printing techniques in the 1970s.[11] Georges Méliès, working in Paris around the same time as the Lumière brothers, created mattes and multiple exposures to manipulate space and time within the frame; these fantastical elements provided the foundation of all special effects work since and were essential to developing the cinema's narrative capacities on the whole.

Avant-garde filmmakers[12], working with each technological development, produced works which challenged audiences and pushed the entire industry forward. One such project, amongst many early examples within narrative cinema, was *Napoléon (1927),* directed by Abel Gance. Intended as an epic in every sense of the word, at its longest screening it is said to run over five hours. The length of the film is not necessarily its most memorable trait, however: Gance produced long sequences of the film using the 'Polyvision' sys-

[11] Rybczynski's *Tango* (1980), used optical printing techniques to loop 36 separate composites to create a symphony of movement and rhythm which won him an Academy Award for Best Animated Short.

[12] Schreiber speaks of 'avant-garde' as a description for 'any artist making a radical break from artistic convention.' (Schreiber, 2001, 1). For her, the term is outmoded as it implies a sense of sequencing or trajectory when in fact, departures from artistic convention are much more reactive. 'What prevails, instead, is a more expansive idea of the relationship between the new, the old, art production and art history. That is, artists look at recent developments in work methods not just to see how the developments proffer originality or novelty, but to see how they might be utilized to address, critique and/or further the concerns of contemporaneous a well as previous moments.' (ibid., 1) An apropos definition of the current trends in exploring interactive art and technological implementations into works.

tem. Essentially, Gance used three cameras to record certain sequences, including a series of battles, which were shot simultaneously and presented them as one 'complete' image (Nowell-Smith, 1996, 11). The centre screen would carry the bulk of the 'film', where the screens on either side would either be used to show additional footage and dramatic information or as a part of a widescreen triptych (Coe, 1981, 144). While split screen, anamorphic and panoramic projections[13] had been well established by time Gance photographed the film, no one had produced a work which manipulated the *screens* themselves to improve the storytelling experience.

Napoléon was only one of many experimentations with storytelling structure and presentations which drove the industry -and the art form- forward. Greenaway (2010) points to a cycle of evolution which pervades different forms of art, which undoubtedly can be applied to cinema:

- the Progenitor: *the originating generation of artists who make the initial innovations with the medium by developing, experimenting and reflection on influences from existing disciplines and ideas.*
- the Consolidator: *the artists who perfect the form and bring it into its own.*
- The Grandson (who Throws it all Away): *they who reject the perfection and turn against the roots of their medium. They reject the rules and standards established by the earlier generations and break with the medium's tradition. As a result, they are often the Progenitors of the next evolution in the medium.*

In the European tradition, one can look to progenitors such as Gance, Sergei Eisenstein, Luis Buñuel, Geroges Méliès, Fritz Lang, Man Ray, and a host of others who shaped the medium by folding the artistic movements of the day (particularly Impressionism, Cubism and Dadaism) and experimenting with every aspect of it which has resulted in the visual storytelling language which we use today.[14] Following that, filmmakers such as Stanley Kubrick, Orson Welles, Akira Kurosawa, Alfred Hitchcock, Andrei Tarkovsky, Ingmar Bergman and Federico Fellini developed sophisticated works which expanded ideas developed during the first generation into a standalone art form. During this second wave, technical improvements (lightweight cameras, for instance) were made which were immediately applied by the Grandchildren: Jean-Luc Godard, Michelangelo Antonioni, Federico Fellini, Ken Loach, Norman McLaren and even those directors who had gained prominence during earlier generations decidedly rejected ideas and tropes of early cinema in favour of more liberal experimentations with cinematic form, montage and artistic expression. We find ourselves today with a healthy mixture of filmmakers who find success as 'traditional' direc-

[13] These were popular rings of screens which linked together in order to produce 180˚ or 360˚ image surrounding an audience.

[14] Auguste Lumière famously commented on his Cinematograph that, 'our invention can be exploited for a certain time as a scientific curiosity, but apart from that, it has no commercial future whatsoever.' Louis Lumière followed up by suggesting that, 'the cinema is an invention without a future.' (Davies, 2003, 34)

tors such as Martin Scorsese, Christopher Nolan, Francis Ford Coppola, Roman Polanski, and Woody Allen working alongside David Lynch, Lars Von Trier, Danny Boyle, Quentin Tarantino and Terrence Malick, whose works are decidedly more 'experimental' by comparison. Modern cinema has seen the rise of the technological innovators such as Alfonso Cuarón, David Fincher, James Cameron and the Wachowskis, whose technical expertise has, more than ever, made the frame into a window through which worlds, real and imagined, could be realized.[15]

With the evolution of the television screen in the 1950's and the introduction of the graphic user interface (GUI) in the 1960's, the context by which we viewed the cinema screen (and as a result, the stories themselves) began to change. (Friedberg, 2009) Prior to the introduction of GUIs, computational interactions were, at best, unintuitive but direct: computers during the 1940's and 1950's required the use of punch cards or other physical types of inputs to function and users relied on printed versions or simple interface displays. In 1969, Alan Kay presented the first 'windowed' interface for a computer where,

> *'both [windows or viewports] imply an aperture, a visual porthole onto the graphic expanse of a screen that simultaneously represents and masks the workings of the computer's code. In this form of "object-oriented" programming, anything could be an object - a number, a word, a picture - and hence it was assumed to be a multimedia display.' (Friedberg, 2009, 225)*

This shift in interface design, combined with an algorithm developed by Dan Ingalls in 1975 which allowed processors to maintain simultaneous 'windowed' interfaces, which in turn allowed a diversification of tasks which could be concurrently operated yet independently controlled. This was the first iteration of the modern computer interface. Today, We find ourselves with a myriad of GUI-based operating systems which present incalculable permutations in an infinitely variable hierarchical order. The GUI masks the code which operates 'behind the scenes' but manifests itself as the images, icons and symbols on a screen. One major difference between GUIs and other screen-based media, Friedberg argues, is that in order to generate any meaningful interaction -or to receive any response from the operating system- one must remain in constant contact with the processor through the GUI, whereas television may only require certain points of contact (i.e. the remote) but will return information -in the form of shows, commercials, news, etc.- without the same constant prompting.

Despite the advances in mobile digital technologies of the past decade, video interaction on mobile devices have remained relatively unchanged when compared with other mediums. Watching video content on an iPhone or iPad, for instance, is still very much modelled after desktop computer interactions or televised screening. Despite having touch screens where any possible interface could be designed, presentation standards and interactions are limited to the same controls one would find on a television remote control:

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[15] A wonderful exploration with many examples of thematic and technical bridges using framing and compositional elements can be found in Chapter 5 of Anne Friedberg's *Virtual Windows* (2009).

play, pause and stop. Video streaming systems such as Netflix do not deviate from the standard linear timeline which can be found on any other playhead-based interface: while the entire surface of the screen can be programmed for any type of input, the only way to manipulate the timeline remains as though it was designed for a mouse and pointer interface.[16] When timeline scrubbing possibilities are presented, the physical limitations of the smaller screen size and preview frames do not permit the level of control that one expects to have: it is, for now, much more difficult to make precise adjustments on a timeline than with a mouse or proper remote control. Greenaway's exalting of the remote as the beginning of true interactivity pointed to an evolution of interface and control, yet -to date- this has not really come to pass. It is, however, 'a symptom of a much wider phenomenon.' (Greenaway, 2010)

David Lynch, although a strong proponent for digital acquisition, is strongly opposed to small screens as 'acceptable' for viewing cinematic works: 'Now if you're playing a movie on a telephone, you will never, in a trillion years, experience the film. You'll think that you've experienced it, but you'll be cheated. It's such a sadness that you think you've seen a film on your fucking telephone. Get real.' (2008) Lynch is speaking to the traditional theatrical experience in a cinema, where an audiences' attention is maintained by the scale and focus of the screen. Greenaway, in opposition, points out the absurdity of the frame as the only way to see a film: despite our everyday manoeuvrability through a three-dimensional world, we are 'cutting off half our experiential capacities by sitting in a theatre … The world is not [a parallelogram], no matter how you try to make it that shape, and in a curious way, it's very, very delimiting.' (Greenaway, 2010) Perhaps mobile devices will yield new possibilities in adjusting the window through which we see stories.

Theatres measure screen size based on *subtended angle* (Allen, 2000, 1): the perceived angle of the screen relative to the average field of view from a specified location within the theatre. By Dolby's standards, a screen which 'subtends a horizontal width of 35, 40, 50 or 55 degrees' (ibid.) is optimal for audience engagement as the screen perceptively grows larger, the audience will be more inclined in feeling like being a part of the film itself. One of the more obvious issues with viewing content on a mobile device is the substantially smaller screen size, limited by the device itself. While the actual pixel count is very close between the formats - current SMPTE[17] standards call for 1920x1080 pixels for high definition (HD) television, 2048x1080 and 4096x2160 for digital cinema projections and Apple's 2048x1536 for iPad Retinas - the actual screen size dramatically affects the way in which the filmmaker must consider composition and montage techniques, as well as the affect of the reduced screen size on the audience.

[16] Many developers are experimenting with different interactive elements on mobile devices, however there is as yet no standard. A scan of various interactive cinematic projects can be found in Table 6.1.

[17] The Society for Motion Picture and Television Engineers, an organization which establishes acquisition and presentation standards for the film and television industry.

Inasmuch as Lynch is speaking of *cinema* in the sense of a theatrical experience, Wolfgang Hürst (2008) presents three parameters which hold some potential for changing the way that viewers experience media content on their mobile devices. The first is content: Hürst suggests 'that being able to get an individually controlled live replay on your phone with which you can see, for example, immediately replay and judge critical scenes or re-watch outstanding scenes on your mobile' (2008, 2) would entice viewers to engage more actively in viewing content if they could control what they see. The second is to encourage active participation in the selection and viewing of the content. 'Why not adapt the production process of the video track for mobile video as well, for example, by using different camera angles or additional cameras which show a perspective that is more suitable for smaller screens? Why not add zooming information to the video signal in order to enable cellphone providers to adapt the content to the respective screen sizes more easily?' (ibid.) The third parameter is the the actual interface of the device itself: 'Approaches for interactive video browsing which support flexible and intuitive navigation within a video have been developed for video replay on laptops and desktop PCs. However, they have not made their way in to mobile video players yet, although the mobile context and different usage scenarios make them even more important and useful here.' (ibid.) Hürst presented these arguments in 2008, although it has taken some time to arrive in actual streaming players. In February, 2014, the Canadian Broadcasting Corporation (CBC) presented a live stream video feed for users to watch the Sochi Winter Olympics in real time and also provided a timeline with clickable highlight points (i.e. goals, penalties, Canadian competitors, etc.) for reviewing. The videos were organized as a database: one could select specific moments and replay them in real time as they were recorded. While there were no options to view congruent camera positions, the ability to control the playback and view the highlights in any order introduced many viewers to the potential of accessing content when they like, how they like, and in what order they like.

Content + Context = Value?

There is a fundamental shift in the role of the artist and the audience when we begin to produce interactive and networked content. (Lovejoy et al, 2011, 13) Any experiencing of an artwork can be considered 'interactive' (in that the spectator engages in mental contextualization), but Lovejoy is pointing to a shift in the way a work is created and received: both the artist and the spectator must have an understanding of *interface.* When applying this 'interactive' paradigm to traditional artworks, the work itself does not change or adapt to the audience viewing - it remains static in the face of the viewer, whose artistic sensibilities and understanding of content, context and technique generate meaning.

Greenaway (2010) points to the early 1980's and the public adoption of the remote controls, combined with VCRs, as a pivotal inversion of creative control: the ability to play, pause, fast forward and rewind video content puts the control of the viewing experience firmly in the hands of the viewer. Lovejoy, by con-

trast, is a more specific in her delineation: she posits that basic interactivity does not necessarily alter contextualization, but rather through controlling the fluctuating structure, logical threads and the ability to control content, context and time which extend beyond the mental capacities of the viewer. This is an extremely wide gamut of control, but it does highlight the freedom of the artist to create works and more active engagement on the part of the audience.

> *'Information usually is of little value if it cannot be contextualized and filtered, and digital technologies are the perfect tool for creating a referential framework that supports these tasks and processes. The way data and information are processed by means of these technologies -particularly within a communications network such as the Internet- again requires a renegotiation of polarities, such as text/context and content/context. As a multilayered informational system that is in constant flux and reorganization, the networked digital world seems to perfectly embody the notion of unstable contexts.' (Lovejoy et al, 2011, 2)*

As noted by Rachael Schreiber (2001), early video art was in large part produced to emphasize and critique the 'passive relationship viewers typically have to television.' Video artists of the 1960's, whose work incorporated early video recording technologies, turned many of their criticisms to the 'parent technology' which was simultaneously supplied by their medium of choice: broadcasters and the 'structures of celebrity [they] locked into place.' (Rosler, 1985, 31) Through experimentation with form, quantity, and by manipulating television signals, artists created works which renegotiated the relationships between the viewer and the onscreen content by emphasizing the medium's modes of communication.

> *'This act of criticism was carried out itself through a technological medium, one whose potential for interactive and multi-sided communication ironically appeared boundless. Artists were responding not only to the positioning of the mass audience but also to the particular silencing or muting of artists as producers of living culture in the face of the vast mass-media industries: the culture industry versus the consciousness industry.' (ibid.)*

The works, while innovative and challenging, fell prey to content-controlling institutions, such as public television broadcasters, whose rigorous control over what, how and where an audience could receive works, held video back from a 'true' transmission form. (Lovejoy et al, 2011)

A similar motivation of passive-relationship criticism prompted early web-based artists, whose works emphasized he interactive requirements of the Internet. Works invited viewers to actively participate with them, rather than look at them. By replacing physical interaction with virtual support, the relationship between internet artwork and the audience was fundamentally changed - but not without a cost. As there was no longer a spine on which audiences could hang contextual references when exploring web-based works, how could one apply meaning and context within the work itself?

For the most part, basic interactivity does not necessarily alter contextualization. Rather, the opportunities to expand specific contextual relationships between the creator and audience audience have formed

'information narratives' (i.e. fluctuating structures, logic, time, etc.), where the gamut of control can be either determined by the author or audience, on nearly any piece of technology. But at what point does interactive begin? Is it as straightforward as Greenaway's remote control? Does the fundamental display control and presentation order adequately generate an engagement which the viewer accepts? Or, as Schreiber asks, 'Is a mouse click enough to change the passive relationship of the viewer to the work?' (Lovejoy et al, 2011, 8)

In exploring online narrative content, we find today that online distribution platforms and the democratic nature of the Internet have begun to challenge broadcaster control and promote more immediate and 'unfiltered'[18] connections between content producers and their audiences. Artists creating digital works are actively implementing dynamic inputs and outputs which are reflexive and responsive to audiences' participation in more meaningful ways which generate contextual relationships previously unavailable due to technological limitations. As a result, there is now phenomenal potential to incorporate variables in structure, subject, control and tone that speak directly and more specifically to individual users seeking out these works online which in turn establishes meaningful engagements with the stories being told.

Manovich & Soft Cinema

Perhaps one of the more popular examples of a database narrative structure is the *Soft Cinema* project led by Lev Manovich and Andreas Kratsky (www.softcinema.net). The project is successful in many ways: Manovich and Kratsky prophesied the emergence of spatial incorporation of media (see Greenaway's *Peopling the Palace*[19]) and have accurately described ways in which databases have become touch points for interactive narrative explorations. *Soft Cinema* presented innovative ways of visualizing data elements themselves: as part of the preparation for my own work, I drew heavily on the theories regarding interface and content being fundamentally linked by new media. However, there are issues with regard to certain posits made by Manovich which negatively affects the finished work.

Manovich has stated how the paradox between the 'informational dimension' of exploring quantified data (including 'retrieving, looking and thinking about quantified data' and the 'more traditional "experiential" or aesthetic dimensions'), which point to a 'particular configuration of space, time and surface articulated in the work' (Manovich, 2001, 78), have blended together to the point where interface and content can no longer be considered as separate elements. Considered alongside Netflix's altgenre model, for example, one can see that this is in fact true: Netflix organizes the content according to metadata tags

[18] By which the content is no longer produced under broadcaster agreements, studio executives or through other organizing agents. It is not to say that I support eliminating these roles in the production process, but rather that this new avenue provides opportunities for those filmmakers who want more direct distribution of their works to audiences.

[19] Greenaway's video installation which narrates the life at court at the Royal Palace of Venaria. (2007)

which quantify the company's video inventory and may be parsed by users' preferences, suggestions and searches.

In the accompanying booklet for the *Soft Cinema* DVD, Manovich draws a comparison between the 'industrial logic of mass production' and the output of the project itself as an exploration into 'the new structures of production and consumption enabled by computing' (Manovich & Kratsky, 2005, 3). *Texas,* one of the three movies included on the DVD, is an example of the 'process of coding, selection and correlation that Manovich is researching [which] is of crucial importance. Manovich envisages narrative as being the search engine or 'driver' of this selection process.' (McVeigh, 2011, 81) The delineation *Soft Cinema* takes from traditional cinematic works is that any individual screening of the project relies on 'soft' aesthetics of the database tags as quantifiers for footage selection: ten parameters which highlight physical aspects of the recorded images such as location, subject matter, degree and type of camera motion, image brightness and contrast. (Manovich & Kratsky, 2005, 15) Once chosen, the resulting 'film' is assembled from a database of video footage into an collage of images.

In exploring the project, though, it becomes apparent that the attempt to create a 'database narrative' (McVeigh, 2011, 82) by avoiding 'already normalized modernist techniques of montage, surrealism and the absurd,' (Manovich & Kratsky, 2005, 10) *Texas* loses the contextual framework which is critical to generating meaning to an audience.

> *'In the case of* Texas *what you see on screen while the movie is playing are multiple sequences generated in a similar manner. Each sequence is the result of a particular search through the* Soft Cinema *database. Each is perhaps equivalent to a 'scene' in a normal film, while a series of such searches ('scenes') becomes equivalent to a traditional film. Film editing is thereby reinterpreted as the search through the database. Consequently it is possible to describe Texas as a media object that exists 'between narrative and a search engine'. (Manovich & Kratsky, 2005, 15)*

This is where Manovich reveals the fatal flaw in his argument for *Soft Cinema*. By drawing comparison between a database narrative to a cinematic narrative structure, he placing a well established framework of montage against the thematic string of the database search. What is missing in *Soft Cinema* is context: the work may speak to itself, but it does not consider the relationship between the viewer and the screen.

