

An Interactive Approach To Non-Linear Digital Storytelling: Memoradic Narrative.

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Abstract

Interactive digital platforms open up new and innovative spheres for storytelling. One such digital interactive structure, I have created, I call ‘memoradic narrative.’¹ *Memoradic Narrative* is a way of telling a fragmented memory story that mimics the process of autobiographical memory recall. Autobiographical memory combines fragments of memories stored in different parts of the brain and assembles these into ‘a story’ of the memory that we convey to another.

The interactive architecture of *memoradic narrative* allows the user/viewer to access fragments of story (video clips, animated stills with voice-over) embedded in a series of 360-degree panoramic scenes. The user/viewer is able to navigate between these scenes and can randomly choose embedded clips to view.

Once a clip has been viewed an icon representing the visited clip drops into a timeline at the base of the viewing screen. After a precise number of clips have been accessed the timeline fills with the remaining icons and becomes active. The timeline can now be played as a traditional linear movie with scripted beginning, middle and end; thus mirroring the process of autobiographical memory recall.

My example of this approach to digital history narrative is *The Shoebox*ⁱⁱ a recreation of a memory story complete with gaps and absences, inconsistencies and mysteries that allow the user/viewer to engage as both a participant and a spectator.

The Shoebox uses six 360-degree panoramic scenes to situate the documentary elements in time and place. Each scene describes a location as well as an era from the protagonist’s story. Styled as a biography that employs interviews, voice-over narration, re-enactments, animated stills, and primary source documents *The Shoebox* compels the user/viewer to engage with fragments of memory, treasured from a life of loss and absence, that become the threads from which a life story is woven.

Key Words: Digital storytelling, interactive, non-linear narrative, biography, oral history, memory.

1. Memory

The study of human memory processes has revealed that recollection is far more complex than we imagine. Whilst we tend to think of memory as a process whereby the rememberer retells an event as similar to playing back a video recording, research has shown that remembering is much more personal and fragmented than this.ⁱⁱⁱ

Some researchers stress the subjectivity of memory; how memories are changed, adapted, and even added to during the process of remembering. Others emphasise the fragmentation of memory storage and retrieval likening the process of memory capture, storage, and recall to a computer's ability to store and retrieve fragments of information from many different parts of a database.^{iv}

I have been interested in how multimedia platforms may be constructed to resemble the processes of memory and have explored methods for recreating this using interactive digital media. One of these explorations or applications designed to mimic the retrieval of fragments of memory brought together into a narrative that tells a biographical memory story I call 'memoradic narrative.'^v

2. Memoradic Narrative

My work explores the resemblance of human memory recall and computer data retrieval in the architectural design of *memoradic narrative*, specifically, with a biographical history documentary about childhood memory called *The Shoebox*.^{vi} In *The Shoebox* fragments of memory media (stored in different areas of the database) can be accessed randomly by the user within the project space. The user's interactivity assembles these fragments on a timeline that can be played, after a prescribed number of interactions, as a linear story. The story is a biographical history about piecing together fragmented memories. Consequently the form and the content of *The Shoebox* mimic one another.

The aim of the interactive architecture of *memoradic narrative* is for the user/viewer to obtain the linear, sequential, temporal narrative of the story through their non-linear, interactive actions of accessing media clips embedded within six 360-degree panoramic scenes. Thereby conflating linear and non-linear narrative forms within the same story space and mimicking autobiographical memory.

3. The Story of *The Shoebox*

The Shoebox tells the life story of an orphaned ten-year-old girl who loses both her parents in separate incidents and who is taken from her family home and put into a series of boarding houses until she is aged twenty-one. At the age of seventy-two she is given a shoebox of documents. These documents provide answers to many of her questions from childhood yet they also open up a number of other mysteries. This biographical story explores the fragility of memory; these most fragile of histories and investigates the interplay between non-linear and linear narratives in an interactive online environment.

When a WWI veteran, who has been blinded in one eye on the battlefields of France, drives his car into a tram, he is killed. He leaves behind a wife and three

daughters. It is 1937. Tragically, three years later the girls' mother also dies from a mysterious illness. The girls, Gwendoline 17, Marjory 14 and Heather 10 are put under the guardianship of their father's brother, Uncle Jock, a stock and station agent who lives in Kaniva, north-western Victoria, Australia.

A silence descends over the family as the old ones feel it is best not to upset the girls by talking about their unfortunate situation. Uncle Jock insists the girls are not to be separated. Yet it is WWII and accommodation of any sort is very scarce. So they are boarded in a succession of houses hundreds of kilometres away in Geelong.

For Heather, the youngest, it is a dozen homes in eleven years. With only scraps of information and two small photographs she ponders her origins and the cause of her mother's death for over sixty years until unexpectedly, at the age of seventy-two, she is handed a shoebox containing documents that fill in some of the pieces of her story.

A number of Heather's recollections from childhood have been verified by documents in the shoebox as well as by evidence obtained since the shoebox was discovered through archive research and through interviews with people present when Heather was a child. In fact Heather's autobiographical memory is 'surprisingly accurate'.

This description 'surprisingly accurate' is an expression used frequently by researchers of memory.^{vii} But why should this be? Isn't memory a retelling of events as they happened, a reiteration of how and when something occurred, sometimes including how the rememberer felt at the time? Well partly, yes. However, as we are all aware, different people witnessing the same event can give wildly differing descriptions of it. This is demonstrated daily by witness testimonies in courtrooms around the globe and the phenomenon was famously dramatised in the classic Japanese film *Rashomon*^{viii} where four people each have conflicting yet plausible versions of the same event.

