Unlocking Landscapes Using Locative Media
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Figure 1: Welcome page on the *Hayle Churks* app (Frears 2013a)

Abstract

Readers of this thesis are encouraged to access the *Hayle Churks* smartphone app prior to and during reading.

This interdisciplinary research is situated within the practice and discourse of locative media at the confluence of art, location and technology. The practice-based research project aims to use the arts to address a crisis arising from rapid redevelopment in a marginal coastal town – Hayle, Cornwall. A recent supermarket build on a prominent Hayle heritage quay led to UNESCO's threat to de-list the entire Cornwall and West Devon Mining Landscape World Heritage Site, awarded only in 2006. Research builds on recent findings on the link between increased sense of self and community cohesion through connection to heritage and participation in the arts. Media artists, participants and theorists have indicated that locative media experiences can promote connection to landscapes and their histories. However, these claims are unsubstantiated by empirical research to date. This research seeks to redress that through systematic analysis (unusual in the arts and therefore distinct).

The main research question posed was: Does locative media allow people to develop a deeper connection with landscape and, if so, how? A smartphone *deep map* app was created – an evocation of a Cornish post-industrial landscape assembled from audio memory traces, sound and visual images revealed using GPS and the moving body. The *Hayle Churks* app weaves past and present, absence and presence and digital content into physical place.

The *Hayle Churks* app is a research tool and published creative practice that received a national award in 2014. The empirical data is an original contribution to knowledge. Additional contributions include a timeline – a historical overview of the relationship between locative media art and emerging technologies and a *deep map* app reference tool for artists. The research explores the role of immersion and embodiment and how recording and listening to audio and voice performance affect immersion.

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1 INTRODUCTION: TRANSFORMING GPS INTO A GEO-POETIC SYSTEM

This chapter introduces the focus of the thesis and practice, connecting people to landscape using locative media. I discuss the rationale for developing a deep map *smartphone app through practice-based research. Assembled located multimedia remnants of place, such as oral histories, interweave a digital storyworld with the physical landscape. Practice, collected data and my reflection on it trace the role of immersion and embodiment in connection to landscape during locative media experiences. Details of chapter contents are outlined.*

1.1 Situating this research

> Every day, millions of people find themselves deepened and dignified by
> their encounters with particular places. […] Most of these places, however, are not
> marked as special on any map. They become special by personal acquaintance.
> (Macfarlane 2008)

> [The poem's] work is to tinker with our locks, thereby putting
> our inner worlds in contact with the outer world.
> (Oswald, 2006: x)

This chapter introduces the practice-based research project and the written thesis. Readers of this thesis are encouraged to experience or view the practice-based output, the *Hayle Churks* app, prior to and during reading of the thesis. The research is located within the making and discourse of locative media at the confluence of art, location and technology – namely locational technologies and ubiquitous computing accessed through a smartphone.[1] Locative media, a broad term without an agreed definition, is used in this context to describe mobile media art such as MP3 audio walks and GPS-activated smartphone applications, called apps.

The locative media practice created during this research delivers media to the user's smartphone dependent on the user's longitudinal and latitudinal location. A participant walks into a series of GPS zones (invisible to the user) triggering a nonlinear digital storyworld. The narrative is nonlinear because there is no set sequence or structure (such as time); instead, it is constructed from fragments of memories and traces of other sources linked to different decades. GPS-activated locative media is inherently site-specific. My experience of others' work and my own practice-based research have drawn me to the conclusion that digital content, such as sound, experienced while moving through the physical landscape, feels three-dimensional, embodied, textual and located. This in turn transforms the physical material world around the participant, which becomes an *augmented space* (Manovich 2005: 1). Overlapped digital and physical worlds act on and change one another (Ishii 1999 in Frith 2012: 132) and together create an experience that affects the participant.

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[1] Mark Weiser coined the term 'ubiquitous computing,' or ubicomp, in 1988. Weiser, who worked at Xerox PARC in California, imagined ubiquitous calm computing (Weiser and Seely Brown 1995) all around us as 'an invisible tool' (Weiser 1993) that would come to our attention only when needed. Pervasive technology is a different term with the same idea behind it.

The thesis addresses a specific crisis—the obfuscation of heritage during rapid redevelopment of a coastal post-industrial town in Cornwall. Six miles from the tourist hot spot and former artist colony of St Ives, there is pressure to build in Hayle. A controversial supermarket build on a prominent Hayle heritage quay led UNESCO to place the whole Cornwall and West Devon Mining Landscape World Heritage Site (awarded in 2006) on the danger list. De-listing, the withdrawal of World Heritage Site status, has happened just twice in UNESCO's history. The practice-based research aims to animate and bring to life often demolished and seemingly discarded sites to remind the community and visitors of their significance. Heritage awareness may influence community response to planning proposals, once they are localised through the Hayle Neighbourhood Plan, in a town desperate for regeneration. Connection to landscape using locative media art draws on research on the significance of arts, culture and heritage for increased wellbeing, pride in place and community cohesion. By locating the work in a semi-rural coastal town locative media research is dislocated from its usual urban environment and stable Wi-Fi, 3G and 4G connections. Through this practice and site, connectivity and access to smartphones 'unexamined in many locative media projects' (Frith 2012: 144) will be addressed.

1.1.1 The research background

This research is based on a proposal submitted by performance researcher and practitioner Misha Myers (Falmouth University) and geographer Caitlin DeSilvey (University of Exeter) in 2011 to the European Social Fund for a doctoral studentship that brought their disciplines together, entitled: *Designing Landscape Narrative Experiences with Locative Media* (see Appendix B p. 250-256) In keeping with the drivers of the funding scheme, the regional industry partner Treasure Trails was brought in to benefit directly from the findings. Creators of paper-based tours and treasure hunts that aim to bring the landscape and its stories alive, Treasure Trails wanted to develop new modes of delivery through digital trails. With the successful award of funding for the project, I was selected for the PhD studentship.

Cornwall suffers from poverty and deprivation (Payne et al 1996) and has, says the leader of Cornwall Council/Konsel Kernow John Pollard, received an average of 60 million pounds of European funding annually for over a decade for similar projects that aimed to promote the economic growth of the region in a responsible manner (Worley 2016). Specific drivers for

funding for European-supported areas included: digital economy, technology development, economic regeneration, 'increasing the intellectual capital of Cornwall through investments in knowledge exchange […] and research capacity in higher education' (Myers and DeSilvey 2011: 6) are all pertinent to this research.

In this context, the main research question Myers and DeSilvey (2011: 2) proposed was: How can pervasive/locative media technologies be used to facilitate self-guided, spatial narrative experiences of the past, present and future of Cornwall's changing cultural and physical landscapes?[2]

1.1.2 The researcher's background

My background in interviewing and producing for the BBC and leading a successful HLF-funded oral history project added new dimensions to the proposed research project. I came with clear ideas on how the community oral history project I had led for two years part-time (the Hayle Oral History Project [Frears 2010]) could work with the research.

My previous work includes giving others a voice as a freelance journalist and producer for the BBC. I produced a global BBC youth programme (as a youth) and, with a colleague, started *Everywoman*, a woman's programme on the BBC World Service, as well as leading the local successful oral history project. I have also worked with other media – film and television – and use media in creative practice, for example short film or soundscapes for performance (Golden Tree Productions 2015). My discomfort with being exposed in the foreground in my work and my enjoyment of others' voices will be evident throughout the thesis.

Years of embedded involvement and embodied experience of the community and site selected has been an important grounding for me and for the research. The Hayle Oral History Project (HOHP) that preceded this research worked closely with the community. The controversial transition of landscape and oral histories collected by the Hayle Oral History Project (HOHP) were contributing factors in the choice of site. I led HOHP for two years,

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[2] The term pervasive technology, media or computing has a similar meaning to ubiquitous computing (ubicomp) and is used in this thesis to describe technologies, media and computing everywhere, all around the user 'an invisible tool' (Weiser 1993).

2008 to 2010, interviewing many residents and training community members to interview others, which resulted in the book *Churks, Clidgy and Doodle-Dashers: Hayle Tales and Trails* (Frears 2010). The research period started whilst working as an Associate Lecturer on BA Digital Media (initially as a practitioner) and freelancing in the arts.

1.1.3 Aims and Objectives

Since this research commenced, claims have been made that locative media experiences can promote connections with landscapes, such as media theorist Jason Farman's suggestion that participants in these experiences can 'gain a deep connection' with location and its 'various histories' (Farman 2014: 6). However, these assertions are unsubstantiated by empirical research to date. The research described in my thesis seeks to redress that through systematic analysis, unusual in the arts, and therefore, distinct and is an original contribution to knowledge. The main research question evolved to become: Does locative media allow people to develop a deeper connection with landscape and, if so, how?

The aim of this thesis is to use locative media practice to connect people to landscape. The focus is on design of a new locative media landscape *experience,* rather than the design of technology and uses pervasive technology readily available to the public. The main creative and technical resource used in this practice is a smartphone software application or 'app'. The smartphone is a mobile phone micro-computer containing GPS locational technologies, as well as Internet access, and many media recording and playback features. The app is a stand-alone creative piece of work called *Hayle Churks* made using the app-making toolkit AppFurnace by Calvium and available free on iTunes. In late 2012 I was awarded external funding from the *Heritage Lottery Fund* (HLF) for the app, which was published in December 2013.[3] The *Hayle Churks* app won a national *Collections Trust* Award in June 2014.[4] Layered within the creative work, imperceptible to the user, are experiments in immersion, embodiment, affect, content and design, giving it a dual role as a research tool.

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[3] The app publishing was partly funded by an 'All Our Stories' Heritage Lottery Fund grant awarded at the end of 2012 that also funded the researcher's *Hayle Interactive Story Machine*, an interviewing and soundscape project with Penwith College music students, and a month-long residency with Blast Theory, a group of artists who work frequently with digital media and locative media.

[4] Collections Trust celebrates projects that do innovative work with archive and museum collections.

The objectives of the thesis are to:

- Create and evaluate a locative media app that fuses the physical environment and digital content;

- Explore and combine practical and theoretical knowledge from geography and the arts to inform locative media practice, methodology and scholarship;[5]

- Identify and describe elements of existing locative media art that influence connection to landscape;

- Increase awareness among local people and visitors of the histories of place;

- Provide empirical data on whether deeper connection to landscape occurs during locative media experiences.

1.1.4 How the research aims to contribute to knowledge

Empirical evidence is provided on whether locative media experiences connect people to landscape and is an original contribution to knowledge. Subsidiary contributions include a timeline that offers a novel historical overview of emerging locative media work alongside new technologies. A reference tool has been created for artists making *deep map* apps, which includes suggestions on how to fluctuate levels of immersion (deep engagement) and embodiment (bodily presence and sensory perception) in the constructed experience and the everyday to enable connection to landscape. This contribution to knowledge and subsidiary contributions add knowledge to the fields of locative media and performance, specifically 'remote performance' (Pearson 2010: 82; 2011: 282) that uses technology in the absence of a performer. These contributions include: exploring how recording audio, listening to audio and voice performance affect immersion, using multimedia rather than audio-only locative media practice in research, moving smartphone practice and research from its familiar urban environment, identifying the role of immersion and embodiment when fusing digital and physical worlds, and a three-dimensional *Merz* collage approach to

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[5] Performance in this thesis uses a broad description by John Freeman: '…performance can be any situation that involves elements of time and space, intention and action, performer and spectator, without being necessarily reliant on all of these being present or being present at the same time' (2010: 136).

locative media. The research contributes to the field of geography in relation to techniques for using embodiment, audio geography and arts practice as ways to reveal landscape. I also add knowledge to current media theory concerns by using practice to focus on portable located mobile devices that merge digital and physical worlds.

The popular and ubiquitous smartphone is identified as 'a key medium in the linking of the physical and the digital' (Frith 2012: 133) and is used in the practice. A *hybrid space* (de Souza e Silva 2006: 262) is created when smartphones carry digital space into physical space (de Souza e Silva 2006: 268). As the smartphone is taken into landscape during this locative media practice, this research extends beyond locative media to engage with the '*Spatial Turn* in media, and a *Media Turn* in geography' (Buschauer and Willis 2013: 28, emphasis in original). There has been increased interest in smartphones by media theorists (see Manovich 2005, de Souza e Silva 2006, Moores 2012, Farman 2012, Frith 2012 and 2015), which overlaps experiments with 'communications technology on sense of place' and the call to research in this area by geographer Tim Cresswell (2015a: 150). Geographer Michael Gallagher (*Kilmahew Audio Drift No 1* 2012) and oral historian Toby Butler (*Memoryscapes* 2005) have both made MP3 audio walks in landscape using memories. This research is the first known *multimedia* practice and the first using GPS-activated locative media that builds on and adds knowledge to audio geography (Gallagher 2014: 1-19), sonic geography (Matless 2005:745) and phenomenological landscape geographies (Lorimer and Wylie 2010: 130-144). Audio experiments by geographers such as Gallagher are typical of increasingly artful interactions with landscape in the discipline. Described by Harriet Hawkins as Creative Geographies (2012; 2014; 2015), this area is informed by this research despite the visual arts emphasis to date.

Landscape is central to this research. Introduced to the English language in the late 16th century, the word *landscape* can be traced to Dutch *landschap* (Ingold 2007: 10; Schama 1995: 10), which carries a 'pictorial or visual emphasis' (Rueb 2015: 245). Landscape has been articulated as a *tension* (Pearson and Shanks 2001: 151; Rose and Wylie 2006: 475; Wylie 2007: 1), which can be traced back to the depiction of landscape's three dimensions on a two-dimensional surface, a canvas (Wylie 2007: 56). A tension is the separation created between a detached static observer and the distant landscape – the landscape painter's view (Wylie 2007: 1). Mike Pearson and Michael Shanks identify additional tensions such as

the inclusion and exclusion of *people* within the landscape frame and the idealised image of landscape (Pearson and Shanks 2001: 151-153). The Germanic root of *landschap* is *Landschaft,* 'a unit of human occupation' (Schama 1995: 10). This research is closely connected with the root of the word, as humans are put back into the landscape, 'the world in which we stand' (Ingold [2000] 2011a*:* 207), live in, sense and move through, rather than 'look at' (Cresswell 2015a: 18). Embodied and artistic explorations in landscape (for example by Hayden Lorimer and John Wylie 2010: 6-13 and Tim Cresswell 2015b) have attempted to bridge or explore the gap between human and landscape, subject and object. Use of embodiment in research is also an increasing preoccupation by media theorists, encouraged by Shaun Moores (2012: 52 and 105). Deirdre (Dee) Heddon suggests that touch undoes the distance between subject and object (2010: 40), which is heuristically useful in this locative media practice-based research that uses embodiment. Touch in locative media experiences goes beyond physical contact with landscape while moving through it to activate and play media. The voice heard in headphones close to the ear is a form of 'quasi-physical contact' (Myers 2010: 75) that affects embodiment in the storyworld as well as the everyday.

Immersion, *embodiment* and *landscape* form the conceptual framework for this research, as this thesis suggests that immersion as well as embodiment play a central role in connecting human to landscape using digital content. Since the arrival of Sony Walkman 'personal stereos,' media has been described as distancing users, which, according to Malcolm McCullough, suggests disembodiment and 'implies trouble for space and place as we know them' (McCullough 2006: 26). In 2005 Lev Manovich compared locative media experiences to watching a film or playing a computer game on a large television monitor. While immersed in a computer game he lost awareness of his physical surroundings. Moving with a portable device he remained present, 'the display adds to your overall phenomenological experience, it does not take over' (Manovich 2005: 11).

Artist Janet Cardiff's audio walks are often described as immersive. To keep the participant present in the way Manovich describes, she uses 'disconcertion'. Participants maintain 'a sense of self-awareness' (Shaub and Cardiff 2005: 95) through sound and narrative effects. Self-awareness has been interpreted in this research as being aware of the body and through the body perceiving the world – a form of embodiment. Digital content such as sound and narrative can affect the body by producing an emotion such as a cold shiver or by

eliciting tears. The participant experiences embodiment while being engaged with the digital storyworld during some locative media experiences, rather than being detached or disembodied when engaged with media, as McCullough suggests. If 'the medium is the message', as Marshall McLuhan famously said (1989: 6), the locative media medium, when using GPS, involves technology *and* the body. To animate the landscape around the body by playing more content, the participant has to move into GPS zones. Artwork and landscape are revealed through movement, which, locative media artist Teri Rueb observes, is how Robert Smithson's land art *Spiral Jetty* (1970) is experienced (Rueb 2015: 243).

When a digital story makes tears well up in a listener's eyes the 'body-mind' (White 2005: 200) responds. As the mind *and* body are affected Maurice Merleau-Ponty's ideas on phenomenology are re-appraised as he sought 'to re-establish the roots of the mind in its body and in its world' (Merleau-Ponty 2004 [1964] in Moores 2012: 47). Geographer John Wylie adopts a phenomenological or embodied approach to landscape to explore the tension between people and landscape (2007), as mentioned earlier. Media theorists Shaun Moores (2012) and Jason Farman (2012) use Merleau-Ponty's writings to make sense of portable media. Their work is strongly influenced by feminist academic Elizabeth Grosz's critique of Merleau-Ponty's description of the body (1994) and philosophers Don Ihde (2002) and Philip Brey's (2000a; 2000b) shared research interest in Merleau-Ponty, technology and embodiment. This practice looks at embodiment in landscape using a smartphone through these multi-disciplinary readings of Merleau-Ponty and by doing so combines and draws on knowledge from their disciplines.

Merleau-Ponty used the term 'familiar instrument' ([1962] 1978: 152) in relation to objects that become an extension of the body. He gives the example of a blind man's stick but includes other examples in *Phenomenology of Perception* such as a feathered hat, a car, an organ and a typewriter. His work predates the smartphone but Moores suggests that the smartphone becomes a 'familiar instrument,' an extension of the body in the proficient user's hands (2012: 47-52). Smartphone features such as the keypad are used as though automatically (like finding and using letters on a typewriter for example), without cognition but with skill. The phone is also used as a way to perceive the world and extends what the body-mind is able to do without the device. Locative media digital content such as sound, image and narrative increases our knowledge of place and adds to sensory perception. This

research explores whether digital content, especially sound, affects levels of immersion and embodiment in digital and physical worlds.

The interrelationship between embodiment and immersion in locative media experiences connecting human to landscape is identified through this research. Mobile Bristol's research on the narrative *Riot!! 1831* (2004) identified that immersion is experienced as a transient rather than constant state during locative media experiences.[6] For that study, Mobile Bristol's iPAQ PDA was used. Since then smartphones containing GPS technologies have been used increasingly in locative media experiences, and research is needed that builds on Mobile Bristol's findings on immersion using these new technologies.

Immersion is necessary for the participant to become embodied in the digital storyworld, while interruption of that immersive state keeps the participant embodied in the physical world. The hybrid experience of being in two places at once (Hight 2006: 5) is different from only engaging with digital media (such as listening to audio) or walking in landscape without media. During the overlap of physical and digital worlds something happens: stages or degrees of immersion affect digital and physical embodiment and play a role in how hybridity is experienced and its affect. As the participant becomes immersed more or less deeply they move between pre-cognitive and cognitive engagement with digital and physical stimulii. This research experiments with interruptions in immersion and identifies environmental conditions that lead to embodiment in both digital content and physical landscape simultaneously, or *dual embodiment*. A diagram explaining the interrelationship between immersion and embodiment in GPS-activated locative media experiences has been created (p. 187-188).

Anthropologist Tim Ingold has argued that telling stories does not add a layer that covers up place but draws attention *into* it (Ingold 1993: 171; Ingold [2000] 2011a: 56). The locative media storyworld at the centre of this research aims to draw attention *into* landscape through stories in order to connect or reconnect humans. Ingold suggests this is possible, that stories lead to an 'ever more intense poetic involvement' with landscape so that the

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[6] Mobile Bristol was a collaborative project in the City and Building Research Centre run by Hewlett Packard Labs (HP Labs), Bristol University and The Appliance Studio. It was funded by the Department of Trade and Industry as part of the Next Wave Technologies and Markets Programme.

boundaries between it and human participants 'dissolve together' (Ingold [2000] 2011a: 56). 'Poetic involvement' goes beyond stories in this thesis. This research suggests that highly technical GPS locative media operations perform technological 'magic', a form of poetics – that GPS is transformed and becomes a geo-poetic system.[7] Connecting humans to the earth using poetics is central to the theory and practice of geopoetics developed by philosopher and poet Kenneth White since the 1970s. The locative media embodied experience is created *inside* landscape and sensorially animates it using poetics and story, sometimes heard from multiple perspectives. Participants become aware of the gap between people and landscape by being forced into that space during a locative media experience. Landscape is no longer *seen* as a distant view painted with the one squinting eye of perspective (Panofsky cited in Steyerl 2011: 169) or captured by a camera's single lens and shutter click.

Stories, recorded oral histories and archive images can be experienced in the field in locative media experiences using smartphones. Gathering and selection of mixed materials during embodied field and archival research is described as *deep mapping*, developed by Pearson and Shanks (1997: 41-53*;* 2001: 162) and Clifford McLucas (McLucas 2000; 2001). The research therefore also aims to add knowledge to performance through locative media 'remote performance' (Pearson 2010: 82; 2011: 282) in landscape.[8] Of interest here is the breakdown of hierarchies around which sources to use; the story of place becomes polyvocal. Histories are mined from different eras and social standpoints.

Using locative media, GPS is able to pin multiple stories to one location. Subaltern voices (those that are marginal) and contested histories can be juxtaposed with hegemonic and typically easily digestible linear narratives of place. History presented through locative media art becomes personal, less 'his story' more 'my story' or 'our stories'. Traces of first-hand accounts, with their local slang, grammar quirks and regional accents, are captured

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[7] In this context Allsopp and Kreider's definition of poetics or 'poiesis' is used, 'acts of making or giving form to the interplay of material and immaterial content intrinsic to any act of communication.' (2015: 1)

[8] Mike Pearson uses the term 'remote performance' (Pearson 2010: 82; 2011: 282) to describe his MP3 walk *Carrlands* (2007). 'Remote performance' is by disembodied voice or voices during the locative media experience. Pre-recorded voices, sound effects and music play through the MP3 player or app to an audience of, often, one.

and celebrated. Neglected territory is re-inhabited by voices of the past. Histories escape the restriction of archive opening hours and access and are returned to the community (although the research raises issues around access to using digital technology). Places once layered with absence and presence, past and present, may encourage participants to think about their future and their role within it. The research impact includes those working in and researching place, such as those concerned with performance, tourism and local history.

In 2015, 66% of UK adults owned a smartphone (Ofcom 2016). This thesis proposes that locative media enriches *deep mapping* (remote) performance through the smartphone's ability to store, locate, display and play large amounts of multimedia content in the field. Textured collages of stories and artefacts (such as photographs) fold the community and landscape of the past into the present, to 'create a sense of self and belonging' (Bender 2001: 5). Experiencing and embodying two places at once, for example the past and present or here and there, is common with a smartphone. During a call the user is *there* – with the person speaking at the other end of the phone or while viewing online content – as well as *here*. Attention shifts between foreground and background. For example, a person speaking on the phone or adjacently changes the level of engagement with the digital conversation or physical place (Meyrowitz 1985: 38). For many people, the availability of 'Internet on the move' has blurred boundaries between digital and physical spaces in everyday life. Of interest to researchers such as Adriana de Souza e Silva (2006), Jason Farman (2012) and Jordan Frith (2015) is interaction through the Internet using located social apps and games. This thesis focus is on how the fusion of immaterial digital content with material place (a constructed experience with the everyday) connects a participant to landscape.

The fields discussed above indicate clearly that the research is multidisciplinary. Knowledge is contributed to different fields, namely locative media, geography and media theory. The original contribution to knowledge is a body of empirical evidence on how locative media connects participants to landscape. Subsidiary knowledge includes: the timeline – a historical overview of the relationship between emerging technologies and locative media; identifying elements of immersion and embodiment that influence connection to landscape and a reference tool developed for artists creating locative media that connects participants to landscape. Additional contributions have been made by: exploring how recording audio,

listening to audio and voice performance affect immersion; exploring the role of immersion and embodiment in experiences that fuse digital and physical worlds; developing a three-dimensional methodological approach to locative media practice; gathering data on a multimedia app rather than audio-only locative media; using geopoetics and *deep mapping* in GPS locative media practice; and by moving locative media practice and research away from the city.

1.2 A map of the thesis

The thesis discussion refers to the main piece of practice, the *Hayle Churks* app, which can be reviewed in 'armchair mode' by pressing the 'listen at home' button on the app if the site cannot be visited.