According to Vsevolod Pudovkin's editing theory, there is more to this contextual relationship than simply assembling a series of images together: 'A series of slices of life, a series of chance meetings and encounters bound together by no more than their sequence in time, is, after all, no more than a group of episodes. The theme as basic idea, uniting in itself the meaning of all the events depicted - that is what was lacking. Consequently the separate characters were without significance, the actions of the hero and the people round him as chaotic and adventitious as the movements of pedestrians on a street, passing by before a window.' (1954, 11) Audiences view a cinematic work to (if nothing else) be entertained. But the

Table 2.1: Examples of Narrative Forms with Underlying Drivers

Narrative Form	***Underlying Social / Cultural Drivers***	***Appears In***
Narrative Questions	*Problem-solving, learning how the world works, to learn how to overcome obstacles to your desires*	*Mystery, Suspense, Thriller, Action / Adventure*
Narrative Closure	*Relief from tension and questions answered, underdog becomes the hero, punishment of evil, sense of justice*	*Mystery, Suspense, Thriller, Action / Adventure*
Sharing Emotions	*Vicarious beliefs*	*Drama*
Magic and miracles; riches, flying, invisible	*Faith and belief*	*Science Fiction, Fantasy, Drama, Mystery*
Mastery	*To feel safe from terror*	*Drama, Action / Adventure, Horror, Mystery*

deliberate narrative structure, visual style and tone of the work provides more profound impressions than Manovich would have us believe. Francis Glebas, in *Directing the Story* (2009), asks a deceptively simple question: why do we watch movies in the first place? Her response is, superficially, 'to have emotionally satisfying experiences,' (320). She then dissects the types of popular genres by their underlying sociological and cultural drivers. Table 2.1 offers an adaptation of these comparisons, with an additional column which denotes common genres normally found when searching through a database such as Netflix.[20] Glebas continues with a series of if-then statements, which speak to audience's level of emotional engagement with a work and presented in Table 2.2.

All of these motivators point to the filmmakers' efforts to generate emotionally charged content whose sole purpose is to generate meaningful relationships between the audience and the happenings on screen.

The mechanics which Manovich uses are absolutely integral components that work towards constructing a complete emotionally satisfying experience, but without a referential framework (i.e. montage) there is nothing to connect the work to its audience.

Table 2.2: Audience Connection Triggers

Engaging	***Disengaging***
Clarity, easy to follow	*Confusing, hard to understand*
Surprising	*Boring, predictable*
High Stakes	*Nothing at risk*
Driven towards goal	*Going nowhere*
Emotional	*Too much explaining*
Action gets to the point	*Tangents, unfocused*
Appealing characters	*Uappealing*
Shows how it feels	*Holes in causality and movitation*

> *'Manovich essentially reduces the components of digital narrative to the data—the descriptive, and the method of information access—the narrative or "a new key category of culture" (Manovich 2001, p. 217). Although Manovich does invoke narratology and cites the distinction this branch of literary theory makes between description and narration, Manovich's concept of how the precepts of narratology may be applied to narrative in new media is questionable, as what Manovich takes from narratology is the notion of narrative as a static description rather than a functional event.' (McVeigh, 2011, 83)*

By omitting the most critical component of a shot, and eliminat-

[20] This is, admittedly, an oversimplified list, but any attempt to summarize Campbell (1949, 1972, 1986), Eisenstein (1949), Bazin (1967, 1971), and the many other theorists who have written about the underpinning motives and drivers of cinema would be a disservice to their work.

ing contextual emotional connectivity through montage, *Soft Cinema* fails to resonate in the way that most audiences would accept.

Chapter 3 Research Questions & Methodologies

a) Can the context and meaning of cinematic storytelling remain when folded into an interactive mobile platform?

b) What are the specific elements of each which could function together under this new form? What are potential pitfalls in combining these experiences?

c) Could I create an interface which would encourage audiences to explore a story in a way which is distinct from existing models, such as choose-your-own-adventure models or games?

Ultimately, *An Audience of One* reflects a qualitative study into the designing and producing an interactive cinematic experience. I have applied practice-based research, primarily drawn from my experiences as a cinematographer, as the foundation the actual creation of the work, although I have significantly expanded my creative role to include screenwriting, directing and editing in addition to cinematography. Drawing from my undergraduate studies in film theory and image theory, I have applied a variation of the Hypothetico-Deductive model in order to incorporate more recent research into the relationship of the viewer and the screen. I have also combined this with the Constructivist Learning model based on my understandings and interest in semiological analysis. As the project itself took shape, I applied the Recognition-Primed Decision-Making model, a subset of the Naturalistic Decision-Making model to my work in order to focus on generating effective storytelling elements as quickly and creatively as possible.

The Hypothetico-Deductive Model

The Hypothetico-Deductive model is a derivative of the Scientific Method which was originally presented by Sir Karl Popper. Rather than assuming that theorems are considered true until disproven, as was the popular opinion at the beginning of the 20th century, this model argued that observed actions and behaviours would instead lead to a testable hypothesis which, in order to be true, must be fallible. It is essential to carefully construct the hypothesis based on the recorded data and the subject of the investigation: does the recorded data and analysis adequately relate to the question being posed? Is the relationship logically established or ad hoc? Does omitting certain data sets follow the scope of the hypothesis or are there other hypotheses which can similarly evaluate said data? What makes this question unique?

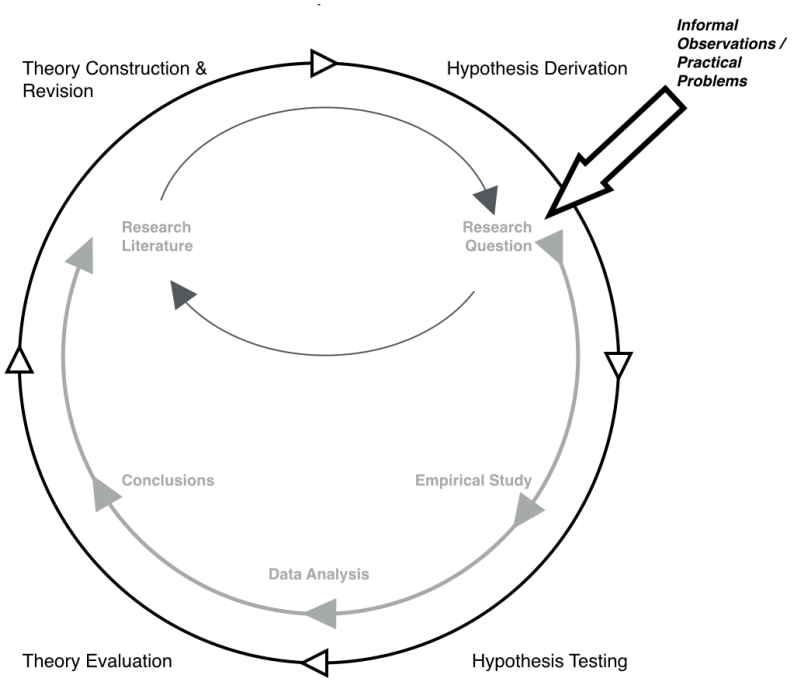

Figure 3.1: Popper's Model of the Hypothetico-Deductive Method

As the hypothesis matures through evaluation and verification, a method of testing will develop which can either empirically verify or discredit it. In an ideal situation, the testing phase would directly reflect the theories developed during the hypothetic evaluation. The resulting conclusions are finally compared to the hypothesis objectives which, depending on the outcome, may require re-evaluation in relation to the original goal of the investigations, prompting further testing and analysis.

This model very closely resembles the pre-production process of filmmaking and was very influential in the initial stages of research. In the early stages of pre-production of a project, it has become my habit to cast a wide net of visual and thematic influences for inspiration, then tighten and craft the creative decisions as the planning for the photography of the project progresses. As my professional experiences are based in traditional production practices, I found model useful when exploring new concepts surrounding interactive technologies, digital theory and app development.

The Constructivist Model

Constructivism, popularized by Jean Piaget, is a wide-ranging and multifaceted theory which defines theories of learning within the scopes of continuously-evolving experiences and relationships which are organized and assigned meaning by the learner. In this dynamic system, exploration, interaction and failure are critical in order to contextualize information into meaningful packages (schemata).

Generally speaking, the combining of pre-existing knowledge and past experiences direct the focus of new knowledge acquisition and, as a result, generate meaning. This is accomplished using two components

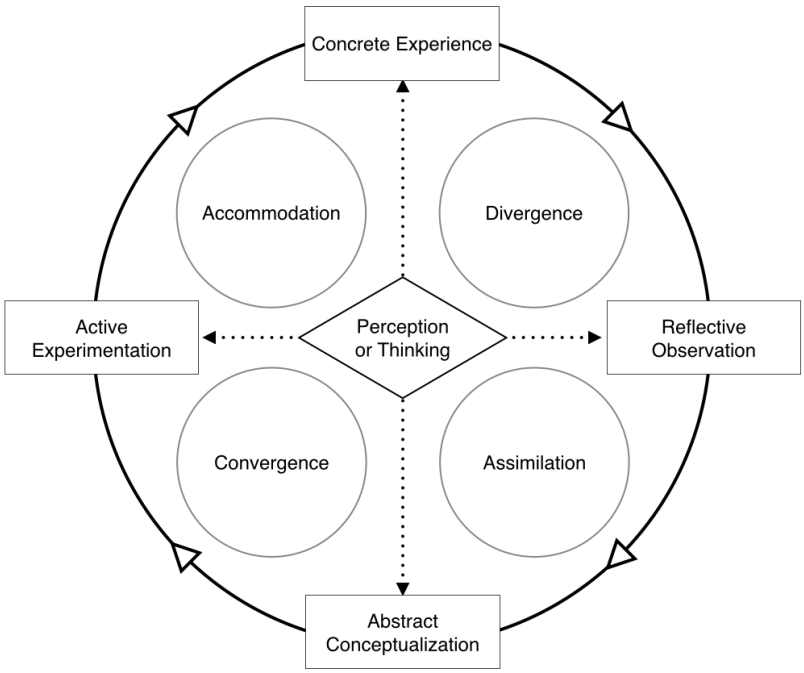

Figure 3.2: Kolb's Cycle of Learning & Learning Styles (1975).

of adaptation: assimilation and accommodation. (Bhattacharya & Han, 2001) Assimilation is the act of absorbing new stimuli or information into the learner's existing cognitive structure while accommodation is the adjusting of internal schemata to provide consistency between cognitive structures and interactions with the physical world. (ibid.) Ultimately, the aim is to find an equilibration between the learner's cognitive structure and their environment. (Duncan, 1995)

The method is not without controversy: Piaget himself developed variations of the model which were specifically tailored to a certain discipline while being totally inappropriate for others, which diluted its credibility as a universal model for understanding. Despite the variations of the model, there are some tenets which pervade the variations. The following list, compiled by Svein Sjølberg (2007), summarizes the generally accepted principles of constructivism:

a) *Knowledge is actively constructed. That is, learning is a task accomplished by the learner rather than through external influencers.*

b) *Most learners arrive with various levels of informal and formal pre-existing schemata and relationships to phenomena.*

c) *While each individual has already constructed intricate relationships through past experiences, there is a commonality to people's idea patterns. These patterns are often influenced by socially and culturally accepted paradigms, which in turn are reflective of experiential phenomena accepted by many individuals within a social or cultural scope. Often, these norms are not necessarily based on accepted scientific ideas and may prove difficult to adjust, depending on the experiential levels of the learners.*

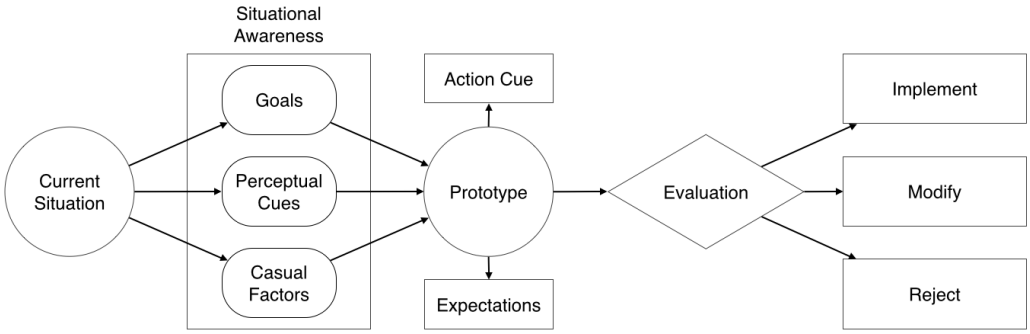

Figure 3.3: Klein, Calderwood & Clinton Cirocco's Recognition-Primed Decision-Making Model

d) For ease of understanding, models can be developed which describe conceptual structures.

e) From one point of view, all knowledge is entirely individualistic. However, learners build their knowledge base through social and cultural interactions within the physical world and are shaped by these interactions.

The Constructivist movement draws very close parallels with semiotics in that it is concerned with applying the viewer's knowledge base and experience as a means to develop sophisticated visual language tools in non-verbal communication. This model speaks specifically to the role of the audience - or rather, the responsibility of the creator of a work to be responsive to the needs of the audience. During the development phase of *An Audience of One*, I applied this model to the thematic and practical elements as they evolved, specifically while investigating the extremity of the 'randomization' components which ultimately led to the final structure and presentation form. This model provided a 'meter' for the degree of randomness and audience control I was implementing which drove the evolution of the interface towards the final output.

The Recognition-Primed Decision-Making Model

Naturalistic Decision Making (NDM) is a model which, unlike alternative decision making models, considers the experiences of the designer as an integral part of the overall decision making process.

> *'To date, what work has been done … has focused on establishing one unified framework that can be used to understand design decision-making. The issue with current emphasis on establishing one particular framework is that he are of design is composed of many different sub-disciplines ranging from Mechanical Engineering (Olewnik & Lewis, 2005) to Fashion Design (Eckert & Stacey, 2001).' (Hassard, 2011, 18)*

Like constructivism, NDM has adapted its subsets to best accommodate the fields of application and the processes inherent to them. Generally speaking, NDM is composed of a variety of factors (both internal

and external to the problem to be solved) which affect the parameters of the decision making process. The diversity of form incorporates, for example, the goals of the decision maker and the output or outcome of those decisions made, situational assessments (which usually involves some sort of construction of a mental model of the problem via environmental cues), representations and integrations of the cognitive processes (which are involved in the visualizations of creating those mental models), the application and understanding - the context - and the dependence of that situational awareness which can provide best-practice solution and the acknowledgement of a dynamic nature of how people make decisions within real-world capacities. (Hassard, 2011, 25)

One of the most prototypical subsets of NDM is the Recognition-Primed Decision Making model (RPD). Under the Naturalistic Decision-Making model, many of the situational factors and goals of individual designers will affect the specific model applied to the problem; the RPD generalizes the steps. The essential tenet of the model is that the real-world experience of the designer can be leveraged to influence the decision-making process in a way which relies on situational awareness, decision type, time pressure, relative prototypes (i.e. previous experiences or standards) and casual factors and information. (Klein, Calderwood, Clinton-Cirocco, 2010, 201-202). By combining situational assessment and development of an action plan through analogical reasoning and mental stimulation, an optimal solution may be achieved.

The decision to implement this model during the production phase came directly from professional practice. A cinematographer is responsible for hundreds of decisions over the course of a production: some have minor consequences, others can have enormous repercussions if they are not properly considered. During the shooting of the visual assets of *An Audience of One*, I relied on my previous experiences and situational awareness to make what seemed like the 'best' decisions regarding framing, good takes, performance, and so on. This process was also applied during post-production: over the course of editing the work, I found that plans which had been established before shooting the elements could be adjusted or eliminated as the creative components began to take shape. These decisions were based in part on specific goals which were established through research, but also in response to practical considerations, such as the length of the completed work.

Comparison of Models & Personal Reflection

It is apparent that the three models are similar in numerous ways. The Hypothetico-Deductive and Constructivist models are centred around the acquisition of knowledge and the integration into cognitive systems, whereas the RPD model is more concerned with practical application of that knowledge; it could, however, be folded into the latter half of either model. All three methodologies rely on tangible observations which influence and inform the trajectory of the next steps, and are rooted on experiential evidence;

that is to say, exploring, analyzing and testing the process and content. However, the actual structures which outline the delineation of the sections are absent: this allows the individual user to implement their own unique development system specifically tailored to the type of progression or goal. Additionally, neither the Hypothetico-Deductive nor Constructivist model are building towards a finite goal: both provide room for revision and refinement within the experimental cycles and allow for divergent theories or concepts to be explored and tested. While it may seem that the RPD model is decidedly unidirectional, it can be negotiated into a cyclical form which more closely relates to the other models. In the case of the RPD model, one could very easily add a return line from the Implement/Modify/Reject portion back to the Current Situation, where re-evaluation of the environmental situations seem to parallel the upper right quadrants of both the Hypothetico-Deductive and Constructivist models. In a very real sense, the steps in all three models are directly derived from the perspective of the observer. All three take into account the experiences and cognizance of the user and rely on their understandings of the context of the environment to inform their position along each of the model paths.

One of the most prevalent critiques of all three models is the reliance on the subject to properly understand and observe the intended outcome while inside each process. Each user brings with them wildly different experiences and have developed different modes of identifying and addressing various problems. Each user exists within very different cultural and social communities, historical contexts and so on: it is highly probable that each person will observe and interpret phenomena in their own unique way. The danger in all three models is that, depending on the experiential capabilities of the user, potentially valuable data or predicted outcomes might be misinterpreted or misunderstood and therefore mar the intended outcome.

My decision to incorporate these three models were primarily based on, to put it casually, what felt 'right.' (Perhaps I was using the RPD model prior to beginning my research?) I do not believe that these methodologies are mutually exclusive or that they only apply to certain components of the work involved with this study: there are many points throughout the development and production of the creative elements in which one method was substituted for the other or combined to optimize the output and analysis.

Chapter 4 Multiple Perspectives & Multiple Frames

I began the formal research phase by asking whether it was possible, and what the implications would be, to remove the 'cinema' from Cinema: specifically, how many of the tropes of traditional cinematic experiences could be removed before the essence of cinema changed? Was it possible to develop a dynamic paradigm for multi-platform stories which could utilize narrative cinematic devices but move beyond traditional cinematic contexts?

We find ourselves in the midst of a third wave of media-based technological innovation (the first two having been the motion picture and the development of television) which has many unknown directions yet to be explored by filmmakers. As such, one cannot make sweeping gestures regarding the absolute direction that cinema will take: the multitude of online platforms, for instance, which include Youtube, Netflix, streaming sites, torrents and web-based or browser-based interfaces, point to their own unique presentation function which could be explored. Each has its own unique set of parameters and protocols of engagement between the technology, the interfaces, the role and the expectations of the user.