4. Memoradic Narrative as Digital Storytelling

The story of *The Shoebox* is one of memory; fragments of memory treasured from a past of loss and absence, as well as suppositions created in the place of no memories. Contingent on the seminal work investigating memory and image of Michelle Citron^{ix} and Annette Kuhn^x this biographical history story unpacks the complex role of memory when it exists in a void. The biography positions memory as the most fragile of histories and asks; in a life of trauma and absence do childhood memories remain vivid into old age? What visible evidence do we need to make and maintain memories? Are documents of an objective, dry and fiscal nature, such as those found in the shoebox, more reliable than subjective memoirs or oral histories?

The Shoebox protagonist Heather lives a life with gaps and missing information. What she does know of her own past and the lives of her parents is

often only a portion of the circumstances and, as the contents of the shoebox reveal, some of her knowledge, beliefs and memories are mistaken or only partially correct. Mirroring the fragmentation of Heather's memory the non-linear sections of the interactive biography enable the user/viewer to navigate to small pieces of content contained in each scene. These memory and historical fragments are styled as flashbacks using a variety of media forms that best reflect the process of memory; single freeze frame, sepia video and still images, and sequences of stills.

The contents of the shoebox become the primary sources for many of the fragments of media that build up the story. They are documents circa 1920 to 1950 including: payment details and arrangements for the girls' board and the girl's parent's last Will and Testaments. Some of the items in the shoebox are ordinary documents - used chequebooks, old account books, old letters, receipts; the type of items we discard daily. Yet with the passage of time combined with the context of a lost history this everyday detritus is given the new status of sacred artefacts for Heather. As Margaret Gibson^{xi} explains in her book on memory and mourning, 'for the bereaved objects can transpire into quasi-subjects, moving into that now vacant bereft place.'

This biography also gives indications of how Australian society has shifted since the 1930s and 1940s and how notions of the domestic and the feminine have changed over this time. What were the typical roles for rural woman and how did this impact on a family with three girls? What choices were made for Heather as an orphaned girl of ten years of age?

The choice of 360-degree panoramic scenes follows a tradition in Australian cinema for stories set inside expansive landscapes. The wide vistas and open skies of the Wimmera, an area best known for growing wheat, display an ageless beauty as well as a sense of remoteness and isolation. Contrasting this are the interiors, which are tight, restrictive and unyielding. These are the domestic, feminine zones of lounge room, bathroom and kitchen. The male domains are exterior landscapes; wheat fields, battlefields, horse yards.

Even 'The Shed' an interior panorama that crosses the divide of time from 1950 to 2002 holds the girls' records tight – safe, but forgotten. Uncle Jock places the shoebox here in the early 1950's and then returns to his external world. His grandson Grahame McDonald happens to rediscover it over half a century later.

With the discovery of the shoebox, Heather began a quest to uncover more of her family history and to meet relatives long lost to her. Her trip to her birthplace in the Wimmera in 2002 when she received the shoebox was the beginning of these journeys that have taken her to the government archives, historical societies, cemeteries, the Australian War Memorial archives and the WWI battlefields of France and Belgium. I have accompanied Heather on many of these trips and have recorded her conversations and reactions as she uncovers the fragments of her history.

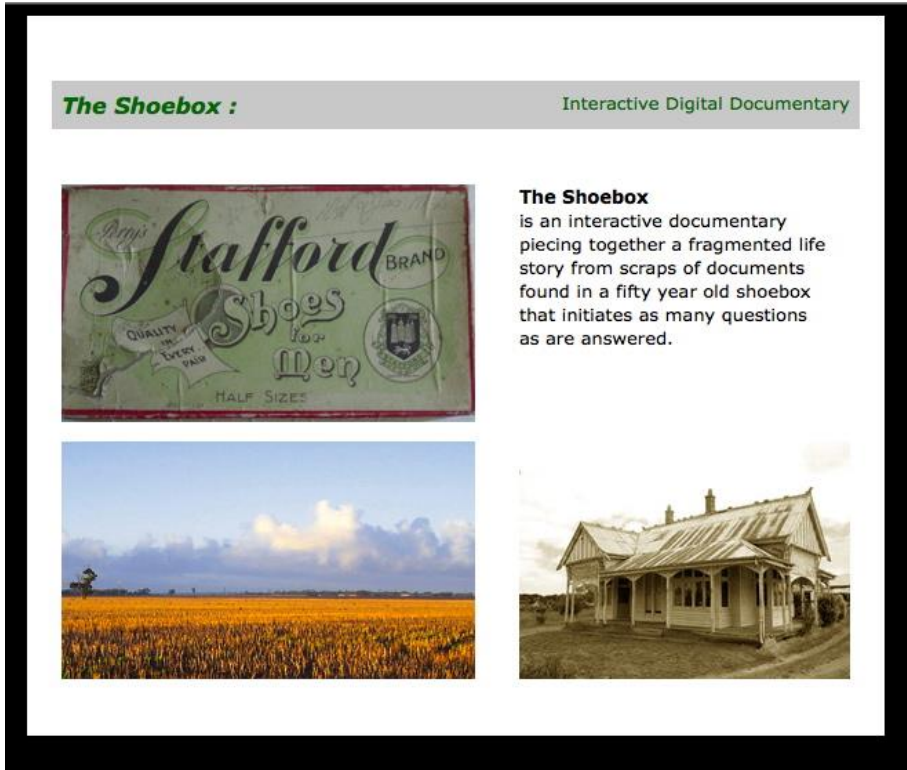


Image 1 - The Shoebox introduction page.