In **Chapter 2: Locative media – background**: The path that led to the emergence of locative media is described. The discussion around its naming and definition is introduced. Available technology affected the emergence, development and direction of locative media practice and so a timeline (p. 31-32 and an extended version p.239-249) has been developed that maps locative media artwork against technological and computing developments. There are many strands to locative media. Most of the artwork in the timeline is narrative-based, but particular examples of work that influenced the direction of the art form have been included. The chapter and timeline provide a foundation for the thesis that follows and forms part one of the contextual review.

Connecting participants to landscape using locative media requires an understanding of immersion, embodiment and landscape. In **Chapter 3: Conceptual framework – immersion, embodiment and landscape** these terms are introduced as parts of the conceptual framework used to answer the research question. In this second part of the contextual review elements that affect immersion such as binaural sound, headphone use and voice (tone, style and how it is recorded), are identified. Moving in landscape with body-mind affected by digital content from the smartphone, in addition to physical sensation, is addressed in the section 'embodiment'. The work of Merleau-Ponty (published in 1945 but first published in English in 1962) is revisited through readings of scholars from various disciplines. Aspects from geopoetics, chorography and *deep mapping* are drawn together to develop a theoretical and practical approach to locative media in the section 'landscape.'

Suggestions are outlined on ways to address 'the tension' in landscape using locative media (in which 'tension' is the gap between a static observer and distant landscape, the lack of people within the landscape frame and the idealised image of landscape in classic landscape painting).

The use of practice-based research to approach the research question is addressed in **Chapter 4: Methodology**. The practice, a *deep map* app, is introduced along with Merz, an approach influenced by a textured sculptural form of collage made by German Dadaist Kurt Schwitters (1887-1948). Methods are introduced that use the body-mind (White 2005: 200) to span fieldwork, creative work and deskwork. Merz extends into data gathering and the collaging of quantitative and qualitative data.

The app site and its histories are introduced in **Chapter 5: The site – Hayle, Cornwall**. The town of Hayle is a historically contested site that experienced international industrial success. A long period of post-industrial neglect has left it in the shadow cast by neighbouring top holiday destination and ex-artists' colony St. Ives. Initially transformed slowly through heritage-based regeneration, recent and rapid rebuilding in Hayle has been less sensitive, resulting in the whole of the Cornwall and West Devon World Heritage Site being placed on the danger list before threatened de-listing, an event that has happened just twice in UNESCO's history. The app reveals unknown or forgotten heritage that could be used to challenge insensitive building in the future. Research that links art, culture and heritage with wellbeing, happiness, strengthened identity and community cohesion supports the creation of a *deep map* app.

Practice is described and reviewed in **Chapter 6: Practice**. Initial experiments – an app and an interactive recording map – informed the development and evaluation of the main practical output, the *Hayle Churks* app. Quantitative and qualitative evaluations of app iterations were analysed using the conceptual framework of immersion, embodiment and landscape. Tacit knowledge was reflected on, along with participant evaluations, and articulated through doing – more practice and writing. The app was well-liked (a mean of 83.80 out of 100 judged it to be enjoyable in the second evaluation, for example). There were five significant correlations between *liking the experience: ease of use, immersed in oral history,* being *connected to the landscape,* stories being *linked to location* and having

learnt something. The poetics of locative media, for example the magical appearance of sound and image, was enjoyed and commented on frequently. The third and final iteration of the app evaluated was the published version available to the public (freely available on iTunes).

Reflection on the creative process, research and evaluations of practice are combined in **Chapter 7: Synthesis**. An interpretation of how different degrees of immersion and embodiment interrelate is proposed and a diagram created for illustration purposes (p. 187-188). Knowledge gained throughout this period of desk research, field research in testing others' practice and by the making and evaluation of practice, is passed onto artists or creative practitioners, communities and commissioners through a reference tool. This reference tool has been created for those (within and outside the academy) wanting to plan for and make *deep map* apps that connect participant to location.

In **Chapter 8: Conclusion and contributions** the original contributions to knowledge are outlined: empirical data that indicates connection to landscape and, significantly, connection to the populated *taskscape* (Ingold 1993: 152-174); a historical overview of locative media art mapped against emerging technologies illustrated in a timeline; identfying elements of immersion and embodiment and their interdependence that influence connection to landscape; a reference tool for artists creating locative media apps with the intention of connecting participants to landscape. Subsidiary contributions to knowledge are discussed along with the effectiveness of practice-based research, research limitations and recommended future research suggestions.

2 LOCATIVE MEDIA: BACKGROUND

This chapter describes an increasingly broad field of locative media experiencing rapid and significant change in its definition and use, placing this in context with this research. The juxtaposition of locative media, landscape and narrative is explored through personal experience of the practice of others in the field supported by desk-based research. A timeline that documents relevant and influential work alongside technological developments has been created during this research to help the reader understand locative media's potential, evolution and transformation against a backdrop of emerging technologies (p. 31-32 – extended version p. 239-249).

2.1 Background to locative media: an introduction

> If one accepts the proposition that the meanings of utterances,
> actions and events are affected by their 'local position', by the
> *situation* of which they are a part, then a work of art, too,
> will be defined in relation to its place and position.
> (Kaye [2000] 2008: 1 emphasis in original)

A locative media app is both the creative practice and the research tool in this practice-based research. Digital content includes recorded sound, image and a live map that locates the participant. Once the content is assembled and uploaded it is played automatically through the smartphone app as a participant moves into different GPS zones. There are numerous other forms of locative media practice that do not use smartphones, as they did not exist when the new medium emerged (see the timeline p. 31-32). During MP3 audio walks, a frequent alternative, the participant is required to press buttons to play sound (sometimes just at the beginning of the experience). Their walk is usually directed by the narrative or paper directions.

2.1.1 Before locative media

There are various places to start and numerous paths to follow when tracing the emergence of locative media. Locative media encompasses elements and ideas from various other art forms. A growing amount of discussion of practice and literature on locative media first appeared online. A special edition of *Leonardo Electronic Almanac* (LEA), edited by Drew Hemment in 2006, published submitted articles, also online. Now, in 2016, a decade since the LEA special edition, the LEA has returned to the subject of locative media, providing a good opportunity to review the art form with examples of practice selected from the vibrant creative field relevant to this thesis. The timeline (see p. 31-32 with an extended referenced version in Appendix A - p. 239-249) plots locative media's development against emerging and existing technologies. Other paths that tell a story of locative media's emergence come from land art (Rueb 2015: 244) or experimental digital narrative and net art (Tuters and Varnelis 2006: 357). This thesis traces locative media's emergence through layered stories and walking, especially guides (or perhaps 'mis-guides') around place using stories and memories. Hereafter, I use the term 'mis-guides' to refer to the paradoxical nature of guides that can often mis-inform or offer an alternative interaction with place such as those by Wrights & Sites (Hodge et al 2006).

2.1.2 Shared mapped narratives

Before locative media art emerged initially with 'no name' (Rueb 2013: 137) in the late 1990s, trajectories of narrative and performance experiments crossed and intertwined, eventually combining with developing technologies. Fractured text forms such as graffiti, punk, rap, slam poetry and collaborative online experiments told powerful stories of lives outside the mainstream. Oral history brought back voices 'hidden from history' (Rowbotham [1973] 1977) and the non-celebrity voice was picked up by radio, television and film documentary makers who let unknowns and their contemporaries document their ordinary, but for others extraordinary, lives on more portable equipment.[9] From 2003, social media networks such as MySpace (2003) and Facebook (2004) broadened distribution of and access to personal stories.

Personal and historical stories were also being captured and located during the process of remembering the past and imagining community futures. *Common Ground* strove to locate (find and map) local stories, local knowledge and 'local distinctiveness' (Clifford and King 1993; 2006). Voices or written words, including grammar, vocabulary and accent, reflected how people represented themselves and were viewed in a societal context. Capturing memories not only preserved them but also enabled sharing. Even fleeting contact with another's experience of life can increase empathy (see online reactions to *PostSecret* (2005) anonymous postcard art collected by Frank Warren [PostSecret Community and Warren 2016]).

Narrative has increasingly been used to evoke rather than describe or map place precisely (Pearson and Shanks 2001: 162). An example of a textual evocation of place is *Passagenwerk (The Arcades Project* [1982] 2002*),* by German Jewish writer and philosopher Walter Benjamin (1892-1940), published after his death*.* Narrative and facts on the covered arcades of Paris and the people, such as the flâneur,[10] who strolled through them were gathered and collaged. Another textual layering of gathered material on place is William

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[9] In *Ghetto Life 101* (1993) produced by David Isay, two African-American teenagers, LeAlan Jones, 13, and his 14-year-old friend Lloyd Newman, shared a week in their neighbourhood, the violent South Side of Chicago (Jones, Newman and Isay 1993).

[10] The flaneur is 'an observant and solitary man' (Solnit [2001] 2002: 198)

Least Heat-Moon's *deep map* of Chase County, Kansas ([1991] 1999), which influenced Mike Pearson and Michael Shanks. *Deep mapping* of place was developed by Pearson and Shanks (1997; 2001) using textual and performative assemblage through, 'juxtapositions and interpenetrations of the historical and the contemporary, the political and the poetic, the factual and the fictional, the discursive and the sensual' (Pearson and Shanks 1997: 51). Through layering of material 'a stratified amalgam of relationships amongst parts appears' (Corner 1999: 235), which in *deep mapping* tells a story of the landscape.

Locative media artists began to map and story place using movement. Some, such as Janet Cardiff (1957-), combined fiction and fact to create a story of place. Others pinned or located story traces, often intimate and personal, from collaborating members of the public. Community stories were mapped in Proboscis's *Urban Tapestries* (2002-2004) and by [murmur] (2003). Audience members' secrets were locked into locations during Blast Theory's *Rider Spoke* (2007) while revelations about important relationships were left as invisible artefacts in a museum in *Ghostwriter* (Blast Theory 2011b).

Locative media artists often act as collaborators, facilitators or guides as they gather and share material. Some hand over control and act as silent and invisible collectors while others are more prominent curators and editors, depending on how much their vision or the contributors shapes the work. Proboscis's creative research work confronted issues that arose with public contributions: how can listeners move through the mapped stories and avoid remnants they find dull without losing the opportunity of hearing something unexpected? Who edits and rejects contributions in this work? Blast Theory categorised and curated (and rejected) *Rider Spoke* (2007) recordings. Some were used later in *Riders Have Spoken* (2011a) – an interactive archive of selected contributions.

Walking through a landscape hearing stories and histories of place is not new, of course. Therefore, guided tours that involve personal located narratives and encourage tour participants' stories and connections to emerge, especially in artistic or performative detours, are of relevance to this research.

2.1.3 Shared guided tours

Berlin provides an instructive example. Alongside the usual tours that point out the Reichstag parliament building and the Brandenburg Gate, are numerous alternative tours.

These include the underground art, music and club scene, a Whore Tour, Jewish Heritage Tour, Trabi Safari (while driving an East German Trabant car), and a Red Tour around pre-unification communist East Berlin. The city's guided tours have adapted to include many sights previously avoided. 'Landmarks' now visited on alternative tours once clashed with the mainstream city image and its official cultural offering. Berlin's subculture and its Nazi past became such a draw for tourists that the dominant narrative expanded to acknowledge and absorb them, serving as a good example of the layering of histories in place. Tours develop themes to aid comprehension but history is so layered in Berlin that the same corner in the capital could be part of numerous tours as it could include memories of the city under the Nationalist Socialists or communists, deported Jewish residents, anarchist punks, Turkish-German 'guest workers', gay activists or Love Parade ravers.

Histories, memories and landscape are intertwined. Standard tours lead groups around, often at walking pace, to show them where to look, and why, using facts and an easily digested narrative. Many visitors choose the embodied experience of hearing and walking stories in place as 'stories can be powerfully real and really powerful' (Price 2004: 22). The participant is receptive but often passive.

Walking sets the pace for experiencing located narrative. It offers embodiment and a speed where senses and mind can experience and observe place close-up and in focus. Artists used walking when subverting guided tours. *Situationist International, SI* (1957-72), following their predecessors *Lettrist International,* the *Surrealists* and *Dadaists,* performed 'dérives' or drifts, through cities rather than set tours (Debord [1958] 2006b: 40). The 'construction of situations' (Debord [1958] 2006c: 50) deviated walkers from the rigidity of directed or habitual routes and flows through Paris in the late 1950s and '60s as a way to disrupt increasing capitalist and Cartesian dominance of space in the city. Walking moved against the flow of modernism as it slowed rather than sped up activities and participants. Walkers who could be labelled 'psychogeographers', were encouraged to follow distractions and their emotional response to what they encountered along the way to discover new paths. *Situationist International* continues to be a relevant inspiration for many artists, including the group Stalker, who walk participants through Rome's 'discarded territories' (Stalker 1995). Walking through a new but abandoned Olympic sport building and gypsy camps rather than only past celebrated ruins is a way of 'knowing, sensing and changing the

realities of local communities' (Kagan 2012: 37). The Wrights & Sites *Mis-Guides* (Hodge et al 2006 see Fig. 3) make playful suggestions on how to alter and enhance engagement with urban space. Locative media app *Indeterminate Hikes+,* by EcoArtTech (EcoArtTech et al 2012; Nadir and Peppermint 2016), slows down walkers to find and experience the sublime in unexpected locations using imagination and 'meditative wonder' (Sheller 2012).

Figure 2: Artist Andrea Fraser takes gallery visitors on a tour as character 'Jane Castleton' in *Museum Highlights: A Gallery Talk* (Fraser 1989). '*Addressing the drinking fountain*': Hmmm "…a work of astonishing economy and monumentality," "it boldly contrasts with the severe and highly stylised productions of this form" (Fraser 2005: 104). Photograph of Fraser's live performance at the Philadelphia Museum of Art, Philadelphia. Photograph by Kelly & Massa Photography (Fraser 2005: 105).

Mixing guided tours with site-specific art and performance, Andrea Fraser performed alternative museum guides as the character *Jane Castleton* (Fraser 1989; 2005: 95-114 see Fig. 2). *The Counter Tourist* (Crab Man 2012a; 2012b see Fig. 3) tours and handbooks usurp set patterns of directed movement, conventions and behaviours of quiet and conformity in sacred cultural and heritage space.

Cassette, CD and MP3 audio information guides (digit-controlled audio) around galleries have also been subverted by artists keen on taking visitors out of the gallery and sharing work one-to-one rather than with a crowd looking toward the walls inside. Using the intimacy of headphones, artists communicate directly into the ears, mind or head of a participant during rich poetic '*remote* performance' (Pearson 2011: 282, emphasis in original). The artwork animates the physical landscape whether urban or rural, out in the open. Since *Forest Walk* (1991), by Janet Cardiff, the locative media format involves

movement around a location usually guided by a narrator, artist or performer. In some work, the participant presses 'Play' at the beginning and the audio track plays to the end (participants keep pace with audible footsteps and descriptions in Cardiff's work). Some work has audio tracks that need to be started and stopped under instruction.

Figure 3: The 'Counter Tourist' (Crab Man/ Phil Smith) leading a *Sebald Walk* 2011 (photograph by Lorraine Sutherland) and a 'mis-guide' with Wrights & Sites (photograph by Wrights & Sites).

The artist's voice is often memorable. Artists and performers meet participants via an MP3 personal exchange or issue instructions, for example, on paper. Often speaking as a companion (Myers 2011: 72), the artist sounds like a friend. The tone and mode of address used by artists Duncan Speakman or Cardiff, for example, is *sotto voce* (i.e. quiet and peaceful) using the present tense recorded close to the microphone, as though the speaker is within an intimate proximity to the body at that moment when heard in the ear. Participants are urged to think, move and reflect in unexpected ways, in an affective, personal and private exchange with the artist performer during a site-specific immersive experience. They may experience different perspectives that counter the mainstream narrative or hierarchy. Familiar gadgets, often the user's phone or MP3 player and headphones, reduce fuss, increase immersion and keep technology unobtrusive for participant and onlookers.

Located or mapped narrative and mis-guided performative or art walks are often site-specific and need the public as collaborators or mobile participants to share and interact with narratives or imaginaries of place. Three elements from the work discussed above are

useful in addressing the research question: engagement with a specific location; alternative narratives pinned to a succession of locations (sometimes using technology); and mobile participation often by walking, 'the pedestrian unfolding of […] stories' (de Certeau 1984, 110).

2.2 Locative media: an introduction

> We need more fluid ways of perceiving the layers that are everywhere,
> and new ways of calling attention to the passages between old and new,
> of weaving the old place into the new place.
> (Lippard 1997: 85)

> Our Western investigations in virtuality over the centuries have been about getting
> closer and closer to the experience of the photographic image, bigger screens,
> more immersive sound, until as an audience we want to go further and be inside
> them with our bodies […] narrowing this gap.
> (Cardiff in Egoyan and Cardiff 2002)

In the late 1990s, feminist art historian and theorist Lucy Lippard called for a way to experience the layering of history in place, 'of weaving the old place into the new place' (Lippard 1997: 85). The artist Cardiff, in 2002, describes an audience no longer content to look at or listen passively to art but wanting to get inside it, to be surrounded by it. Locative media, though still unnamed and emerging at the time both women spoke, responds to their call as it brings participants into the artwork and into the landscape in an even more intimate personal way than invited by, for example, immersive theatre.[11] Using locative media art to weave past and present, absence and presence, fact and fiction and digital content into physical place during a one-to-one experience, could, this research hypothesises, lead to a closer connection with landscape.

Media is located in locative media experiences. One must move between different media points (as in *Missorts* [2012] by Tony White and collaborating artists) or drift (wander without direction) to come across them (such as *Drift* [2004] by Teri Rueb). How one locates the media depends on the technology involved and which gadget is used – laptop, PDA (personal digital assistant), tablet PC (personal computer), radio transmitter or mobile phone – and which invisible computing or locational technologies are accessed, such as GPS.

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[11] Immersive theatre provides compelling *shared* experiences inside art, inside a story, inside a site. Site in some performances, such as Wildworks' *100: The Day Our World Changed* (2014), is integral and woven into the story. In other work sites are constructed as a backdrop to an extraordinary event, for example for Punchdrunk's *The Drowned Man* (2013).

2.2.1 Locative media: naming and defining

Multiple technologies, constant experiments and iterations of this mobile art make it hard to grasp and define, making locative media 'a "test category" for the convergence of geographical and data space' (Hemment 2006). The term 'locative media' is ambiguous, full of contradictions with little agreement on many issues, including how one even pronounces locative. 'Locative' comes from a grammatical case used in Latvian that implies location and 'vaguely corresponds to the English prepositions "in," "on," "at" and "by"' (Tuters and Varnelis 2006: 357). Karlis Kalnins coined the term locative media in 2003 for a workshop in Latvia.[12] As work was already being made before it was named, for example, *Trace* by Teri Rueb in 1999, there is an on-going discussion on whether the term is the right one. Lanfranco Aceti's suggestion of the adaptation 'locative art' (2016: 10) is the most recent. Rapid development and incorporation of new technologies (often needing collaboration with technologists and research labs) leading to new, innovative forms of locative media has kept the discussion live.[13] Combining data and the physical world creates, according to

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[12] Karlis Kalnins came up with the term 'locative media' in May 2003 when proposing a workshop. 'Locative Media Workshop: Mapping the Zone. Longitude 21.00, Latitude 56.55'. The workshop was held at K@2 Karosta, Latvia, in July 2003 (Galloway 2008; Hemment 2004; Tuters and Varnelis 2006; McGarrigle 2012) as part of the Art + Communication Festival (Zeffiro 2012: 251). 'Locative' comes from a grammatical case used in Latvian (and other languages such as Sanskrit, but Latvia was the site of the workshop so its language is more relevant here) that implies location. 'Locative' in the Oxford English Dictionary has not been updated since 1903 so is still unused and awkward in English except in this context.

Once an enormous Russian military port built for Tsar Alexander III in 1890, Karosta, meaning 'war harbour' (K@2, 2003), was sealed off from civilians by an enormous wall and housed up to 25,000 inside at its peak. Abandoned since Latvia gained its independence in 1994, with a poor and excluded community of Russian speakers left at the site, by 2003 it was in a state of neglect. The workshop proposed that artists use U.S. military-developed technology, GPS, to map the stories of the Russian ex-military zone. The large surface area of the base, the layered and complex historical past, present and future narratives and the need to leave no visible trace made Karosta well-suited for locative media practice.

[13] Artists Janet Cardiff (*Forest Walk* 1991) and Teri Rueb (*Trace* 1999) both developed their first piece of locative media at Banff Centre in Canada. *Urban Tapestries* (Proboscis, Lane and Angus 2002-2004) was made in the City and Building Research Centre through the collaborative project Mobile Bristol run by Hewlett Packard Labs, Bristol University and The Appliance Studio. The funding for Mobile Bristol supported work with artists (such as Giles Lane and Alice Angus of Proboscis) to build a tool for creating locative media practice. Their second generation tool Mediascapes (Stenton et al 2007) increased artist engagement with locative media as it was easy to use and included a place to upload their work for others to try (300 pieces when it closed down in 2009 including Teri Rueb's *Core Sample* [2007]) and guidelines written by Jo Reid (Stenton 2016). Blast Theory's work increased in technical complexity and finesse during their collaboration with the Mixed Reality Lab at Nottingham University (Adams and Rieser 2011: 402). Some of their best-known art was developed through this relationship, for example, *Desert Rain* (1999), *Can You See Me Now* (2001), *Uncle Roy All Around You* (2003) and *Day of the Figurines* (2006).

Manovich, 'some of the most amazing art of our time' (2005: 27). In 2004 Hemment stated that it was impossible to map locative media's future trajectory (2004: 06). In 2011, Phil Stenton described the medium as having not yet reached its full potential – and now, in 2016, its future remains impossible to predict.

Against this background of debate around its definition and use, the term 'locative media' is used in this thesis. Once 'media' is dropped, as in 'locative art' or 'mobile art,' it becomes hard to distinguish locative media art from other site-specific arts and other art forms such as walking and sound art. Locative-sensing technologies are now used in many commercial applications (apps) and social networks and are also called locative media, as Jordan Frith explains:

> Locative media refers to any form of media – ranging from in-car GPS displays to RFID tags – that feature location awareness, which is a device's ability to be located in physical space and provide users with information about their surroundings. (2015: 2)

'Locative Media' was capitalised in the call for papers for the 2006 LEA online publication, to distinguish this 'spatially contextualised art' (Aceti 2016: 11) from, for example, GPS location technologies. I use locative media (written in lower case) in this thesis on arts practice and research and frequently extend it to locative media art, to remind the reader of the art within and to disassociate it from commercial applications and locational technologies. In his LEA editorial Hemment speaks of his desire not 'to resolve tensions that exist between competing definitions of the term' (2006) and to keep the definition broad. In addition to tensions in how to define it, there were also tensions regarding locative media's military provenance. Andreas Broeckmann, the director of the Berlin-based digital art event Transmediale, suggested in an online forum that artists had the duty to address the system of control and surveillance they were working with (Tuters and Varnelis 2006: 360). A significant body of work has been carried out that references its military roots and especially the first Gulf War where GPS had been used for the first time in combat (Blast Theory 1999; Levine 2004). Locative media, says Julian Bleecker and Jeff Knowlton,

> [O]wes most everything to the U.S. military's deployment and $400 million (U.S.) annual maintenance of the Global Positioning System' (2006).

Artists using mobile phones can become frustrated - 'the level of control and ownership of the mobile world is absolute,' says Blast Theory's Matt Adams (Adams and Rieser 2011: 411). Apple's 'closed' iOS system requires permission from the company before publishing while Android, according to Frith, is not the 'democratic, open platform' (2015: 39) it is reputed to be. Work made in response to surveillance possibilities and dystopian futures is not the focus of this thesis. However, the researcher recognises that GPS development history is useful to acknowledge in order to contextualise its use in this research that concentrates on locating landscape's stories (see the timeline on p. 31-32 and 239-249).

The inclusion of Misha Myers's project *way from home* (2004) in the 2006 LEA special issue (Myers 2004; 2006), kept the definition of locative media broad as it contained no 'location-aware media as such at all' (Hemment 2006). No media played or displayed was activated by GPS or other locational technologies. In Myers's piece recording equipment was used as well as analogue (paper, pencil) and digital (photo, audio) played back in an online digital interface map. The locational experience was in the making, sharing (for some, walking and talking) and recording of an asylum seeker's map of their home overlaid onto their new location and by listening, viewing and interacting with the online map. Myers's work would not have been described as locative media by Bleecker and Knowlton, who, in the same original LEA special edition, used GPS 'as a boundary marker' (2006) for what is locative media work. Using their definition, locative media includes tracking and surveillance, mixed-media and mixed-reality performance and games, GPS drawing, map-hacking and placed narrative, of which the latter is relevant to this research. Marc Tuters and Kazys Varnelis simplified the list into two groups, annotative, which they describe as 'virtually tagging the world,' and phenomenological, 'tracing the action of the individual in the world' (2006: 359). This definition incorporates work such as Myers's *way from home* (2004) that used analogue to create work (tracing the action of the individual) before the technologies were available (in this case multi-media online personalized map-making tools).[14] The timeline (p. 31-32 and 239-249) illustrates locative media's potential in earlier work. Technology did more than make ideas possible; new developments inspired or pushed forward ideas and art, which

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[14] Examples of multimedia online map-making tools now available include Historypin, ScribbleMaps and Google Map Maker.

has kept going the cycle of creation between technology and art. The timeline offers a historical perspective on the emergence of narrative locative media against available technologies that has not been mapped together in this way to date.