In order to make any attempt to tell multiple-platform stories - or stories for *any* platform, for that matter - it was important to define the core elements of and parameters to better focus my own creative attention. In a traditional cinematic production model, the story is crafted by the screenwriter and interpreted by the director, actors and editor to create a unified, complete and closed narrative. Once the production is complete, it does not change. The audience, in turn, views the work as that closed system, either by attending screenings in a cinema, at home on televisions, or online via streaming content. My aim was to produce an original work which incorporated traditional cinematic models and theories but provide the audience with a degree of narrative control which would increase their emotional relationship with the story more than simply providing a 'passive' capacity of viewing it.

One of my first steps was to re-familiarize myself the story structure. Structuralist theory argues that a narrative is composed of two parts: the *what* and the *how*, or as the Russian Formalists term it, the *fabula* (the 'fable') and the *sjuzet* (the 'plot'). (Chatman, 1978, 19-20) The two components work collectively to

produce an overall framework for the story, where the fabula is the total of events which unfold within the narrative and the sjuzet is the actual linking of those events together.

> *'To formalists, fable is "the set of events tied together which are communicated to us in the course of the work" or "what has in effect happened"; plot is how the reader becomes aware of what happened," that is, basically, the "order of the appearance (of the events) in the work itself."' (ibid., 20)*

Within traditional cinematic contexts, this relationship is well established: through more than a century of cinema, audiences have developed a keen eye for parameters which must be met in order to engage and satisfy the storytelling experience. Within the modern cinematic canon, these differences have begun to blur as technological capacities have expanded: one can point to films, such as *the Tree of Life* (2011), *the Limey* (1999), *Timecode* and others which experiment with both story components and blur the lines between them. Chatman is very clear about the importance of understanding the theory of plot and the necessity of 'separating narrative structure from any of its mere manifestations' (ibid., 15) as crucial in forming a complete work which can actively engage an audience.

For the purposes of the work, I established that the fabula would represent the narrative itself and the sjuzet should be the form of presentation. When assimilating these new definitions to some form of existing narrative, for instance a film, the fabula becomes the manifestation of the story points (the characters, setting, rising and falling actions, etc.) while the sjuzet would be the creative decisions of the filmmakers (the mise-en-scène, cinematography, editing, set decoration, etc.). Extrapolating this framework to encompass an interactive element, the sjuzet must also encompass the programming logic of the interactive elements which arrange and present it.

TimePlay

My initial technical prototypes explored the variety to types of interactions available through a mobile device. My interest lay in the relationships between the technological possibilities of the devices, specifically their impact on the viewing / participating audience and the story being told.

In performing a field scan of existing applications of mobile technologies and multiple-screen interfaces, specifically regarding cinematic presentations, I discovered TimePlay (www.timeplay.com), introduced to Cineplex Theatres in 2011. This system uses smart phones as game controllers and localized servers to relay inputs based on projector screen interfaces. These games -and more recently, interactive advertisements- are designed to engage audiences by awarding prizes for participation and response time. The app, says Pat Marshall,[21] presents "an extraordinary opportunity for advertisers and creative agencies to show-

[21] Vice President, Communications and Investor Relations, Cineplex Entertainment.

case their creativity and immerse their target audience in their messaging. Instead of watching an ad for a new car, audiences can interact directly with it on screens 40-60 feet wide." (TimePlay, 2011) In November, 2013, car manufacturer Mazda and advertising firm JWT Canada collaborated with TimePlay for a game which incorporated accelerometer readings from users' phones to control a racing Mazda3 (Beer, 2013).

These types of phone-as-controller interfaces are becoming increasingly favourable, perhaps most prominently since they do not require any proprietary hardware or interface other than the app itself. The user can choose to engage or not and the interface itself is adaptable to various modes of interaction, from buttons to joysticks to text entry without the need to supply additional hardware from the parent company. In examining the interactive nature of TimePlay, I was dismayed by the fact that users were constantly shifting their attention from their phones to the screen and back again. The constant shifting between the two screens highlights the need of an additional device to control the interface, denying the audience immersive engagement with the narrative and forces the audiences' focus remains on the interaction, rather than engaging with the story.

For my purposes, I performed the study as an examination of multiple screen interactions and was able to subsequently draw two conclusions:

a) While some type of onscreen interaction is obviously critical for the experience, a secondary controlling device removes the audience from the engagement with the purpose of attending the cinema in the first place: the story itself. Therefore, if the interface and the content itself were constructed on the same screen, this would allow immediate feedback to a user while other narrative elements could continue either be affected by user interaction or be unaffected by it.

b) Presenting interactive options to an audience while the story plays irrevocably removes the audience from experiencing the narrative in a visceral way. By offering variables which force viewers to immediately return a decision regarding the narrative direction, the work of the filmmakers to hide the process *of making a film becomes immediately apparent and the 'magic' is lost.*

Étude no. 1: jQuery

Having determined two significant parameters regarding the interactive design of *An Audience of One*, I developed a series of prototypes using a jQuery script in order to explore the possibilities of manipulating the relationships between to images within the same screen. Initially, I had intended to form variations on split screens or picture-in-picture displays when designing the final piece, however these designs are not, in themselves, interactive. Additionally, by reducing the relative frame size on a small screen would also reduce the sub-frame's resolution and potentially any relationship between the viewer and the image.

As noted by Amiel Shapiro, VP of Product for Interlude, interactive videos also also encourages audiences to repeatedly screen the film: a 'good interactive video' can average three times more views per user, 70 to 90 percent engagement rates and as much as eight times more sharing rates (www.interlude.fm). I

Image 4.1: jQuery Zoom Test no. 1: Still Images (Images by Author)

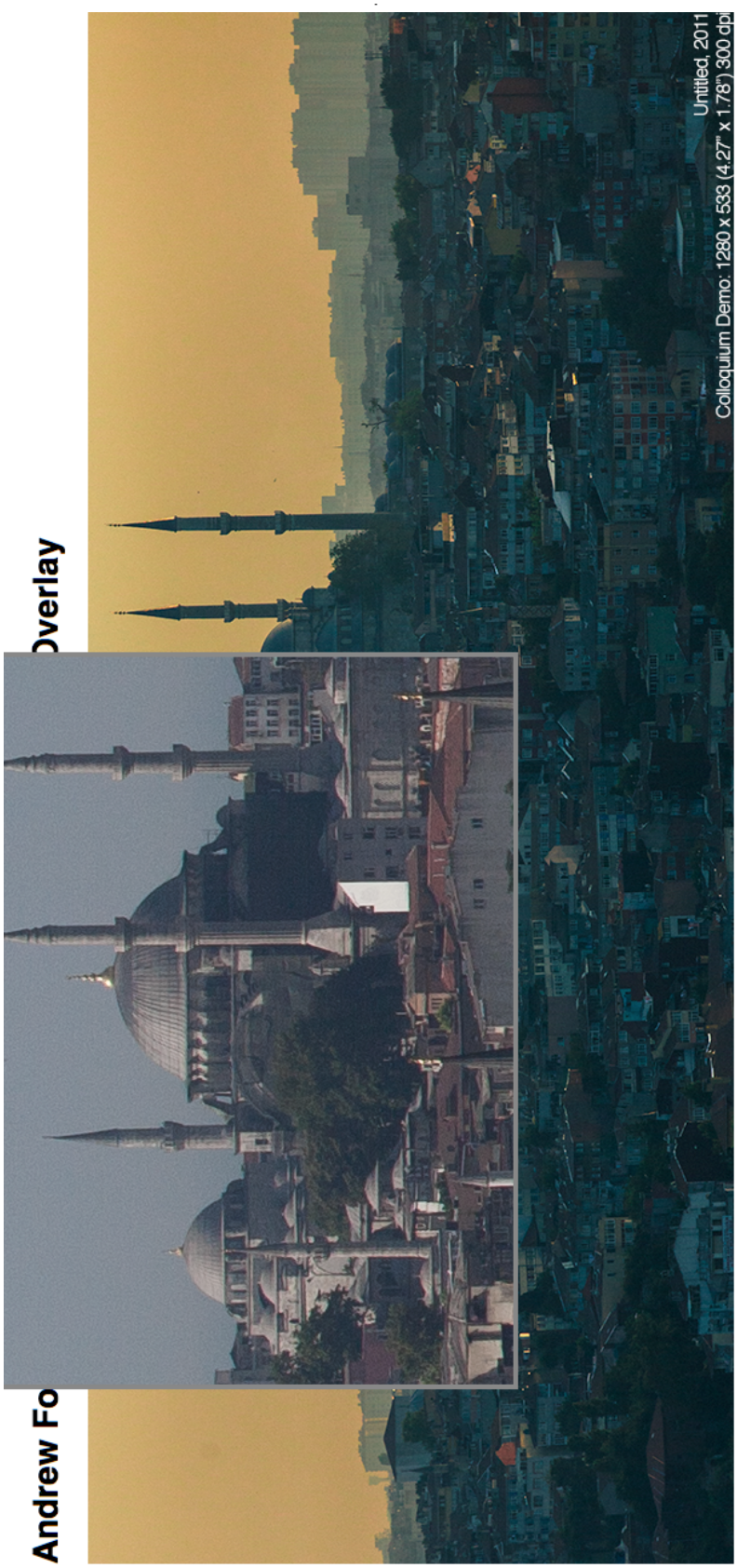

Image 4.2: jQuery Zoom Test no.3: Different Still Images (Images by Author)

believe, as Greenaway claims, that viewing a film is ultimately a singular experience: we apply our own understandings and experiential knowledge against that of the story in order to generate meaning. By utilizing the mobile device as a platform, each viewer would be seeing a unique version of the project, as they would be interacting with the onscreen interface in a unique way.

Based on this, I developed the jQuery tests using a zoom plug-in. This code snippet can be found on many sales websites, where a user can zoom into an image using a pop-up window that activates when a mouse scrolls over it. The first test was to familiarize myself with the capabilities and structure of the snippet (Image 4.1); the second tested the functionality of using .gif images and cinemagraphs with a zoom function, and the third involved divergent image overlays (Image 4.2).

In the first two cases, an overlay window of the zoomed image or .gif was applied to the zoom function and the details of the image could be explored as the viewer moved a mouse through the original image boundaries, creating a zoomed-in view of the original image. The third test involved two distinct images, one which would be displayed in a 'resting' state while the second would only be seen when the viewer explored the first.

My findings of these three studies was that the capabilities to explore an image through zooming was indeed possible and spoke specifically to the relationship between the two images, much as montage theory applies to standard cinematic editing. While useful for website coding, jQuery is limited in its capacity to incorporate video overlays. Using the code snipped did speak to chief technological goals which I had intended to use for the final version of the project: the final version should be device agnostic, so that no matter what type of device is used as the interface, the project could play regardless of device models and operating systems. Maintaining cloud-based content was a secondary concern: in order to lighten the computational load of the device itself and allowing producers the ability to retain control of the assets and interface remotely would encourage reviewing the project as new content is added or updated. Having satisfied my concerns about placing two disparate still images together, I turned my attention to incorporating video into the process.

One Moment at a Time?

For my initial multiple-image video tests, I generated an interface mock up which incorporated Quicktime movies. For demonstrating purposes, I applied footage from *the Blessing*, a short film project I had shot in 2010. The story takes place in a 19th-century Manitoba Jewish farming community, where a new mother is experiencing severe depression and alienation from her newborn son. Over the course of the film, her anxieties manifest themselves into hallucinations of a demonic force attacking her child through a distorted version of herself, and only at the moment of his bris, where her maternal instincts kick in, does

she tap into the love which she was afraid of not having. During the production of the film, the Director, Shira Newman and I utilized desaturated images and purposely chose lenses which had been badly damaged with the intention of evoking a sense that the film had been shot using first-generation film equipment, which would ultimately help with evoking a mood and tone for the story. Using two pieces of footage, one from our location in rural Manitoba and the other from a studio shoot, I generated an overlapping animation of two images (Image 4.4).

The resulting animation highlighted the thematic disparity and emotional turmoil that the Mother was feeling: the 'resting' image shows a mother affectionately looking down to her son while the overlay is the Demon Mother threatening the child. Her maternal love and affection was contrasted against the aggression and threatening form of her fears, and the act of revealing underlying psychological tension is reflected in the change in her appearance and actions in the windowed sub frame.

The effect of inviting the user to explore the narrative relationship between two disparate overlaid images holds some potential to shift the norms of audience viewership into interesting territory. While the current standard of cinematic presentation is to assemble and organize the dramatic path of the narrative through montage prior to screening, this interactive element encourages the viewer to further explore hidden details of a narrative by exploring and discovering visual 'add-ons' within the frame. The application is not necessarily exclusive to the psychological themes of a work: suppose, for instance, that two characters are seated having a conversation. One video stream might be exclusively focused on Character A, while the overlay would exclusively focus on Character B. As the scene progresses, the viewer takes an active role in choosing who to look at - either one of the two characters could provide nonverbal cues or hints which the audience could interpret as different story components which could dramatically alter their impressions of one, the other or both.

Another potential benefit is that, for the storyteller, relying on a single perspective at any given moment may no longer be of such critical concern. As the monocular perspective of the frame could now broken into two (or even potentially more) elements, the multiplicity of frames Friedberg speaks to can be harnessed and used as a potentially critical story element. On set, filmmakers will usually shoot *coverage* of the scene: multiple angles which provide alternate angles to be assembled into a final film. For any given on-screen moment in a finished feature film, it is not unusual to have two, three, sometimes even ten or twelve distinct angles which are not used - either because of practical considerations, thematic drivers, rhythmic displacement or stylistic decisions. It is conceivable that this video overlay could use some form of this rejected footage as alternative angles or narrative emphasis which could further the project as a whole. Depending on the type of story being told, the audience's impressions of the characters and the narrative

Image 4.4: Mock-up of Interactive Video Overlay Interface (Screen captures from The Blessing (2010), *Shira Newman, Director. Used with permission.)*

thrust as a whole would be determined in part by what they see on screen, which could be heightened by offering dynamic control of the footage itself.

As I reflected on the test, I was surprised to have a visceral reaction against the interactive elements of multiple-frame viewing. One unconsidered element which brought the entire exercise into question referred to my professional experiences: as a cinematographer, I am responsible for assembling and structuring the visual elements to be in line with the visions and intentions of the director. We (the filmmakers) work hard to craft the visual elements which make up the film and much care is taken to assemble and present the finished work in a specific way. By encouraging the viewer to change and manipulate the images once the project is completed feels entirely counterintuitive to everything we work towards when we

are making the film. That said, as an interactive experience, the ability to reframe, adjust and maneuver the image holds incredible potential as a storytelling device.

This test also raised other concerns specifically regarding industry reaction, concerns about innovation, technological concerns and intent. At an industry seminar in November, 2013, I spoke informally with members of the Canadian Society of Cinematographers about the tests and described the project. Their concerns highlighted potential flaws in engagement and design: some comments included concerns about making sure the audience would get the 'right' information to properly understand the narrative, others spoke to the interface and the need to constantly be 'pushing buttons or dragging fingers' over the screen (if audiences normally have a completely unencumbered view of a screen, either in a theatre or on an iPad, why would I want to make them cover even more screen space with hands and fingers?) What I surmised from the discussions was that while some form of user-activated montage would be theoretically interesting, it should not be *the* determining factor for understanding and appreciating the story.

I was also further encouraged to avoid direct interaction with the device while the movie itself was playing. If I was going to create a story which relied on image overlays and effects, how would the interaction be any different than VJ'ing,[22] which is already well established? Most VJ systems are built around a central processing hub that controls image feeds and adds real-time effects, overlays, time distortion and signal manipulation to video signals which, most commonly, are used for atmospheric or environmental installations. There are, admittedly, fewer narrative VJ iterations, and those which could be defined as such are not necessarily considered successes. The work is generally curated by one artist and no actual audience participation is encouraged other than merely observe the resulting visual sequences. Greenaway, for example, produced W*riting on Water* (2005) where an operatic musical score accompanied a VJ session filled with text, superimposed images of water and calligraphic script which projected onto three forty-foot screens The textual elements, drawn from *Rime of the Ancient Mariner*, *Moby Dick* and *the Tempest*, were incorporated through use of live-capture of a calligrapher and provided the lyrics for the singers. James Desrosier, in an article published in *Hyperion (2010)* magazine, speaks to Greenaway's performance as a VJ:

> *'By contrast Greenaway's on-stage presence isn't. He's just a hardworking film editor. Poking buttons out on the middle of the stage. Looking earnestly involved. Gazing up and down. Checking out what's showing up there. The fact he's standing at the swiftest looking flat-panel interface ever is meaningless. It's nothing like playing an instrument. Delivering an oration. Or singing a song. You'd think he'd have known better. Which is ironic. Because as a talking head he can be damned effective. … The Wizard knew what the show was about. And knew it was blown when the artifice was unveiled. … Misused, technology sends art out of balance, too.' (Desrosier, 2010, 131-132)*

[22] VJ: Video Jockey (after Disk Jockey).

Thus the decision was made to avoid VJ'ing and the potential of using multiple frames for this iteration of story. I was determined to create a project which encouraged audiences to interact with the narrative structure onscreen, but then how to approach it?

It was during this same month that I was analyzing these tests when Bob Dylan released an interactive music video for *Like a Rolling Stone* (1965). The video presents viewers with an interface mock up of a retro television set and while the song plays, the viewer is encouraged to change the 'channel' and watch as the characters and celebrities onscreen lip-sync Dylan's lyrics. The channels are drawn from current offerings of real-life shows: *the Price is Right* host Drew Carey and contestants, pawn shop reality show *Pawn Stars*, a news station, an episode of a *Bachelor*-style series as well as a 'Classic Music' channel which just happens to be showing a concert version of Dylan himself performing the song. For extra whimsy, the actions of each channel have been edited to either highlight or counterpoint the lyrics themselves, which encourages the audience to experience the video over and over in order to play with the seemingly infinite narrative combinations. What is fascinating about the work is that it makes no pretence about reflecting television watching habits, but instead presents the work in a way which provides us with the inherent viewing qualities which Friedberg and Greenaway spoke of: the act of selecting a channel is, by definition, altering the content and context of the images in relation to each other as well as across channels. *Like a Rolling Stone* gives the audience opportunities to choose whichever 'show' they would like to see, while maintaining the social upheaval rooted in Dylan's lyrics as a subtext.

The aim of these études was to provide a foundation to learn and understand some of the elements which would lead towards a better implementation of interactive narratives. By experimenting with image overlays and exploring popular examples of interactive systems, I have been able to identify specific elements which should - and should not - be included in the development of the final version of the work.