The Shoebox begins with an introduction page of three images and a brief preamble. Clicking anywhere on this page starts *The Shoebox Introduction Movie*, a 30-second video outlining the theme of the story. *The Shoebox Introduction Movie* begins with a pixelated background, a mosaic grid of muted earthy colours – green, grey, red, and brown over which the letters of the title ‘The Shoebox’ appear animated as if written by hand.

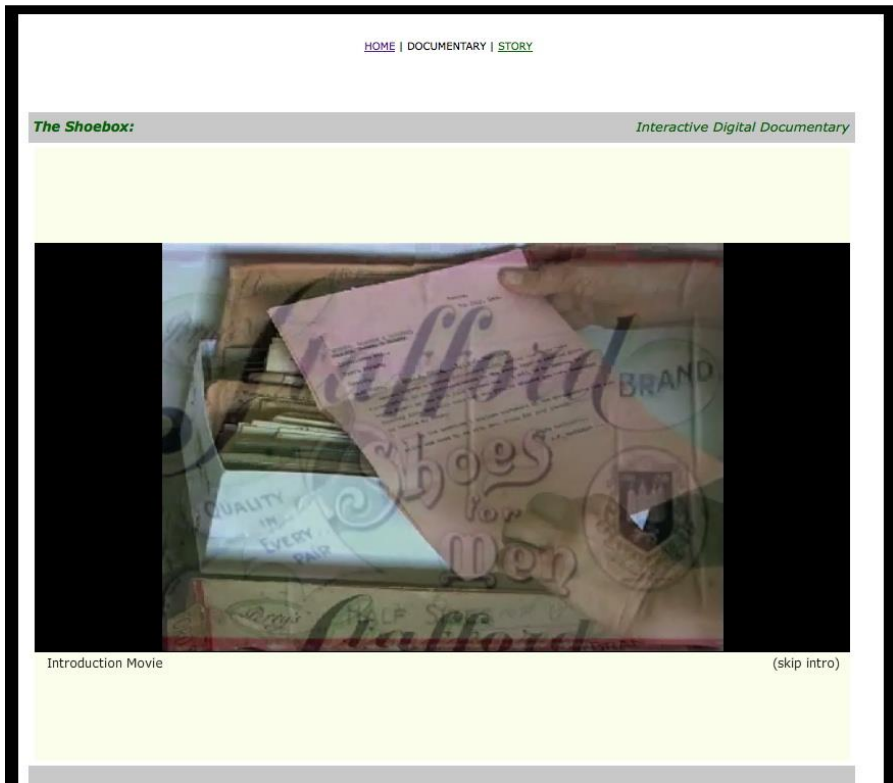


Image 2 - *Introduction Movie* video sequence.

Following the title is a montage of old photographs - a family group, young children, sepia video re-enactments and the words 'PLACE', 'FAMILY', 'BELONGING', dart across the pixelated coloured background. One sepia photograph shows Heather as a two-year-old sitting on the fender of a car, another is Heather in a sand pit taken approximately one year later. The other photographs in *Introduction Movie* are of Heather and her two sisters playing 'dress ups' in the yard or standing together for the photographer. All the photographs are taken in rural outdoor settings circa 1930s.



Image 3 - *Introduction Movie* video and still photograph montage.

The sepia video re-enactments show from right to left, (in order of appearance) the exterior of a house where items of clothing are being thrown from one of the windows onto the path outside, a man tossing a coin, and a pan from right to left inside a bedroom - all recreated as *circa* 1930. The photographs, video clips, and words appear haphazardly on the screen. After a momentary glimpse they are gone. The last montage image leaves the single word 'ABSENCE' slowly fading into the background in the middle of the frame.

Once 'ABSENCE' is completely dissolved the background pixels gradually come into focus to reveal a scanned image of the corner of the shoebox lid. Just visible on the top of the shoebox lid are the hand written letters 'DN & JAS McD.'^{xiii} Beginning as a tiny spec from the centre of this background image a full-view image of the shoebox lid spins towards viewer, followed by six full-frame still photographs of a woman's hands sorting through the shoebox of documents.

The audio track is a simple slice of looped piano music and a voice-over stating:

This is a story about family, about place, about a sense of belonging and a need to know.

It is about growing up as a girl in 1930's rural Australia, about breaking out on your own and travelling full circle to find answers to questions over sixty years old.

It is a story about a shoebox left in a shed for half a century and how it coincidentally is given to the youngest child of a tragedy, answering some of the questions that she has pondered over and over for the majority of her life.

This *Introduction Movie* sequence finishes with a three-quarter view of the shoebox lid. The wording on the shoebox lid reads:

Perry's - Stafford - Brand
Shoes for Men
Quality In Every Pair
Half Sizes.