Mimi Sheller and Hana Iverson, guest editors of the recent 2016 LEA special issue on locative media, renamed 'Mobile Network Culture in Placemaking' and published 10 years after the first LEA Locative Media special edition, offer a new definition for locative media. In doing so, it is notable how the reference to locative media as mobile art requires extensive description and uses conditional or uncertain terms such as 'might', 'tends' and 'includes' rather than 'is':

> Mobile art includes a diverse set of practices that might involve sound walks, psychographic drifts, site-specific storytelling, public annotation, digital graffiti, collaborative cartography, or more complex "mixed-reality" interactions. It tends to engage the body, physical location, digital interface and social relations both near and distant […] mobile art provides a sensory engagement with virtual and material surroundings, mediated through the participant's embodied sensations augmented by digital technology. (Iverson and Sheller 2016: 15)

With only this recent, fairly loose definition, locative media remains flexible, subjective and unstable.

2.3 Locative media narrative and technologies timeline

Marshall McLuhan wrote that it was 'the business of the artist' to explore the potential and limits of technology long before the rest of society 'suspects anything has changed' (McLuhan [1989] 1992: 6). This exploratory role can be traced through this novel timeline that maps emerging technologies and locative media artwork together. The timeline offers a historical overview and mainly focuses on English-language locative media narrative. Existing information such as new artwork and new gadgets have been selected, compiled and compared when positioned. Besides locative media work, also included are mobile performance, mobile sound art and locative media games, selected for their potential and influence on later work or for inventive use of emerging or existing technologies. Listed is just a *sampling* of relevant works by artists who work extensively in this field, such as Cardiff, Rueb, Speakman/circumstance and Blast Theory. Their websites contain more examples of narrative and other work; links can be found in the list of references p. 221. This is a condensed version of the timeline for illustration purposes. The full version

including references can be found in Appendix A p. 239-249). The figures for the number of apps available on Apple's App Store and Android's Google Play are only estimates taken from online researchers rather than exact verified figures. In this edited version of the timeline, abbreviations are used and a list has been provided with the full explanation of the terms.

Abbreviations used include:

PDA – Personal Digital Assistant (an early handheld tablet computer)

GPS – Global Positioning System or Global Positioning Satellite System

MP3 – a compressed audio file/audio coding format

iOS – Apple's operating system used exclusively on Apple devices

Android – the Google-developed Android operating system; open source (code is available), it runs on various phones from multiple companies

Apps – an abbreviation of 'application'; apps such as 'Google maps' are downloaded onto smartphones from the Apple's App Store or the Google Play Store (as well as Amazon app store and Windows).

Timeline

Chombart de Lauwe, Paris, maps a student's movements over a year

Guy Debord creates psychogeographic guide of Paris and encourages dérives, or drifts, through the city

The **Situationist International** forms to create situations and perform drifts in the city

Max Neuhaus stamps 'LISTEN' on audience hands before taking them for a silent walk

A Line Made by Walking by Richard Long, Wiltshire. Land art/earthwork, a walk and an image of the line made of the walk

Spiral Jetty by Robert Smithson, Great Salt Lake. Land art/earthwork that is revealed through walking

France on the Horizon by Hamish Fulton, a walk and a photograph from the walk. The artist walks leaving landscape unchanged

The Lovers by Marina Abramovich & Ulay. Both artists walk from opposite ends of the Great Wall and meet after 90 days

Museum Highlights by Andrea Fraser, Philadelphia. A guided museum tour led by Fraser in the guise of fictional docent Jane Castleton

Janet Cardiff makes Forest Walk, an audio walk, during a residency at the Banff Centre, Canada, using a 4-track cassette deck

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1942 — Bell Labs launches its radio telephone for vehicles

1952

1955

1957 — Sputnik 1 launched by Soviet Union

1960s — First satellite-based navigation system TRANSIT developed by the US

1967

1970

1975 — Martin Cooper of Motorola granted patent for cellular handset technology

1978 — The first of 24 Navstar satellites sent into orbit 20,200km above the earth

1979 — 'Personal stereo' Sony Walkman cassette player launched

1981 — Compact disc (CD) launched

1984 — Portable CD player Sony Discman goes on sale; Psion launches handheld Organizer, a small computer-like device

1985 — The Internet becomes available during mid-1980s

1988 — Mark Weiser first mentions Ubiquitous computing (Ubicomp) at Xerox PARC

1989

1990 — Selective Availability (SA), which reduces GPS accuracy on civilian devices, is turned off during the Gulf War

1991 — GPS used in first Gulf War, broadcast on global television satellite networks

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Ghetto Life 101 produced by Dave Isay. A radio documentary montage of two African-American teens moving through the violent South Side of Chicago

Louisiana Walk by Janet Cardiff, Denmark (binaural audio walk)

Münster Walk by Janet Cardiff, Germany (binaural narrative walk)

the first five miles. by Pearson/Brookes, Wales. Texts performed by Mike Pearson while walking through a contested site combined via live satellite link with pre-recorded material simultaneously broadcast by Radio Ceredigion as bilingual stereo radio

Trace by Teri Rueb, Canada. GPS-activated walk using a backpack containing laptop and a portable GPS unit

The Missing Voice: Case Study B by Janet Cardiff. Film noir audio walk in London using CD

Desert Rain by Blast Theory. Interactive war game and installation based on Gulf War

Online publication of the **Headmap Manifesto** by Ben Russell, predicting locative media and its potential

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MPEG Layer 3 (later called MP3) developed by Frauenhofer IIS

Tim Berners-Lee and collaborator Robert Cailliau's **WorldWideWeb** becomes available to the public

Selective Availability (SA) reactivated

1992 — IBM shows off first smartphone, the Simon Personal Communicator; The term Personal Digital Assistant (PDA) first used by John Sculley

1993

1994 — IBM's Simon Personal Communicator goes on sale

1995 — Navstar satellites fully working; TRANSIT satellite-based navigation system replaced by GPS; MP3 is named

1996

1997 — Tomislav Uzelac invents first MP3 player; Two handheld devices – mobile phones to keep in touch and PDAs for information management – start to be combined

1998

1999

A Large Slow River by Janet Cardiff (binaural audio walk)

Taking Pictures by Janet Cardiff (binaural audio walk with photographs)

Botfighters by It's Alive, Sweden. First commercially released location-based mobile game. First-person shooter game moving through urban spaces – with text messages

Can You See Me Now? by Blast Theory in collaboration with the Mixed Reality Lab, Nottingham. Online players compete against members of Blast Theory on the streets. Tracked by satellites, Blast Theory's runners appear online next to up to 100 players on a map of the city. Handheld computers show trackable positions of online players. Players exchange tactics, send messages and eavesdrop on the runners' walkie-talkie feed

Urban Tapestries by Proboscis, London. Participants locate stories and experiences on PDAs using text, audio, photographs and video

34 North 118 West by Jeff Knowlton, Naomi Spellman & Jeremy Hight, Los Angeles. A narrative audio walk using a PDA with a GPS card and headphones

[murmur] by Shawn Micallef, James Roussel & Gabe Sawhney, Toronto. Signs display a number to dial from mobile phones to hear stories of place

Uncle Roy All Around You by Blast Theory. Online and street players collaborate to find Uncle Roy using mobile devices, Internet access and GPS

Linked by Graeme Miller. A memorial to a community erased to make way for the M11. Uses radio transmitters and receivers

Milk by Esther Polak & Ieva Auzina. Uses GPS and personal stories to trace the route of milk from a Latvian farm until its sale as cheese in Holland

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2000 — GPS accuracy increases noticeably, from 50m to 3m on a clear day, when President Clinton announces removal of SA (Selective Availability); Intel announces 'Computing, not computers, will characterise the next era of the computer age'; Apple launches its first iPod MP3 audio player

2001

2002 — Motorola A1000 is the only mobile phone with GPS sold in the UK (mobile phone use still very expensive as is permission to use Ordnance Survey maps)

2003 — MP3 players integrated into some mobile phones; Social media emerges. MySpace launched; Term 'Locative Media' used for the first time by Karlis Kalnins

way from home by Misha Myers, Plymouth, UK, using analogue (paper, pencil) digital (photo, audio) played back in an online digital interface map

Shadows from another place - san francisco <-> baghdad by Paula Levine. Baghdad bomb sites, from the first US invasion in March 2003, are mapped onto San Francisco using photographs, maps and GPS coordinates, the same technology used by military to target original sites in Baghdad. Each site contains a geocache, a cannister containing names of all US military personnel who died in the war

Drift by Teri Rueb in Cuxhaven, Germany, using a Pocket PC, GPS and headphones

Riot! 1831 by Hewlett Packard Labs and Mobile Bristol. A nonlinear narrative using Mpad – a PDA and headphones

Bronx Hip Hop Soundwalk by Soundwalk on CD

Bio-mapping/Emotion mapping by Christian Nold. Walkers wear device that records galvanic skin response mapping 'emotional arousal' to geographical location

Ground Zero Soundwalk by The Kitchen Sisters and Soundwalk on CD

Frequency 1550 by Amsterdam Montessori School & Waag Society. Pupils collaborate with online students to solve location-specific assignments that reveal the city's medieval history

Leonardo's Electronic Almanac special issue on Locative Media

TXTual Healing by Paul Notzold, Brooklyn. Passers-by texts are projected onto a building as a speech bubble if they text the artist

Cherry Blossoms by Alyssa Wright, Boston, USA. Backpack contains microcontroller and GPS unit. Iraq bombings are mapped onto a Boston map. When the participant walks into one of these sites, the backpack releases a cloud of confetti (smoke and shrapnel). Each piece of confetti is inscribed with name of a civilian who died in the war and circumstances of their death

Carrlands by Mike Pearson, composed by John Hardy & Hugh Fowler. Three site-specific MP3 audio walks animate landscapes 'lacking conventional scenic heritage'

2004

Facebook launched

2005

Google Maps offers public and free access to maps

2006

OpenStreetMap offers public and free access to maps

Twitter launches

80 million smartphones ship worldwide

Core Sample by Teri Rueb on Spectacle Island, Boston Harbor, USA, a GPS-based sound walk using open-cell headphones

And While London Burns by Platform. An MP3 opera audio walk exposes the oil connections in London's financial district

Rider Spoke by Blast Theory. Participants cycle through city streets equipped with a hand-held computer searching for a hiding place to record a short message. The search then starts for others' hiding places

Cross/Walks: Weaving Fabric Row by Hana Iverson. Geo-located oral histories are tagged to the changing 'Fabric District' via posters inviting passers-by to call in using mobile phones

Transborder Immigrant Tool by Ricardo Dominguez, Brett Stalbaum, Amy Sara Carroll, Micha Cárdenas, Elle Mehrmand, Electronic Disturbance Theater 2.0/ b.a.n.g. lab. Re-purposed mobile phones guide dehydrated immigrants heading to the US from Mexico to water safety sites and play poetic audio

2007

Apple launches iPhone (running on iOS, Apple's operating system) after a strong marketing campaign

2008

First smartphone running on the Android operating system released by HTC

Apple launches iPhone 3G incorporating GPS (located position on Google Maps) and Internet connection (3G)

Apple app store opens. Applications (apps) can be downloaded to iPhones

Google's app store opens

iOS Software Development Kit released so apps can be developed for the iPhone. iPhone apps need to be approved by Apple before being published

By year's end the App Store (Apple iOS) has approx. 100,000 apps available. Approx. 30,000 apps are available for Android smartphones, rising from 16,000, at end of 2009

2009

2010

Between January and November apps available on the App Store (Apple iOS) increase from 140,000 to 400,000. On the Google Play Store (Android) the number rises from 30,000 to 100,000

Audio Obscura by Lavinia Greenlaw. An MP3 narrative drift around a busy train station eavesdropping on others' thoughts

Tate à Tate by Platform on MP3 reveals the oil sponsorship of Tate in Tate Britain, Modern and on the boat connecting them

Tomorrow the Ground Forgets You Were Here by circumstance. Walking in Ghent, Belgium, shapes sound and narrative as live sound is mixed in with recordings. Uses satellite positioning and Bluetooth beacons

Magic of Modern London by Amblr, produced by Alex Butterworth. An iPhone app treasure hunt around London collecting amulets and charms

Indeterminate Hikes+ by EcoArt-Tech, Leila Nadir & Cary Peppermint. Ordinary places reimagined as sublime landscapes with smartphone app

Oil City by Platform during the Two Degrees Festival in London. Mobile phones and participant involvement (including spying) in an immersive interactive performance in small groups in the financial district

Pokémon GO app game becomes the App Store's No. 1 within 5 hours. Using the phone's camera, AR (alternative reality) Pokémon characters become visible in the user's real environment

2011

27% of UK adults are smartphone users, 59% of these claiming to have purchased their phone in the past year. Phone calls and text messages remain its core functions

The app HistoryPin locates or 'pins' audio recordings (such as memories) photos, films and documents onto Google Maps

2012

By year's end the App Store (Apple) has approx. 700,000 apps available and Google Play Store has approx. 350,000

2013

2014

72% of UK online adults use social network sites. For the first time the number of Android apps available on Google Play overtakes those published in the Apple App Store

2015

66% of UK adults now own a smartphone, using it nearly 2 hrs daily to browse the Internet, access social media, bank, shop online. 93% own/use a mobile phone

2016

An estimated 2.3 million Android apps are on the market and 2 million apps are in the App Store for Apple devices

71% of UK adults own a smartphone. More adults connect to the Internet at fast speeds via superfast broadband or 4G and average 25 hours online a week. 59% consider themselves 'hooked' to their connected device, while 34% seek periods of time offline

2.4 Locative media: a technical overview

During *Trace* (1999), the first documented piece of GPS mobile art, Teri Rueb's participants hiked up a mountain trail wearing closed-cup headphones and a backpack containing a laptop and GPS receiver. Contributors' pre-recorded reflections on personal loss (Rueb and Rieser 2011: 389-390) played at GPS points as the walker passed evolutionary traces stratified in the Burgess Shale Fossil beds. The content revealed aspects of human experience rather than detail in the landscape at longitude and latitude coordinates. A subtle link between loss and fossilisation worked on the participant as they walked and the piece offers insight into movement between layers of engagement between digital and physical worlds. Although the content was immersive, the heaviness of the backpack and physical exertion involved in carrying it, sometimes uphill, along with the need to check a paper route map, must have repeatedly pulled the participant back into the physical present away from deep immersion in digital stories, songs and poems. Probably unintentionally, active participation in mobile media experiences, by flipping in and out of immersion rather than passively and statically consuming art, had begun. Computing at this time was not invisible or ubiquitous. Although it was a sensed weight that caused discomfort, computing had moved from its bulky and cabled anchoring to office desks to be mobile in landscape blurring borders between physical and digital spaces (de Souza e Silva 2006: 261).

2.4.1 A **G**eo-**P**oetic **S**ystem: Locative media using smartphones

Within this research I have coined the term 'geo-poetic system' as an alternative to the more common GPS – global positioning system – to be more meaningful in relation to the tool's use in this research. I use this term to describe the latest locative media art sub-genre using smartphones – multimedia content delivered through users' mobile phones dependent on a user's geographical location. The 'Swiss Army Knife' of gadgets (Jones and Marsden 2006: 11), the smart mobile phone, animates an increasing amount of our life with digital content. In 2008 commercially popular smartphones (for example the iPhone 3G and HTC using Android) incorporated GPS technologies, Internet connection and media recording and playback. Despite the aforementioned fact that commercial app access protocols and bureaucracies replaced the 'hands-on' DIY hacking and enthusiastic manipulation of available technologies in earlier locative media work, there are advantages. The smartphone is easily portable making it more useful and practical to use in landscape in

contrast with Rueb's backpack. It becomes an invisible tool in the proficient and familiar user's hands. Using ubiquitous computing the unobtrusive phone puts the human back into the centre of the located art experience – as long as they can disengage with the screen to look at the landscape. If users find the app easy to use the technology does not overshadow the experience (Weiser and Seely Brown 1995).[15] Alternatives to the phone such as Google glasses still put a glass layer, a barrier, between the participant and the world – a barrier that might distract one away from the physical world (Robinson et al 2015: 145-148). A future using more body gestures to operate the phone like 'a wand' connected to a digital 'cloudlet,' without needing to glance at a device, will make the smartphone, Simon Robinson, Gary Marsden and Matt Jones believe, less obtrusive (Robinson et al 2015: 364-391) and the human even more central in human computer interaction (HCI).

Since the smartphone screen is currently too small to frame the experience, the eye is led from displayed images and a live map (and ear through audio to prompt investigation and imagination) out into the material landscape. As a telephone, it is the conduit in a private exchange with a disembodied voice; one can feel closer to a person on the telephone than those physically present (Meyrowitz 1985: 38; Turkle 2008: 122). By contrast during a locative media experience the phone connects the user not to a person at a distance as with a telephone call but with place, the location where they are standing. The person speaking is not there, indeed they might not still be alive but one hears their voice, making them both absent and present.

2.4.2 Magic and disconcertion

The mind and body responds when media relevant to place (often from the past) appears magically while walking in the present. Feeling as though one is being drawn out of the real by the immaterial (intangible digital content), feeling distant from the materiality of

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[15] Mark Weiser imagined invisible computing while at Xerox Parc in California in the late 1980s. His notion, now partially a reality, was ubiquitous computing, frequently abbreviated to Ubicomp. He referred to it as calm computing, as it was quietly active and out of sight, enhancing our peripheral or sensory reach and available, or visible, when needed (Weiser 1993; Weiser and Seely Brown 1995). Through Ubicomp, humans could move to the centre of Human-Computer Interaction (HCI). Technology would shift into the background; 'It is invisible, everywhere computing that does not live on a personal device of any sort, but is in the woodwork everywhere' (Weiser 1996). Pervasive media uses the same idea of media being everywhere.

landscape while physically remaining within it, is more supernatural than everyday. Haunting, ghosts and magic are conjured in stories when thresholds between opposites are crossed such as the everyday with a spirit world or life with death. Locative media adopts the theatricality, wonder and sometimes unease of the séance or mirror illusions of Pepper's Ghost.[16] Standing in the same spot as a disembodied speaker is a conversation 'between a ghost and a ghost-to-be' (Basho 1689 cited in Macfarlane et al 2014: 4) and a reminder of 'the porousness of the border between the worlds of the living and the dead' (Sebald 2007: 16). Media has historically been perceived as haunted (Sconce 2000), and sound lends itself especially to 'amplifying the haunted and uncanny qualities of places' (Gallagher 2014: 1). Tapping the phone screen replaces the knocks and raps of the medium drawing down voices, sometimes from the dead to connect with psychically rather than physically (Sconce 2000:7). Memories support the ghostly atmosphere yet further, disembodied voices of 'superfluous or additional inhabitants' (de Certeau 1984:106) whisper memory fragments, appear unexpectedly then vanish again, leaving the listener wary and wondering about the next haunting.

Science-fiction writer Arthur C. Clarke (1917-2008) noted that 'any sufficiently advanced technology is indistinguishable from magic' (Clarke in Solnit, 2004: 114). Magic and illusion describe happenings that thrill, scare, worry, confuse, bewilder or leave an audience in awe. *Disconcertion* is the term used in this thesis to describe reaction to locative media 'magic', 'the technological sublime' (Semiconductor, Jarman and Gerhardt 2013). A mixture of pleasure and surprise, nervousness or confusion, *disconcertion* is a term devised by Cardiff to keep participants self-aware, embodied and engaged rather than passive during her immersive binaural audio walks (Cardiff in Egoyan and Cardiff 2002). Like a magician's craft, it is created purposefully but feels supernatural and magical to the audience. This research hypothesises that *disconcertion* opens or awakens the body senses and imagination, the body-mind. Participants in a state of heightened observation broaden the scope of the experience often mistaking the general public as characters within the experience when in fact their presence is coincidental. It is in this state of preparedness for the unexpected that

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[16] Pepper's ghost is an illusion using a hidden mirror and a hidden room. A figure is revealed once the lights are put on in the secret room and, if the positioning of the mirror is correct, can look as though the figure is floating in space.

contested and alternative perspectives from place can surface. Michel De Certeau spoke of 'a second, poetic geography on top of the geography of the literal, forbidden or permitted meaning' (de Certeau 1984: 105). Locative media reveals the second poetic geography through layers of stories. Alternative voices can challenge accepted histories, changing 'who gets to tell the story' (Farman 2012: 6).

Tate à Tate (2012) by Platform at Tate Modern, Tate Britain and the boat ride that connects them, is a locative media art piece that challenges BP (British Petroleum) sponsorship of the prestigious cultural establishment. Platform claims that Tate sponsorship legitimises BP's oil and business practices, which includes their negative effect on the planet and its communities (Platform et al 2015, Evans 2015). The *Tate à Tate* participant, listening through headphones plugged into their mobile phone, blends in with the gallery guided visitors to become a physical witness (Myers 2010:61-62). One is prompted to wonder whether Joseph Beuys, artist and a founder of the Green Party, would appreciate his work being exhibited in a BP oil-funded exhibition. The participant, as in Platform's earlier work *And While London Burns* (2006),[17] experiences art and a contested narrative on a 'hidden frequency known by few' (Darby 2013b: 3). The participant is offered the choice to 'cooperate, co-compose or co-conspire' (Myers 2010: 62), stay quiet, passive and listen, or become a subtle political activist. Participants choose whether to gently disrupt visitor protocol at Tate Modern. They decide whether to wave into a security camera, ask to be shown a removed piece of art or drift on the escalators near security guards rather than following the directed visitor flow. The experience ends standing in front of the Tate interactive feedback screen. The gallery visitor is prompted to leave a message. After witnessing the *Tate à Tate* locative media work, what message will you leave to Tate?

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[17] In *And While London Burns* (2006) art, activist, research and education group Platform walk participants around London's financial centre, to hear how oil pollution and dirty deals keep this clean city district rich. It is the participant's face that is reflected on the buildings' surfaces of one of the oil capitals of the world: who is responsible in some way, who should do something about the situation? The participant must look herself in the eye to question her role in allowing it to continue, in not getting involved in the movement to stop it, in consuming oil. The reflection looks back (see Myers 2010: 62).
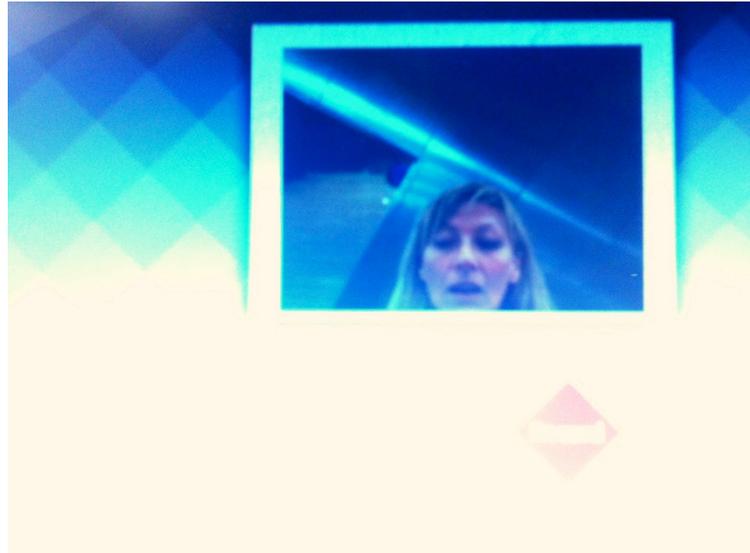
Figure 4: In *Tate à Tate* (2012) by Platform the participant witnesses BP sponsorship in Tate Modern and is asked to wonder how artist Joseph Beuys – artist and founder of the Green Party – would feel about his work being exhibited in a BP oil-funded exhibition. The MP3 audio walk ends in front of the feedback screen. What message will you leave? Photographs by the author.