Chapter 5 Meaningful Interfaces

The evolution of the creative elements in *An Audience of One* followed, for the most part, a problem-solving process. The decisions were based partly on the research which I had completed, partly through applying my own practical storytelling experiences, and through discussions about structure, direction and intention with colleagues. Each of the choices were centred around the story itself; the reflections and critiques of each stage in the development of the project were placed against the aim to facilitate the storytelling process and progress both narrative themes and practical interactions to align with the work itself.

While reviewing the footage for *the Blessing* during my first étude, I began to consider whether the entire film could be used as the basis for the interactive experience. I contacted the director, who was very supportive of the idea (as of this writing, the film is still in post-production; we determined that it would be an interesting exercise to compare an interactive version against the linear narrative). I then developed an étude which would explore the feasibility of using footage from a project which had been purposefully created for traditional cinema as the bones for an interactive experience.

Very quickly, though, I found that the two iterations of the project were not as fluid as I had hoped. While the footage was well suited for traditional montage (we had shot it with careful attention to pacing and tone within the shots themselves), the ambiguity and contemplative nature of the shots failed to produce a cohesive storyline when I began to disassemble the visual elements. One of the principal reasons for considering the footage in the first place was to reveal the Mother's unsettled psychological state by literally layering her fractured mental state on top of the narrative. In editing the work with these two streams in mid, I discovered that the separation of the footage actually removed the empathetic elements which generated the audience-story connection. Practically speaking, we had originally shot enough coverage to tell the story, but due to the quiet nature of the shots themselves, the visceral connection to the story could not be maintained with directly incorporating the psychological elements into the storyline.

The semiological structure of dramatic narrative films (and, ostensibly, all visual media) uses cues and indices which promote further analysis and highlight contextual relationships to themes which are reflect-

ed in the narrative components of the work: in other words, the subtext is there if we are looking for it.[23] In order to be effective, a unified visual vocabulary must be presented to the audience. By separating the visual elements of *the Blessing*, the meaning of those cues was diffused beyond the point of usefulness. Additionally, by forcing a viewer to engage to activate the 'additional' content (especially if that content is required to understand the underlying narrative), I was, in effect, cutting off the story from the viewer: a catastrophic error when trying to engage an audience!

In examining alternative directions that the interactive version could take, I considered the possibility of adding a narrator who would control the pacing of the story. While narration can be extremely effective for certain films, it would merely be a band-aid solution for the holes in the narrative logistics. Moreover, by adding a narrative layer to the project simply to cover the gaps in the interactive story, I would also force the audience to pass through two layers of 'narrative' before arriving at the actual story: the *onscreen interactions* to access the project, the *frame story* (including the narrator), then the story itself. This proved to be too high an entry barrier for an experience which should invite audiences to view the film multiple times; only the most dedicated viewers would persevere to the story. I was definitely not looking to alienate audiences from the story, so I abandoned the narrator as a storytelling device.

As a result of these explorations, I determined that while conceptually feasible, the repurposing of traditionally produced footage for interactive presentation was not necessarily practical - at least, in terms of the story at my disposal. I decided to abandon *the Blessing* altogether, but not before concluding that there are paradigms to both traditional filmmaking and interactive narratives which are much better suited to one format over another; the platform does affect how one approaches the work.

In the early days of cinema, films were only accessible either through nickelodeons or theatrical projections. Projection standards were soon established due to variances in theatre and screen size, technological considerations and pressure from the filmmakers themselves, which resulted in *formats* which could be universally applied. With the arrival of television, however, these standardized formats (specifically the aspect ratios) underwent radical shifts in response to the new screen size available to audiences at home. More recently, HD has replaced NTSC as the de facto television service and improvements to computer monitors have become increasingly popular options for screening works. Greenaway drew a parallels between viewing a film as it was designed to be seen and viewing a painting via a fascinating paradox:

> *'Isn't it extraordinary how cinema has somehow made itself unwatchable? Where in the world can any of us go and see Kubrick's* 2001 *on a screen for which it was designed, anywhere in the*

[23] An fun example of this is the 'X-motif' utilized in Martin Scorsese's *The Departed* (2006): throughout the film, both the protagonist, William Costigan, Jr. and antagonist Colin Sullivan are blocked and shot against various X patterns, denoting their mortal danger. Cinematographer Michael Ballhaus, ASC, and Gaffer Andrew Day highlighted the motivation for and the implementation of this motif in an article about the photography of the film in an *American Cinematographer* (October, 2006)

> *world, tomorrow afternoon? Impossible. Far easier for me to see some obscure painting, let's say* the Burial of St. Lucy *by Caravaggio, which is in [Syracuse, Italy]: I can go there on the next plane. And I know it's there, and I'm determined to see it and I know I'll find it.*
>
> *Isn't strange that cinema, which is meant to be a mass medium, which is allowed to proliferate in so-called thousands of prints, to be ubiquitous in a funny way, has made itself almost inaccessible, wheres Caravaggio, whom probably never thought that his paintings would last more than a hundred years, is certifiably approachable and seeable?' (Greenaway, 2011)*

I believe this is one of the paradigmatic shifts which will affect the practice of visual storytelling in the future. As the number and proliferation of display formats expand, so too do the possible narrative structures filmmakers can access to tell their stories. If one follows the trajectory of screening practices -from individual photographs to single-viewer devices, to large-scale cinematic theatres, to television, to mobile devices and tablets- any and all of these platforms are currently accessible to tell a story. Moreover, they are all acceptable vehicles which are still, in their own ways, being developed. Technological developments now allow us the ability to create profound experiences which are specifically tailored to (or by) the viewer, which can be explored again and again. These emerging formats are in their infancy of developing semiotic processes and languages, but I suspect that in a very short order the audience will be able to exert infinite control over the formats and thus, change the meaning of the works themselves. So while David Lynch vehemently spoke against screenings films on one's phone, his point of reference was only to the screen at a cinema: we are now beginning to explore the possibilities of the phone itself as a narrative device.

With this concept in mind, I set to create a story which would be specifically suited to tablet viewing by investigating interfaces and narratives. I was still interested in maintaining interactivity and narratives on the same screen and so focused on understanding the direction and type of that devices' interactive capabilities. Viewing software on iPads emulate the traditional model of timeline control as one finds on a television: there are similar functions built into both devices (i.e. play, pause, fast forward and rewind) which presume that the functionality of touchscreen interfaces are comparable to remote controls. iPads are, of course, distinct from remotes in that one may touch the screen itself to interact 'directly' with content, yet there has been no significant interface adjustments which takes this ability into consideration. If the tablet is a presentation format of allowances, how might I create situations which encourage the audience to engage in a meaningful way with the narrative structure?

Returning to my field scan from my research, I reexamined some of the apps, technologies and techniques which focused on interactive engagement with mobile devices. Table 5.1 reflects my notes and observations taken from this report. In analyzing the apps, toolkits, platforms and films, I found that I was looking at systems of interaction rather than ways which would affect the content itself. Many of the examples involved choose-your-own adventure story models where users must make decisions which affect the

Table 5.1: Notes & Reactions of Various Mobile Interactive Media

Title	Company	Type	Notes / Observations
Touching Stories	*Tool of North America, Domani Studios*	*Interactive short film app*	- *four narratives: interactive short films.* - *While they are all obviously cinematic, the interactivity leaves a lot to be desired.* - *No ability to control playback means you're watching the same footage over and over again: very frustrating!* - *Most Interesting Couple in Britain: limited interactivity. I get that it's a stage production of sorts, but forcing user to got back to a menu is pretty stop-and-start* - *There isn't really a sense of the whole narrative: you see what you get and then more happens later.* - *Sarah and Jerry: whimsical short about ghosts (i.e. users) messing with a couple.* - *Not a ton of indicators to say when something or some part is interactive and when it isn't.* - *I presume there are alternate endings to the story, I just can't figure out how to get there.* - *Triangle: a couple gets up to no good in a hotel room have their fate determined by the viewer (?).* - *The interactivity is pretty tough to activate: while hot objects glisten and draw your attention (as opposed to Sarah and Jerry where nothing is highlighted), there's definitely a specific order you have to do things in for the story to work.* - *Speaking re. narrative, it's a little forced: flashbacks don't necessarily work to further the story- they're a little too abstract.* - *All Ends, Ends All: interesting concept, not a lot of clarity: first person escape from a possible murder attempt.* - *It feels like the interaction is broken: hints arrive after the interaction is over, or don't really make sense.* - *Note to self: avoid too much jostling of iPad: if the onscreen action is handheld/ jumpy and you've got to shake the iPad to enhance interactivity, it ends up a hot mess.* - *The fact that there are hints that have to be indicated to the user (i.e. 'tap on the door') says to me that something is missing in the storytelling.*
Scape	*Opal Limited*	*Music app*	- *Ambient music generator by Brian Eno (!) and Peter Chilvers.* - *Completely abstract interface uses shapes, colours, textures and patterns to generate music: very synesthetic.* - *The rules which govern the sounds are hidden behind the interface, really encouraging user to explore.* - *Lots of possible atmospheric soundscapes- terrible for pop fans, great for Eno fans.* - *Navigating the app is a little frustrating- while the abstraction of the play area is nice, not being able to figure out where things are is a bit frustrating.*
The Witness	*Radicalmedia, Powerflasher, NHB Studios, 13th Street Universal*	*Interactive movie / game with real-world and cinematic interaction*	- *Trailer: http://www.youtube.com/watch?v=Yis6is8v9jA* - *Combination of interactive game and live event.* - *Using geotagging and adapted QR codes, viewers / players watch movies which lead to clues in a physical environment where movie was shot.* - *Uses device as a window (movie) and interface (game)* - *Choose-your-own-adventure style storytelling.* - *Site-specific requiring lots of user participation: interesting for some but maybe too much for others?*
Spark	*IDEO*	*Mobile video app*	- *http://www.sparkcamera.com/* - *http://www.ideo.com/work/telling-your-stories-with-video/* - *Playing with recording function of device's camera. Nice touch: hold anywhere on screen to record rather than hitting a button.* - *I think the idea is to make a simple video recorder and editor all in one- it's breaking away from the familiar shoot-edit relationship of footage and uses*

Title	*Company*	*Type*	*Notes / Observations*
Treehouse	*Interlude*	*Multi-platform interactive video generator*	- *http://interlude.fm/en/* - *The company which provided the back end for Like a Rolling Stone interactive video.* - *Designed around a logic tree interface: each node child is a choice the user makes.* - *content can be made and edited in any NLE: upload formats are diverse. Designed for easy embedding into sites and social media.* - *Engine covers / eliminates lag between videos. Selection inputs can be customized and uniquely designed.* - *Free for personal projects, expensive to host commercial projects ($1 000 per project).* - *It's all about the platform: while a company does exist to produce content, emphasis is on user-generated.* - *Point-and-click only: no ability to move in and out or around the narrative. (perhaps a good thing?)*
C1	*Condition One*	*iPhone / iPad app*	- *http://www.conditionone.com/* - *App with embeddable video player which presents viewer with 180˚ view of scene.* - *Image is larger than viewing window, encouraging viewer to explore beyond the frame edges using accelerometer / gyroscope (mobile) or mouse (desktop).* - *Experiential Storytelling: 'You are there' experience: audiences choose where to look. [this is close to one iteration of earlier idea with* the Blessing *footage which was abandoned]* - *Requires* adaption *of shooting techniques: most lenses aren't designed for 180˚ field of view.* - *Company is in development for a 360˚ movie, optimized for Oculus Rift. [Other companies, Disney Imagineers, are working on similar immersive cinematic experiences]*
Vyclone	*Vyclone Inc.*	*Social movie app: iPhone / iPad / Google Play / Windows Phone*	- *www.vyclone.com* - *Social Cinema: multiple users record events using multiple angles from multiple devices. Once uploaded, the content is parsed automatically and assembled into an 'edited' version where different angles become a cohesive narrative.* - *It's a lot like a cloud-based editing device.* - *The edits are editable: if something doesn't work for the users, they can rework the footage online and re-distribute.* - *Neat idea: you don't have to be linked by network or friends: many different users can record the same event (example on website: football game with 50 users) and the system will figure it all out. But you can also use friends to record the same event.* - *Interface definitely needs work - editing is unintuitive.* - *What about bad angles / takes?* - *[note from CNet: audio can be really confusing and not easy to work with:* 'If you want the sound to come from only one location, yo have to start recording with that phone and be sure to be the last recording phone to only get audio from that phone.' *http://reviews.cnet.com/software/vyclone/4505-3513_7-35406082.html*]
Noah	*Patrick Cederberg, Walter Woodman, Directors*	*Short film (17 mins)*	- *Fantastic student film (!) from Ryerson University* - *Entirely shot with webcam and screen caps using fictional characters.* - *Great use of multiple-screen narrative: computer windows provide context and content simultaneously.* - *Brings social media* into *the narrative, rather than using it as a platform* for *the narrative.* - *Regarding short-attention span: incorporates familiar tools and devices in new ways which maintain curated content from directors.*

outcome of the story by actively making choices while the media plays. As mentioned above, I was keen to avoid forcing audiences to make that kind of decision while screening content as it ultimately damages the relationship between the images, the message and those viewing the work.

One notable exception was *Noah* (2013), a short film which tells the story of a teenager's break up exclusively through Skype, Facebook, Chatroulette and text messages. While the film was not interactive, it effectively demonstrated alternative storytelling techniques by intertwining everyday technologies and the narrative itself. The story could have been told as a traditional narrative, but what made it innovative is the identification with common practices of multitasking and technological integration into everyday relationships with others. Despite the fact that Noah is never seen other than through chat windows, we feel his life extends beyond the screens which make up the content of the film itself.

It is this combining of content and technology which is critical to the new way of making movies. Legendary cinematographer Gordon Willis, ASC once said of his work, 'People fall in love with a process, but the process is a means to an end. Film is a tool. The gear is a tool. The actors are tools - the director's a tool, I'm a tool! And the whole point is to move that script onto the screen.' (Fauer, 2006) Willis was speaking specifically to the art of cinematography and its relationship to the filmmaking process as a whole, but the same ethos can also be applied to interactive narrative elements.

Étude no. 2: Story Structure

What is best for the story? Interactive elements are one of the tools used in creating a story experience, and as such it behoves the storytellers to scrutinize its role in the same way one would the actors, directors, cinematographers, editors, producers, technicians, and all other creative decisions involved in creating a work. In order to focus my efforts in developing the interactive capacities of the experience, I drew a list of 'rules' which I was to follow while developing the interface design and structural model.

- *If the interaction is there for interaction's sake, it is useless to the narrative. Drop it.*
- *The work must be able to be seen once without variation, and have no element missing with regard to telling a complete story (beginning, middle, end?). The story must make sense even if no one interacts with anything.*
- *The connections must be meaningful. Avoid the cheese factor.*
- *This is not a linear movie, which does not vary its narrative structure no matter how many times one views it, nor is it a game, where the audience takes control of the story either as a character or in the sense that they can actively influence its outcome.*
- *The meaning and affect of the story must come from the value of the interaction but remain in service to what the story is about.*

- *At risk of boring the viewer, avoid repeating actions or sequences as much as possible, or provide a simple opportunity for them to move ahead.*
- *The affordance of the media is about generating different meanings from a singular storyline: every time you play it, the viewer builds more and more meaning.*
- *The interaction must not get in the way of the story.*
- *At the end of all this, you are telling a story. Remember this.*

It was clear that an original script had to be written which incorporated the interactive capabilities of both the device and the tone of the story.

'A Man Walks to a Refrigerator …'

Nicholas, a lonely, aging banker, is caught in a loop. He is in the final moments of his life, the very last seconds, as his memories overtake him again and again. Is he already dead? How much longer can this go on? Was his a happy life? Ultimately, the answer is found in the relationships he - and we, the audience - builds with his memories.

What happens in the final moments of someone's life? Does their life flash before their eyes in an ordered structure, like a movie, or is it a cacophony of images and sounds, smells and textures, as the brain shuts down piece by piece? If it is, truly, all in one's head, how does time map itself out to the dying? These were some of the questions I wondered as I began to plan the storyline for *An Audience of One*.

The bones of the script were developed through a of stream of consciousness writings session in late January, 2014. I had made some attempts to develop a story which could be applied in a random fashion, something close to *Soft Cinema*'s form, but the lack of context in assembling the images made me anxious to produce full of shots which have no relationship to one another. I was interested in writing something which could employ some formal narrative components, such as traditional coverage, but also explore image degradation, nonlinear editing and abstraction of both the visual elements and the logical flow of the story. I was moved by the effortless nonlinear structure of filmmakers such as Terrence Malick (*The Tree of Life,* 2011) and Steven Soderbergh (*The Limey*, 1999), and after some false starts with linear narratives, turned to their works for additional inspiration (an analysis of the works of both directors and montage theory can be found in Appendix A).

I was also extremely cautious against falling into the tropes of standard interactive cinematic experiences and spent considerable effort to avoid generating a script that required calls and responses as part of the narrative itself. Notes from the script development sessions demonstrate story kernels which were subsequently developed into a more 'complete' narrative:

- *The idea which is not followed. Turning away from the creative process.*
- *What happens when you remember? Firing synapses, etc., but what does the should do to remember? What happens to the meaning that those things remember?*
- *The meaning is not implicit.*
- *Clarity of thought. It's about finding the one true thing- what has happened from focus.*
- *The same moment is replayed multiple times. Dissect it. What is that moment? Think of the happiest moment in your life. Now think of the saddest.*
- *I cannot imagine now inflicting that kind of pain. We've all lost now- lost lovers, lost parents and grandparents, but we have won so much too. When the phone rings, I wonder if the voice at the other end will be that same cracking voice I heard after my grandmother passed.*
- *It's warm here. It's comforting, how the heat feels like a cocoon.*
- *Do I have some grand statement to make? Not really. I don't think that this is going to define me or my life. I am not the summation of this film. I am not the limits bound by this frame. There is more to me than a series of images. Stills. Motion. Time.*
- *is this what my life will be like? is the end going to be a series of recollections, regrets and admissions? Do Catholics go to confession to remove themselves of this guilt? At what point does it become a load too great to bear?*
- *'All things shining.'*
- *What do I expect from this process? A masterpiece? Ultimately, it's an exploration of myself as an artist. But how do I define myself as an artist? I cannot expect that my own sense of ability and capacity are going to line up with everyone else's ideas. This work is antithetical, drawn out. It's contrived and indulgent and I feel silly making this kind of work. Does that mean that I don't know myself as an artist? Or maybe I know myself better than I think i do?*

While the influences for the fabula (the story kernels) were drawn from personal reflections, the sjuzet (the form) of the presentation must speak to audiences who did not share the context of these ideas. Based on a delineating narrative structure, I explored the possibilities of using an interface which would randomize the story elements through patterns and thematic cues which would be affected by the interface itself. In its original format, the script had been written as a linear narrative; one that manipulated 'real time' through the use of the protagonist's memories. By manipulating the narrative structure through an interface to generate some form of randomization, could I maintain the thematic control? Or would the narrative itself be clouded, as with Manovich's *Soft Cinema*?