This image remains static until the user clicks it, at which point the image changes to a wider shot of the same shoebox lid, the central viewing screen dimensions widen, and six small image icons emerge, as if from inside the shoebox image, and come to rest in a line above the central viewing frame. From left to right these image icons are – 'Bill's Gully,' 'Ryrie Street Geelong,' 'The Shed,' 'Abdullah Park,' 'Lounge Room,' 'WWI Stories.' Positioned under the central viewing frame a line graphic of thirty small rectangles appears labelled 'Timeline.'

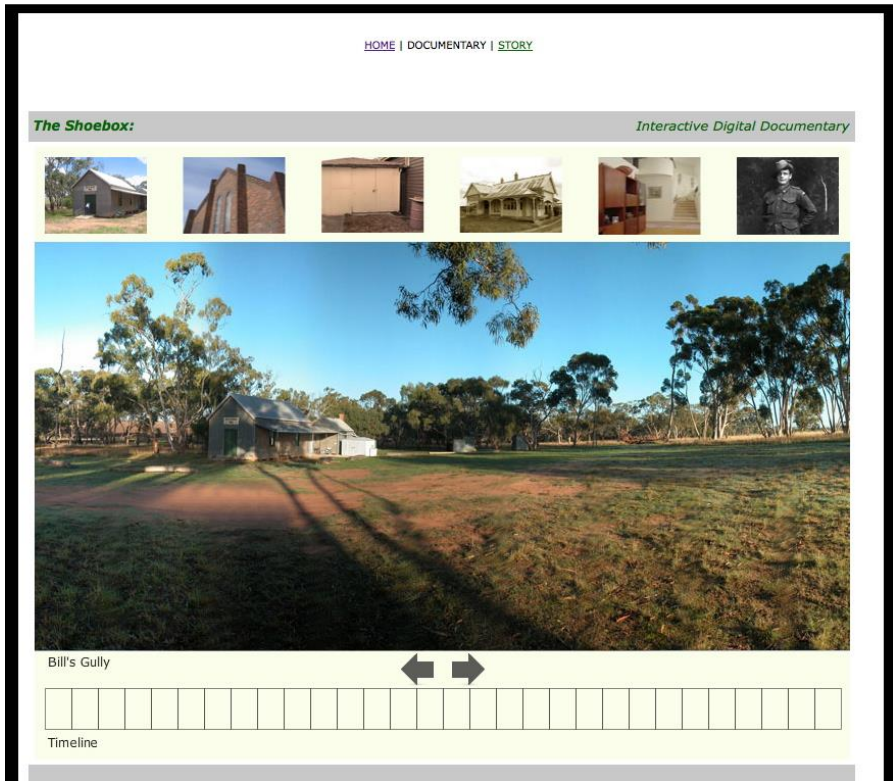


Image 4 - *The Shoebox* screen layout, six image icons each representing a 360-degree panoramic location and time period sit above the central viewing frame. Below this is a graphic of 30 small rectangles representing a timeline, currently empty.

Again the images and the computational space remain static until the user initiates an action. The six image icons above the central viewing frame are displayed in full colour and as the user/viewer rolls their cursor across them a tween or animated motion effect is stimulated which makes the icon increase in size indicating it is an active link within the interactive space.

Clicking any of these six icons changes the central viewing frame image of the shoebox lid to a 360-degree panoramic scene of the image icon clicked. A text field appears in the left hand bottom corner under the central viewing frame indicating which panorama is currently in the central frame – ‘Bill’s Gully,’ ‘Ryrie Street Geelong,’ ‘The Shed,’ ‘Abdullah Park,’ ‘Lounge Room,’ ‘WWI Stories.’

At this point the user/viewer can move around the selected 360-degree panoramic space by either, dragging their mouse through the panoramic image, resting their cursor at either end of the central viewing frame, or using the directional arrows that have appeared in the centre under the central viewing frame. As the user/viewer moves around the 360-degree panoramic scene yellow boxes of various sizes appear around objects in the space – a television screen, a framed picture, a toolbox, cupboard draws - to name a few. If the user/viewer ceases panning and the panoramic image remains static these yellow boxes, indicating hotspot links, randomly blink on and off suggesting they could, indeed should, be interactive.