It's worth mentioning that responses left by Platform's app participants contributed to Tate's decision not to renew BP's art sponsorship deal in 2016 (Khomami 2016). Locative media art was used to raise awareness of oil sponsorship within the very building and organisation that benefitted from the funding. The app affected the participant through information and witnessing. While moved, the experience offered users the choice to take a stand (and to play) through non-standard behaviour or to leave a message overheard by other Tate enthusiasts. I myself said that I would not renew my Tate membership until the flow of oil money had been halted. The purpose of relaying this experience is to demonstrate that locative media and its alternative narratives can play a role in land stewardship and raising awareness, valuable in sites such as Hayle.

2.5 Locative media summary

This chapter started with a grounding in aspects of locative media's mixed heritage and evolution but acknowledges that there are other paths leading towards locative media, still an emerging and transforming art form. Locative media's trajectory has been shown to be unpredictable with potential for it to become easier to implement as new technologies catch up. Artists' early experimentation with emerging technologies have kept the art form vibrant and in constant transformation but have also inspired commercial applications that at times threaten to obfuscate locative media's 'art,' which has become a tension. The

unknown potential of the medium that responds to technological innovations and creative ideas has nurtured mutually beneficial collaborations between artists, technologists, researchers and computer scientists.

The definition of locative media is kept broad in this thesis. The term locative media, or locative media art, will be used throughout the thesis despite on-going debate on their definitions. This research focuses more on a poetic strand of locative media rather than the media's dystopian societal control and surveillance associations. The poetic strand in this research can still engage with political issues, illustrated through the campaigning art of Platform *within* the Tate gallery buildings and Tate boat. Locative media is identified as useful in raising awareness of land stewardship in a site in crisis through redevelopment, such as Hayle.

Poetics include automatic playing of voices during GPS-activated locative media. This research suggests that the potential of magic and disconcertion increases by using a smartphone (a geo-poetic system) rather than digit-controlled locative media such as MP3 players. Magic and disconcertion may offer clues on how to open and move the body's senses and mind – intellect and imagination – between both the digital and physical worlds: a twilight hybrid space.

3 CONCEPTUAL FRAMEWORK: immersion, embodiment and landscape

This chapter identifies elements within existing practice, theory and research that could connect the body-mind with landscape using locative media. In order to answer the research question a conceptual framework has been devised made up of three elements: immersion, embodiment and landscape. The framework has been developed through experiential testing of others' work, experimental early practice and desk-based transdisciplinary research in addition to dissemination of ideas and discussion at conferences with peers.

3.1 Conceptual framework: an introduction

> Every story told suggests those that remain buried and untold.
> To read a landscape in the geographical sense is to read its history
> in land forms and built structures, behind which lie the stories of the people
> who made that history, which in most cases can only be guessed at.
> (Lippard 1997: 287)

> To be human is both to create this distance between the self and that which is beyond
> and to attempt to bridge this distance through a variety of means – through perception (seeing,
> hearing, touching), bodily actions and movements, and intentionality, emotion and awareness
> residing in systems of belief and decision-making, remembrance and evaluation.
> (Tilley 1994: 12)

In this chapter the conceptual framework components of immersion, embodiment and landscape are introduced before a more detailed explanation of how each term is used and why. The term 'framework' is used to imply that the three concepts are interdependent and that together they provide a conceptual system with which to address the research. In the section on immersion an engaging story is identified as deeply immersive. The research suggests that immersion in a good story during locative media experiences is affected by how the story and voice is recorded as well as heard by the participant moving through public space. Immersion in the narrative and its storyworld is positive but needs to be interrupted if connection to landscape rather than a distancing from it is experienced. Close examination of research into immersion during locative media experiences and the role of audio have identified approaches that describe how to move the participant through levels of immersion. *Immersive flux* is used to describe shifting stages of immersion that affect embodiment and were taken forwards into the practice.

The embodiment section explains how locative media experiences are intrinsically embodied – the body activates media in GPS zones through walking in landscape. Embodiment in the physical world can be lessened by an immersive story and the use of headphones but immersion in a story can also expand embodiment into the storyworld. Embodiment in the everyday *and* in the storyworld simultaneously is called *dual embodiment*. Interpretations of Maurice Merleau-Ponty's ideas on phenomenology by a geographer and media theorists are reviewed, which elucidate how the body in landscape and portable devices such as the smartphone affect embodiment.

The final element of the contextual framework is landscape. The idea of tension in landscape originating in creating and viewing classic landscape painting is reviewed. Locative media, it is proposed, can close the distance between the static observer and an often idealised landscape traceable to landscape painting. Those excluded from the traditional landscape frame once again repopulate the landscape. A selection of theories and practice, geopoetics, chorography and *deep mapping* are considered as approaches to tell the story of landscape and to connect the participant to it. *Geopoetics* influences the practice methodology and theoretical thinking behind connecting humans to landscape, chorography offers an example of a form of creative work that mixes arts, humanities and sciences, while *deep mapping* offers concrete examples of practice and research that can be drawn from.

Digital in this thesis refers to digital content such as images and pre-recorded audio – for example memories from the past or sounds from the location. The digital content includes the story, or narrative. The narrative of interest in the thesis and practice is 'narrative archaeology' (Hight 2006: 2; Hight 2013: 244). It is richly layered, nonlinear and sometimes told across different media. Assembled using traces of narratives and micro-narratives of many people, the chronology, characters and stories are fragmented and incomplete. Lack of a complete story highlights the gaps – there are stories that have remained unspoken – and acknowledges the inadequacies of history and different perspectives from those involved and telling the story. As the narrative in the practice is mostly spoken in first-person accounts Paula Levine's term 'emphatic narrative' is useful as the listener can identify with the feelings and experiences of the listener (Levine 2014: 143). Empathy can lead to understanding of personal and public events. The term storyworld is used in this thesis to describe the transmedia content (such as audio narrative) for ease of comparison between the digital world and physical world, the landscape.

Physical in this context is the environment around the participant that can be sensed with the body-mind. The digital information tells the story of the landscape that cannot be sensed. The body responds to digital content (eyes welling up, change of pace, feeling on edge) as well as to the physical atmosphere – temperature, road surface, weather and all data received from senses such as sight, 'kinaesthesia (the sense of movement),

proprioception (felt muscular position) and the vestibular system (sense of balance)' (Paterson 2009:768).

At various points in the text the word 'deep' is used, often in conjunction with *deep mapping* (Pearson and Shanks 1997: 41-53; Pearson and Shanks 2001: 162). In this context *deep mapping* is four-dimensional (with the fourth dimension being time): it is a digging down through the strata of place, histories, stories and meanings such as during an archaeological dig (carefully using sharp observation and various tools) – in this way it differs from conventional two-dimensional mapping. *Deep* and *depth* are also used to describe levels of engagement or immersion in stories and sound. Again, this is an embodied movement through levels with mind and/or body and is not to be confused with visual depth, such as perspective or depth of field, from the eyes forwards.

In her introduction to *Volatile Bodies* (1994:3-4), Elizabeth Grosz describes how certain words such as *depth* or *reason* are associated with the mind, while oppositional terms such as *surface* and *passion* are used for the body. She illustrates further that terms associated with the body are often linked to femaleness and treated as secondary to the male mind. Depth is achieved in locative media by the body and mind's joint (but clearly different) role in perception while walking in landscape.

3.2 Immersion

In this strand of the conceptual framework attention falls on immersion experienced by a participant during locative media experiences, whether digit- or finger-controlled audio (such as MP3 walks) or hands-free GPS-triggered media. A series of seminars in Bristol, in 2004, focused on devising a shared locative media vocabulary (Dovey and Fleuriot 2011: 97). *Immersion* was defined by the group as follows:[18]

> [T]hat quality of the experience which held them in an imaginary or imaginative world, and left them feeling removed from the everyday surroundings of the experience. (Dovey and Fleuriot 2011: 101)

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[18] Seminar contributors included 'Constance Fleuriot, Phil Stenton, Jo Reid and Richard Hull from Mobile Bristol (University of Bristol Dept. of Computer Science, Hewlett Packard Research Labs [HP Labs]), Jon Dovey (Bristol University Dept. of Drama, Film, Theatre and Television), Martin Rieser (Bath Spa University), Teresa Dillon (NESTA Futurelab), Clodagh Miskelly (University of the West of England), and Mark Jacobs (BBC).' (Dovey and Fleuriot 2011: 97)

'Immersive,' says Michael Morris of Artangel, discussing the term in the context of immersive theatre, 'implies that something is surrounding you, enveloping you' and that the audience member is an active participant (Machon 2013: 156). These descriptions of immersive and immersion can be used to describe both locative media art and immersive theatre. Both require participatory embodied engagement of the audience's body-mind inside an experience. Both art forms share common ground and were even adapted and merged in Platform's *Oil City* (2013) in which small groups of participants using mobile phones and collaboration influenced how the piece played out. The topic of immersive theatre is, however, out of the scope of this thesis. Although I predict more hybrid versions of the two art forms will continue to emerge this thesis approaches locative media narrative as usually a one-to-one interaction with raw landscape, using headphones. Immersive theatre is perceived as a *mise-en-scène* shared by others, with a set decorated or populated with props and actors.

At the centre of an immersive locative experience is a good story made more immersive through music and sound effects. In much locative media work the artist or performer (often a hybrid of the two) writes a script and performs it. Their personality or character, writing style and performance shape the piece. Other work, and the main focus of the practice, is assembled from oral history archives and recordings. Through writing or assemblage, the story is created for locative media. It is not for theatre's black box or a gallery's white cube. It is not a story or sequence of stories simply placed in an environment. All the elements are drawn together and considered so that they do something when heard while moving in landscape that is different from walking without media or listening at home. Locative media elements include site, narrative, invisible computing and locational technologies when using smartphones, audio, images, live maps and equipment available to participants and so on. The fusion of digital story, music, sound effects and the physical environment needs to create something new and this is where choices on how to record, the voice performance and how the work will be listened to and with whom need to be considered. It is on these elements that this chapter concentrates, as the qualities of locative media narrative has been explored in completed doctoral theses (see Abba (2007) and Ruston [2008]) and through the on-going Ambient Literature research project (Dovey, Abba and Spencer 2016-18) based at the Pervasive Media Studio in Bristol.

Immersion in locative media was one of the areas investigated in the practice and empirical research around *Riot! 1831* (2004) by Mobile Bristol. *Riot! 1831* is an audio narrative played in fragments dependent on the GPS location of participants moving around Queen Square in Bristol. During the *Riot!* GPS-activated experience, immersion was experienced as a 'transient' rather than 'constant state' (Reid and Hull 2011: 202). Users flipped between immersion in digital content, the constructed experience, and the everyday experience of life in the Square around them. I hypothesise that this transient immersion has a positive effect on embodiment in the everyday physical world and is necessary if there is to be connection to landscape rather than only a deep connection with the story. If flipping in and out of immersion is possible and the experience stays enjoyable, this research suggests a more subtle movement between *levels* or *depths* of immersion in the digital storyworld could also have an impact on connection to landscape.

From 563 'usable' questionnaires completed after *Riot! 1831* (2004) immersion received a high score: it was 'pleasurable' (Reid and Hull 2011: 195).[19] There were highly significant inter-correlations with the other high-scoring answers of 'enjoyment' and 'history coming alive,' which indicated that 'immersion is strongly associated with enjoyment (and vice versa)' (Reid and Hull 2011: 195). Immersed participants felt they were inside history, inside the story during the experience, and they enjoyed that sensation.

In addition to noticing that immersion in the experience was transitory (either momentary or could last a few minutes [Reid and Hull 2011:202]), the researchers also identified *what* was immersive.

> [E]vents that immersed people were when a powerful new sound started up, a
> familiar place was mentioned, a regional accent resonated, a familiar character was
> recognised or when a physical object in the present day could be related to the
> current event being described. (Reid and Hull 2011: 202)

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[19] *Riot! 1831* ran for three weeks following a media campaign to attract an audience. Participants wore headphones and carried backpacks containing an iPAQ PDA (personal digital assistant) and a GPS receiver. The square and surrounding buildings were visible to those taking part at all times. Quantitative and qualitative data were gathered during three empirical studies of the experience, which included 563 'usable' (Reid and Hull 2011: 195) questionnaires (from over 700 people who tried it), 30 semi-structured interviews with groups and individuals, four ethnographic case studies (Blythe et al 2006: 127) and 531 mapped tracks of participants' routes through the work.

Disruptions in immersion occurred when participants were interrupted by something outside the piece in the physical world – a friend calling them, technical glitches such as a sound file stopping suddenly, or when puzzling over why physical features in the landscape weren't referred to in the narrative (Reid and Hull 2011: 203). The quality of the narrative and its delivery played a role in immersion. If participants lost interest in a story fragment, they dropped out of an immersive state. Minor characters with only seconds to get character and lines across were described as 'stereotypical,' with class-based accents (Blythe et al 2006: 135). Some participants found this trite, lost interest and flipped out of immersion in the digital world back into the physical world. An experience needs to be highly engaging for participants with interruption of immersion coming from within the design of the experience rather than from the participant losing interest.
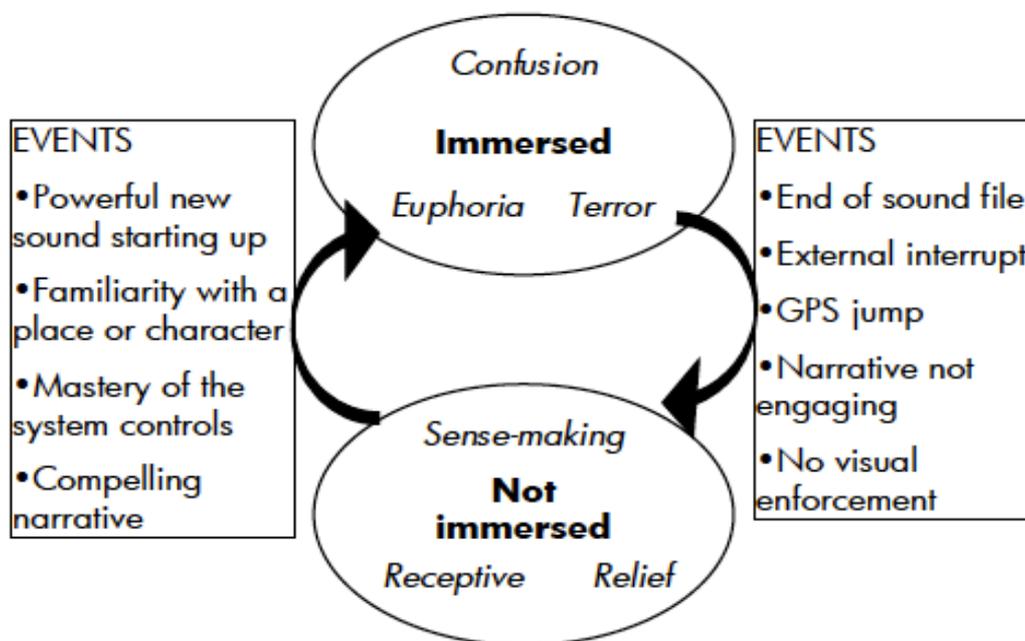
Figure 5: Model of flows in and out of immersion by Josephine Reid based on the *Riot! 1831* (2004) findings (Reid et al 2005: 1736; Reid and Hull 2011:203). Diagram by Jo Reid.

More enjoyable immersion disruptions will be explored through the practice as they could aid connection to landscape. Some interruptions have been identified by exploring immersion in practical experiments in the early stages of the research, by trying others' practice and engaging in desk-based research. Some of the disruptions discussed in the *Riot!* findings noted above were sound- and voice-related. Further discussion on the role of sound

in locative media is required, grouped under three headings: recording audio, listening to audio and the voice.

3.2.1 Recording audio

Sound permeates the border between digital and physical worlds seamlessly unlike other media; for example, image that needs to be viewed through the smartphone interface. Out of sight and beyond our grasp, sound, as identified by Hayden Lorimer and John Wylie (2010: 8), can embellish what we can't sense or see, forcing imagination and personal knowledge to fill in 'sensory blanks' (Farman 2012: 20). Farman goes on to say that filling in the blanks can lead to embodiment in the digital world, to 'practice embodied space' (2012: 20), as he calls it. This will be referred to hereafter as digital embodiment, as it is often compared to embodiment in the physical world in this thesis and discussed in terms of dual embodiment. Stimulation through music or radio is, of course, common but listening to narrative while moving – mobile art – is less so. There is public interest and potential in mobile narrative. Butler found participants spend considerably longer listening to audio while walking outside than they do in museums (2011: 213).

Since the arrival of the Sony Walkman in 1979, personal portable music players used with headphones have been criticised for alienating and 'individualising' listeners from their surroundings (see Hosokawa 1984; Frith and Fargo Ahern 2014: 497). Although engaging content heard through headphones can create distance, this research suggests that sound, especially binaural sound, heard through the ears and felt resonating through the skeleton can be used to connect the body as well as the mind to the landscape, especially if aspects of the sound are related to the landscape being experienced.

3.2.1.1 Binaural sound

Binaural sound (delivered to each ear separately) differs greatly from mono-directional and stereo sound. The 'fuller' stereo sound (when compared to mono), when played in headphones, is still only heard as though from the ears or shoulders forwards. Once wearing headphones and listening to a binaural recording, sounds play as though from inside a large bubble, a 'sphere of reality' (George Bures Miller in Christov-Bakargiev et al 2012). Sounds are heard from the side, above, behind, close, far. Layered richly, the 'sonic stratigraphy' (Pearson 2011: 283) of omnidirectional sound is heard simultaneously. The 'passive

frontality of art' (Carolyn Christov-Bakargiev in Christov-Bakargiev et al 2012) is broken as one is *inside* the art rather than hearing it from a static directed position. Hearing sound in sharp detail from unexpected angles, such as behind the head, feels uncanny to many listeners. The artist manipulates sound levels of layers of recordings and presents more detail to the ears than perhaps the brain would select from the general cacophony around the body.

Figure 6: Equipment needed to record narrative segments using a binaural dummy head and microphones (on the left, photo by author). A binaural microphone is fitted into each ear of the dummy head (or they can be placed in the sound recordist's ears). The image on the right shows Janet Cardiff recording binaurally for *Jena Walk (Memory Fields)* (2006). Photograph by Bures Miller/ Cardiff.

The three-dimensional aural sphere of sound (Bures Miller in Christov-Bakargiev et al 2012) or 'dimensionality' (Wylie 2006: 526) is created using binaural microphones. Two small microphones split by a cable are slotted into the right and left ears of a dummy head (seen in Fig. 6) or the sound recordist's ears, to pick up 360-degree sound, how a healthy adult normally hears. If someone speaks into the right ear, then one hears it as though her lips are next to the right ear when played back. If a bird tweets on the left a few metres from the microphone at the same time as the voice speaks on the right, the tweet and the voice are heard and placed in space separately, on different sides of the body, and at the correct distance from the body – the voice near, the bird far. Binaural recordings sound 'hyper real' (Cardiff in Christov-Bakargiev et al 2012), heightening atmosphere and emotion to turn sound walks into an immersive dramatic 'physical cinema' (Schaub and Cardiff 2005: 14). The 'walker-listener-participant' (Myers 2011: 70) is at the centre of the experience, the physical presence in an embodied event. 'Live' landscape moves past the walker like frames in a film, sounds surprise and lead the senses to search for their source in the physical surroundings.

Surprising the participant with binaural sound is used frequently in locative work (for example in Cardiff (1999b) and Gallagher [2012]) and, like tricks in a circus, tends to be the easiest moment to recall afterwards. I experienced an example of this during a performance of *Audio Obscura*[20] (2011) by award-winning poet Lavinia Greenlaw, when a man spoke with urgency right behind me. I disrupted the relentless pedestrian flow in London's busy St Pancras International train station to spin around, as eyes assist hearing by identifying unknown sound or danger. I met the eye and almost body of an alarmed rushing commuter stranger, an accidental performer in the recorded narrative. Other participants had performed the same action and received a similar reaction. In another example, at an isolated and overgrown Scottish ruin, in *Kilmahew Audio Drift No. 1* (2012),[21] Michael Gallagher uses approaching footsteps from behind and a dog barking and running up, with unnerving effect. A fly buzzing around my head in Cardiff's *P.S.1 Walk P.177* (Schaub and Cardiff 2005: T3) evokes the heat and relaxation of a sunny day, lying on the grass, until it gets too close, too loud; the fly becomes large, threatening, aggressive. Singing about lost love can pull on the heartstrings, but as the dummy head ears with binaural microphones (and therefore the listener's ears) moves close to the singer's mouth during recording (a position few will manage during a vocal performance), gasps, internal gurgles, snorts and vibrations add a rather desperate nuance to the song and the sound walk it appears in (Schaub and Cardiff 2005: T16).

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[20] Traces of stripped-back voiced monologues interact with what the participant can see inside St Pancras while drifting with headphones as though listening to a stranger's internal monologue.

[21] In Gallagher's *Drift* oral histories are overlaid and sometimes played simultaneously in the style of Glenn Gould, so that the participant can choose who to listen to, who to tune in or tune out. Those unused to Gould's work or sound art, whose headphone listening leans more to music or speech radio such as BBC Radio 4's clearly separated linear, contextualised features, can find this style conspires with the location to be disturbing and overwhelming. Place is performed through the mix of voices, binaural field recordings and Gallagher's audible interventions; positioning objects under drips to illicit different tones, for example. Each walker's route is different from the next, they co-author the juxtaposition of landscape and audio recording from the site to make place (Gallagher 2014: 2 and 6). While some felt this repopulated the abandoned space, others were disorientated – dizzy and overwhelmed by the depth, direction and density or complexity of the layered sound heard while moving in a strange (meaning both unfamiliar and odd) place. One participant fell into a burn, a small river. Using Gould's layering of sound for a walking audience unfamiliar with sound art in a ruinous site was ambitious but clearly represented the place and its complex history – Laird's castle, lavish mansion, monks' seminary, drug rehabilitation centre and illegal rave location.

Getting unusually close to sounds, bringing up volume, or hearing unnoticed or unheard sounds while moving through the environment, can shift our aural and physical perceptions and work on our conscious and unconscious mind. If you spin around wearing headphones to see the source of a sound, the sound remains behind your head, out of sight. Once again there is the sensation of haunting – a simultaneous experience of the real and 'other'. The insentient can appear sentient. Startling aural hints leave an uncanny sensation that someone or something else, something invisible, is nearby. The 'hyper-real' world of intricate sound enveloping the participant can make them feel removed from the everyday but with a heightened awareness of the material landscape and life heard as never before.

How the story, sound effects and music are recorded constructs the storyworld. Binaural recordings envelop the listener in layered sound with an uncanny depth, clarity and spatial positioning and are deeply immersive. Other ways of recording can also be immersive as the role of narrative, how gripping the story is, also plays an important role.

3.2.2 The voice

Place affects voice. In Mike Pearson's solo performance of *Bubbling Tom* (Pearson 2000), the audience is led around his old home town, Hibaldstow, in Lincolnshire. Moving from location to location telling stories, Pearson describes his 'accent gradually becomes thicker and at times, in emulation of my grandmother, fragments of dialect emerge' (2006a: 21).

Hibaldstow also features in Pearson's MP3 walk *Carrlands* (Pearson and Hardy 2006), a mediated experience using technology and headphones rather than live performance. Locative media presents an opportunity to hear place performed at one's convenience.[22] Narratives played during locative media can range from a single voice telling or performing stories of place, multiple characters voicing their linear, nonlinear or layered memories of place, or an artist directing the participant, as a voice inside the head, through their story of place.

This research hypothesises that a number of factors around voice and its performance through headphones while moving through space affect immersion in stories, which in turn

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[22] Other experiences of place, for example live site-specific performance or walking with those who know the place as MacFarlane does in *The Old Ways* (2012), require designated times and appointments.

affects connection to landscape. The voice needs to speak or perform the text rather than read it, as in any audio performance such as radio drama, to make it sound natural and live. Voice has been used in this research as a method of categorisation: how the voice was recorded, from which direction the voice is heard, how the voice addresses the listener (talking *to* or talking *as* or talking *within*), in what tense and with what tone the words are spoken. This has been split into sub-sections: *Voice Performed from Inside*, an immersive artist-led story or narrative that connects physical elements in landscape with their imagined narrative and, often, binaural soundscape; *Performed Stories of Place*, performer/narrator or multiple scripted actors that mix fact and fiction of place; and *Voices from Place*, memories/first-person accounts including co-authored content.