The first iteration of the fractured narrative was an exploration into the actual function of randomization. I began by breaking the narrative into narrative kernels, organized by emotional moments rather than

linear scenes. These elements became organizational blocks which would be re-assembled through some form of 'randomization cue' from the audience and through their random presentation order, generate different meanings for the audience. The first step, akin to *Soft Cinema*, involved compiling the kernels into a structure which could be accessed by the viewer, placing the narrative order completely within their control and leaving the responsibility of thematically linking the content to me.

My first iteration of the interactive elements was a series of sliders which affected various components of the visual and acoustic elements of the piece itself. In adjusting the sliders, one could affect the quality of the image through filtration and effects, the physical order of the scenes, change the performative aspects of the actors (by shooting alternative versions of the same dialogue and action, then assembling edited versions of each for filing into the database), or loop sequences in order to emphasize and rediscover the same footage under a changed contextual position. These sliders would, superficially, be linked to the story, either through their design or through theme. The viewer would adjust them accordingly to customize their viewing experience. While the content of the narrative itself wouldn't necessarily change, the presentation would, and thus produce varied contextual frameworks which would give different audiences different story experiences.

The idea for a set of sliders came from a map I had drawn to organize the links between the narrative elements. I was having a difficult time determining how the order and organization of the kernels should be presented, and turned to tree mapping as a possible solution - or at least, to determine some order through which I could develop the interactive actions. As no one element would necessarily affect the overall narrative structure, I decided to to lay the presentation structure out in order to examine it in overview. I had assigned alphabetical storyline arcs (A-01, A-02, A-03, etc.) to each of the kernels in the script as well as sub-alphabetical cataloging of the branches (A-01a, A-01b, A-01c, etc.). These codes provided an easy categorization for the database, which I was developing in parallel with the map.

The initial intent for the interactive components was to move beyond the database of *Soft Cinema* towards a collage along the lines of Terrence Malick's work in *the Tree of Life* (2011) or Steven Soderbergh's *the Limey* (1999). If the context of a story could be assembled through randomly-ordered segments via the Kuleshov Effect[24], perhaps I could generate a parameter which would structure the elements within a framework which maintained the contextual relationship within the randomization of the images.

A, B, C :: B, C, A :: A (C, E, D)

I was impressed by both Soderbergh and Malick's dedication to emotionally guiding the audience, not

[24] See Appendix A for an explanation of this, montage theory as well as analysis of films by Terrence Malick and Steven Soderbergh.

just for the overall narrative trajectory, but also for each individual edit, where each cut must seem effortless, invisible and 'true'. In order to maintain the dramatic (emotional) thrust of the work, one must, according to Walter Murch (1995), follow the emotional, story and rhythmic cues within the footage. While this can be controlled by editing the raw clips to the frame which would best suit the cut, randomizing the process would only consider one half of the equation. In order to maximize the impact of the edit, one must know not only what is being cut from, but also what is being cut to. *Soft Cinema* and *Late Fragment* (2007), both of which rely on the audience generating contextual relationships from randomly linked footage, cannot rely on the completed pairing of images to consciously direct how the narrative will progress. They do, however, construct contextual meaning over the course of viewing each work by building a repository of images, which are assembled and combined with the current moment on screen, in order to successfully generate some form of meaning.[25]

If the effectiveness of an edit is a two-part process, not knowing what will be coming until the moment it arrives creates a very real danger for the tie between the two images to fail, and thus break the narrative flow and remove the audience from the experience. In order to preserve the shot-to-shot relationship between the footage for *An Audience of One*, I resolved to shuffle entire sequences rather than individual shots. Two practical developments resulted from this decision:

a) The scenes themselves could be edited according to the dramatic thematic emphasis I felt should be appropriate; I would have to be mindful of the beginning and end of the each sequence, but the essential structure of the scene itself would remain the same.

b) Based on the fact that the story would be schizophrenic, some sort of narrative anchor should provide the audience with a direction by which they would be able to navigate. I resolved that the audio and soundtrack would become that constant throughout the piece.

Surprisingly, these developments loosened the emphasis of maintaining the narrative consistency for the visuals; I could now follow the emotional threads in the editing process more freely. I would also be able to apply footage from any kernel to align the in-scene edits to what felt right for the rhythm and the story. Additionally, since the visuals would be re-organized, I felt it should be important to have some form of frame story which would at least determine the parameters of the narrative: the result of this was to introduce Death and the conversation between him and Nicholas which frames the story.

In redesigning the narrative structure around scenes rather than individual shots, I found that I was also able to organize the narrative threads into a more coherent series of blocks which could play between each other and be easily re-shuffled. If the original narrative iteration of the script followed a linear pattern

[25] It is worth noting that the delineation between the two projects is that *Soft Cinema* was designed to and relies exclusively on the users' observations to build any form of associative relationship between the images- there is no inherent link between the clips other than by associating one image against another. *Late Fragment* does have a series of interlocking narratives which play over and around each other.

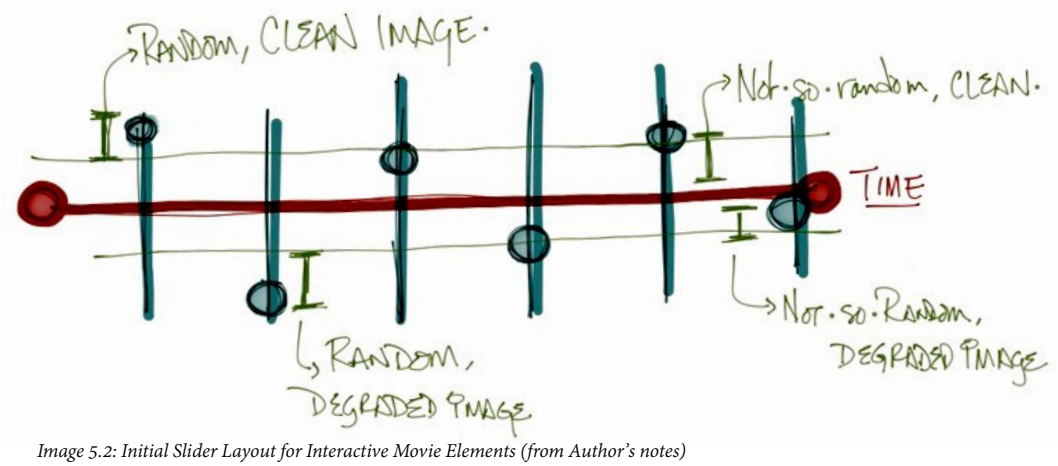

Image 5.2: Initial Slider Layout for Interactive Movie Elements (from Author's notes)

(A-01, A-02, B-01, B-02, C-01, C-02, etc.), whereas the randomized iteration broke that pattern apart (B-02, A-01, C-01, A-02, B-01, etc.), this new structure redefined the structure into efficient storytelling packets (A-01, [B-01::C-01::D-01], A-02, [B-02::C-02::D-02], and so on). This proved most effective as I was now able to link scenes based exclusively on emotional resonance as opposed to relying on linear progressions to tell the story.

When I began to apply this narrative model to the slider design, I immediately identified serious engagement issues with the interface. My intention had been to obscure the role of each slider so that the audience, by changing positions and reviewing the film, would eventually determine the function of each one (the interface is, after all, another component of the entire experience). But the sliders the lacked context to the story. Despite a number of sketches, the sliders remained reminiscent of a recording studio control panel and suggested more of a VJ interface than narrative: a purely mechanical manipulation which applied a scaled set of variables which could only change so much. I wanted the interface to feel mysterious and inviting: a slider is neither of those.

Another consideration which prompted abandoning this interface was the nature of the sliders themselves. As an iPad relies on its touchscreen for input, using straightforward potentiometers (the slider value return) did not take advantage of the types of interaction which I wanted to explore. Early optical tools, such as the Phenaksistiscope, the Zoetrope and the Thaumatrope required physical interactions to create the intended illusion of movement. More recent examples which incorporate sensor data and virtual inputs (see Table 5.1) were reminiscent of this legacy of physical interaction, however many of the examples cited, *Condition One* and *Touching Stories*, for instance, merely created a story or experience around an interactive input, rather than implementing them into the storytelling process. Furthermore, the interactive components made no distinction between the narrative engagement and the interactive elements.

My goal was to construct an experience which implemented an engaging interface to affect the film the audience will see, but once that movie has started, the inputs should not distract from the work. Once I had determined that sliders were inappropriate interactive elements, I returned to the story structure to determine alternative interfaces.

Chapter 6 Orbits, Labyrinths, Eureka!

I was growing dismayed by my inability to effectively develop a purposeful interactive structure for *An Audience of One*. One of the parameters I had established was to maintain a sense of continuity to the story in that the interactive elements must not interfere with the story in a detrimental way. While the sliders-as-adjusters had been a step forward, the thematic motivation was missing and required realignment with the story itself. I had been dissatisfied with the interactive experiences of other systems: for instance, *Triangle*, one of the interactive films in the *Touching Stories* app (Table 5.1) seemed to contain a variety of story branches but one could never be quite sure when the interface would activate, or, in many cases, which elements were interactive to begin with. The result was that while the film was whimsical, the interactive elements did not serve it well: they were not creating a meaningful interactive storytelling experience. I was resolved to find a more direct method of generating some sort of audience input, but then clearly delineate when the story was playing.

The sliders had originally been envisioned as a cause-and-effect interface: they would appear as part of a splash page, before the movie played, and would re-appear once the randomized version of the story had been screened. I was satisfied with the back and forth relationship of the interactive screen and the media, since there would be a clear transition between the movie content and the splash screen. However, since I had decided to randomize the order of the scenes rather than the shots themselves, the nature of the randomization of the image and the filtration began to feel forced. In desperation, I turned to my colleagues and began to develop a more structured form of the whole story experience.

Mitzi Martinez, a colleague, suggested using forking narrative paths which would cross over each other to generate entirely separate story lines from communal story kernels. This solution did not require re-writing the script; instead I could divide it into sections and link thematic elements of the story to each other, thus generating meaning and inviting viewers to further explore the narrative structure. This was the breakthrough I had been searching for!

By aligning 'complete' narratives threads, I was able to create a frame story with exploratory branches which would live independently of each other. The randomization was a structured, logical forking tree, with five interaction points which would play distinct narrative kernels and present completely different

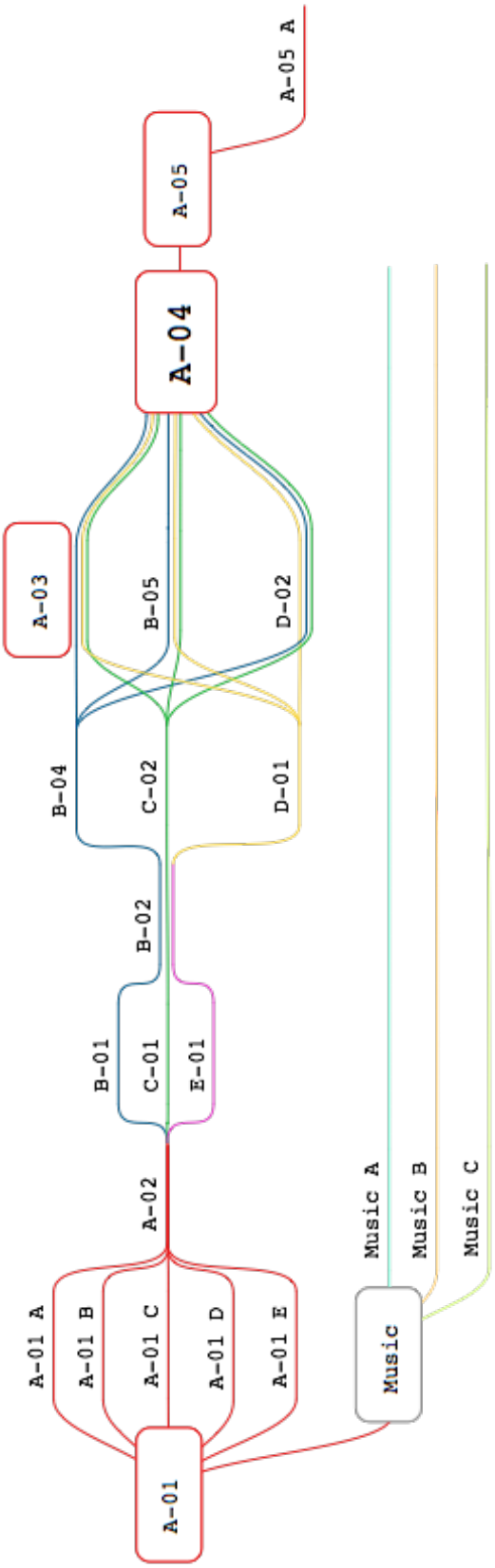

Figure 6.1: Narrative Kernel Map v 2.0 (The colour codes represent storyline paths)

Image 6.2: Circular Narrative Element Map v 1.1 (from Author's notes)

contexts for the protagonists' actions. The fabula was beginning to align itself with the sjuzet.

In controlling the order and possible narrative paths, I was now able to control the context of the story itself. While sketching possible visual representations of the interactive structure, I began to investigate the validity of implementing an orbit model as the user input. The initial iteration was more of a sketch than an concept (see Figure 6.2): in relating the kernels on a linear timeline, I had drawn arrows to link each part of the story lines together. As they crossed each other, the arrows created a series of concentric rings which, when in overview, were akin to a diagram of an electron. If these position of these 'orbits' could be adjusted, perhaps then I could develop an interface which would hide the kernel selection mechanics and invite viewers to play with the interface.

The first iteration was built using time as the independent variable (since the playback speed would remain consistent) and scene order as the dependent variable (Figure 6.3). The rings of the orbits would provide an orientation for the viewer to drag the scene (represented by the black dots along the orbit path) and the system would then assemble the story based on a left-to-right priority. If, for example, the viewer set the outermost ring (representing the first kernel within the narrative structure) to the far right, the resulting scene order would play that selection last. The second ring would affect another decision point, and so on.This design seemed to solve many of the problems which led me to abandon the sliders. As I refined the interface design, I discovered two major flaws.

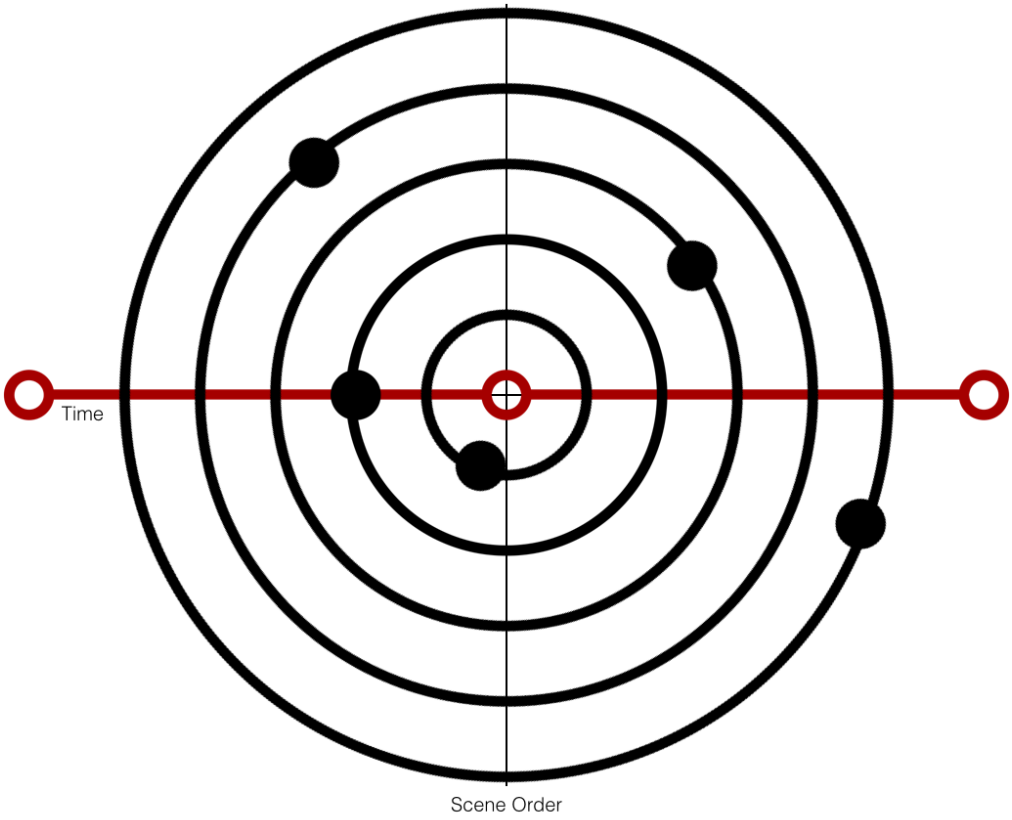

Figure 6.3: First Orbits Diagram for Graphic Interface (The x-axis represents time, the y-axis represents scene order. This is meant to be read from left to right, where the position of each plot point affects its play order.)

While the kernel order could be clearly manipulated, waiting for the video to finish (at this point, the film was estimated to run nearly ten minutes) in order to return to the splash page for a second attempt at mixing the narrative would prove tedious for the viewer. It was noted, as I reviewed the design with colleague Torin Stefanson, that shorter versions of the video would encourage more exploration into the variables and appreciation of the interactive elements which affect the story. I had noted this during my research, particularly when examining the Bob Dylan interactive music video, yet had omitted the finding when critiquing my own designs.

A more pertinent concern was also raised by the inability to distinguish the possible choices in the interface itself. How would the viewer know how many choices there were available to them without defining them in some way? One cannot choose seemingly random positions around the orbits and expect to have a meaningful return for their input; there was nothing to indicate the options or variable which *could* be selected.