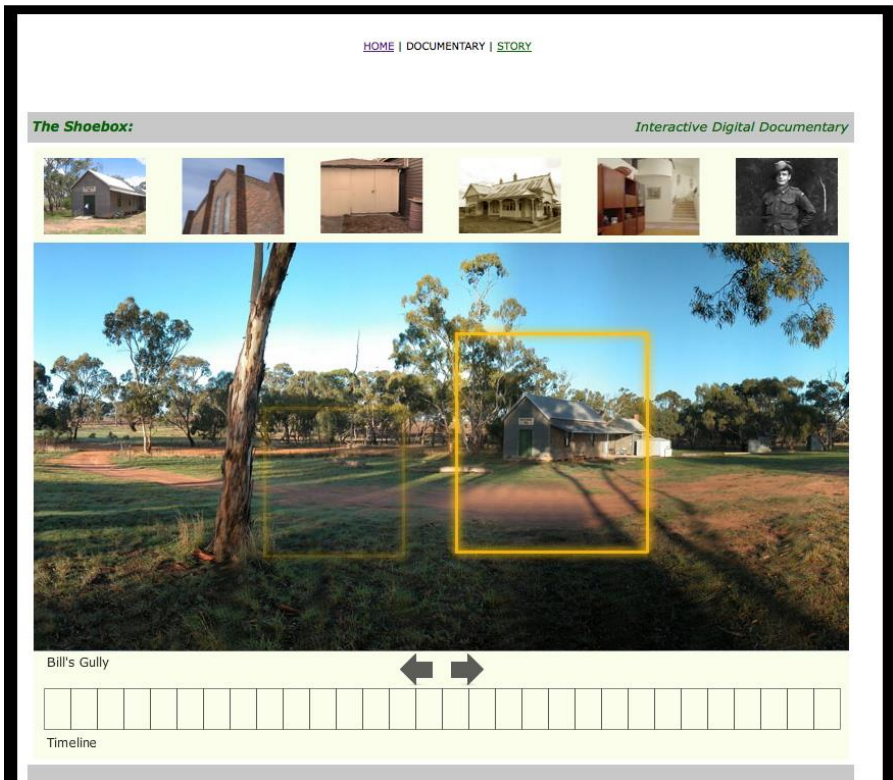


Image 5 - *Bill's Gully* panoramic scene with two yellow pulsing hotspots visible.

When the user/viewer clicks a yellow hotspot square the central viewing frame darkens and the selected embedded clip of media plays in a central position over the background of the panorama. Thin sections of the darkened panorama remain visible on each side of the embedded media clip. While the embedded media clip plays the user/viewer can use the control bar, positioned at the base of each clip (visible only when their cursor is inside the borders of the embedded media clip) to stop, pause, re-play, or toggle backward or forwards through the clip. The control bar is visible in Image 3.

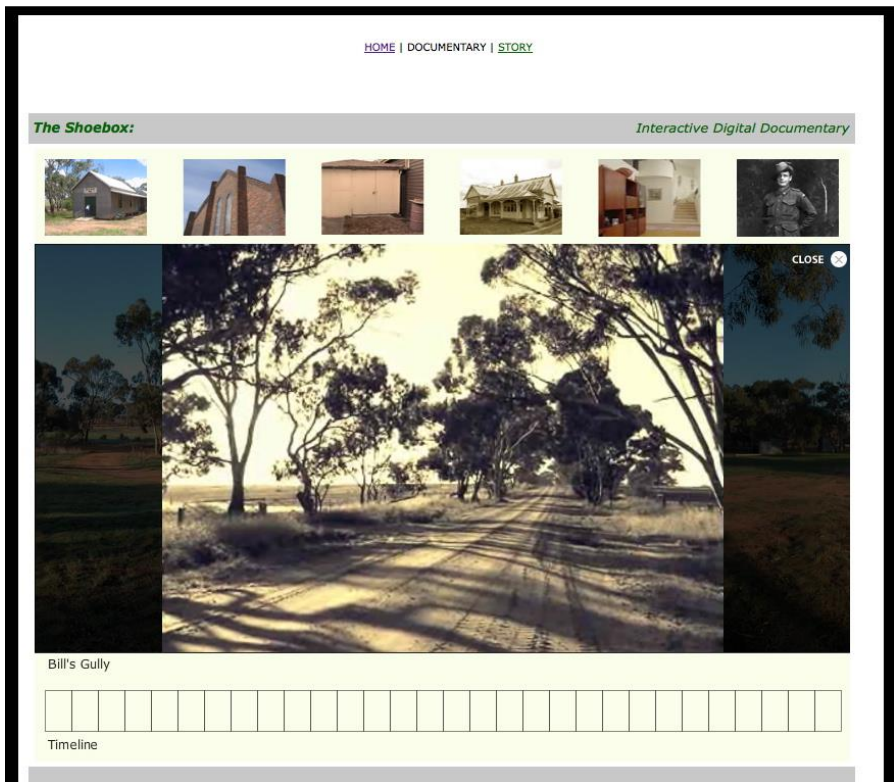


Image 6 - Embedded media clip in central viewing frame with *Bill's Gully* panoramic scene darkened in background.

When the user/viewer clicks the close button located at the top right hand corner of the embedded media clip the central viewing screen returns to the current panoramic scene and a thumbnail image of the embedded clip that has just played appears in the timeline. Each embedded media clip has its unique place in the

timeline. There are thirty embedded media clips – five in each of the six interactive panoramic scenes.