Although different recording methods are used to capture voice, for example, in recording binaurally as detailed earlier,[23] the convention when aspiring for clarity in speech and volume (Gallagher and Prior 2013: 276) is to have the microphone close to the mouth. When played back through headphones the interviewee's mouth sounds close to the ear, a proximity normally allowed for lovers, family or a close friend's lips (Myers 2010: 75). If the voice is recorded binaurally and the speaker talks from the back of the dummy head (with microphones inserted in the dummy head's ears), when played back it can sound as though the voice is speaking from *within* the head, where the subconscious voice is normally heard. Cardiff can often be heard in this position so that she is inside the body and mind of the participant. The CD in the back of The Walk Book (Schaub and Cardiff 2005) and audio clips on Janet Cardiff and George Bures Miller's website illustrate this when listened to using headphones.

3.2.2.1 Voice performed from the inside

In Blast Theory's *Ghostwriter* (2011b) in RAMM, the Royal Albert Memorial Museum in Exeter, after dialling a number the calm voice of Ju Row Farr addresses the listener as though a level of trust intimacy and friendship has already been established. The voice takes the listener on a walk as a companion, sharing thoughts and experiences. Without this friendly warmth, the listener might not go along with the stranger, moving against the usual

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[23] For binaural recording a microphone is put in each of the artist's ears or that of a dummy head so that sound can be heard three-dimensionally.

museum ebb and flow, dropping down into the storeroom, hovering in a corridor or a dark corner. Moreover, without this immediate and unquestioned bond, the participant might not reveal to someone else, in a public space, deep, secret connections, special objects and special people they have held or lost, which the work invites.

Figure 7: Participants dial-up intimate locative media experience *Ghostwriter* (2011b) in RAMM, Royal Albert Memorial Museum in Exeter. Photographs by the author.

Cardiff choreographs a walker's movement through the ears. The tone of Cardiff's voice is soft but her directions are precise and the walker obeys and follows: 'turn left', 'let's sit down, 'wait here', 'look at the picture' (Schaub and Cardiff 2005: 71). Scripts are written tightly but often spoken in conspiratorial hushed tones sometimes interrupted by the appearance of others. A frequent impression is of overhearing another's thoughts. Using the first person and the present tense (Schaub and Cardiff 2005: 112), Cardiff's words and story activate the senses and urge the walker on, deeper into the site, deeper into her story, deeper into immersion. The participant stays in step with Cardiff's recorded footsteps as she suggests, requests, demands. Responsibility is handed over but the participant does not become passive. Cardiff seems to walk into the participant's body and begins to inhabit it; her voice seems to come from within the head (Schaub and Cardiff 2005: 132-137). I embody the experience, but also her, or she me, 'you're not quite sure what level you stop existing,' says Cardiff (Christov-Bakargiev et al 2012). It is at this point, when Cardiff and the participant intertwine, that uncanny sounds and words cause discomfort and disconcert.

Graeme Miller also used the present tense to record interviews for *Linked* (2003) with former residents (Butler and Miller 2005: 82; Myers 2010: 63), turning their absence into presence. The present tense proved to be more affecting and connected the listener to the

story and place immersively across time during *Geohack* workshops with situated sound artist Duncan Speakman (2014). Past became merged with the present.

To summarise, a friendly, intimate, softly spoken voice at close proximity creates a trusted bond with the listener who is 'walked in and out of immersion' by a fascinating close companion. The experience is between performer and walker-listener-participant who become connected through reciprocal shared confidences that the latter might not have shared before. The close positioning of the recording in addition to the tone and tense used can make the listener feel the empathy and excitement of being in someone else's shoes and in their story during an immersive intimate and often moving experience.

3.2.2.2 Performed stories of place

Recorded more typically in stereo with the voice addressing or talking *to* or *at* the listener rather than talking *as* or *within* the listener, stories of place, often described in the past, mix fact with fiction (or result in the fictionalisation of fact). Acted pieces recorded as though eavesdropping on an event, such as *Riot! 1831* (2004), are also performed stories of place.

In the pre-recorded MP3 walk *Carrlands* (2006) writer and performer Pearson speaks *to* the participant from the stereo recording. During the live performance of site-specific theatre piece *Bubbling Tom* (2000), which the MP3 walk extends into a new medium*,* solo performer Pearson used his whole body, its gestures, action, mimic and movement. In the MP3 walk, Pearson's body performs through his voice, animating and sharing research. The story – a collage of fragments from various sources, local press, geography, science, fieldwork, personal memory and oral histories (Pearson 2010: 81) – is used to draw walkers or distant listeners to three places: Hibaldstow, Snitterby and Horkstow. Pearson uses his voice rather than those of others, which dispels the hierarchies of fact and fiction, detectable or misjudged through accent, articulation and grammar. Instead, such mixed content is interwoven and therefore equalised and anonymised in the writing and performance. Pearson's voice connects disparate elements and makes them coherent (Pearson 2011: 283). He has the authority to tell the history of the landscape and shape this spoken history as he has been shaped by the landscape. Pearson invites the participant to walk with him in 'a seemingly featureless terrain' (Pearson 2007: 3) using headphones on a narrated walk that will transform the experience of the place. Without instruction of where

to look that might render the participant passive, Pearson pulls the participants' bodies, minds and imagination deeper into the landscape through narrative and sound.

Figure 8: The nautical interface for *Sea of Voices* (2012) by Invisible Flock set in Brighton. During the piece participants are told to look up. Screenshot of app detail and photograph by the author.

Performed Stories of Place includes work such as *And While London Burns* (Platform 2007), *Missorts* (White et al 2012) and *Sea of Voices* (Invisible Flock 2012 see Fig. 8). Without the intimacy of the narrator performing close and quietly to the microphone the majority of the time *Performed Stories of Place* rely on a well-written script and a strong performance by the narrator. The performance of the voice often uses its range to animate the text rather than keeping the conversation hushed and intimate. The performance and text are made more immersive by sound effects and music.

3.2.2.3 Voices from place

Voices from Place are first-hand accounts – oral histories that layer physical place often without a precise location, since memory, wandering between fact and fiction, can be vague. There is often no 'pointing to, or out' (Pearson 2011: 285). The story subject roots the memory. The effects of tangible emotion on the voice (a tightening of the throat or a change of breathing), or pauses when recalling real events, can make non-actors powerful speakers when telling their own story. In *Memoryscapes* (2005) by Toby Butler, first-hand accounts reduced distance between speaker and listener (Butler 2007: 368) through empathy and understanding. Oral histories are often recorded as a conversation between two people sometimes in the comfort of an interviewee's home. When played back, it is as if a relationship has been established, though the voice only speaks to or at the listener. The participant merely listens, but hearing and sharing personal stories builds a 'collective memory' of place, which draws together community (Price 2004: 28-29). While linking

listeners, story and place together memories can, according to Gallagher, open out location in an immersive MP3 audio walk (2014: 2). In both Gallagher's *Kilmahew Audio Drift No.1* (2012) and Butler's *Memoryscapes* (2005), MP3 walks that use memories, listeners mentioned 'place-making,' which hints at connection to landscape (Butler 2011: 213; Gallagher 2014: 13). Jo Reid and Richard Hull describe 'the phenomenon of walking through a sea of voices'; layered sound files in a layered locative media story that plays automatically, as a 'Magic Moment' (Reid and Hull 2011: 196).

Personal stories with a voice and delivery that reveal feelings around the story from non-actors can be touching and immersive. Without a script, interesting memories need to be captured in quality recordings made in often less than perfect conditions. Longer stories need to be edited. A lack of clarity in the recording (muffled or distorted), too much background noise or long rambling accounts could challenge immersion in the most fascinating story.

3.2.3 Listening to audio

How sound is recorded affects immersion but how it is listened to also needs to be considered. Listening to audio recordings has changed as technology has advanced and includes families crowding around a radio, hearing others' music via ghetto blasters, straining to hear a cricket match on long wave radio and listening within a personal bubble such as with a Sony Walkman or iPod. How one hears audio during locative media experiences affects immersion in the storyworld and the feeling of distance or separation from the physical world. How one listens also includes *who* one listens with, as company can affect the experience.

3.2.3.1 Headphones

Headphones are necessary when listening to binaural sound and recommended when listening to good quality sound in stereo. Listening, immersion and enjoyment are influenced by the type of headphone used. Closed-cup headphones cover the ears and cut out some but, importantly, not all external environmental sounds while playing digital audio. A frequent choice by those who make locative media and soundscapes, my observation and research indicates that their large size excludes them as a first choice for mobile outdoor listening by participants. Less conspicuous, often more affordable and

widely owned, are ear buds (in-ear headphones), which can let in more external sounds and vary significantly in quality.

In *Audio Obscura* (2011) Greenlaw used noise-cancelling headphones. Busy station sounds were constant, as though the sound from the environment was bleeding in through the headphones enhancing the narrative effect of overhearing conversations and thoughts of those in the space. When the bustle and noise, actually recorded sound effects, were withdrawn abruptly for impact, the silence (made possible with noise-cancelling headphones) was extremely powerful – in fact, shocking. In this piece of mobile sound art, immersion in the story, rather than in the actual place, is more important, hence the noise-cancelling headphones that took the participant away from live aural links with the specific location. The narrative only needed *general* train station atmosphere rather than that from St Pancras. Sound files can be downloaded and played in any 'busy railway station' (Artangel 2015).

Figure 9: *Audio Obscura* (2011) by poet Lavinia Greenlaw takes place in any busy train station. Photograph by Julian Abrams.

As engagement with the narrative is foregrounded in Greenlaw's piece (as in some other locative media art) rather than location – St Pancras Station, there is a tension between immersion in digital content and connection to landscape. Too much live environmental sound can impede deep immersion in the storyworld (avoided in *Audio Obscura* by noise-cancelling headphones). Deeply immersive digital content, where the listener 'loses herself,' distances the participant from the physical environment, their body awareness and senses.

The tension between landscape, digital content such as sound, along with immersion must be resolved to connect participant with landscape. Teri Rueb attempted to do this in *Core Sample* (2007) by using open-back headphones that mixed the live environment with pre-recorded audio.

By intentionally leaving space for live sounds of location to mix in with pre-recorded material, the participant is immersed in the digital content while staying conscious at all times of the material environment. During Rueb's work *Core Sample* (2007) participants physically moved through what Rueb called 'sediments of history': seven sonic themes that match the rising topography of Spectacle Island, in Boston Harbor, and its layered history – including Native American home, industrial base, casino and rubbish dump. While the walker moved, sensing landscape through the feet, the ears (live sound) and the eyes, the storyworld was interwoven into place. Landscape in turn was explored more by the senses as digital content revealed more detail to search for. *Core Sample* is as an example of work that gathers ideas that have emerged during exploration of other work so far in this chapter. Movement and live sound disrupt the participant's depth of immersion in digital content. Environmental live sound matches what the participant sees, which pulls attention into landscape. The body-mind memory of the experience, a combination of live sound and storyworld, is intertwined with place.

Headphones affect the listening experience and immersion. Headphone choices range between cutting off the participant from the everyday for a deeply immersive experience or by merging live sound with pre-recorded sound. Practice needs to be adapted to achieve the depths of immersion desired while considering the headphones available or to be provided to participants.

3.2.3.2 Listening alone

Most locative apps are developed to be a solitary activity, a direct communion with the artist's voice or material. Even if a friend is close to the participant, rather than a shared connection with the content there is a personal individual relationship to the material due to the effect of voices and stories on each listener. The participant and friend may not even listen to the same stories at the same time due to a slightly varied route or pace, which would activate GPS differently. This personal focus during the solo experience influences

immersion. The experience can feel deeply immersive and personal as there is such concentration and internalisation of the voice and story. The narrative mixes with the personal narrative of the participant, which comes from their experiences, education, societal and cultural upbringing.

3.2.3.3 Shared listening

If a locative media experience becomes shared, using one phone or player, the lack of headphones affects depth of immersion. The *Weaver's Triangle* (2012) app by Treasure Trails was created as a family activity.[24] Archive photos and heavily accented oral histories grounded the piece in the post-industrial northern town of Burnley, near Lancaster. The textile mills, their noise, stench, smoke and dirt and the misery, physical exhaustion and exploitation of those who worked in them, were brought back to life. Now a tidied desolate place, this stretch of the Leeds and Liverpool Canal is haunted by large but empty red brick buildings and inactive chimneys. The scene was created and the stories made more memorable when I wore headphones and was immersed in the content. At these moments I was interested in and cared about a place I had never before visited and might not have the opportunity to do so again. The app had been designed for a group to crowd around the phone, to listen to and peer at, so I removed the headphones at times to try this out. However, without others there to join my *listening community,* the convivial leaning in, the reactions through laughter and tuts, was missed. Instead, without headphones the quiet town, now worn down by unemployment, became too loud for the phone volume to compete with. Accents became an obstruction – too thick to interpret by an outsider with one listen. Without being able to get close to the voices and the people, to imagine the described scene, I couldn't get inside the place. When I encountered the odd passer-by, broadcasting sound from my phone while walking embarrassed me and probably disturbed them.

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[24] Treasure Trails is the research business partner in Cornwall (with national franchises) brought in to benefit from the research according to the European Social Fund aims to support post-graduate education and businesses in Cornwall.

Figure 10: *The Weaver's Triangle* (2012) app by Treasure Trails and
Stuart Marshall is heard as a group using the smartphone speaker.
Photograph by Treasure Trails.

The tension between the live sound of landscape, storyworld content and immersion is once again evident here. Without the listening community and the altered experience it would have offered, I needed at least periods of deep immersion, made possible with headphones, to connect me with the material. Embarrassment was also an obstacle to immersion, which would have been absent or reduced with friends present.

A listening community, more than one person listening together to a speaker playing locative media sound, was experienced with a community of sorts during *A Swamp That Was, A Bicycle Opera* (Matthews 2012). An acquaintance and I both rode bikes that played GPS-activated content as we pedalled through the city of Ghent, Belgium. While audio speakers on the bike broadcast the sound art, the 'community' included not only us but also anyone within hearing range. The piece was not deeply immersive in the way that it cut us off from the physical world; indeed, that would have been dangerous while cycling with road, tram, bike and pedestrian traffic in a foreign city. Instead, community immersion involved pleasure and surprise, a shared experience that shifted the rider participant into the centre of a mobile art performance. The more we moved, the more was played, and the more our progress was observed and followed by others. Being the centre of attention and part of the main focus of a performative art experience with an ally nearby was not embarrassing but enjoyable. Discussing what we were hearing, where we were heading, laughing, directing each other through traffic while, for example, an African choir blasted out from the speakers, produced an audience. The listening community effect connected us to place through relaxed interaction, and gave us an excuse to interact with the local

community, and them with us, forging a deeper connection with my PhD peer who shared the experience with me.

Figure 11: The bike with speakers and GPS ready to ride around Ghent, Belgium, for *A Swamp That Was, A Bicycle Opera* (Matthews 2012).

3.2.3.4 Called content – 'control' of live sound

Another level of immersion occurs when listening to dialled-up oral histories and stories in *Cross/Walks: Weaving Fabric Row* (Iverson 2007) and by [murmur] (2003). During the *immersive personal call* the phone is put to the ear as though during a phone conversation. The voice is delivered into one ear, so not as deeply immersive as headphones that fit over both. Compared to group listening, with a listening community the listener is able to go deeper into the stories and become embodied in the storyworld as they are listening alone. The free ear, without the phone pressed to it, is open to external environmental sounds. The mix of voice and live sound through separate ears is then 'mixed' and balanced inside the participant's brain, rather than by the artist when delivered through headphones. Of course the mix can be altered as the free ear can be protected from too much environmental noise by closing, or partly closing it, using the free hand, just as those taking calls in busy environments do. In these experiences participants have a level of control over which ear to use to hear voice and which to hear atmospheric sound. Listeners adapt the experience to suit their personal comfort and hearing ability as well as to the environment. Individual control over how much environmental sound is allowed in varies, depending upon participants' levels of immersion in the storyworld and the amount of attention given to their physical surroundings. Very loud environmental noise will affect immersion or drive the participant to move away to continue listening.
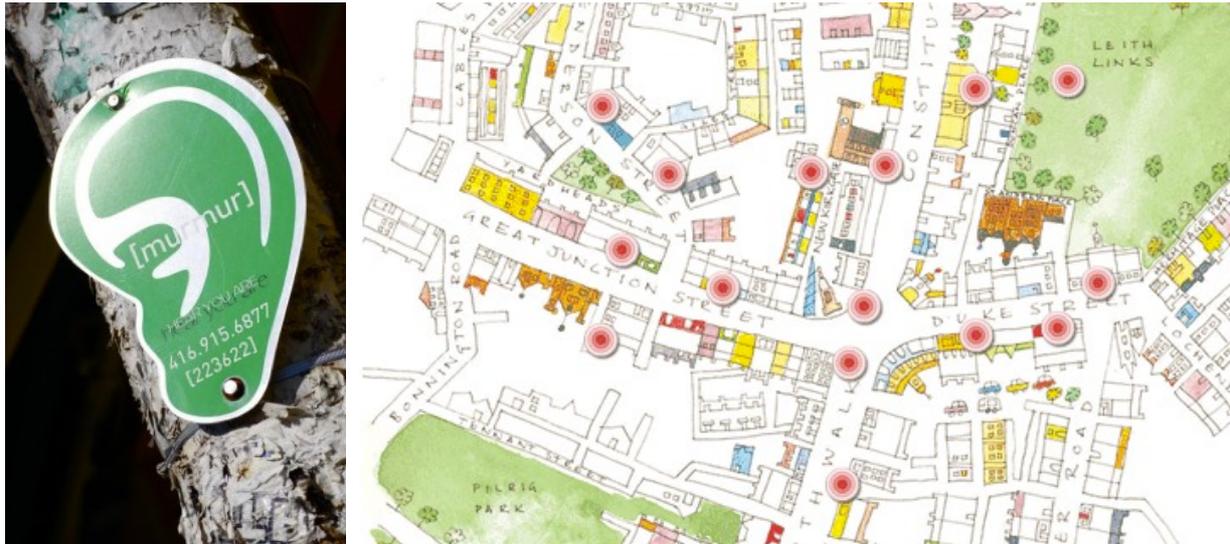
Figure 12: *[murmur]* uses physical signs to encourage people to call up stories. The online map of Edinburgh shows where to find the signs and stories. Photographs by [murmur].

3.2.3.5 Tuning into radio waves

Mobile invisible artwork *Linked* (2003) by artist Graeme Miller uses headphones, but immersion is intentionally disturbed to reveal layers of meaning in the landscape and the artwork. Radio transmitters are attached to posts in East London to broadcast disembodied voices of a community (including Miller) who were evicted from homes later razed to make way for the M11 link road. Their voices grow faint, hard to tune into; the residents and evidence of their lives (except from these voices) have been removed. What is heard clearly is the continuous roar of the road. Transient polluters have replaced homes that had roots. Car occupants deep in a concrete gorge are unaware of their passing surroundings, having displaced a community of people who knew every inch of their neighbourhood. The signal and voices struggling to be heard but overpowered by the motorway echo the fate of the protest campaign that ultimately failed but refuses to be forgotten.

Figure 13: Voices from a community replaced by an M11 link road struggle to be found and heard against the roar of traffic in *Linked* (2003) by Graeme Miller. *Linked* is an audio art memorial to an erased community that will not be silenced. Photograph by author.

There was further disruption of the signal, however, more so than even Miller planned. During Olympic Park construction some posts were removed and, along with them, surviving voices (Myers 2010: 63-64), another layer of erasure that deepens an understanding of the contested landscape revealed through this locative media artwork. By disrupting immersion in the content, by requiring participants to search for voices and then straining to hear them, Miller compels the participant to understand the devastation of the community and landscape not only through the recording but also by being intensely aware of the disfigured environs.

3.3 Immersion summary

This thesis focuses on locative media work that has engaging narrative, whether nonlinear or linear, told by many voices or by one artist-performer-narrator. Audio, the narrative performed through the voice, sound effects and music, affects the body (spine-tingling, tears welling up) as well as the unconscious and conscious mind.

The locative media participant needs to enjoy hearing the story and to feel a connection with the narrative for deep immersion to be experienced, at least momentarily. Immersion in a great story can be affected, increased or decreased, through sound. The recording technique used, voice delivery and its recording and how and with whom the work will be

listened to affects immersion in a story heard while moving in public space. Sound merges the digital storyworld and physical world and so is elemental in a locative media experience. Binaural sound played through headphones immerses the body in the storyworld but immersion can still be experienced as a powerful and enjoyable effect in work that uses stereo. When connection to landscape is the intention of the experience, deep immersion in the story should not go on too long.

Some of the sound-related conditions affecting immersion include recording, playback and voice. They are all interconnected as the recording and performance of the voice is affected by how it will be heard and with whom. The tone, tense, warmth and recording of scripted voices need to be considered in the design of locative media experiences seeking connection to landscape. Wearing headphones supports deep immersion but can make some listeners feel separated from the landscape and everyday. Binaural recording heard through headphones can counter this effect by taking the listener deeper inside a 'hyper-real' digital version of the landscape and its stories that overlaps with the embodied experience of physical landscape.

Sound and story have the potential to make an experience deeply immersive. They can also be used to disturb deep immersion so that the storyworld and physical world are merged during the experience rather than isolated from one another. Sound, and the components of recording and hearing audio discussed in this chapter, is a key area that has been explored in the practice. Sound could move a participant through stages of immersion to aid embodiment in the storyworld *and* the everyday physical world in order to connect the participant to landscape.

3.4 Embodiment

> I do not believe […] that monist models, which rely on a singular substance
> with the qualities and attributes of both mind and body, provide satisfactory
> representations of both the articulation and the disarticulation of mind and body.
> I have taken a model […], where [Lacan] likens the subject to the Möbius strip,
> the inverted three-dimensional figure eight. […] Bodies and minds are not
> two distinct substances or two kinds of attributes of a single substance
> but somewhere in between these two alternatives.
> (Grosz 1994: xii)

> [L]ocomotion and cognition are inseparable, and an account of the mind must be
> as much concerned with the work of the feet as with that of the head and hands.
> (Ingold 2011b: 17)

Embodiment, a sensory interaction with and knowing of the world through the body, and theories of embodiment are an integral part of the conceptual framework developed in this research. The immersive experiences, described in the 'immersion' section above, surround the participant with 'dimensionality' (see Wylie's interrogation of depth interpreted by Merleau-Ponty and Deleuze 2006: 519-535). The body responds to locative media content and site physically, viscerally, sensually as well as with imagination and intelligence. Walking through landscape immediately brings body and place into sensory contact. During locative media experiences embodiment in the material physical environment overlaps simultaneously at points with a participant's embodiment in the immaterial storyworld – the digital content. This hybrid experience 'blurs traditional borders between physical and digital spaces' (de Souza e Silva 2006: 261) and is described as an awareness 'of two places at once' (Hight 2006: 5) or 'doubling-of-place', a broadcasting observation by Scannell that Moores extends to mobile media (Scannell 1995 in Moores 2012: 16). Hybridity has increased as portable smartphones enable users to connect to the digital world through the Internet while moving through physical place (Frith 2012: 133; Frith 2015: 11). Hybridity merges physical and digital space but also 'bodily and virtual, artwork and everyday space, creator and audience' (Iverson and Sheller 2016: 19). This thesis goes beyond recognising that physical and digital, presence and absence, material and immaterial, can be experienced and embodied simultaneously during locative media art. This research seeks to not only embody the participants in both physical and digital worlds but attempts, through practice, to connect the participant to landscape during that hybrid connection. I propose

that the overlap of digital storyworld and physical landscape during a locative media experience, which includes fluctuating levels of immersion and embodiment, creates a twilight space, a hybridity where poetics, a 'something else' (Allsopp 2015: 4), can happen and be experienced. This research uses Ric Allsopp and Kristen Kreider's definition of poetics or 'poiesis', which they describe as, 'acts of making or giving form to the interplay of material and immaterial content intrinsic to any act of communication' (2015: 1). Locative media gives form to the interplay between the material and immaterial, which can have various interpretations, for example the material landscape, participant's body and technology, and the immaterial located memories and invisible computing and GPS.

Lawrence Bird argues that technology does not get 'in the way of an authentic, human, lived experience' (2014: 3). Instead, he continues, it can extend or enhance human experience (2014: 4) and it is suggested here that technology enhances embodiment in a locative media experience. Satellites, invisible computing, locational technologies and portable wireless devices such as the smartphone combine to create the potential for an embodied locative media experience. Technology is needed to extend embodiment from the physical landscape into the digital storyworld. Audio digital content, the key to immersion as explored in the section above, aids embodiment in the storyworld. Farman suggests that driving while using a mobile phone is dangerous because the driver also embodies the caller's space and can become less focused on the car, the driver's physically embodied space and the road in front (Farman 2012: 23). During embodied interactions, transference of not only words but the fleshiness of the person and detail of their environment take place between distant locations using mobile phone communication (Farman 2012: 21). I propose that embodied interaction can occur whether the person is live at the end of the phone or speaking from an audio recording and therefore disembodied.