The Labyrinth

Early in the pre-production stage of developing *An Audience of One*, I had taken it upon myself to personally develop the code for the final exhibition piece.[26] The initial jQuery études were the starting point of this investigation, however since language was not optimized for video interaction I had begun to explore other platforms. As part of the coursework prior to beginning of this thesis, my cohort and I had been introduced to Processing and MaxMSP: both had the capacity to integrate video, but since the focus of my study was to build specifically for an iPad, and neither of the software development kits (SDK) would natively function on that device, I immediately eliminated them from the list.[27] Further investigation produced programs such as TouchOSC, a modular onscreen controller and MIDI control surface but which was exclusively a VJ program (which, after viewing projects such as Greenaway's *Writing on Water*, I was not keen to follow), as well as web-based storytelling systems such as Treehouse by Interlude (see Table 5.1). With each SDK, I found that I would only be able to either produce diverging narratives or dual-screen interfaces, neither of which were acceptable for the interactive structure. Finally, I began to explore Xcode, Apple's iOS developer kit: due to my total lack of experience with the programming in Objective C, I decided against using it.

After presenting my initial findings and the jQuery examples at a colloquium in October, 2013, a colleague suggested Adobe Flash might suit my needs. Using Air, I would be able to present on any number of mobile devices; In quickly adapted to Flash's timeline and graphic interface thanks to past experiences working as an editor and colourist and I was well versed in Photoshop, Illustrator, After Effects and Premiere Pro, which would allow smooth integration of video and image assets. Over the proceeding months, using online resources such as lynda.com, adobe.com's Training and Tutorials, YouTube and other online resources, I made attempts to better understand Flash's architecture and gain enough knowledge of the programming protocols which would provide the architecture for *An Audience of One*.

It was early January, 2014, when I finally decided that I would have to find outside help to code. After three months of making attempts, I had achieved very little progress with Flash. I had been able to determine that the interaction I was looking to produce was feasible: a great relief! I turned to colleague Demi Kandylis to provide some insight. His experiences with Flash were much more extensive than mine, and he agreed to assist in coding the project.

While reviewing and refining the interface design with him, the conversation turned to the type of 'skin' that would cover the inputs. At the time, I was batting around various types of orbits and designs which

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[26] I have no prior experience with coding anything, let alone an interactive movie!

[27] While MaxMSP does feature a tablet-based controller, Mira, the interface and outputs were not aligned with what I was aiming to produce: specifically, the interface and content could not share the same screen.

Figure 6.4: Labyrinth Interface 1.0 (Each break in the walls of the orbits are selectable choices for inputs: as the viewer traces their finger over the button it is selected.)

incorporated rings, clocks, onion skins, and so on, but Demi suggested that perhaps a series of locks, or keys, might provide a more valuable interface for users. We discussed the potential of using protocols which would adapt the rings depending on the selections made by the user: for instance, if the outermost ring had three possible choice states, then as the viewer made a selection, the following ring would adjust its states accordingly. The final result would be an animated orbit system which would reveal or remove choice states, depending on their selections made. Having a dynamic interface would additionally provide an impetus to return and continue to explore the alternative narratives. At some point during the conversation, we began discussing the presentation of narrative paths, and the idea of developing a labyrinth was raised. This was the metaphor I had been searching for throughout the development of the interface!

A labyrinth is a 'complicated irregular network of passages or paths in which it is difficult to find one's way,' (2014)[28] whereas John Rhodes and the Labyrinth Society - a non-profit academic organization dedi-

[28] The definition may be found at http://www.oxforddictionaries.com/definition/english/labyrinth.

cated to the study an promotion of labyrinths - use a similar definition to identify a maze, which is a subset of labyrinth (the Labyrinth Society, 2014). Their umbrella definition of a labyrinth is a 'single path or unicursal tool for personal, psychological and spiritual transformation. … The goal is in the centre of the labyrinth. When you reach it, you have gone half the distance - you now need to turn around and walk back out.' (ibid.) I resolved to adapt the two definitions and apply them to the construction of my labyrinth as an interface and metaphor for memory.

Taking the former definition as a starting point, the 'network' of paths, or circuits, could be laid out in a fashion where the choice states of each input become gates or portals to the following path. By eliminating any divisions of the orbit paths themselves, the viewer could to trace a path through any one of the gates, thereby encouraging them to explore multiple circuits through repeated screenings. The associative component of the script points back to the protagonists' recalling memories throughout his life: the various meanings of each of the paths are reflected through the paths of the labyrinth. Additionally, the umbrella definition provided insight into where to place the 'play' button: if, as one follows the circuit to the centre of the labyrinth, one would only have gone half the entire distance, then resulting the video would 'retrace' the steps, or portals, the viewer selected on the way in. The contextual application I was hoping to generate, that the journey of the mind in the final moments before death are sequestered, nonlinear, fractured yet poetic, had manifested themselves through this interface. I felt that I was able to succinctly link the fabula and the sjuzet together in a form which satisfied my goals for the storytelling experience.

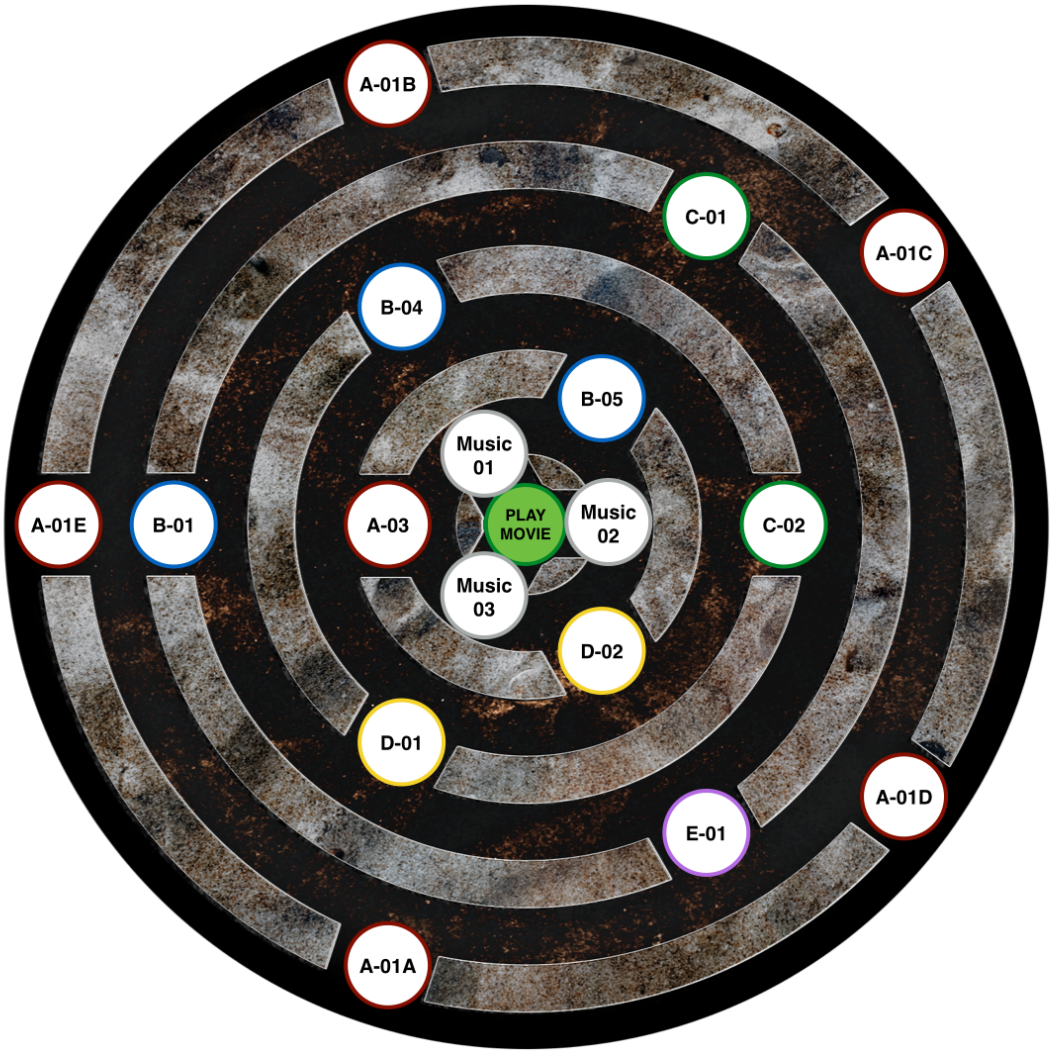

Figure 6.5: Input Layouts on Labyrinth Interface Design v 2.2

Chapter 7 Familiar Ground

While the interface design was progressing, I initiated pre-production for the filming of the movie elements for the piece. I identified a small window where I could shoot in mid-February and began to organize the production. Securing cameras, equipment and locations was straightforward; I was concerned with finding the cast, who would be critical to the success of the project. I found myself at the first production impasse when I ran into difficulty securing actors who would be suitable for the roles.

I was keen to find an actor who could carry the performance and dramatic thrust of the work alone. One of my later observations (particularly in post-production!) was that with films like *the Tree of Life* or *the Limey*, the nonlinear editing usually centred around between two actors performing some action: while there are moments of single shots or 'reflective' elements which contribute to the narrative, the bulk of the scenes were built around two or more characters working through a problem. I had purposefully intended to eliminate any extraneous characters, background performers, or crowds, since the story was about Nicholas' dying moments. The 'weight' of the dramatic elements of the story would have to be reflected through Nicholas alone, and I was looking to find someone who could carry the charge. I was subsequently dismayed when the actor I had selected to play Nicholas would not commit to the role.

This created a domino effect of casting: since Nicholas was the hardest to find (based simply on the relatively small available pool of older male actors which could be drawn from) I needed to confirm with actor who would play him in order to proceed with finding the remaining actors, particularly Nick, his younger counterpart. After some time waiting (and hoping!) that a confirmation would come from my first choice, I was forced to abandon my initial plans and move to find some alternative which would let me complete the photography in time to edit, assemble and test the final project. While waiting for a response, I was able to further progress with planning for the shoot itself (see Appendix C). There were elements which I could be sufficiently prepared, such as the A-storyline scenes in Nicholas' home, whereas others, such as the E-sequences involving his Baby (due to the fact that it was a baby) which could not.

I was keen to develop a series of metaphors which would play out across the various story lines to further impress the liquidity of the narrative, yet maintain a contextual relationship to the overall storyline. One such metaphor was the location and the time of year together: the seasons represent the ages of his

life, where the D-storyline (the 'summer' sequences) were designed to elicit a happier time by comparison to 'winter', where Nicholas is predominantly alone and more contemplative. This was predicated on some practical considerations - obviously, there was no avoiding the winter exteriors, but they did aim to serve some emotional representation, rather than simply being the available time of year to shoot. All of this to say that the need to have an opposing colour scheme, particularly through healthy, green leaves, meant that in order to find a suitable location for the D-thread, I scouted to botanical gardens and conservatories as possible alternatives to waiting for summertime.

A practical consideration to subtly demonstrate where the variables of the story's interactive structure came in the form of the framing of the footage. While the aim of the project was to create a seamless narrative structure, it was important to give the audience some indication (if they were looking for it) as to where the choices they had made on the interface were affecting the narrative itself. Placing some form of marker was counterintuitive to the flow of the film, and while assembling the technical parameters of the project, it struck me that the aspect ratio of the footage could denote this. As a result, there are two aspect ratios in the final piece: the frame story was composed at a 2.4:1 widescreen aspect ratio, where the empty screen space encloses and 'traps' Nicholas in the narrative loop, while the memories were shot and edited as 1.78:1 to take advantage of the entire iPad screen and express a sentiment of openness and relative freedom. The aim was to subtly suggest that the memories, good and bad, are the only freedom he has left in these final moments before death.

Going Home

As my production deadline was rapidly approaching, I was growing more and more anxious about the lack of cast, despite all the other production elements which were falling into place. Initially considered as a joke, I mentioned to colleagues that I might do better to shoot the project in my hometown of Winnipeg, Manitoba: I would be able to access similar equipment to what I had in Toronto and my professional relationships with many actors and technicians in the city could provide a better chance of actually finding the cast I wanted. In terms of locations, there were suitable alternatives to what I had planned to use in Ontario, including a conservatory that housed a tropical garden which would be accessible for production. It wasn't long before the 'joke' became the only viable alternative, and so I adjusted my shooting dates to allow some time to co-ordinate this major shift in production and set out for home.

The principal photography took place in early March, 2014. I was able to secure a father and son who were willing to play both ages of Nicholas, which solved the dilemma that forced the production move in the first place. An unexpected benefit which was not anticipated was that, beyond the physical resemblance between the two actors, the familial relationship had developed similar mannerisms and body language

Image 7.1: Promotional Stills From An Audience of One *(at 2.4:1 aspect ratio)*

which further reinforced their performances as the same character. As additional good fortune, the younger actor had recently become a father, and thus I was also able to cast the role of the Baby.

The camera, a Canon T4i, recorded footage at a resolution of 1920x1080 at 23.976 fps using an H.264 codec. While this permitted relatively small file sizes (and with close to 120 minutes of raw footage, I was glad for that!), one significant drawback is that the codec does employs high data compression rates. As a

result, I had to be very careful with when exposing the image: too light and the data would 'burn out' and too dark and the digital compression would 'block up' and become extremely apparent in the shadows and mid tones of the images. Another limitation was that the camera was incapable of shooting at other speeds than 23.976 fps; I had hoped to shoot the majority of the memories at a higher frame rate to create a dreamy, slow-motion effect. Despite various attempts to digitally slow down the footage during editing, I was unable to find a suitable process which maintained the quality of the images, and so I abandoned slow-motion and returned to 'real time' for the remainder of the editing.

An unexpected visual theme developed during the shoot itself which significantly added to the flow of the piece: while reviewing the first three days' footage, I realized that I had been unintentionally shooting coverage of hands touching objects. In each of the scenes, there was some sort of physical interaction between a thematic driver and the characters: the pocket watch, for instance, in scenes A-02 and A-04; the Baby's hands in D-01 and D-02; the steering wheel of the car for the B-sequence. It had been, in all honesty, a 'bit of business' for the actors to motivate movement and focus in the frame, but it read as something more profound. The principal interaction with an iPad is its touchscreen interface which, when combined with the hand footage, provided a thematic parallel between the audience's experiences of physically dragging their fingers over the tablet surface to the act of touching an object. Touch is ultimately a temporal sense: but we 'memorize' certain textures. In story, touch provides the motivator for the memories themselves - just as the audience touches the iPad to generate the story, so the objects Nicholas touches within the film generate meaning for him. In the end, the footage was shot over five half-days, with one re-shoot day to take advantage of improved natural lighting and improve on performances. Upon returning to Toronto, I set immediately to the editing process.

Putting it All Together, Taking it All Apart

As I began the initial assembly of the story, I was encouraged by the tone and style of the film, which had been edited according to the script breakdown. That said, the running time of this version ran close to eleven minutes: far too long for encouraging audiences to return two or three more times to watch alternate versions. As the film took shape, I made some attempts at compressing the story through experimentation with windowed frames, following Friedberg's multiple plane theory and *Soft Cinema*'s presentation structure. I became dissatisfied with the results, however, when I reviewed these edits: when the images were reduced or altered and then played on an iPad screen, there was a 'muddying' of the overall presentation which felt bitty and discordant. Additionally, I had composed the frames while shooting with the entire iPad screen specifically in mind, which meant that in dividing the frame, I was omitting important visual elements. As a result, I eliminated the 'windowed' editing technique and returned to using exclusively full-frame versions of the footage for editing.

A critical step in reducing the running time of the piece was to cut according to the emotional content of the story and to place that above all other editing components. In the initial assembly, one of the major factors which contributed to its length was that some of the sequences followed a linear path of cause and effect: the introductory scenes (A-01, the selection of the food from the fridge sequence and A-02) ran close to three minutes before the first major narrative branch arrived. While I was satisfied with the establishment of the mood and tone of the story with this sequence, there a lot of needless information which was being transmitted to the viewer: Nicholas enters the kitchen, walks to the fridge, contemplates at the door and finally chooses some food (or nothing), eats it, and exits the kitchen. In response to this, I created a version of the edit which only used the essential narrative elements. This version also felt discordant: the story was in place but there were no real emotional links to engage the audience. In response to this version, I passed over the edit again to strike a balance between essential narrative elements, cues for the audience to help impress mood and tone, all the while being extremely mindful of the running time of each sequence block to keep the overall running time as low as possible.

As far back as the first draft of the script, I had been defending the first narrative choice for the audience: the food in the fridge sequence felt unmotivated against the rest of the story and since it held no real narrative impact, it was suggested multiple times to eliminate it. The sequence was nearly cut during production: a significant amount of time was spent shooting the footage for what would only amount to ten or fifteen seconds of screen time.

I was encouraged, however, when I began testing the film once the project was assembled: I had long been concerned with the audience growing bored of seeing the same introduction over and over without variation, disengaging them from the narrative and thus losing the dramatic impact of the story. The subtle differences between the sequences initially seemed banal: upon first viewing the project, the fridge sequence appeared appear simplistic (and it is!) but the 'narrative payoff' of including it did not rely on its being a critical part of the story - rather of the experience as a whole. A viewer's first screening of the work would be straightforward: it is, simply, a short film. Subsequent viewings maintain the completed narrative format, however the changes in the fridge sequences quickly pointed to the audience as if to say, 'this story is different from the one you just saw,' and thus the invitation to further explore the narrative possibilities invites repeated viewings.

Chapter 8 Reflections & Future Directions

An Audience of One held many valuable discoveries for me, both in procedural and theoretical capacities. While I had begun my study with the intention of generating an interactive narrative experience which would speak to the capacities of the technologies, I found myself instead turning to the *function* of interaction within the scope of a story: a subtle, yet pivotal, difference.

Reflecting on the final piece, the principal thrust of the work has been designed to incorporate themes surrounding memory and the structure of meaning. The number of views and the unique paths taken through the labyrinth affect the viewing order which, in turn, does affect the relationships one takes from the overall experience. While I had intended the narrative to run a complete circuit (which played all possible variables in a linear timeline but with the capacity to shuffle the narrative blocks), I prefer the development of this narrative 'loop' which is generated by having eliminated the ending. Nicholas caught in a sort of event horizon, where time has no formal representative; he is able to freely explore the things which are important to him. Instead of looking to present a complete narrative with multiple paths or actions, I feel that the goal of the work is a more contemplative exploration of the feelings, anxieties, and memories of those final moments in one's life. As one screens the work again and again, those narrative blocks build a contextual relationship to one another which applies more meanings the more one views it.

A large part of the aim of the overall project was to explore meaningful interactions between the audience and that contextual relationship: as the creator of this work, I am asking viewers to participate in choosing the structure in order to convey a message. Rather than making multiple attempts to generate entirely divergent story lines or implementing a user-generated storyline, *An Audience of One* is meant to give the impression of choice to the audience, but in truth, the interactive elements are not actual options in the truest sense of the word. These interactions are there to emphasize the meaning through the presentation format and its relationship to the story.