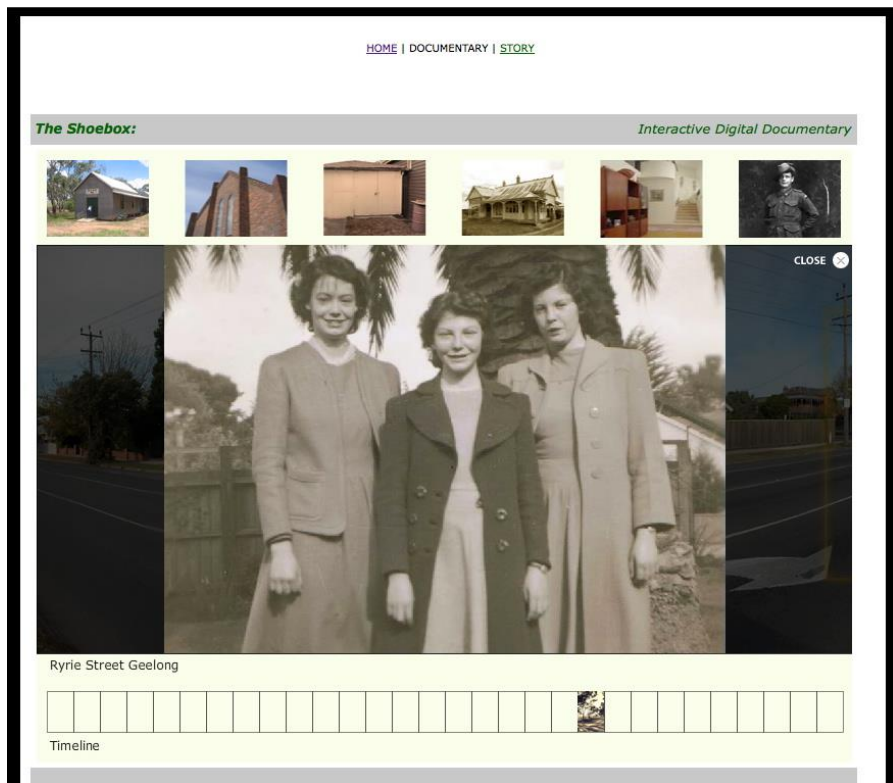


Image 7 - Embedded media clip in central viewing frame with *Ryrie Street Geelong* panoramic scene darkened in background. One embedded media clip thumbnail image visible in the *Timeline*, indicating another clip has been accessed.

The user/viewer may now choose another embedded clip from the current panorama or select the other active panorama image icon from above the central viewing frame. Navigation and selection at this point is entirely at the user/viewer's discretion. Only after the user/viewer has selected and closed three embedded media clips will the timeline fill with all thirty thumbnail images and an active text link appears under the timeline 'Click here to play full video.'

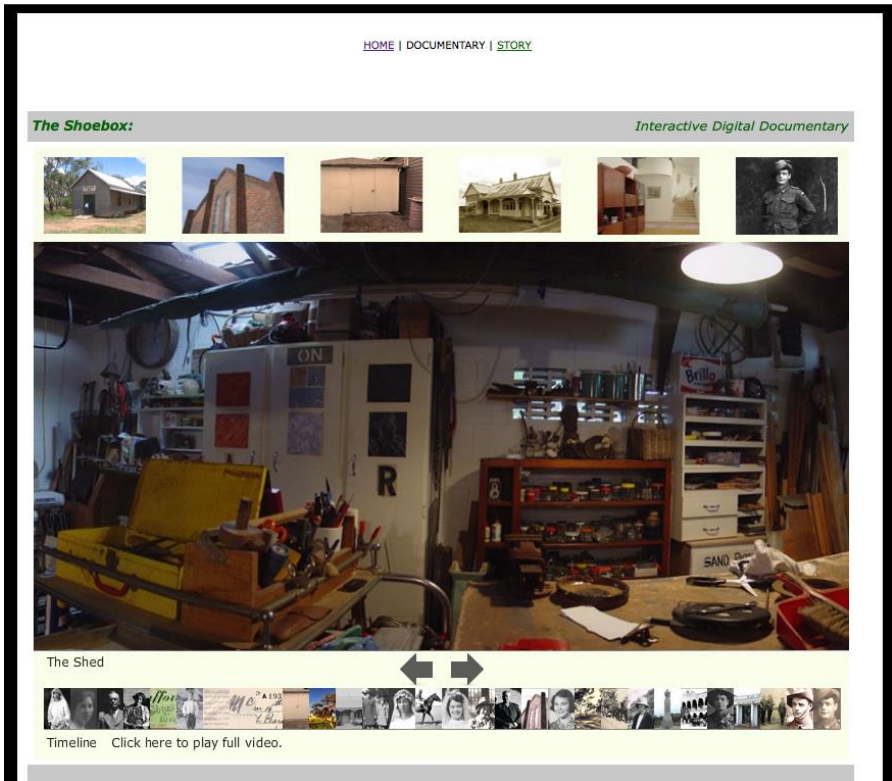


Image 8 - *The Shed* panoramic scene in central viewing frame and *Timeline* filled with all thirty embedded media clip thumbnail images.

At this point the user/viewer can continue exploring via their interactive choices to the embedded media clips within the active panoramas or they can sit back and watch the linear video by choosing ‘Click here to play full video.’ This video titled *The Shoebox Movie* is an eight-minute documentary with voice-over narration inter-cut with extracts from Heather’s interviews. A longer version of the piano loop music track used in the *Introduction Movie* plays for the duration of this movie. Similarly the background is the pixelated image of the close-up shoebox corner from the *Introduction Movie*. As *The Shoebox Movie* plays black and white, and colour still images, and video segments appear and dissolve or animate across the central viewing screen to correspond with the content spoken in the voice track.

At anytime during the playback of this linear video the user/viewer can pause, toggle backwards or forwards, stop, or exit from *The Shoebox Movie*. Once this

movie has been closed the user/viewer can return to navigating through the active panoramas and embedded clips and/or replay *The Shoebox Movie*.