Oral histories add another layer to the notion of embodiment in the story and space of the disembodied voice. The listener hears and senses the speaker's experience as felt by them. The participant embodies the recorded embodied story while moving through the location described. The recorded words, sound effects and music wrapped into descriptive placed stories and supported by images can activate senses and trigger personal memories.

3.4.1 Relocating Maurice Merleau-Ponty's ideas on embodiment

Maurice Merleau-Ponty (1908-1961) developed his version of phenomenology through two main texts. *Phenomenology of Perception* was published in 1945 but first published in English in 1962 and *The Visible and the Invisible* (1968), unfinished but published after his death. In relation to landscape Merleau-Ponty changed the position of the subject from a spectator gazing upon the world to a body perceiving the world through its sensory involvement in it. This embodied *being-in-the-world* shifted between his two books to *being-of-the-world*, an intertwining of the body and world (Wylie 2006: 529) and all matter.

Relevant to this thesis are more recent interpretations of Merleau-Ponty's ideas on embodiment in landscape practiced and reflected on by geographer John Wylie (see 2002: 441-454; 2006: 519-535; 2007: 139-187). Embodiment reduces distance between spectator and landscape. This distance or gap between a static observer gazing at a picturesque landscape scene has been described, as mentioned previously, as 'tension in landscape' (Pearson and Shanks 2001: 151; Rose and Wylie 2006: 475; Wylie 2007: 1). This practice uses embodied movement through landscape to activate locative media content using GPS in order to close the gap and connect participant to landscape. Not only geographers have renewed their interest in Merleau-Ponty's phenomenology and his focus on the perceiving body. Media theorists Shaun Moores (2012) and Jason Farman (2012) have also returned to Merleau-Ponty as locational technologies such as GPS and portable media affect how physical place and digital space is experienced, or embodied, using everyday devices. They are in turn influenced by the ideas of the feminist academic Elizabeth Grosz's earlier work on Merleau-Ponty (1994) and those of philosophers Don Ihde (2002) and Philip Brey (2000a; 2000b) who share a research interest in technology, embodiment and Merleau-Ponty. It is a combination of a geographer's and media theorists' interpretations of Merleau-Ponty, which are used to examine embodiment in landscape using locative media.

3.4.2 The smartphone as 'familiar instrument'

Merleau-Ponty discusses the extension of the body's senses through 'familiar instruments,' objects that cease to be separate and instead become extensions of self (Merleau-Ponty [1962] 1978: 152). Merleau-Ponty described a woman with a feathered hat who can negotiate a doorway without damaging her hat's feather because she 'knows' where the

feather ends. She 'feels where the feather is just as we feel where our hand is' (Merleau-Ponty [1962] 1978: 143).

The smartphone is more common and familiar than a feathered hat in the 21st century. Farman admits to having physical contact with his phone in the morning more frequently than first touching a human being (Farman 2014: 5). Many people stay in close physical contact with their phone throughout the day. In fact 60% of 2,000 American adults could not last an hour without checking their phones, according to research carried out in 2012 (Robinson et al 2015: 132). The smartphone in some owners' hands is a 'familiar instrument' in the way in which a blind man's stick or a typewriter is, as described by Merleau-Ponty ([1962] 1978: 152). It is worth emphasising that only two-thirds of British adults owned a smartphone in 2015 (Ofcom 2016a). For *some* that own a smartphone it is incorporated into the 'body image' (Merleau-Ponty [1962] 1978: 98) or *body schema*, a direct translation of *schéma corporel* (Brey 2000a: 57), expanding 'the spatial range of the sensorium' (Stock 2012: 131). The proficient smartphone owner not only feels where the phone is but uses it with skill rather than cognitive thought. Tapping out a text on the smartphone can be likened to Merleau-Ponty's example of punching letters on a typewriter. The keyboard is part of the body schema, finding and using the letters by our digits is done through bodily knowing – precognitive action rather than action after reflective thought (Moores 2012: 51). In Cardiff's experience, familiarity with a device supports participant immersion in her work (Schaub and Cardiff 2005: 114). The participant does not need to think about how to use the equipment (sometimes after initial instruction) so its functions disappear from view and thought just leaving the locative media encounter. Humans stay at the centre of the experience in this Human Computer Interaction (HCI) (Weiser and Seely Brown 1995). If the human body is central rather than distracted by or overshadowed by technology, the experience is more likely to be personal and embodied (Schaub and Cardiff 2005: 114).

The smartphone extends the body in another way, as a probe to experience the world through or with. Merleau-Ponty describes a blind man's stick: 'its point has become an area of sensitivity' (Merleau-Ponty [1962] 1978: 143). The smartphone isn't used to touch the world as a white stick does but the world is *perceived* through the smartphone. Just as dowsing with a willow twitch was used to sense water, metals, missing people and unmarked graves, during a locative media experience the phone points us to and receives

voices now removed from the landscape. Robinson et al (2015) believe the future of mobile phones will be as wands to 'connect to the world around the users' rather than users having to look down at the screen (2015: 140). In this research context, technology, the smartphone and its digital content, reveal what the physical body cannot know. Memories of place can be heard along with sounds normally unheard or inaudible.

The medium of locative media includes technologies, but the participant, the body, needs to move into GPS media loaded zones to play the digital content, which is then heard by vibration through the body. The smartphone, or rather its digital content, is used to stimulate a sensory pre-cognitive and cognitive engagement with place. The sensual body 'applies itself to space like a hand to an instrument […] We grasp […] space through our bodily situation' (Merleau-Ponty [1964] 2004 cited in Moores 2012: 47).

How 'we' grasp space must vary since everyone's bodies, senses, health and capabilities (such as mobility, hearing or aches) differ (Farman 2012: 18). In other words, everybody must experience embodiment differently, sometimes from one day to the next as the 'mood and circumstances of each listener' changes (Pinder 2011: 15). The experiences Merleau-Ponty describes as human are, says Grosz, *man'*s experience of the world (1994: 103). The body described by Merleau-Ponty is, according to Ihde, a healthy male 'sport's body' (Ihde, 2002: 15 and 18). The body, each body, needs to be extended from Merleau-Ponty's description to one that has a *unique* experience of embodiment from person to person, day to day. According to Idhe (2002: xviii), the influence of distinct 'cultural significances' also needs to be taken into consideration, whether social, such as background or education, or political (Grosz, 1994: 23; Farman, 2012: 23).

It is necessary at this point to distinguish between using the smartphone as an extension of the body (Ihde 2002: 7 and 14) rather than as a prosthetic limb. In the early 1990s, Donna Haraway asked, '[w]hy should our bodies end at the skin?' (Haraway [1991] 1995: 178). Without using or incorporating technology, the feathered hat described by Merleau-Ponty and the itch of an amputated leg are examples of how bodies go beyond the boundaries of the skin (Ihde 2002: xiii and 6), that there's no 'simple inside and outside' (Paterson 2009: 780). In this research the mobile phone is not interpreted as a prosthetic limb – a false limb filling the gap of a missing part of the body, which perceives 'the prosthesis as part of it'

(Ugūr 2013: 24). The phone remains a tool to be used by humans. Humans are *toolbeings,* according to Thrift (cited in Moores, 2012: 13). The smartphone is picked up and used rather than attached, at least at the moment. Future developments such as implants could contradict this statement. Smartphones, as well as connected wearables such as Google Glasses and watches, do not disappear into the usual functions of the body even if incorporated into the body schema when in use. A participant uses the phone's functions pre-cognitively, as fingers move around keyboards, but it remains an object to pick up and put down.

3.5 Embodiment summary

Recent interpretations of Merleau-Ponty's approach to phenomenology (initially developed by Husserl [1859-1938]) have been revisited in a locative media context through the lenses of a geographer and media theorists influenced by their reading of Grosz (1994) and philosophers Ihde and Brey (for example Brey 2000a; 2000b; Ihde 2002). Extensions of ideas on embodiment have been suggested, for example, that each person's body experiences embodiment differently depending on many factors including their health, senses, experience and cultural background. Some factors such as cultural background are stable, others change over time (such as eyesight, hearing or life experience) while some, such as aches and pains, can change daily. Embodiment places the sensing body at the centre of the experience in landscape and HCI, but does not ignore or detach the mind's thinking from the sensing body (as Descartes [1596-1650] dislocated the body from the mind).

The smartphone becomes incorporated into the body schema of a proficient user. The user knows where it is in relation to his or her body and the environment around it. The smartphone is used to perceive and connect with the world around the user who uses it skilfully. Most functions, such as navigating around the interface and typing, are used without reflective thought. How locative media is experienced and embodied by those who do not own a smartphone or are not proficient but perhaps borrow a smartphone to take part in experiences should be considered.

I suggest that locative media differs from other non-site-specific arts, such as watching a film or listening to a radio drama, because the participant is active and temporarily enters not only into the storyworld but also the landscape, rather than remaining a spectator.

During a locative media experience the smartphone uses satellites to locate the user and release digital content. The digital storyworld extends the senses of the mind-body through stories, sounds and image that go beyond that experienced in the landscape without it. The moving body, immersion in digital content, familiar technology as well as the particular landscape all influence embodiment.

3.6 Landscape

> [W]e have come to view the environment we inhabit as a spectral ecology, where the past continuously pierces, disrupts and problematizes our existence in the present.
> (Thurgill 2013)

> People do not see what is really there, but see what they are encouraged to see unless and until someone or something forces them to look differently from a new angle, with a new linguistic apparatus.
> (McManus 2007: 65)

The thesis so far has suggested that the distance between static observer and landscape set-up by classic landscape painting can be lessened during embodied movement through landscape. Digital content, including landscape histories and stories from numerous sources, was played to participants to encourage their senses to explore landscape and to deepen knowledge of place. The digital content was at times deeply immersive, using layers of content and 360-degree sound.

In this section on landscape, the final part of the conceptual framework, separation and distance in landscape are addressed and suggestions on bridging or reducing the gap and animating it using locative media have been made. Three approaches to landscape are introduced that go beyond the GPS pinpointing on a two-dimensional Cartesian map grid that smartphones are capable of. All approaches share an openness to combine arts, humanities and sciences to connect humans to landscape, its histories and stories.

Geopoetics, chorography and *deep mapping* do not produce mimetic representations of place. They have been selected because their aim is to 'evoke rather than to describe' (Pearson and Shanks 2001: 162) by presenting a version, '*a conversation and not a statement*' (McLucas 2001, emphasis in original). The three terms – geopoetics, chorography and *deep mapping* – are used in conjunction with Doreen Massey's ideas of

multiple trajectories through space 'and thus potentially of voices' (Massey [2005] 2007: 55).

To perceive space as a flow of lines (people, communication, transport and so on), 'unfinished and always becoming' rather than closed, 'is a prerequisite for history to be open' says Massey ([2005] 2007: 59). A Cornish seaside town seen through this lens can become more than a romantic sleepy landscape where home, heritage and holiday memories are rooted and seemingly only protected by keeping it the same – quaint but separate from the world (the theme of separation and its opposite – connection, will reappear later in this section). However, the town is in fact a complex place with a 'gathering power' (Casey 1996:44), with stories of lives moving through it that cross, layer, pass or pause. Pausing in the flow is dwelling as '[e]tymologically, the word 'dwelling' includes the notion of 'delay'' (McManus 2007: 167). The variety of different trajectories in different times and spaces means that each place is unique (Pink 2009: 31). In a landscape of flows a changing future can be thought about and participated in as there is an acknowledgement of movement. It is movement that creates sound (Thulin 2016) and thus flows of movement at different speeds, from different trajectories, such as land mass movement, a horse galloping, generations of a family and wireless communication, would all have different frequencies. A body is needed to hear sound as it acts as a 'resonance chamber' (Schaub and Cardiff 2005: 201). Human movement, activity and interactivity make the *taskscape* audible (Ingold 1993: 152-174). Landscape is what we see around us (Ingold 1993: 159-170) but the *taskscape* is a noisy continuous embodied active process.

Within Massey's idea of spaces (or places, as Frith translates it), as 'sites of flows' (Frith 2015: 17), I can trace the 'primacy of movement' and 'the idea of life as lived along lines' and the interweaving stories of the lines (storytelling), all reoccurring themes identified by anthropologist Tim Ingold in his work (2011b: xii). The lines of movement, the flows around, beneath, above and through us, mean that landscape becomes our immediate environment rather than an idealised distant view, as Ingold describes: 'The landscape […] is not a totality that you or anyone else can look at, it is rather the world in which we stand in taking up a point of view on our surroundings' ([2000] 2011a: 207).

Landscape is not that depicted in a painting, it is where we stand and is 'lived in and through' (Tilley 1994: 26). The definition by Ingold above is the first step to addressing the tension in landscape described earlier, that of the gap between observer and observed. With the assistance of Massey and Ingold an idea of what landscape is in this research has been formed; it spreads from where we stand with layered traces (for example, memories) left from flows of movement through it and the sounds they make.

Geopoetics, chorography and *deep mapping* have been selected from an increasingly broader field of interest in the overlap of arts, landscape and narrative (including, for example, Non-Representation Theory, GeoHumanities and Creative Geographies). Their selection centres on the way that they ground the research through theory and inspire practice in the context of connecting people to landscape. These approaches need to embrace poetic interpretations of place that not only reach back into the past but can continue to adapt into the future. Geopoetics provides a theoretical background and influences the methodology while chorography contextualises the work. *Deep mapping* plays numerous roles and after it is introduced will be used to trace ideas through the rest of this section on landscape.

3.6.1 Geopoetics

Geopoetry was a term first used by geologist Harry Hess in the 1960s, to encourage his peers to use imagination in their response to his new hypothesis (McKay 2012). When geopoetics is used in this thesis it refers to the theory and practice developed by Scottish philosopher and poet Kenneth White since the late 1970s. The basis of geopoetics is to connect humans to the lines of the earth (White cited in McManus 2007: 183), or 'what's out there' (Ingold 1993; 154; White 2005: 200; White 2006: 9). This can be interpreted as connecting humans to landscape, the aim of this research. White uses the terms earth or world rather than landscape and the contact he describes is often between the human mind and the earth, what he calls 'landscape-mindscape' (Legendre 2011: 121). As he describes, in his semantics '"world" emerges from a contact between the human mind and the things, the lines, the rhythms of the earth' (White cited in McManus 2007: 183). As White's books often involve journeys I suggest that walking, observation and embodied exploration of landscape are also geopoetic methods to connect to landscape. 'Field work' (the words

separated by White) undertaken by those at 'The Scottish Centre for Geopoetics' (founded in 1995), was 'aimed at keeping contact with the initial world, getting direct experience of the earth, renewing and enlarging sensation, perception, and contemplation carried on into meditation' (Bissell 2005: 31).

This can be summarised as embodied 'field work' using the body-mind (White 2005: 200), which led to further reflection using the mind.[25] Through an exploration of geopoetics and by placing it in a locative media context this research suggests that embodiment is implicit in White's methodology and at times in his writing. Landscape-mindscape-bodyscape is proposed in response.

To connect to landscape, White gathers and synthesises 'elements from many disciplines, sciences and arts' (White 2006: 81) using poetry that he states is 'the most synthetic [interdisciplinary] language conceivable' (White 2006: 48). Geopoetics uses creative assemblage, an approach similar to locative media and *deep mapping.* 'Poetry,' Berger believes, 'defies the space which separates' (Berger 1984 cited in Pearson and Shanks 1997: 50) and so poetry or poetics can be used to connect human to landscape.

Locative media technologies use poetics to reveal the landscape through stories. According to Martin Heidegger, within *techné*, the Greek root of technology, is an embedded notion of poetics and art as 'a way of revealing' or unconcealment ([1954] 1977: 5). Locative media experiences differ from geopoetics in that they not only use poetics to connect the participant to landscape but also, when referring back to Ingold's notion of landscape as a lived in taskscape, poetics are used to connect participants with community.

Geopoetics offers this practice-based research an interdisciplinary theory and practice model that seeks to connect the human body-mind to landscape using poetics. Real human bodies, people and community, (rather than imaginary characters), are mostly absent from the geopoetic landscape but embodiment in the landscape is present in practice and implied in the writing. Geopoetics brings theoretical and practice insight into locative media experiences in landscape and in return, this research suggests, the role of embodiment in

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[25] Kenneth White's spelling of 'field work,' separating the word fieldwork, to describe the geopoetic approach to fieldwork, 'getting direct experience of the earth' (Bissell 2005: 31), will be used throughout the rest of the thesis.

geopoetics is revealed. In this practice-based research locative media and geopoetics combine to translate GPS's disembodied mathematical lines of latitude and longitude into a geo-poetic system that connects participants to the lines of the world. Geopoetics' landscape-mindscape is extended to incorporate the corporeal – bodyscape.

3.6.2 Chorography

Geopoetic*s* and *deep mapping* are based in the arts while chorography has its roots in the sciences as a way to document *place*. That chorograpy of place shifted to become 'a matter of interpretation,' able to be visually appealing rather than accurate, is, according to Lucia Nuti, traceable to Ptolemy in the second century ([1999] 2002: 96).[26] While geopoetics seeks to connect human to earth and *deep mapping* digs into place and time, chorography aims to document a region (Shanks and Witmore 2010: 97) using an author's embellishment.

I have considered terms such as *earth* and *place* and others such as *site* and *space* with caution, before mapping some of their meaning onto or comparing them to the word *landscape* at certain points in the thesis. I understand that this is contested, as illustrated by the variable definitions of landscape discussed earlier and later in this section. In this context it is useful to define my use of certain terms. Once again I turn to Massey and her interpretation of *space* as 'a simultaneity of stories-so-far' and *places* as 'collections of these stories' (Massey [2005] 2007: 130).

In the 16th century, when Ptolemy's work was rediscovered, a chorographer's representations included 'over pictorial and sensual knowledge' of inhabited place and its residents in addition to more respected 'intellectual and mathematical' geographical knowledge (Nuti [1999] 2002: 91). Chorography expanded into writing with writers such as historical novelist and poet Walter Scott (1771-1832) incorporating folk traditions, memories and stories as well as precise landscape detail (Shanks and Witmore 2010: 104; Rogers 2012: 62). Artists and authors appeared in their chorographic work through subjective observations and personal painting or writing style that 'cannot be divorced from historical and cultural interpretation' (Nuti [1999] 2002: 108).

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[26] Ptolemy was the second-century Alexandrian astronomer, mathematician and geographer of Greek descent.

Chorography brings to this research the translation of existing stories, observation in the field and research to reveal landscape detail using a combination of influences from the sciences, arts and humanities combined and translated by the author. Chorography provides the link between mapping and stories of place – between mapping and a representation of an inhabited taskscape. The chorographer surveys the land and gathers information and multiple impressions offering more perspectives than the landscape painter and more 'art' and depth of lived-in landscape than the geographers of that time. The shadow of the creator is visible in a new version of place that links the past to the present through historical content and personal interpretation. The absence of people evident in geopoetics is fleshed out by chorographic description of place.

3.6.3 Deep mapping

William Least Heat-Moon coined the term *deep maps* to describe his book *PrairyErth* (1991), an assemblage of mixed sources about Chase County, Kansas (Pearson and Shanks 1997: 51). Performer Mike Pearson and archaeologist Michael Shanks developed *deep mapping* as a methodology for making and performing the stories of place using various media and forms of expression (1997; 2001; Pearson 2006b). Live and textual performances of deep maps used a mixture of sources and types of content, such as oral history, presentation, moving and still image.[27] Their former *Brith Gof* theatre colleague Clifford McLucas used text and image traces to document a site-specific theatre work (McLucas [2000] 2008: 125-138) and used film to document the creative process of the large layered graphic *deep map,* called *Stalking the San Andreas Fault* (2000-2001).[28] Increasingly, geographer artists (see Iain Biggs, Anthony Lyons, Jane Bailey, Owain Jones) make *deep maps* using visual arts and media assemblage rather than performance.

Deep mapping is of interest to this research and the making and experience of locative media practice as it performs the layered traces of place from varied sources expressed

[27] Examples of Mike Pearson and Michael Shanks *deep mapping* can be found in: *Deep Maps or Esgair Fraith* (1993-1998), the article 'Performing a Visit' (1997), the performance *Bubbling* Tom (2000) and the books *Theatre/Archaeology* (2001), and *In Comes I* (2006).

[28] Brith Gof was founded in 1981 by Mike Pearson and Lis Hughes Jones. With Pearson and Clifford McLucas the theatre company became well known for large scale site-specific work (National Library of Wales 2013).

through multiple perspectives, approaches and mediums. Mixed-media content is sourced from traditional archives and unexpected places so that *deep maps* or *incorporations* are:

> [J]uxtapositons and interpretations of the historical and the contemporary, the political and the poetic, the factual and the fictional, the discursive and the sensual. These are proactive documents: their parts do not necessarily cohere. They will require work but they leave space for the imagination of the reader. The interpretive instinct of the visitor is not denied: meaning is not monopolised. As such, they may function as an alternative kind of site-report. (Pearson and Shanks 2001: 158)

This description can work equally well as a summary of this locative media narrative practice. Other *deep mapping* qualities that suit locative media include the use of elements of existing contrasting materials to make new work (Shanks 1992: 189) (also a method of creation used by the Situationist International [Debord [1958] 2006b: 15]); and the use of 'a range of different media or registers in a sophisticated and multilayered orchestration' (McLucas 2001). The layered result, like *Merz* collage (by artist and Dadaist Kurt Schwitters [1887-1948]), is richly textured but can require some effort to interpret – the equivalent of twisting of the head and peering to interpret remnants of material juxtaposed and overlapped in a *Merz* collage, for example.[29] The work (like *Merz* collage) can be added to by others' contributions – interviews, facts, images, a mark on the map. The creative mixed media archive 'remains open and unfinished' (McLucas 2001).

Locative media retrieves the performative aspect of *deep mapping* without requiring a charismatic performer to animate and anchor mixed content. The audience, often one person with headphones, embodies the stories and place as they pace through both terrain and locative media experience. Content is performed through the app at an intimate proximity; the artists' hand, and sometimes voice, is still there to guide the audience through selected fragments in a balance between coherence and abstraction. Those locative media experiences that do not use a narrator or the artist/performer's voice bypass some of the uneasiness involved with 'speaking for others' (Shanks and Witmore 2010: 105). Instead, texture of place emerges through multiple voices and accents. Observations by Pearson and Shanks (2001) have been used throughout the rest of this section to identify issues that locative media practice in landscape using *deep mapping* addresses.

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[29] *Merz* collage is described in more detail in chapter 4 p. 89. In this context it is Schwitters textural sculptural collages that are used to describe the increased dimensions of the collage of material used in locative media.

3.7   Separation and distance in landscape

The word 'landscape,' says Wylie (Wylie 2007: 3), summons thoughts of standing still, looking along the lines of perspective to an idealised scene in a landscape painting, or as static contemplation of a distant charming view that interrupts a stroll. The word landscape places us at a distance from it (Wylie 2007: 3). Perspective in painting is created using one eye while immobile (Panofsky cited in Steyerl 2011: 169) on solid ground and uses mathematics to calculate distance (from a distance) to the horizon. Perspective in painting has so influenced the term landscape that in 1988 Cosgrove and Daniels defined landscape as 'a cultural image, a pictorial way of representing, structuring or symbolizing surroundings' (cited in Tilley 1994: 24).

Cresswell stated more recently 'we do not live in landscapes – we look at them' (2015a: 18). Landscape is therefore closely associated with the process and calcuation of a distant image through perspective and how the landscape was portrayed in the painting that can be traced to the Renaissance (Wylie 2007: 55). Because of the distance between and separation of human and landscape, Pearson and Shanks describe landscape as '[a] field of tensions' and 'ridden with tensions' (2001: 151) and Mitch Rose and John Wylie as 'tension' (Rose and Wylie 2006: 475; Wylie 2007: 1).

Landscape paintings from the 18th century illustrate other tensions in landscape as identified by Pearson and Shanks. For example, who is present and who is absent from the frame (2001: 151)? Who is in the foreground and who in the background (Pearson and Shanks 2001: 151)? Figures in landscape paintings include carefully coiffured landowners wearing their finery (probably the artist's commissioner), frolicking peasants at harvest time or sometimes those engaged contentedly in honest hard labour (Pearson and Shanks 2001: 151). History shares a similar tension – those who tell the story, those whose voices are absent, and those in the background (perhaps romanticized); oral history attempts to redress this lack of balance.