While this is a work which blends narrative structure and technology, I feel that I should state that this is not a platform on which any story could be told. The interactive and narrative structure are entwined and have been developed with this specific relationship in mind: within the work, the format generates meaning to the story but only to *this* story. Rather than lay another story into this existing structure, I feel that

future developments which build on this type of interactive system should be wholly developed as an integral part of the story itself.

Another revelatory aspect of this study is that, while meaning can be generated through observation and analysis of a semiological vocabulary generated by a work's creative team, it is not the responsibility of the audience to actually assemble the story from incomplete narrative blocks: this is the job of the storyteller. Traditional film and television narratives constantly expand the means by which a story can be told: with interactive cinematic experiences, the interface and the delivery method must also fall within the tone of the narrative. Manovich's *Soft Cinema* is an example of a narrator providing the story blocks but withholding the contextual framework which gives them meaning: the visual elements have been assembled and organized, but the overall framework by which we, the audience, access this database must contain some form of thematic reference - the sjuzet, the structure. Piaget (1970) and Chatman (1978) argue that anything less complete sense of structure, comprised of 'wholeness, transformation and self-regulation' (Chatman, 1978, 21) is simply an aggregate, not a structure.

As for this work, I strove for a presentation format that invites audiences to participate in some contextual elements of the presentation order, but did my best to maintain some form of a structure by which a viewer could quickly and efficiently comprehend both the fabula and sjuzet. This agency is not necessarily aimed at the user, but rather at the story. Rather than focusing exclusively on the presentation, I developed the interactive components to curate the story for an audience without them necessarily being aware of the conscious choices they are making: hence the invisibility of the choices through the labyrinth portals and the emphasis on creating a seamless viewing experience.

Reflections on the Process

If I am to be honest with the experience of creating the work itself, I should confess that I feel that the final piece suffers due to the lack of a creative team. I would have much preferred to collaborate with a scriptwriter and director, as I am not an expert in either discipline. As a screenwriter, I feel that the story is too personal: that is, as I had conceptualized it based on semi-autobiographical experiences and ideas (adjusted, of course, for self-preservation if nothing else), I felt too 'attached' to it, and wrestled with various versions of the narrative before settling on the production draft (Appendix B). I entered the pre-production stage with a clear understanding of the practical requirements to actually *make* the movie elements, drawn from my experiences as a cinematographer. Where I feel that I suffered most is in the direction of the filmed elements. I have long admired the directors with whom I've collaborated, whose understanding of story structure, characterization and mise-en-scène provide the groundwork on top of which I normally build the visual components. They are crucial collaborators -more than just sounding board for

my cinematographic ideas- and were sorely missed during the filming of this project. This is not to say that I am not proud of the work, but rather to acknowledge my incapacity to perform well within multiple roles of the production team.

Another detriment which I felt compounded the actual photography of the work was the timeframe. In developing the first iteration of the project, where I had planned to use footage from *the Blessing*, I established a timeline which would have allowed ample time to test and revise the structure and interactive elements. In abandoning *the Blessing* and resolving to create an entirely original work, I faced a significantly reduced timeline to what I would have had if not for the false start. That said, in the end I was able to bring *An Audience of One* to an acceptable level of development. A few more grey hairs, but I am proud to have accomplished the task.

One benefit which came from being the only crew member on the shoot was that I was able to adapt the script and locations without too much concern in changing the plan. Normally, manoeuvring a film production, as I did by moving the shoot to Manitoba, is a huge consideration done only under extreme circumstances. However, I was working as the producer, director, writer, editor and cinematographer, the overall impact of the move was relatively minor. In Winnipeg, I was able to adjust to the environment and determine the best course of action for the space and time I had to shoot. This flexibility led to a more wholesome perspective on specifically *what* I was shooting, which in turn did positively affect the quality of the footage itself.

Another important observation which was noted during the final assembly of the work is that there was a preference on my part to vary the narrative in relation to itself; however, as with the case of the fridge sequence, I realize now that I could have constructed more variables which relate to the *experiential* elements rather than the story itself. Because this viewing experience includes more than just a single screening the film, narrative variations could also refer to the act itself of viewing to manipulate audiences' expectations. Without realizing it at the time, I wrote the script to be self-contained and reference itself exclusively, but upon reflection I could have place more emphasis on the repeated viewing aspects in addition to the story itself.

The new addition to the production team, the programmers who coded the project, obviously played a critical role in the development of the interface. Their insights improved more than just the layout and design: they added thematic components to the narrative structure and improved the relationship between the story and the form. There was a significant learning curve on my part to adapt the conceptual interactions into tangible interface designs, which was at the request of the programmer: while it was a challenge to bring myself to their level, I was glad to have done it. In future projects, I believe they will be as integral

to the development of a project like this as the director, producer, cinematographer or editor are to traditional cinema.

Future Directions

An Audience of One is meant to be a standalone work which exemplifies the bridging of interactive form and story structure; something which I have, to date, not seen demonstrated in this way among other works. It is my intention to continue the development of this type of storytelling through other stories and other platforms.

I am interested in exploring the possibilities of incorporating sensor data from mobile tables as inputs for future projects, although I must admit that my knowledge of using sensors is minimal (to say the least!). Over the course of my studies at OCAD University, I have been exposed to some of the potential applications and am intrigued by their possible inclusion as interactive elements. Some of the projects I examined while researching this thesis did provide some real-world examples of sensor incorporation, but I felt that those attempts were built *around* the sensor's inputs, rather than *incorporating* them into the narrative structure. These are still early days, though; before long we will see stories being told which seamlessly integrate sensor data on thematic and contextual levels.

Ultimately, I plan to continue working with interactive narrative and further developing the complexity of both interactivity and storytelling by fusing technology and story.

Chapter 9 Conclusion

At the outset of my studies at OCAD University, I was keen to explore the developing practices and emerging technologies which are revolutionizing storytelling. Upon reflection of the two years and thousands of hours spent studying trends, technologies, theories and practices, I'm not sure that I learned what I expected to. What I discovered instead is that the field of interactive narratives is broader than I'd ever considered possible; the practices as diverse as the artists and technicians that create them and the possibilities as boundless as the potential for the future will allow. This document represents some of my learnings and ideas and a very small part of the emerging interactive storytelling experiences.

Through exploring techniques and practices while developing *An Audience of One*, I have attempted to generate a meaningful relationship between the function and form of interactive narrative drivers with the cinematographic tradition. By incorporating the story structure as a critical interactive component I have begun to explore the evolved relationship between the fabula and sjuzet -the story and the form- which can be presented using technological innovations.

I conclude that developing narrative experiences as a platform in response to interactive capabilities is, of course, technically possible. However, I believe that to only consider this type of interactive narrative experience is ultimately detrimental to storytelling: we must instead create works with symbiotically relate interaction with narrative. I do not believe that a universally applicable framework would be effective as a 'catchall' for generating interactive stories: rather, the form must adapt to the story through the author who is developing the work. The tools which generate the form and parameters of interaction are just that: tools. It remains the responsibility of the storyteller to craft the narrative structure and find the appropriate device to present it: for the past century these platforms have been cinema and television, but we are now in the midst of an explosion of possible forms and iterations through which a story might be told. Just as in the cinematographic tradition, where no single close-up is exactly the same, so must the interactive elements which contextualize the narrative be specific and reflective of the story itself. Technological developments will present exciting new storytelling tools to the narrators, directors, producers, animators, programmers, editors and cinematographers, who will in turn tell us stories in ways we could never have imagined.

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Appendix A Reflections on Non-Linear Montage via Steven Soderbergh & Terrence Malick

If the root of this interactive cinematic experience is in cinema, it is important to examine examples which implement non-linear storytelling within the context of traditional cinema. As such, works by two prominent filmmakers, Steven Soderbergh and Terrence Malick, are deconstructed in order to better understand potential approaches to montage.

Montage is often overlooked by new media theorists who are fusing cinematic and technological theories. Its role cannot be overstated in developing the cinematographic language as a whole: cinema as we know it would simply not exist. Editing is the unique trait of cinema: it is the wholly original component of the art which does not draw from other disciplines. As such, it is critical to understand its principles in order to discuss the future of cinema's direction.

Almost immediately following the invention of cinema, filmmakers around the world began to experiment with the form, as Gance did with *Napoléon,* as well as structure. Throughout the first fifty years of the craft, increasingly complex technical developments trained audiences to accept and expect certain combinations of shots and sequences that would be logically organized. If Picasso famously said, 'I do not paint what I see, I paint what I think,' then it was during this time that the filmmaking community could have said, 'the cinema does not to recreate reality; film represents it.'[29]

The Russian Formalists were Among the progenitors of montage theory: their influence has been felt in every genre, market, avenue and style of filmmaking. Vsevolod Pudovkin, in his landmark work *Film Technique and Film Acting* (1954), opens the book with a declaration that,

> *'The foundation of film art it editing. … It must be borne in mind that the expression "editing" is not always completely interpreted or understood in its essence. By some the terms naïvely assumed to imply on a joining together of the strips of film in their proper time-succession. Others, again, know only two sorts of editing, a fast and a slow. But they forget - or they have never learnt - that rhythm (i.e. the effects controlled by the alternation in cutting of longer or shorter strips of film) by no means exhausts all the possibilities of editing.' (xiii)*

[29] This has been attributed to many directors, filmmakers and theorists; this iteration comes from cinematographer Gordon Willis, ASC: http://www.indiewire.com/article/5-tips-from-cinematographer-gordon-willis.

Pudovkin, reflecting on his own works as well as contemporaries Sergei Eisenstein, Lev Kuleshov and Charlie Chaplin, cites the central tenet of montage theory: the aggregation of images (where those images have been consciously and purposefully created through the careful analysis of the written content, photographed with composition and intent, and assembled through a rigorous examination of rhythm and chiseling away the excess to provide precise clarity) are applied to generate meaningful relationships when contextual relevance is applied.

This effect was perhaps most famously demonstrated by Lev Kuleshov by what has become known as the Kuleshov Effect. Using a close-up shot of actor Ivan Mosjukine, Kuleshov intercut images of unrelated stimuli with the actor's face: a bowl of soup, a crying baby, a coffin, and so on. 'Afterward the audience praised the actor's performance, remarking on how well he displayed paternal love, hunger, mourning.' (Boorstin, 1995, 65) The trick was that there was no variation on Mosjukine's face: the close-up had been duplicated and reinserted into the film, so that the shots were identical. Kuleshov concluded that by purposefully constructing the relationship between the actor and the objects, an viewer establishes context, which determines meaning. But, perhaps unwittingly, 'Kuleshov's experiment illustrates a yet more fundamental truth about the psychology of vision: people have an innate empathic instinct. If we see a face we have a natural, automatic impulse to divine what the person behind the face is feeling, to test that emotion inwardly to see if it suitable and, if it is, to taste it as our own. If it's not there, as in the Russian experiment, we will even try to fill in what's missing.' (ibid.)[30]

Pudovkin outlines five methods which control the 'psychological guidance' (1954, 47) of the spectator: contrast, parallelism, symbolism, simultaneity and leitmotif (reiterating the theme). These elements should, by their measure, be incorporated into all components of the production: from the beginnings of the screenplay to the photography, the direction to the editing. The audience is 'led' by these elements which ultimately assemble the contextual relationships and thus, the meaning from the work. But do these methods, while certainly applicable during the classical formation of the cinema, have a place in modern storytelling?

The answer is yes and no. While the Pudovkin editing methods provide a solid, psychologically-based approach to editing, the mental, thematic and perceptive capacities of audiences have greatly evolved in the fifty years since *Film Technique and Film Acting* was originally published. Walter Murch, in his work *In the Blink of an Eye* (1995, 17-20), outlines his six rules of editing as a hierarchical set of priorities:

[30] Boorstin (1995) uses the Kuleshov experiment as his initial proof of the viewer's Vicarious Eye, one third of his argument that cinema should satisfy three critical 'eyes' in order to create meaning: the Vicarious Eye, the Voyeur's Eye and the Visceral Eye, in his book *Making Movies Work*.

Emotion	*51%*	*Eye-Trace*	*7%*
Story	*23%*	*Two-dimensional plane of screen*	*5%*
Rhythm	*10%*	*Three-dimensional space of action*	*4%*

Murch assigns a quantifiable value as the quantifier for each of his rules - although it may be presumed that Pudovkin authored his methods within the same general structure, it cannot be confirmed. The main distinction between the two is that Murch, by his own admission, places these values with a sense of whimsy, 'but not completely: note how the top two on the list (emotion and story) are worth far more than the bottom four (rhythm, eye-trace, planarity, spatial continuity), and when you come right down to it, the top of the list -emotion- is worth more than all five of the things underneath it.' (Murch, 1995, 19) Whereas Pudovkin is principally concerned with maintaining psychologically 'true' editing styles, Murch is much more concerned with the *emotional* context to the edit: an appeal to the audience for emotionally connection, rather than a logical one.

Nonlinear Montage

In *the Limey* (1999), director Steven Soderbergh follows Wilson (Terrence Stamp) as he searches for his daughter's killer. Although it appears to be a revenge movie, it is in fact a complex character study about remorse, grief, guilt and the responsibility of one's actions. Among many notable elements of the film, the montage is perhaps its most arresting: the entire narrative plays out as a long series of memories, reworked and visualized through Wilson's mind (although the lynchpin shot which solve the structure is hidden until the final moments of the film, and even then one cannot confirm what has happened as real or imagined, revenge fantasies or delirious melancholy of a grieving father). Soderbergh's use of editing and mise-en-scène alludes to the nature of memory: dialogue is presented through a seemingly abstract, haphazard collage of unrelated scenes which somehow maintain a consistent rhythm, things are half-remembered, moments are blurred one against the other. 'Over and over … Soderbergh cuts to a shot of his hero, Wilson, on board a commercial airline flight. The more you see it, the less you're sure whether Wilson is coming or going. And watching him move deliberately, unstoppably through Los Angeles, stalking the man he's sure is responsible for his daughter's death, you get the sense he hasn't even landed.' (Taylor, 1999)[31]

This is not the first time that nonlinear montage has been applied to elicit emotional responses and sympathies with characters: Abel Gance's *J'accuse!* (1919) uses similar techniques to bring dead French World War I soldiers home through to haunt Jean Diaz (Romuald Joubé). In *Rashomon* (1950), Akira Kurosawa applied flashback sequences to explore the nature of memory and guilt: a priest holds court over perspectives of a samurai's murder as told by the participants. The stories are contradictory and never actually

[31] Another revealing interview with Stamp sharing his experiences of making the Limey can be found at http://www.-space-age-bachelor.com/archives/interview-with-steven-soderbergh-one-scene-of-the-limey]

verified, as each witness -including the murdered samurai himself- recount wildly different versions of the events.

A more recent application of the technique of nonlinear montage technique is presented by Terrence Malick in his 2011 Palme D'Or-winning film *the Tree of Life* (2011). The story follows a free-flowing series of memories, imaginings and recollections by Jack (Sean Penn and Hunter McCracken) as he remembers his childhood on the anniversary of his younger brother's death. As part of this narrative,

> *'Jack's story plays out within the vast beauty and the recursive rhythms of the universe itself. His human struggles become part of the cosmos' vast creative and destructive powers, as he begins to sense his connections to the dust of the stars, to the prehistoric creatures who once roamed the earth and to his ultimate destiny. It is a deep love story about how love emerges from life and life emerges from love.' (Jones, Martinez, Narayan, 2011, 3)*

Malick's previous works, particularly *the Thin Red Line* (1998) and *the New World* (2006), employ the same type of nonlinear structure as is found in *the Tree of Life*. In all three cases, the narrative style falls squarely within Walter Murch's first three rules of editing: the cuts between shots must satisfy the *emotional* context that the editor believes the audience should be feeling, they must satisfy a narrative progression (does it advance the *story*) and *rhythm*: does the cut arrive at the appropriate, or 'right' moment?[32] (Murch, 1995, 17) Murch himself has discussed how closely linked these editing principles are and how inexorably they must relate to one another, however, the emotional context of the edit remains the top priority. Taken in chronological order, the three films can be seen as explorations towards finding this emotional resonance: *the Thin Red Line* utilizes multiple narrators and substantial voice-over narration to contextualize the action onscreen against the underlying subtext. Soldier's soliloquies expose their fears, desires and passions which collectively make up the unified voice which points to 'All things shining.' The onscreen dialogue, to some degree, reflects the poetic souls of the characters, but it is only in the quiet moments, the internal moments, where the true nature of the effect of the War is felt and transmitted to the audience.

The New World, on the other hand, departs from tying the voice-over narration to the themes of the film: insofar as there are many voice-over elements throughout the narrative, the dialogue seems to recede in favour of environmental soundscapes and stunning visuals, played out in loose narrative structure yet firmly planted within the context of the emotional journey taken by various characters. The characters amble pensively through forests and marshes, languidly glance towards the sun breaking through leaves, and float across and through nature as we glance from one character to the next.

The Tree of Life, at first glance, seems to have completely abandoned the relationship between on-screen story and logical editing techniques. However, one finds that the montage is clouded, but crafted with defi-

[32] The remaining rules, as well as much more insight into the art of editing, can be found in Michael Ondaatje's *The Conversations: Walter Murch and the Art of Film Editing* (2002).

nite purpose: instead of a linear narrative trajectory followed by most filmmakers, Malick has turned exclusively to the emotional journey of Jack and his memories. The film draws heavy allusions to Malick's own childhood; one wonders if the authenticity of those feelings the filmmaker has experienced informed his direction and push to, as David Denby (2011) put it, capture 'spirit'.

> *'The exploding novae are what we should see if we could—if we had the right vantage point, or if we had enough curiosity and bravery to face the elemental facts of the universe. This use of the telescopic sublime is overwhelming, but, in the midst of awe, a belligerent impression begins to form: a movie that is about everything can't be about anything in particular. That impression, however, turns out to be false. …*
>
> *'But if the shots in "The Tree of Life," strictly speaking, don't match, you can certainly see everything. The conflict between the father and his oldest boy, out there on the lawn, coheres into physically detailed, dramatically overwhelming sequences. The slight gaps in visual continuity are like pauses for a breath in fervent speech. The moods, the colours, the tonalities are absolutely continuous, the emotions fully worked out. If Malick has reinvented the sequence, he has also reinvented the frame. … The sense that no act is meaningless, the certainty that we are part of a boundless and endless community (however alone we feel much of the time) is shared by mystics and sentimentalists. Yet Malick makes it palpable.' (Denby, 2011)*

Appendix B An Audience of One Final Draft

This is the shooting script for the interactive exhibition piece used by the author. While the finished work has further evolved in dialogue, theme and other practical considerations, this is the 'shooting script' which provided the foundation of the project through pre-production and during the filming of the work.