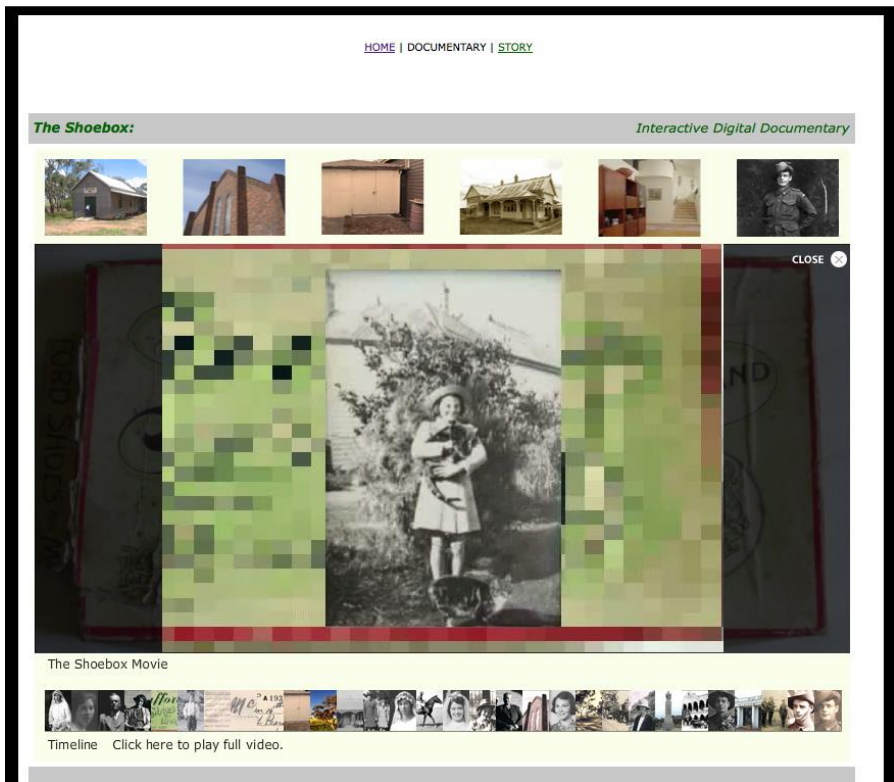


Image 9 - *The Shoebox Movie* plays in the central viewing frame.

The non-linear nature of the digital medium enables the complex and disconnected nature of this narrative to be accentuated and enhanced as the user navigates through a fragmented story in a disjointed way. Additionally the digital medium enables a design structure to be built that allows additional scenes and media to be added as they become available. This flexibility of production is unknown in 'traditional' documentary filmmaking.

5. Conclusion

The means by which we remember has been described by neuro-scientists as a process whereby fragments of memory are stored throughout the brain, depending on what kind of memory they are. When we recall something our brain accesses these stored fragments and places them together into a recollected memory in a manner very similar to the way we dream.^{xiii} These recalled memory fragments - musings, factual, experiential, episodic - are combined together to make up the story of our lives – the story of who we are.

With my interactive digital media structure *memoradic narrative* I am exploring the process of revealing a history story to the user/viewer in a way that mimics the nature of autobiographical memory recall. Fragments of memory are assembled to form a linear story for relating an event or experience.

Additionally, this interactive architecture mirrors the content of this documentary memory story. As the protagonist of *The Shoebox* (Heather) uncovers her history, her memory is confirmed, challenged, or enhanced and the fragments of her story (the story of her life) build into a comprehensive narrative. As Heather returns to her childhood memories over and over (memory rehearsal) these fragments, and other memory fragments triggered by information contained in the shoebox, in addition to new pieces of information she has gained in her quest to know and understand more, come together to fill-in the story of her life and re-shape her sense of self.

The first digital media artists began experimenting with their computer's ability to provide feedback and mostly created abstract works. As technology advanced, digital art evolved in unison. The speed of modern computers and the complexity of interaction between computer and users now offer an unprecedented audience engagement with digital art works. As Edmonds says 'the opportunities for including audience participation have been increased by the advent of digital technology.'^{xiv} However, interaction for its own sake can become tiring for the user and much research has gone into the design of interfaces to make them more appealing.^{xv}

To incorporate the changes brought by the digital revolution and to make productions both flexible and understandable to audiences, a conflation of non-linear and linear narrative in digital documentary may be necessary. In fact, both digital artists and commentators are acknowledging a combination of non-linear interactivity and linear narrative in digital media is more understandable to users.^{xvi}

Today, digital media practitioners as well as their audiences want more from interactivity than lights turning on and off as the participant walks through a gallery space. Since time immemorial humans have wanted campfire stories and even in the age of digital interaction, they still do. This is particularly true when the content of the interactive digital media is factual, such as a documentary where we are engaging with a true story, about real people and real events in real locations, that have a logical sequence and narrative.

Notes

ⁱ Marles, Janet. 'Memoradic Narrative in *The Shoebox*.' In *Jump Cut: A Review of Contemporary Media*. Issue #52, <http://www.ejumpcut.org/>, 2010.

ⁱⁱ Marles, Janet. *The Shoebox*. Interactive digital media biography, <http://www.memoradicnarrative.com>, 2010.

ⁱⁱⁱ Engel, Susan. *Context is Everything: The Nature of Memory*. New York: W.H. Freeman and Company, 1999. Page 5.

^{iv} Freed, Michael. Is human memory similar to the RAM in a PC? <http://madsci.wustl.edu/posts/archives/mar97/852177186.Ns.r.html> accessed 30 August 2005, 1997. Page 2. and McNally, R. J. *Remembering Trauma*. Cambridge Massachusetts: The Belknap Press of Harvard University Press, 2003.