Not only are some less attractive characters or corners of place missing from these representations of landscape but also their absence leaves a polished version of place. A rosy past image reflects back what the viewer might want to see rather than what the place is. What is projected is the 'past-as-wished-for' (Pearson and Shanks 2001:153), a place we

can dream of inhabiting (Pearson and Shanks 2001: 152), comforting and attractive. If this rosy tint moves from an image to frame the past in, for example, a tourist experience, Sue Clifford and Angela King believe it creates a disappointing misrepresentation of place: 'So often you are left with a stage set, a marketing idea of a 'tourist destination', a kind of deadness, one dimensional and unsatisfying'(1993: 6).

For a multidimensional perspective on place that brings the community back into the frame, this research selects locative media art to reveal landscape and to animate its stories and tension through embodied encounter. The past is experienced, says Shanks, by 'how fragments are left behind and pieced together' (Pearson and Shanks 2001: 10). Geopoetics, chorography and *deep mapping* are three approaches to assembling pieces and telling the landscape story. Locative media art and the body provide the medium through which this fragmented and assembled story can be experienced.

3.7.1 Closing the distance

In agreeing with Wylie that tensions in landscape are 'enduringly creative and productive' (2007: 2), this practice-based research seeks to share 'small stories' (Lorimer 2003: 197) and contested narratives alongside the dominant narrative of place, to evoke landscape by using more perspectives, sources and physical involvement. Heddon (2010: 40) suggests that space between subject and object is 'undone' by touch. If space between two people can be bridged through touch, words or even a look, 'reaching out' (Heddon 2010: 40) through embodied encounters could fold away the gap between human and landscape, even temporarily. Embodied creative geographies have achieved a closing of the distance between human and landscape through embodied interaction (see Wylie and Lorimer 2010; Cresswell 2015b and Hawkins 2015). So too has the gap been bridged and tension animated in Pearson's live performance *Bubbling Tom* (2000) and Gallagher's audio geography *Kilmahew Audio Drift No. 1* (2012). Locative media-driven embodied movement in landscape offers one form of touch or contact. Poetics that work through and with technological wonder and hybrid content defy 'the space that separates' (Berger cited in Pearson and Shanks 1997: 50). Memories and stories intertwined with place with subjects that resonate with personal experience or knowledge, or the desire to understand, could draw participants closer.

3.7.2 Animating the gap

Robert Smithson's 1969 Yucatan mirror photos frame landscape while revealing glimpses of what is outside the frame through the placement of (frequently) 12 mirrors (Roberts 2004: 86-113). Instead of the eye being led along the perspective of a picture, Smithson scatters the gaze. The image is harder to read but offers more perspectives. As linear perspective in art is shattered in these images, place is no longer easily 'calculable, navigable and predictable' (Steyerl 2011: 169). Locative media uses the same principles to break formal perspective for example through the narrative. Traces of stories taken from different eras and different points of view makes the story nonlinear and scattered. Linear notions of time are disrupted as the narrative hops from the late 1930s to the 21st century then back to Hayle's heyday in the late 18th and 19th centuries. Just as Paul Cézanne painted perspectives using both eyes in the same painting (Gompertz in Marr 2013) and J.M.W. Turner painted from multiple perspectives within a single painting, locative media can collage many perspectives or points of view. Through numerous viewpoints the story of the past opens out and becomes polyvocal and multifarious.

Figure 14: *Yucatan Mirror Displacement # 7* by Robert Smithson 1969. Chromogenic-development slide. Soloman R. Guggenheim Museum, New York (Roberts 2004: 59).

If painters use measuring tools to create a perspective, to draw the eye into landscape from a distance, then perhaps a tool is needed to reverse the perspective, to use art to draw the

human into the landscape. Technology could be that tool. Digital technologies can now take the subject into the object. Digital archaeology takes the human eye inside standing stones, Myers' *way from home* (2004) interface and more recently Google maps offer 'StreetView' rather than a bird's-eye (or God's) view and locative media puts people, even ordinary people, back into landscape, even ordinary landscapes, via first-hand accounts and local knowledge to reveal what can't be seen.

Technology is usually developed to extend the body's senses or functions (Ihde 2002:7). As an example, Rebecca Solnit (2004: 83) and Don Ihde (2002: 47) point out that the microscope and telescope reveal what the unaided eye can't perceive. The microscope and telescope are probes that shrink, fold or compress distance, and therefore time, to extend the senses – in these examples, the eyes. Locative media attempts to extend senses by combining art and technology to show something 'which was not viewable' (Pope 2004), as photographer Eadweard Muybridge did with *The Horse in Motion* (1878).[30] Philosopher Philip Brey summarises this extension of technology as not always extending a human sense or function but that 'technology extends the *means* by which human intentions are realised' (2000b: 67, emphasis in original). Technology becomes something that not only extends eyes or fingers but can create and access art in a new way, evident in the technologies timeline (p. 31-32 and in Appendix A p.239-249).

'Experts' select events, places and people to be memorialised and often do so by erecting a monument to the (most often) man or men (soldiers and statesmen) whose remembrance has a set time and ritual, for example the laying of poppy wreaths (Edensor 2005: 830). Locative media has different aims. More than just respectable cherished places and people are selected: Pearson describes the three sites he chose for his regional MP3 walk *Carrlands* (2006) as 'far from the tourist trail' (The Carrlands Project 2007) and without 'conventional scenic heritage' (Pearson 2007: 1; Pearson 2011: 282). Until Pearson brought renewed attention to the place, first through live performance in *Bubbling Tom* (2000) and then *Carrlands* (2006) audio walks, the textured layered history in this flat landscape had drained away from view like the water that once flooded it. Accessible all year without payment or

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[30] Muybridge's photograph series of *The Horse in Motion*, 1878, captured what the human eye could not be certain of, that a horse's hooves lift off the ground during a gallop.

permissions, Pearson uses a flow of words, his voice through an MP3 player, to bridge the gap between the participant and to animate a 'commonplace setting' (The Carrlands Project 2007) scored by intermittent efforts to control nature.

In *34 West 118 North* (2002) by Jeremy Hight, Naomi Spellman and Jeff Knowlton a busy freight depot's 'sonic ghosts' (Knowlton et al 2002) brought attention, pride, life and relevance back to a rundown district of downtown Los Angeles using tablet PCs containing a GPS card. Revealing traces of what went on in one place off the tourist's trail is a reminder of the layered stories in *every* place. Urgency to reveal those stories in Hayle, Cornwall, could prevent the erasing of all remaining visible history and encourage more sensitive rebuilding of demolished heritage locations.

3.8 Landscape summary

Tension in landscape identified by Pearson and Shanks (2001: 151) and Rose and Wylie (2006: 475; Wylie 2007: 1) comes from the separation of the static human gazing at a two-dimensional classic landscape painting (as described by Wylie 2007: 17-55) created using mathematical calculations and one eye squinting into the distance. Many members of the community are left out of the frame in these pre-20th-century images (and those left in can appear staged) leaving an idealised or romanticised impression of place (Pearson and Shanks 2001: 151-152). Creative geographers such as Lorimer and Wylie (2010) have explored the distance between human and landscape, locative media art is identified as a way to animate and deepen the connection through embodied interaction with landscape. Memories and multiple perspectives are layered producing a polyvocal history that puts the community back into the landscape. Landscape in this thesis is the immediate lived-in environment around the participant (the *taskscape*) *as well as* the distant view most commonly associated with the word derived from the landscape painting tradition.

Many aspects of geopoetics, chorography and *deep mapping* overlap; some of their differences are subtle but they contextualise what locative media practice in landscape can do. Geopoetics is a theory and embodied practice that uses poetics to connect the body-mind to landscape. Chorography brings the past into the present by mixing and reinterpreting numerous sources from the arts, humanities and sciences. Precise regional detail is combined with its past characters and events as well as the author who is visible in

the work. *Deep mapping* performs juxtaposed fragmented stories of place using mixed methods and media using a storyteller as conduit to connect humans to layered meanings of landscape. *Deep mapping* offers concrete examples of practice and research that can be drawn from. Elements of these approaches will be taken into the practice to inform how place is narrated, represented and assembled using locative media with the aim of connecting human to landscape.

3.9 Conceptual framework summary

How to connect participants to landscape in locative media experiences is explored through the conceptual framework, consisting of three sections: immersion, embodiment and landscape. All three conceptual framework elements need to be combined in a locative media experience that uses the body-mind and digital content in order to connect human to landscape. The effect on the body-mind of immersion, embodiment and landscape during locative media experience will be explored through original GPS locative media practice, a geo-poetic system.[31] The digital assemblage that tells landscape's stories with the aim to connect users to landscape will be influenced by three creative approaches: geopoetics, chorography and *deep mapping.* Geopoetics has not previously been used with locative media, *deep mapping* was used to create Pearson's MP3 walk *Carrlands* (2006) and chorography has recently been mentioned in writing on locative media (Sawchuk and Thulin 2016) but not as practice. Influences from all three will be incorporated into embodied practice in landscape using GPS-activated locative media.

Immersion and embodiment are experienced during locative media experiences and are part of the conceptual framework. MP3 experiences are described as deeply immersive. In an empirical study on GPS-activated locative media, the most rigorous to date, flows of immersion were identified that took the participant in and out of immersion (Reid et al 2005: 1736). How transient immersion affects connection to landscape (and enjoyment) needs to be explored. Whether there are fluctuating *levels* or *depth* of immersion will be trialled and observations and data collected about their effects. Interdependence between immersion and embodiment in locative media experiences using GPS has been identified.

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[31] A geo-poetic system is used as a term to describe locative media using a smartphone incorporating GPS locational technologies.

Media theorist Jason Farman concludes that embodiment can occur at a distance, for example, embodying the place of a caller during a phone conversation (Farman 2012: 21). This can reduce and take attention away from embodiment and connection to physical place and the people within it. In this research the connection with landscape needs to increase rather than decrease. How can meaningful dual embodiment in the physical landscape and digital storyword be enacted? Could embodiment also fluctuate as immersion does? How do immersion and embodiment act together during a locative media narrative in landscape, if at all? If they do, can that affect connection to landscape and can it be designed for?

The next chapter on methodology addresses the questions that have arisen from experiencing others' practice and testing initial ideas in 'field work' combined with desk-based research. Locative media practice will be created and reflected on in order to attempt to answer the research question and the questions arising in the summary above.

4 METHODOLOGY

This chapter discusses the methodological and epistemological approaches adopted to address the research question. Practice-based research grounded in performance making is selected. Specific methods used throughout the iterative cycles of preparation, creation, evaluation, reflection, analysis and dissemination are outlined.

4.1 Methodology: an introduction

The research question, 'Does locative media allow people to develop a deeper connection with landscape and, if so, how?' emerged in response to a crisis in preserving Hayle's heritage and an urgent need to reconnect residents with their landscape, its heritage and stories. Artists and media theorist Jason Farman (2014: 6) have spoken of a connection to landscape during locative media experiences. Since a perceived connection occurred during practice, it is through practice and reflection on data gathered from it that answers to the research question will be sought. During the creative and reflective process provisional hypotheses on what affects connection to landscape in locative media experiences (articulated in the contextual review) will be tried out and evaluated. This chapter addresses: how practice-based research is defined, why it was used, why an app was made, and which methodology and methods were selected and why, including those related to data gathering and analysis.

4.1.1 Practice-based research

> I argue that better arts practice has resulted from the PaR [Practice as Research] initiative, not necessarily directly but in the emergence through innovations arising from a practice-based, but critically reflective, culture sharing insight.
> (Nelson 2013b)

At the GeoMedia 2015 conference in Karlstad, Sweden, keynote speaker Mimi Sheller and plenary panel guest Dana Diminescu, both sociologists, described practice as valuable and a better way than sociology to answer *certain* questions or to respond to *certain* problems, from political to poetic (Sheller 2015; Diminescu 2015). In this research context practice is performance defined by John Freeman:

> [P}erformance can be any situation that involves elements of time and space, intention and action, performer and spectator, without being necessarily reliant on all of these being present or being present at the same time. (Freeman 2010: 136)

Using this broad definition, the app can be described as a '*remote* performance' (Pearson 2011: 282 emphasis in original) in landscape. The 'performers' are only present as disembodied recorded voices and so meet the spectator across time and space. The 'spectator' is better described as a participant, as the experience involves embodied body-mind engagement and movement rather than passive observation.

According to Freeman (2010: 65), there is tension in putting together practice (creative work witnessed by an audience) and research that increases learning and knowledge. This thesis combines practice and research to push through established or imagined discipline and knowledge boundaries (Kershaw 2013). An artist-researcher or practitioner-researcher takes on multiple roles when combining creative and research work. The balance of those roles, the emphasis of practice within the research or whether it *is* the research, is indicated through nuances in nomenclature: Practice *as* Research (PaR), practice-*based* research (PBR) or practice-*led* research (PLR). In the SCUDD (Standing Conference of University Drama Departments) JiscMail exchange on Practice as Research (PaR) that coincided with Robin Nelson's book (2013a) on the subject, Nelson summarises all terms as 'intelligent-innovative practices counted as research' (Nelson 2013b).

To focus in on practice-based research, considered the most appropriate for this thesis, the differences between it and other terms need to be identified. Practice-led research, according to Brad Haseman, is often initiated by 'an enthusiasm of practice' and without a sense of 'a problem' (2006: 3) or a question. As the name implies, practice takes the lead and the research follows or emerges through the practice. In contrast to that idea, this research commenced with a problem, of whether the distance between human and landscape can be bridged using locative media art. This work uses practice with other methods of research (such as reading and 'field work') to respond to the problem through experimentation, which is then reflected on and conclusions shared.

Dissemination of knowledge gained during practice through writing is another way of differentiating between various terms. Haseman advocates a complete re-examination of existing qualitative and quantitative research paradigms to make space for Performative Research that is designed, developed and reported differently (Haseman 2006: 1). With that ideal in mind he discusses 'the material outcomes' of practice-led research 'as all-important representations of research findings in their own right' (Haseman 2006: 7). In Haseman's opinion, practice or performance should not need to be translated into different forms 'numbers (quantitative) and words (qualitative)' (Haseman 2006: 4) to make them understandable. Other practitioners also question the effectiveness of writing-up practice and the transformation that occurs in the process of translating practice into words, 'documentation and analysis' (Minchinton 2002: 10).

The separation of practice and writing in Practice as Research goes further for some according to Freeman who states that 'the root and branch of practice as research' (2010: 179) is that the body is perceived 'as something that creates its own object of knowledge, as something that unashamedly elevates body-feeling over mind-knowing (Freeman 2010: 179). In an academic context putting body senses above mind-knowledge can still be problematic.

Practice-based research is the term from all three that strikes the balance between learning through the doing of practice – knowledge is gained through practice and that knowledge is then developed and deepened through reflection. What emerges through this 'iterative, dialogic engagement of doing-thinking' (Nelson 2013: 19) is then disseminated through writing. Neither practice nor research leads the other in this work – they are entwined. Writing about process, data, conclusions and developing a reference tool for those wanting to connect participants to landscape using locative media should disseminate this research to a wider audience within and outside the academy interested in site-specific apps, such as in arts, geography, locative and digital media, heritage and tourism. These and other disciplines have been and will continue to be engaged with through conference papers, two book chapters (forthcoming), presentations, workshops and invitations to test the app throughout the research process.

4.1.2 Methodology

To reproduce the conditions where connection to landscape has been referred to previously, an original piece of stand-alone locative media art was created. Testing technology was necessary, so a layer of technology-based design was brought into the art-making process. The locative media experience also had to function as a research tool. Data gathering appropriate to the needs of the research, arts and community setting was planned around the experience. Still more than this was needed from the app; for example Heritage Lottery Fund (HLF) grant aims had to be met. The 'All Our Stories' HLF grant was applied for in 2012 in order to publish the app and make it available to the general public at no cost. The methodology needed to be flexible to respond to these various demands of the app.

Performative *deep mapping* (Pearson and Shanks 1997: 41; 2001: 162), introduced in the contextual review (as part of the conceptual framework p. 75), involves the gathering of fragments and creation of an assemblage of material from multiple sources, in different medias and formats, including artist perceptions and imaginaries of place. Imbricated through the practice and thesis, *deep mapping* has been an inspiration for the overarching methodology – a gathering and layering of methods drawn from different disciplines. Collaging and the mixing of materials has also naturally evolved in my own practice, developed through interviewing, radio programme making and creating and collaborating on mixed media experiences using text, sound and sometimes image and performance. When making an audio piece in traditional audio editing software, the meaning or story emerges through the montage or mix of material horizontally across the screen. Sounds and words are tested in different places as 'I play off material against material' (Schwitters 1920 cited in Motherwell [1951] 1967: 59). Constant shifting, layering and alternatives are tried before the final mix. This process now extends into making locative media and research.

Collage as a methodology has been used and described in different ways.[32] I shall summarise some descriptions and attributes here before suggesting a new sub-category within collage methodologies.

Bricolage methodology suits a mixed method way of working. By using fragments of existing materials or methodologies, the researcher or practitioner adopts, adapts, adds to and amalgamates elements to construct something new. Taken from French, bricolage implies a do-it-yourself approach to creation and mending. The bricoleur is spontaneous, ingenious and 'more skilled than merely a handyman' (Lincoln [2001] cited in Galloway, 2008: 25). Bricolage methodology is particularly suited to artistic practice and the rapidly changing field of technology, especially locative media with its emphasis on hands-on experimentation with emerging technologies and the bricoleur's talent in picking up what's around to make something new. In bricolage there is an essence of building-up and construction. The collocation of components into careful new arrangements, the juxtaposition and overlap of elements during experimentation, sometimes deconstruction

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[32] 'Collage can encompass anything where something is attached to something else. It is a very broad definition that includes work in both two and three dimensions' (Ades et al, 2000: 11).

of and reflection on them needed for this research, doesn't, in my opinion, quite fit the bricolage description. More appropriate to this practice and thesis is the trial placement, reflection and rearrangement of elements, seen clearly in a short film of the elderly Matisse working on his papier découpé collages.[33]

German philosopher and writer Walter Benjamin (1892-1940) used textual collage in *Passagenwerk (The Arcades Project)*. Unfinished but written between 1927 and 1940 (and published posthumously), the book is an assemblage of remnants from varied sources on the covered arcades of Paris and the life that moved through them. Mike Crang and Ian Cook suggest that Benjamin's style of collage is used to '*perform* the fragmented and disjunctured nature of life as he saw it' (Crang and Cook 2007: 184 emphasis in original). Just as a collage picture (or collage text in Benjamin's case) is created by assembling, layering and placing items, ideas 'emerge from among and through the materials' (Crang and Cook 2007: 184). A more recent example of this poetic assemblage style, especially relevant to this research as it 'stories' landscape, is found in the writing by geographer Caitlin DeSilvey (2007a; 2007b; 2010; 2012). Locative media practice, data gathering and writing the thesis involve assemblage to see what emerges through juxtaposition. In the locative piece traces of stories and voices suggest the fragmentation of life as well as the evocation of thoughts of those who remain unheard.

Gathering and selecting diverse materials, then layering, overlapping, adapting and folding, are all methods commonly used in collage and montage. A couple of additional elements are found within a *Merz* collage that resonate deeply with this research, thus it is proposed as a name for a mixed-methods or collage methodology sub-category. *Merz* was a term used by artist and Dadaist Kurt Schwitters (1887-1948), who worked across diverse art forms: sound, poetry, graphic design, painting and sculpture.[34] He used *Merz* to describe his

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[33] A film shown during the Tate Modern *Matisse Cut-Outs* exhibition (Cullinan 2014) depicted an aged Henri Matisse at work. Matisse, using his papier découpé technique, cut shapes out of paper with elegance and speed using large tailor's scissors. The process most useful to this research was the repeated trying out of the placement of objects by moving and pinning the shapes (leaving small multiple holes in many shapes within the final ensemble). Great deliberation and experimentation was clearly involved with each arrangement. Which element should lie next to what else?

[34] 'The term 'Merz' is derived from a fragment of the word "*Kommerz-und Privatbank"* (meaning Commerce Bank) included on a scrap of paper in one of his assemblage paintings, the *Merzbild 1,* 1919 (now lost).' (Dietrich 2005: 159 the emphasis is mine.)

collages, some of which were sculptural objects – the work I refer to in this context. His *Merz* collages mixed materials, a block of wood, paper, found objects, 'essentially the combination of all conceivable materials' (Schwitters 1919 cited in Dietrich 2005: 161). In doing so, this form of collage moved from textured two-dimensional work into three-dimensional sculpture. This is similar to locative media, as it is a three-dimensional way of experiencing media and place – even more so when using binaural sound. Locative media also uses mixed elements and media. Multiple layers (tracks) within the audio use differently sourced voices and sounds. Other media and materials are layered into the app, such as a live map, images and interface functions (play and pause buttons).
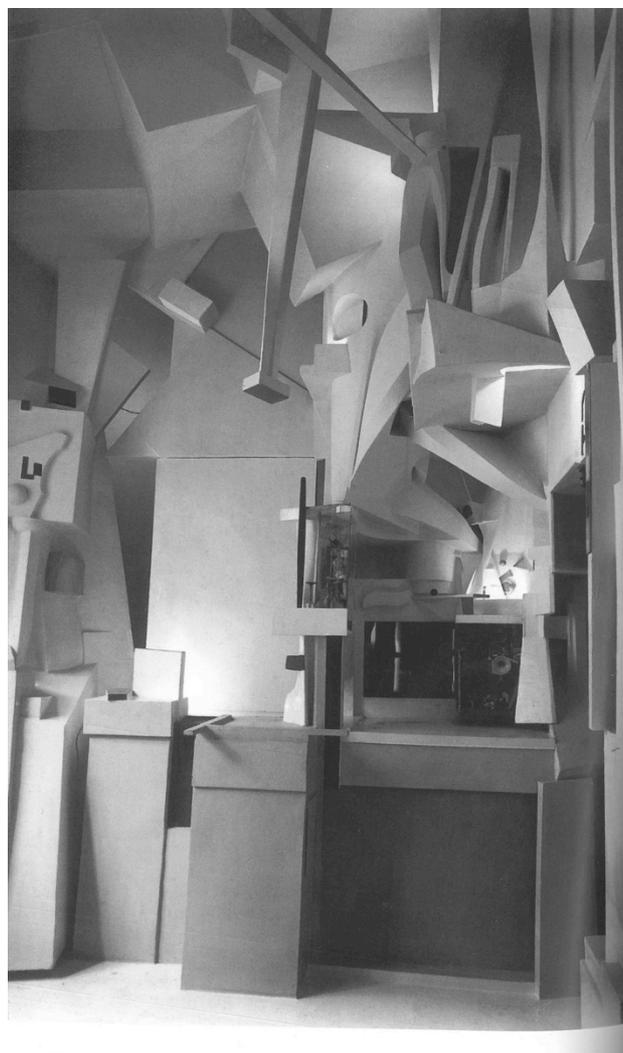
Figure 15: A section of Kurt Schwitters' *Merzbau: Grosse Gruppe (Grand Group),* Hannover c.1932. Room installation with paper, cardboard, pasteboard, plaster, glass, mirror, metal, wood, stone, and electric lighting, destroyed 1943. Photograph Kurt Schwitters Archive im Sprengel Museum Hannover (Dietrich 2006: 156).

Schwitters' *Merz* needed to be interpreted by individuals, using movement around the object to 'read' it, using the body-mind. Movement and use of the body-mind*,* the senses rather than the eyes or the 'mind's eye' (Ingold 1993: 154) is needed in locative media experiences. The three-dimensionality of the approach to the research questions through practice, research, reflection and writing-up is implied with the term *Merz*. Much experimentation with collage has been done in literature and the visual arts but this research presents collage in another form – locative media, a three-dimensional embodied experience. Just as *Merz* three-dimensional collages had to be presented in a new way, as immersive installations rather than hung on a wall, locative media forces collage to be experienced on a new platform.

The open, unfinished nature of *Merz* is an important difference between *Merz* and other collage or assemblage. Others were invited to add to *Merz* collages or to take parts of Schwitters' work to use in theirs (Dietrich 2005: 158). In the same spirit, parts of this practice and thesis can be taken and built on. The app was created with the intention that participants could co-author the work by uploading their stories. The thesis refers to others' work and builds upon it providing knowledge that can be built on, for example in the reference tool (p. 197 and in booklet form to photocopy p.382-392). The word assemblage sounds static but new additions or borrowing of material in *Merz* implies movement and flow. There is no specific end point, the work can continue to adapt. This idea of movement and openness suits a locative work of place when place is viewed as a flow of trajectories.

A flexible term that 'could be applied to any and all matter of things' (Dietrich 2005: 158), richly textured and layered to the extent of being three-dimensional and open to further additions, makes *Merz* a useful approach that runs through the practice and research. It is used here to describe a layered 'family of methods' (Karen O-Reilly 2005: 3), a 'multi-method strategy' commonly used in arts and design practice (Gray and Malin 2004: 15). Although collage has been used to assemble elements within the practice, which is experienced as a nonlinear assemblage, in order to aid the reader's comprehension of this thesis, a piece of academic rather than creative writing, it has not been used throughout the written thesis beyond the layering of ideas and disciplines and within the chapter on Hayle.