A note about reading this script: it is meant to be presented in various orders, however the through line of the story is the 'A' story (in the LOCATION SLUG LINE). The structure is determined by the viewer using a set of concentric dials which, depending on the settings decided by the viewer, will generate different story lines.

FADE IN:

A-01: INT. LIVING ROOM - NIGHT A-01

The stylish, if sparse, apartment is dark, save for a few lamps which cast small dots of light. NICHOLAS (50's, banker), his buttoned shirt loose at the collar, stands silhouetted against the street lamps outside, speaking into a telephone.

NICHOLAS
Oh! I haven't thought of that in years. I remember so many things, but not that.

Nicholas hangs up the phone and rummages through the fridge. Opening the door amidst the rest of the contents, he sees:

- A beer
- A package of cold cuts
- A half block of cheese
- A jar of olives

A-01A: OPTION A A-01A

He opens the beer, takes a sip and leaves it on the counter as he EXITS the room.

A-01B: OPTION B A-01B

He opens the cold cuts and shoves a slice in his mouth. He leaves it on the counter as he EXITS the room.

A-01C: OPTION C A-01C

He unwraps the cheese and takes a bite without cutting it. He leaves it, opened, on the counter as he EXITS the room.

A-01D: OPTION D A-01D

He opens the jar of olives, fishes out a few, then pops them into his mouth. The jar remains on the counter as he EXITS the room.

A-01E: OPTION E A-01E

He stares for a moment at the fridge, then closes the door and EXITS the room without taking anything.

A-02: INT. DEN - NIGHT A-02

Nicholas settles into a chair. He looks over to a table beside him: mementos, reminders, knick knacks are haphazardly placed on it. He looks them over, then removes his WRISTWATCH and examines it tenderly.

VOICE (o/s)
It's dark in here.

NICHOLAS
Is it? I'll turn on a light.

VOICE (o/s)
No need. We're alone in here. Just us.

The NICHOLAS looks across the room: there, sitting in a chair across from him, is HIMSELF: this twin is dressed in a wine coloured shirt, his hair neat, his demeanour calm with a hint of violence. This is DEATH.

DEATH
Supporting. I'm supposed to be supportive and nurturing now. Do you remember how it was supposed to be? I do!

Nicholas says nothing.

DEATH (cont'd)
What are you thinking about? Are you completely alone in here? Why are you shutting people out? Tell me a story. Entertain me.

NICHOLAS
(pensively)
I have a few ideas.

DEATH
(interested)

Tell me.

NICHOLAS
A man walks to a refrigerator.

DEATH
Oh, come on!

NICHOLAS
A man answers a telephone. A man walks to a refrigerator. And he recalls his life.

ECU on the wristwatch face. The second hand sweeps, then holds...

A-03: INT. DARKNESS - NIGHT A-03

A face in the dark. We watch as the face morphs into a scream as the light trails the path Nicholas' face takes. The light draws out his bewilderment.

The second hand of Nicholas' wristwatch begins to sweep backwards.

A-04: INT. DARKNESS - NIGHT A-04

A face in the dark. Just a face, which stands in stark contrast to the surrounding black. The face recedes until it is just a speck, then blinks out of existence.

NICHOLAS (V.O.)
I think that was the time, the first time in my life, where I felt truly, absolutely alone.

A-05: INT. DEN - NIGHT A-04

Nicholas sits back, pensive. In the LIVING ROOM, the TELEPHONE rings. He glances at his watch: the time has stopped. He puts it to his ear - nothing.

NICHOLAS (v/o)
When the telephone rings, I wonder if the voice at the other end will tremble the way my wife's did.

NICHOLAS stands and EXITS the DEN to answer it.

NICHOLAS (o/s)
Hello? Who is calling?

DEATH is sitting in the chair. As the NICHOLAS passes, the chair is EMPTY. An open prescription bottle and a note that reads 'My Darling' is on the seat.

NICHOLAS (o/s)
Yes, I'm ready. What's that? Oh! I haven't thought of that in years.

FADE OUT (END OF FILM)

A-05A: CONTINUOUS - LIVING ROOM A-05A

We return to the living room, where we find Nicholas, collapsed on the floor, the telephone dangling from its cradle.

CUT TO BLACK. (ALTERNATE END OF FILM)

B-01: INT. DARKNESS - NIGHT B-01

DEATH (V.O.)
Do you remember that time in Michigan when you'd convinced yourself that you were dead?

Out of the darkness comes…

B-02: EXT. EMPTY HIGHWAY - NIGHT B-02

Repetitive lane divisions. Passing again and again in a pattern.

DEATH (V.O.)
How long had you been driving for?

NICHOLAS (V.O.)
A day and a half.

DEATH (V.O.)
Straight?

NICHOLAS (V.O.)
Straight.

B-04: EXT. EMPTY HIGHWAY - NIGHT B-04

It is night. The road is empty.

DEATH (V.O.)
What happened?

The interior and the exterior blend together. Hands on a steering wheel. The same tree passing by again and again, in time with the rhythm of the lane divisions. Clouds. Moon.

In the passenger seat, Nicholas watches NICK (25, a younger version of himself) anxiously gripping the wheel.

NICHOLAS (V.O)
There was this feeling of being in purgatory. The sound of the wheels rolling on the road. The way the sign came out of the fog. The dip in the hill. The sign that read 'Welcome to Michigan' over and over.

B-05: EXT. HIGHWAY - NIGHT. B-05

NICK stands alone beside the CAR, the turning light flashing on and off on his face.

NICHOLAS (V.O.)
I thought if I stopped on the side of the road and slept, would it still be night when I woke up? What if I never got home?

C-01: EXT. PARK BENCH - DAY C-01

NICK(25) curls up on the bench with a SARAH (25). Their legs are interlocked, her blonde hair dances in the breeze. Birds ride the wind.

NICHOLAS (V.O.)
Springtime. I never expected to know you as I did. There wasn't a hole in my life - I felt good. You gave me something I could never have expected to want. I remember your hair caught the light of the afternoon sun and I wondered if I had ever been aware of being able to love you so much.

CONTINUOUS - PARK

The bench is empty. Sarah is walking away. An overlaid image of her remains, burning itself out from the middle, like a negative being eaten.

NICHOLAS (V.O.)
Where are you now? Have you found what I couldn't give you?

C-02: EXT. FOREST PATH - DAY C-02

Footsteps in the snow. Long dark branches reach across the path. The sun makes the snow ultra reflective and light is everywhere.

NICHOLAS (V.O.)
I see myself. I see myself. I see myself. I am here. I belong here. I am happy here.

DEATH (V.O.)
Why? Aren't you happier in the world of men? Making deals? Winning? Where's your fire? Where's your Grand Statement? Your victory?

NICHOLAS (V.O.)
I don't have one.

D-01: EXT. RESIDENTIAL STREET - DAY D-01

The NICHOLAS (50's), walking languidly, looks to his hands. They're older than he remembers.

NICHOLAS (V.O.)
There are days, fewer and fewer now, where I revisit the street I grew up on. The canopy of tress. Baseball in the summer.

Nicholas passes CHILDREN playing baseball.

NICHOLAS (V.O.)
If I'm honest, sometimes I want to go back and see that child. Speak to him and warn him of what is to come. Would I make the same choices? Would I follow the same path?

Nicholas watches, then EXITS frame.

NICHOLAS (V.O.)
What difference would it make?

D-02: EXT. CHILDHOOD HOME - DAY D-02

NICHOLAS (V.O.)
I used to pass by the old house and look inside.There's a settee where the mirror over the dinner table used to be. Another family lives there now. I can only guess what they're like. How many times did I run up those stairs? Did they keep the notches Mother made in the kitchen doorway each year on my birthday?

E-01: INT. HOUSE - DAY E-01

A BABY sleeps in the arms of MARY (30's, dark hair).

NICHOLAS (V.O.)
My son. The softness of his cheeks.

The Baby grasps at the hand of his Father: NICK (25). His Mother places her ear to the Baby's chest, feeling its heartbeat.

DEATH (V.O.)
Do you remember how you used to look at him? Watch over him while he slept?

NICHOLAS (V.O.)
Yes.

DEATH (V.O.)
How does it feel, knowing now how little time he had?

NICHOLAS (V.O.)
(after a pause)
I speak to him in my dreams now. He is older: an adult. We talk and share stories. He is happy and I’m happy for him.

Appendix C Script Breakdowns & Production Notes

It is standard practice within the film industry to dissect the script in order to facilitate the actual production of the work. The following table is a hybridization of a 'one-line' breakdown and a more substantial script breakdown which was heavily relied upon for the principal photography of this work. The notes, which can appear cryptic, refer to practical and technical elements which are crucial in efficient planning the shooting schedule and technical co-ordination. The tables below are unaltered from the author's notes.

Sc.	I/E	LOC.	D/N	No.	SHOT	CHAR.	PROPS / SET DEC	NOTES
A-01	**INT**	**LIVING ROOM (NICHOLAS HOUSE)**	**N**	**01**	WIDE: N in apartment on PHONE	1) NICHOLAS	- telephone (old style with cord)	
	INT		**N**	**02**	CU: matching coverage for A-01:01	1) NICHOLAS	- telephone (old style with cord)	
	INT		**N**	**03**	WIDE: N moves to FRIDGE	1) NICHOLAS	- Fridge - A beer - A package of cold cuts - A half block of cheese - A jar of olives	
A-01A	**INT**	**LIVING ROOM (NICHOLAS HOUSE)**	**N**	**01**	MED: reverse on N as he opens FRIDGE	1) NICHOLAS	- BEER	MATCH SEQUENCE: SHOOT w/ A-01B, A-01C, A-01D, A-01E
	INT		**N**	**02**	WIDE: MATCH A-01:03	1) NICHOLAS	- BEER	MATCH SEQUENCE: SHOOT w/ A-01B, A-01C, A-01D, A-01E
A-01B	**INT**	**LIVING ROOM (NICHOLAS HOUSE)**	**N**	**01**	MED: MATCH A-01A:01	1) NICHOLAS	- COLD CUTS	
	INT		**N**	**02**	WIDE: MATCH A-01A:02	1) NICHOLAS	- COLD CUTS	

Sc.	I/E	LOC.	D/N	No.	SHOT	CHAR.	PROPS / SET DEC	NOTES
A-01 C	INT	LIVING ROOM (NICHOLAS HOUSE)	N	01	MED: MATCH A-01A:01	1) NICHOLAS	- CHEESE	
	INT		N	02	WIDE: MATCH A-01A:02	1) NICHOLAS	- CHEESE	
A-01 D	INT	LIVING ROOM (NICHOLAS HOUSE)	N	01	MED: MATCH A-01A:01	1) NICHOLAS	- JAR OF OLIVES	
	INT		N	02	WIDE: MATCH A-01A:02	1) NICHOLAS	- JAR OF OLIVES	
A-01 E	INT	LIVING ROOM (NICHOLAS HOUSE)	N	01	MED: MATCH A-01A:01	1) NICHOLAS	n/a	
	INT		N	02	WIDE: MATCH A-01:03	1) NICHOLAS	n/a	
A-02	INT	DEN (NICHOLAS HOUSE)	N	01	MED: N settles into CHAIR	1) NICHOLAS 2) DEATH	- N Wristwatch - Knick Knacks - Photos	POSSIBLE SPLIT-SCREEN: shoot this right before the COSTUME CHANGE
	INT		N	02	CU: N looking at watch	1) NICHOLAS 2) DEATH	- N Wristwatch - Knick Knacks - Photos	Be sure to catch N's look to D
	INT		N	03	ECU: DETAIL of watch	1) NICHOLAS 2) DEATH	- N Wristwatch - Knick Knacks - Photos	
	INT		N	04	WIDE: Looking over N's shoulder to D	1) NICHOLAS 2) DEATH	- N Wristwatch - Knick Knacks - Photos	
	INT		N	05	MED: D's INTRO and dialogue	1) NICHOLAS 2) DEATH	- N Wristwatch - Knick Knacks - Photos	
	INT		N	06	CU: D's dialogue	1) NICHOLAS 2) DEATH	- N Wristwatch - Knick Knacks - Photos	
	INT		N	07	MED: N's dialogue	1) NICHOLAS 2) DEATH	- N Wristwatch - Knick Knacks - Photos	
	INT		N	08	CU: N's dialogue	1) NICHOLAS 2) DEATH	- N Wristwatch - Knick Knacks - Photos	
	INT		N	09	ECU: Watch face as time stops		- N Wristwatch	

Sc.	I/E	LOC.	D/N	No.	SHOT	CHAR.	PROPS / SET DEC	NOTES
A-03	**INT**	**DARKNESS**	**N**	**01**	CU: N's FACE screaming	1) NICHOLAS	n/a	N in BLACK. - long exposure stills
	INT		**N**	**02**	MACRO: second hand as watch winds back		n/a	SEE **X-01** for more stuff w/ watch
A-04	**INT**	**DARKNESS**	**N**	**01**	CU: N's ghostly FACE	1) NICHOLAS	n/a	be sure to get some kind of motion
A-05	**INT**	**DEN (NICHOLAS HOUSE)**	**N**	**01**	CU: Profile of N pensive.	1) NICHOLAS 2) DEATH	- N Wristwatch - Knick Knacks - Photos	
	INT		**N**	**02**	MED: straight on of N and WATCH	1) NICHOLAS 2) DEATH	- N Wristwatch - Knick Knacks - Photos	
	INT		**N**	**03**	MED: reverse of D as N walks by	1) NICHOLAS 2) DEATH	- N Wristwatch - Knick Knacks - Photos - Pill Bottle - Envelope	DISSOLVE between two shots w/ N's crossing frame.
A-05 A	**INT**	**LIVING ROOM (NICHOLAS HOUSE)**	**N**	**01**	WIDE: N's body slumped on the floor.	1) NICHOLAS	- telephone (old style with cord)	grab both in and out: the out might work best but just in case...
B-01	**INT**	**DARKNESS**	**N**	**01**	BLACK - NO IMAGE.		n/a	this will fade into...
B-02	**EXT**	**EMPTY HIGHWAY**	**N**	**01**	MED: the lane dividers in the headlights.			Shoot while travelling to Mtl?
B-03		**OMITTED**						
B-04	**EXT**	**EMPTY HIGHWAY**	**N**	**01**	CU: Hands on wheel	1) NICHOLAS 3) NICK	PICTURE CAR	Grab both N and NICK's hands on the wheel
	EXT		**N**	**02**	MED: looking out the window at the MOON		CAR	

Sc.	I/E	LOC.	D/N	No.	SHOT	CHAR.	PROPS / SET DEC	NOTES
	EXT		**N**	**03**	MED: wheels on road		PICTURE CAR	Put the camera near the wheel well
	INT		**N**	**04**	CU: NICK looking in the rearview, eyes only	1) NICHOLAS 3) NICK	PICTURE CAR	
	INT		**N**	**05**	CU: N looking in the rearview mirror, eyes only	1) NICHOLAS 3) NICK	PICTURE CAR	
	INT		**N**	**06**	MED: NICK looks anxious as he drives	1) NICHOLAS 3) NICK	PICTURE CAR	
	INT		**N**	**07**	OTS: looking from behind driver at N riding shotgun	1) NICHOLAS 3) NICK	PICTURE CAR	
	EXT		**N**	**08**	WIDE: Welcome to Michigan sign		CAR	Look out the window
B-05	**EXT**	**HIGHWAY**	**N**	**01**	MED: NICK standing by CAR	3) NICK	PICTURE CAR	
C-01	**EXT**	**PARK BENCH**	**D**	**01**	POV: looking at interlocked legs. Hair blows into frame	3) NICK 4) SARAH	PARK BENCH	
	EXT	**PARK BENCH**	**D**	**VIS**	Fill in the moments: explore the space	3) NICK 4) SARAH	PARK BENCH	
	EXT	**PARK**	**D**	**01**	Shoot through NICK's out of focus F/G to watch S walk away	3) NICK 4) SARAH	PARK BENCH	
C-02	**EXT**	**FOREST PATH**	**D**	**VIS**	Find moments	1) NICHOLAS	n/a	NICHOLAS doesn't have to be here, but it might be interesting to give him some presence in each moment...
D-01	**EXT**	**RESIDENTIAL STREET**	**D**	**01**	WIDE: the street, empty. Trees moving.	1) NICHOLAS	n/a	Ideally the snow is gone...

Sc.	I/E	LOC.	D/N	No.	SHOT	CHAR.	PROPS / SET DEC	NOTES
	EXT	**RESIDENTIAL STREET**	**D**	**02**	CU: Feet on the street.	1) NICHOLAS	n/a	Ideally the snow is gone...
	EXT	**RESIDENTIAL STREET**	**D**	**03**	CU: Hands	1) NICHOLAS	n/a	Ideally the snow is gone...
	EXT	**RESIDENTIAL STREET**	**D**	**04**	CU: N enters from L, looks past CAMERA	1) NICHOLAS	n/a	Ideally the snow is gone...
	EXT	**RESIDENTIAL STREET**	**D**	**05**	WIDE: KIDS playing BASEBALL	1) NICHOLAS 5) BASEBALL KIDS	- Baseball Bat - Ball	Ideally the snow is gone...
	EXT	**RESIDENTIAL STREET**	**D**	**VIS**	COVERAGE: KIDS playing ball	1) NICHOLAS 5) BASEBALL KIDS	- Baseball Bat - Ball	Ideally the snow is gone...
	EXT	**RESIDENTIAL STREET**	**D**	**06**	CU: N watching KIDS	1) NICHOLAS 5) BASEBALL KIDS	- Baseball Bat - Ball	Ideally the snow is gone...
D-02	**EXT**	**CHILDHOOD HOME**	**D**	**01**				
E-01	**INT**	**HOUSE (BABY)**	**D**	**VIS**	Coverage: BABY stuff	3) NICK 6) BABY 7) MARY	-Baby stuff	Aim for longer: it's a baby!
	INT	**HOUSE (BABY)**	**D**	**01**	CU: N looks at BABY	3) NICK 6) BABY 7) MARY	-Baby stuff	Aim for longer: it's a baby!
	INT	**HOUSE (BABY)**	**D**	**02**	WIDE: N against window w/ BABY	3) NICK 6) BABY 7) MARY	-Baby stuff	think high key Pieta
X-01	**INT**	**PHOTO STUDIO**	**D**	**01**	Various: WRISTWATCH in detail	n/a	- Wristwatch	shoot against black b/g

Appendix D Logic Path Schematic

Below is the logic path for the interface. The Input options correspond to the scene numbers and options of the script, where the results of the users' choices are organized and presented in movie's timeline.