Page 28.

^v Marles, Janet. 'Memoradic Narrative in *The Shoebox*.' In *Jump Cut: A Review of Contemporary Media*. Issue #52, <http://www.ejumpcut.org/>, 2010.

^{vi} Marles, Janet. *The Shoebox*. Interactive digital media biography, <http://www.memoradicnarrative.com>, 2010

^{vii} Engel, Susan. *Context is Everything: The Nature of Memory*. New York: W.H. Freeman and Company, 1999. (Engel 1999:3; McNally 2003:39).

^{viii} classic Japanese film *Rashomon*

^{ix} Citron, Michelle. *Home Movies and Other Necessary Fictions*. Minneapolis: University of Minnesota Press, 1999.

^x Kuhn, Annette. *Family Secrets: Acts of Memory and Imagination*. Verso: London and New York, 1995.

^{xi} Gibson, Margaret. *Object of the Dead: Mourning and Memory in Everyday Life*, 47-79. Melbourne: University Press, 2008. Margaret Gibson (2008: 47-79)

^{xii} The initials 'DN & JAS McD' on the shoebox lid were written by Heather's guardian Uncle Jock and refer to Heather's father Donald Neil and her uncle James McDonald. Both brothers served with the AIF in WWI and both died aged in their forties in 1937, coincidentally just eight weeks apart.

^{xiii} Engel, Susan. *Context is Everything: The Nature of Memory*. New York: W.H. Freeman and Company, 1999. Page 5.

^{xiv} Edmonds, Ernest. 'Reflections of the Nature of Interaction.' In *Engage: Interaction, Art & Audience Experience*. Ernest Edmonds, Lizzy

Muller, and Deborah Turnbull, xxiii-xxviii Sydney: Creativity and Cognition Studios Press, 2006. Page xxiv.

^{xv} Brown, Andrew. 'Modes of creative engagement.' In *Engage: Interaction, Art & Audience Experience*. Ernest Edmonds, Lizzy Muller, and Deborah Turnbull. Sydney, Creativity and Cognition Studios Press. 2006. Page 6.

^{xvi} Dovey, Jon. (2002) 'Notes Towards a Hypertextual Theory of Narrative.' In *New Screen Media: Cinema / Art / Narrative*. Martin Rieser and Andrea Zapp, 135-145 London: British Film Institute, 2002. Page. 143, 'Interactive Storytelling: The Renaissance of Narrative.' In *New Screen Media Cinema / Art / Narrative*. Martin Rieser and Andrea Zapp, 163-178 London: British Film Institute, 2002. Page 167, and Gibson, Ross. *Dramatic Databases: Life After Wartime-Crime Scenes 1945-1960*. Lecture at the College Of Fine Arts, University of New South Wales, Sydney: ACM SIGGRAPH, 2004. Page 1.

Bibliography

Brown, Andrew. 'Modes of creative engagement.' In *Engage: Interaction, Art & Audience Experience*. Ernest Edmonds, Lizzie Muller, and Deborah Turnbull. Sydney, Creativity and Cognition Studios Press. 2006.

Citron, Michelle. *Home Movies and Other Necessary Fictions*. Minneapolis: University of Minnesota Press, 1999.

Dovey, Jon. (2002) 'Notes Towards a Hypertextual Theory of Narrative.' In *New Screen Media: Cinema / Art / Narrative*. Martin Rieser and Andrea Zapp, 135-145 London: British Film Institute, 2002.

Edmonds, Ernest. 'Reflections of the Nature of Interaction.' In *Engage: Interaction, Art & Audience Experience*. Ernest Edmonds, Lizzie Muller, and Deborah Turnbull, xxiii-xxviii Sydney: Creativity and Cognition Studios Press, 2006.

Engel, Susan. *Context is Everything: The Nature of Memory*. New York: W.H. Freeman and Company, 1999.

Freed, Michael. Is human memory similar to the RAM in a PC? <http://madsci.wustl.edu/posts/archives/mar97/852177186.Ns.r.html> accessed 30 August 2005.

Gibson, Margaret. *Object of the Dead: Mourning and Memory in Everyday Life*, 47-79. Melbourne: University Press, 2008.

Gibson, Ross. *Dramatic Databases: Life After Wartime-Crime Scenes 1945-1960*. Lecture at the College Of Fine Arts, University of New South Wales, Sydney: ACM SIGGRAPH, 2004.

Kurosawa, Akira. *Rashomon*. Motion Picture Film, Japan: Daiei Film Co., Ltd., 1950.

Kuhn, Annette. *Family Secrets: Acts of Memory and Imagination*. Verso: London and New York, 1995.

Marles, Janet. 'Memoradic Narrative in *The Shoebox*.' In *Jump Cut: A Review of Contemporary Media*. Issue #52, <http://www.ejumpcut.org/>, 2010.

Marles, Janet. *The Shoebox*. Interactive digital media biography, <http://www.memoradicnarrative.com>, 2010.

McNally, Richard J. *Remembering Trauma*. Cambridge Massachusetts: The Belknap Press of Harvard University Press, 2003.

Wand, Eku. (2002) 'Interactive Storytelling: The Renaissance of Narrative.' In *New Screen Media Cinema / Art / Narrative*. Martin Rieser and Andrea Zapp, 163-178 London: British Film Institute, 2002.

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