4.1.3 The practice: a *deep map* app

The contextual review detailed various forms of locative media art and the technologies that have influenced them (see also the timeline p. 30-31 and 239-249). Practice presented the opportunity to address the research questions and to add to knowledge in the area of locative media described as an emerging art form that has not reached its potential (Stenton 2011). This section details why an app was developed as the practice.

There are gaps in research on locative media and especially on locative media apps. The contextual review (Chapter 2: Locative Media and Chapter 3: Conceptual Framework) detailed how the 'magical' (GPS-triggered) appearance of media while walking (see p. 34) heightened participants' body-mind potentially making them more open to not only a sensory experience but also a hybrid embodied experience, an experience unique to locative media. Whether a participant feels more connected to place during a hybrid embodied and immersive experience needed further investigation. Whether locative media delivered through a mobile phone app affects immersion and embodiment also had to be established.

Connection to place has an impact on communities. In the app site selected, Hayle, on St. Ives Bay in Cornwall, the community surveyed identified connection to place and its histories as ways to 'gain a clear identity' (Christon 2008: 5). A search for funding for the Hayle Oral History Project, the project that preceded this research, was initiated in response. Pride of place and wellbeing, resulting from knowing 'heritage and the lessons it has to teach' (Christon 2008: 1), are the subtexts that run throughout the Hayle Oral History Project Plan document (Christon 2008). I was employed to lead the HLF funded oral history project 2008-10 in which the majority of oral histories used in the app were recorded.

Other factors were behind the decision to make an app. Unlike a standard MP3 player, smartphones have various quality media outputs such as sound, still or moving image in addition to other features such as live location mapping. A series of questions emerge in relation to these attributes. Can image and a live map affect connection to landscape? If the map locates the participant as they move, the necessity of paper-based instructions or a narrator is removed. How will this affect coherence, immersion and connection to place? Does size, portability and familiarity of the mobile phone enhance or hinder locative media

qualities, such as the hybrid experience of both digital and physical worlds and possible connection to both? Using a mobile phone the walker's trajectory through landscape performs place for the individual in what can become, if desired, a less linear and more abstracted, less directed experience – but will this distance the participant from the landscape or connect them to it?

Another area of investigation is the use and success of app making by creative practitioners who are not coders, programmers or technologists. Creating apps has become easier in recent years with app-making toolkits that enable artists to upload material through a simple interface without needing coding skills. AppFurnace by Calvium is the fourth generation of a tool originally developed by Mobile Bristol (2002-2005) mentioned on p. 45. They have a strong and successful provenance of learning through collaboration with artists on prominent and respected work through all generations of the tool, for example Mediascapes (Stenton et al 2007: 98-105). AppFurnace already had a reputation for being easy to use backed up by accessible support material that condensed Calvium's knowledge gained through extensive practice and published research (as former Hewlett Packard Lab employees). After trying out the toolkit at an Appfurnace Boot Camp (2011) I decided to work with it.

Factors and questions discussed above informed the decision to make a smartphone app playable on both Android and iPhone handsets as an appropriate approach to answer the research question and contribute to knowledge. The location of layered stories, media and modes within the app to reveal place encourages me to describe this type of site-specific app using a smartphone as *deep map* apps, once again referencing Pearson and Shanks *deep mapping* approach (1997: 41; 2001: 162).

4.2 Summary of methods

In the contextual review (split between Chapter 2 p. 18 and Chapter 3 p. 40) various hypotheses and hunches were put forward for elements that affected connection to landscape, such as recording sound, voice and hearing audio. This provisional knowledge was used to gather locative media qualities and technologies into groups titled *immersion* and *embodiment*. Combining immersion and embodiment in landscape during a locative media experience shaped the conceptual framework.

Other art forms that also attempt to connect people (readers or audience members) to landscape, for community cohesion, wellbeing and to encourage improved land stewardship and appreciation, were also introduced in the Contextual Review. Some of their methods have been adapted or have influenced this locative media practice-based research. Geopoetics (p. 72) is usually a form of poetry that aims to connect humans to the lines of the world. *Deep mapping* (p. 75) performs landscape's stories when used by Pearson and Shanks, or Pearson alone, and is presented as an assemblage of arts, sciences and place when used by artist geographers such as Iain Biggs (2010). *Deep mapping* involves gathering and creating an assemblage of mixed material from contrasting sources and artist perceptions from landscape. Geopoetic*s* involves thoughtful embodied movement through landscape followed by reflection, and chorography (p. 74) is the stories and detail of landscape translated and transformed by the author.

The methods used in this practice-based research – body-mind 'field work,' body-mind research, gathering, journal reflections, drifting and collaging – are summarised below.

Body-mind 'field work'

What I term body-mind 'field work' refers to a geopoetic method of exploring the field (Bissell 2005: 31 see p. 72). Both terms, body-mind (White 2005: 200) and 'field work' (purposefully not written as fieldwork following White's distinction of his method by separating the words), were created by philosopher and poet Kenneth White, who developed geopoetic*s,* which he describes as 'a theory and practice' (White 2006: 81). By the very nature of practice-based research and practice itself, there is a certain amount of 'feeling one's way through' and 'learning while doing' as well as informing or confronting 'gut feelings' with read or encountered knowledge. The term body-mind is used to blur the boundary between mind knowledge and embodied knowledge, as 'thinking is inexorably embodied […] formed in the bodymind' (Nelson 2013: 56-57).

Body-mind, as I interpret it, intertwines thought into embodied practice and bodily knowledge into thought, described in improvised dance practice as '[t]he body thinks. The mind dances.' (Cooper Albright and Gere 2003: xiv). Fieldwork as a term is common in scientific study as well as the arts to describe an embodied gathering of impressions, observations or data in place. I use White's term 'field work' here to ground it in the arts

and to the process of body-mind (White's hyphenation) experience followed by reflection that he required during and after geopoetic 'field work'.

Body-mind 'field work' includes stages of sensory interaction with site and reflection and note-making afterwards. Sensory interactions include geopoetic sensing exercises (summarised in Chapter 6: Practice p. 132) as well as embodied interaction with place such as surfing, swimming, canoeing the coast and walking. These embodied movements through site were undertaken in all conditions and ways (for example imagining or experimenting with the movement of non-humans), alone and with others. Other body-mind 'field work' included experiencing others' locative media art (on location) and site testing the technology and interface of this research app during all stages of creation, in all weather, with and without headphones.

Body-mind research

In addition to reading landscape via the feet and senses during embodied excursions and practice, reading about landscape, locative media and adding to knowledge about the place was gathered from diverse research: historical, environmental and pictorial. Varying perspectives were gained through library, archive, university, discussion and home desk research and included written or recorded articles, interviews and publications by artists, participants, journalists and academics. Theoretical knowledge gained through multi-disciplinary reading helped ideas 'resonate with the material thinking in practice' (Nelson 2013: 103). In addition to sourcing information and app content, desk-based research included confirming permissions and copyright, increasing software knowledge, and identifying which platforms and toolkits could be used to suit my needs, knowledge and ability, often requiring my learning new software processes. A profile was developed using social and traditional media in the site area and beyond to encourage a mix of volunteers – academics, students, artists, community members and visitors to the area – to become involved.

Gathering

Gathering took place at many stages. It is a subjective process and so there is awareness and questioning at each stage about what is being collected and what not. While experiencing others' work I went beyond gathering together my own impressions in a number of ways,

primarily through conversations with other participants and with the artist if present. On a couple of occasions this extended to asking co-participants to fill out questionnaires, for example after the *Tate Ben Nicolson MP3 walk* in St. Ives (Mollett ca2011) and Blast Theory's *Ghostwriter* in Exeter 2011 in collaboration with location, RAMM. Kneehigh Theatre also shared the evaluations of its Porthleven *Rambles* (Murphy 2013) app with me. These evaluations of others' creative work have not been shared publically in the appendices.

Another form of gathering included interviewees' contacts and then stories through interviews and selections made from them. Certain themes were used (such as the Hayle Regatta) to gather similar content. Which story/stories within interviews were used was made to satisfy all or some of the following conditions: strength of story, location of the story, and type of story, in addition to other factors such as the desire to represent different parts of the community. Since the app area is a post-industrial area that mostly employed men, particular effort was made to include the voices and stories of women and younger people, to make them visible in the landscape once again. A variety of voices is more interesting to listen to and is more representative of the community.

Evaluations were gathered from participants at three main stages on technical, creative and practical aspects, such as orientation, 'the legibility of the interface' (Rubidge and MacDonald 2004: 247), audibility of content, the app's ease of use, and how the experience affected the participants and their connection to landscape. Evaluations of interface and effect came through questionnaires including qualitative and quantitative questions, informal conversations, observation, focus groups, making notes and interviews – a collage of social science and arts methods. Some app participants were contacted again at a later date in order to gather more feedback and to gauge any evolving or lasting connection to landscape.

Journal reflections

Personal reflections from body-mind 'field work' were jotted down on my mobile phone notepad, scraps of paper, in notebooks and in a computer file called 'daily journal,' where they were sometimes expanded upon soon after the experience or following a longer period of reflection.

Drifting

Drifting, or *dérive,* in the spirit of Situationist International formed in 1957 (see p. 22), was also used. At times I followed my interest rather than set paths, including those through locative experiences, in order that the *'what if..'* the 'something else,' the unexpected, could happen. Patterns that are unconscious, 'familiar, enculturated' (Nelson 2013: 98), were challenged through 'consciously disorderly or chance approaches' (Nelson 2013; 99). Suggested 'situations' by 'Counter Tourist' Crab Man (2012) and Wrights & Sites 'mis-guides' (Hodge et al 2006) informed some of the 'field work,' opening perception and following lines in the landscape (such as a cracked pavement) or the movement of an animal rather than a familiar route. Mind-wandering, imagination and daydreaming were at times encouraged to lead the foot-wandering and senses.

Collaging

Traces of all of the methods above were assembled through *collaging.* The *deep map* app contains stages of collaging of material, for example oral histories were edited, placed with or against others within the same sound file, sometimes within a layered soundscape of collaged sound effects and traces of words. The placement of written, recorded, and edited narrated story sections were experimented with to disrupt or enhance the surrounding stories. Audio files were collaged into set locations or points in the landscape. Their arrangement had to work technically and creatively. The juxtaposition of stories created dialogue between different memories, decades and narratives in an attempt to reveal new perspectives. In the collage linear coherence is fractured with traces of stories and themes emerging and disappearing. Co-authoring by participants was intended to add another layer of unexpected collage and healthy disruption. Collaging extends into the data-gathering methods and analysis and is detailed below.

4.3 Collaging quantitative and qualitative data

Extraction of data from the app while in use was explored (questions and tracking, for example) and participants completed questionnaires containing qualitative and quantitative questions immediately after the app walk. Paper questionnaires were used both for convenience in the field and because of the physical pre-cognitive response needed by marking a line with a pen to answer some of the questions. Informal conversation and semi-

structured interviews at various stages of the test cycles were used to capture additional information that the questionnaire perhaps hadn't elicited in order to probe deeper into underlying feelings. Using various methods of communication (local newspapers and pamphlets, local BBC radio, email networks, social media such as Facebook, word of mouth), as wide a range of participants as feasible was drawn including those from the local community, artists, academics, heritage volunteers, experts, students and the general public, to encourage a mix of experience, perspectives and feedback.

Figure 16: Social media and traditional press helped attract volunteers to try the app. The articles are from The Cornishman newspaper based in Penzance and the St. Ives/ Hayle Times and Echo.

There are existing overlaps between quantitative and qualitative methods. In questionnaires, when responding to qualitative questions, answers often contain quantitative statements such as 'I liked it a lot'. If questions are rephrased, these answers become measureable and can provide quantitative data. An advantage of using quantitative methods is how well they lend themselves to statistical analysis, which is used to evaluate whether findings have come about by pure chance or to identify when there is underlying systematic evidence. New insights may emerge from statistically supported significant differences. When I compared my app to an MP3 walking tour, for example, I looked at the differences between evaluations from the app and the MP3 walk to see if there was a systematic difference between them.

A level of chance in how a question was answered needs to be accounted for. The level of chance is called *probability*, but referred to when discussing findings in this research as *p-value*. To be statistically significant the probability has to be lower than 5%, which means that chance couldn't have interfered with the result more than 5%. In this thesis, the 5% probability will be referred to as .05. In order to be significant, the p-value needs to be equal or smaller than .05.

The graphic rating scale (Stone et al 1974) is the quantitative data-gathering method used in this research. To answer a question in the questionnaire, the participant marks a line that uses words at the extremes of the scale rather than numbers, for example:
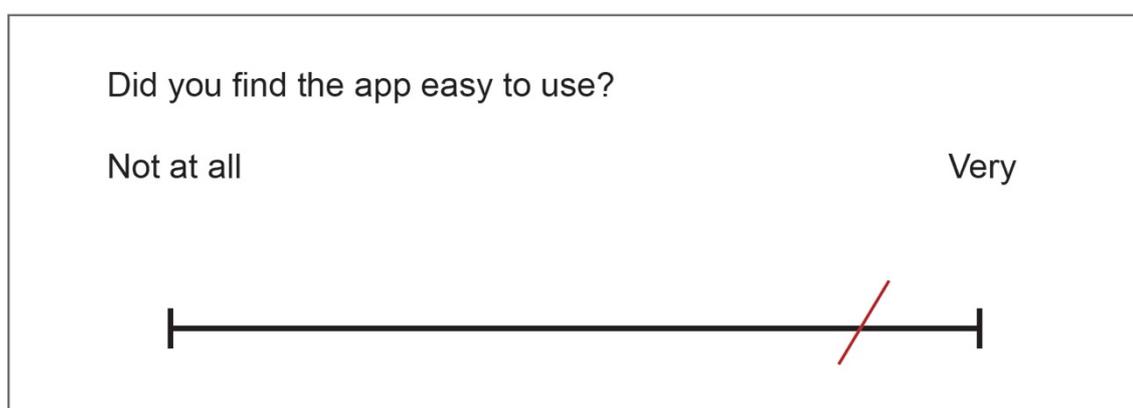
Figure 17: The graphic rating scale uses words rather than a scale of numbers. The participant marks a line between the extremes of the scale spontaneously without wondering whether, in this case, the level of ease of use was 7,8 or 9.

By marking the line spontaneously, rather than having to think about whether the level of enjoyment is a 6 or 7, appeals to intuition. The spontaneous response, I believe, is more suited to quantitative research in the arts, as it does not require cognitive interference but, instead, a feeling. Numbers do not appear on the line but it measures 10 centimetres, or 101 units, as marks are measured to the millimetre. Once the form has been returned the researcher measures the placement of each mark on the line (for example 6.3), which is logged and then analysed using SPSS (Statistical Package for the Social Sciences, IBM) software. The graphic rating scale was also used in relevant locative media empirical research on *Riot! 1831*. Using elements of the same quantitative data collection and analysis method could, if needed, make comparison between the two studies easier. Comparison with this particular study may be relevant because it's the only other study on locative media nonlinear narrative with significant empirical evidence and a focus on immersion.

Collecting quantitative data is rare in practice-based research (Nelson 2013: 99) and the arts in general and seems to be increasingly rare in cultural geographies' research, which leans more and more towards creative work as a research output (Hawkins 2015: 17). Collaging of quantitative and qualitative data is another way of describing a mixed-method approach. Good practice complements or challenges quantitative results with qualitative data and vice versa. In this research, significant results in quantitative data are illustrated and deepened through insight gained from qualitative answers and interview quotes and vice versa.

Quantitative data are used here as a check against subjectivity, since my position within the practice-based research is not neutral but has an agenda (Minchinton 2002: 4). As the app creator, a member of the community under scrutiny and the researcher, inclusion of quantitative data retains objectivity and others' perspectives, thereby decreasing any influence of my subjective interpretation and what I want from the research. Whether collaging personal reflections from practice, subjective comments of others and deep systematic analysis of quantitative data will reveal new insight, or simply add weight to the conclusions, is of interest.

Numbers from quantitative data, once analysed, are turned into a coherent story that is disseminated through words. By overlapping both types of data-gathering the method of collecting evaluations, as well as my own question design and approach, can be

interrogated, especially if disparities appear. Did I ask the right questions? Does the quantitative data support my interpretation of qualitative answers?

4.3.1 Managing data

Upon completion of the questionnaires all marks on the graphic rating scales were measured and qualitative answers written and entered into an Excel spreadsheet – one document for each test cycle. Names were coded and anonymised in a way that indicates gender (M1 and F1 for example). The key to the anonymising code is kept on my personal laptop. The scores of the marks on the graphic rating scale were processed using SPSS (Statistical Package for the Social Sciences, IBM) to examine correlations between answers. ANOVA software packages were used to analyse variance to explore differences using scale data. A scale of 0-100 was used, which includes looking at more than one variable at a time, allowing for more powerful analysis than nominal data (8 out of 10 men prefer….) and ordinal data (Group A prefers musicals….). Through analysis of variance, answers were grouped by how highly they were rated by participants (usually on the scale between 'not at all' and ' very much') while showing whether the participants were in close agreement with each other in each answer.

Qualitative answers in each of the three evaluations were sorted into themes identified in the contextual review: qualities of locative media, immersion, embodiment, and the combination of immersion and embodiment in landscape. Other answers were gathered into emerging themes. Anonymous data gathered through the app, such as comments or tracking coordinates, were collated and compared to emerging themes.

Analysis of and reflection on quantitative and qualitative data from the evaluations informed changes to the locative media work, the app. These changes ranged from practical changes to help usability (for example, moving GPS points or adding features to the interface such as a replay button) as well as creative changes (for example, editing down stories), and adaptations to draw out more data using the conceptual framework or to explore emerging themes further in the next test (for example, designing in mild immersion disruptions).

Throughout the research process participants could test the app and ask to engage with the evaluation and results. Emerging data and insights have been and are still discussed and

disseminated at transdisciplinary conferences, seminars and practical workshops on landscape art, landscape research, heritage, digital futures, archive and digital media, geography, geopoetics, walking arts, Practice as Research, digital narrative, site-specific work, writing communities and so on. My AAG (Association of American Geographers) paper within the 'Reanimating Region' strand (Florida, April 2014) will be published as a book chapter (co-authored by Erik Geelhoed and Misha Myers) in December 2016 by Routledge, edited by James Riding and Martin Jones.

4.4 Methodology summary

> The meaning of the concept 'Merz' changes with the change
> in the insight of those who continue to work with it.
> (Schwitters 1920 cited in Dietrich 2005: 159)

Practice-based research was selected to answer the research question through practice, reflection upon it and dissemination through writing, presentation and workshops. *Merz,* taken from artist Schwitters' collage style, was used as a term for a family of methods that encourages three-dimensional perspectives in the practice and its evaluation. *Merz* supports the notion that practice and research will be ongoing, borrowed and built-on. A collage of methods were used iteratively to span 'field work' deskwork and the creative process in the preparation, evaluation and reflection of three main app tests.

To summarise, methods used in the research include: *drifting* and *body-mind 'field work'* with reflection and documentation of those experiences in *journal reflections;* archival and theoretical *body-mind research;* proto-typing and *gathering* material; evaluation of the app by the community general public and specific groups; and *collaging* of the reflection of their responses in the analysis. Qualitative and quantitative data were gathered to counter the subjective position of the researcher and app author. The quantitative data was analysed using specialist and reputable software. The data was collaged with qualitative written and spoken responses to see what, if anything, emerged in their overlap.

The visual image of a *Merz* sculptural collage, an assemblage of mixed-media fragments, works well as an approach for locative media practice and interdisciplinary research. Schwitters picked up remnants of life around him, positioned, juxtaposed, layered and built-

up the fragments into new objects that hint at the past and make absence present in three dimensions. By overlapping arts and geography with ubiquitous and locational technologies, while overlapping data collection methods, new insights, relevant to different disciplines from memory studies, performance, mobile sound, mobilities, heritage and tourism, could emerge.

5 THE SITE – HAYLE, CORNWALL

This chapter introduces the app site, Hayle, its years of innovation and invention that powered the Industrial Revolution to its post-industrial downturn. Hayle's historical narrative is drawn from various resources and interrupted at times by residents' memories, images and gossip. Anonymous gossip is not normally found in academic writing but this chapter is an assemblage of voices and information written as a hybrid form of creative and academic writing. Although deep mapping assemblage is used in the practice, this is the only chapter that incorporates aspects of this approach in the written thesis. Using assorted voices and perspectives encourages reflection on fact, fiction and the value of personal and expert sources. Towards the end of the chapter the role that heritage and the arts can play in the community is explored. This introduction to Hayle is my personal summary of a complex story.

5.1 Hayle/ Heyl: setting the scene

This chapter sets the scene for the practice, the *Hayle Churks* app, by introducing a site with few visible reminders of its past. Occasionally, oral histories conducted from 2008 to 2013 during the Hayle Oral History Project (HOHP) and the doctoral research period appear in the text along with selected gossip, hearsay and story detail so that lived voices can animate and inform researched facts. All the gossip has been mentioned to me (but perhaps not repeated in the exact words originally spoken) and is identified through italics and an anonymising label such as Gossip A, rather than an academic citation. Some memory (exact quotes) or gossip interruptions are acknowledged and their information expanded on, others hiss in like a whispered aside and the narration moves on, some are added to with more similar reflections as though prompted by the subject matter. Different citation styles are used to help the reader differentiate between published citations, recorded memories and heard gossip. Most archive images are used with the kind permission of the Hayle Community Archive (some that I sourced and scanned during the Hayle Oral History Project).

Figure 18: Hayle estuary on St. Ives Bay showing the Towans (dunes in Cornish/Kernewek).
Three miles of 'golden sand' lead to Godrevy lighthouse in the distance. Photograph by author.

50º 11' 07" N 05º 25' 49" W. Based in Penwith, West Cornwall, Hayle, a town of 9,400 residents (Census [Office for National Statistics] 2011), is the most south-westerly seaport on the Cornish north coast. Long ago, a break in the peninsula's mineral-rich hard granite layer pushed a large estuary (*heyl* in Cornish/Kernewek) into St. Ives Bay and gave Hayle its name. Usually immune to extreme cold weather, Hayle has golden sand, turquoise sea, sand dunes (*towans* in Kernewek), varied plant and creature species and is visited by migrating birds (Penwith District Council 1993: 1). Archaeological traces indicate that tin was exported from the Hayle estuary to Ireland and mainland Europe as far back as 1500 BC (Higgans 2013: 12).

Across the bay is St. Ives, an ex-artists' colony of 11,400 residents (Census [Office for National Statistics] 2011). A quaint town with cobbled streets surrounded by attractive beaches. St Ives is Cornwall's top attraction and has been voted *Best UK Holiday Destination* 2009-14 by the *British Travel Awards*.

While 750,000 people visited St. Ives in 2012 (The South West Research Company Ltd 2012), Hayle is different. Its three-mile beach cannot be seen from the road and the easiest public access point has been signposted only since 2013. The beach begins behind an old canoe club container amidst a mixture of debris reputed to be from the war – the beach was protected from German invaders using stakes and a minefield.

> "We were out playing and there was a tremendous explosion and a column of black and yellow smoke went up in the shape of a mushroom over the minefield so we went to have a look. Two dogs had got through the wire [...] there was all bits of fur around a great rib cage hanging on the wire all dripping red." (Sullivan in Frears 2010: 95)

The main road is a ribbon stretched between four major supermarkets – a budget supermarket, Asda or Lidl, marks each gateway to the town. Two small shopping areas, 'Copperhouse' and 'Foundry,' mark the locations of the old foundries although their works buildings have gone. There is no town centre. Black bricks of copper waste (slag, or scoria, as it's referred to in Cornwall) used in houses and walls add a funereal aspect to some sections of the route, for example the harbour. Scoria blocks made in moulds to recycle molten copper waste were once sold at 9d (about 3p) for 20 and given free to Cornish Copper Company (CCCo) employees to build their own houses.

Hayle is not one of the top holiday destinations in Cornwall, instead ranking high in the top 10 percent of the most deprived wards in the UK. Its ratings soar in poverty, child poverty, unemployment, no 18+ post-school qualifications, illness and crime. Low ratings include access to central heating in homes and car ownership (Cemlyn et al 2002: 4). From a pretty little town on a promontory, St. Ives artists painted the beauty of the sea, the landscape and the people who lived and worked around that harbour, such as fishermen and their families. The businesses of Hayle ignored aesthetics and instead used and polluted the bay, land and people for power and financial gain.

5.1.1 A story of Hayle: early days
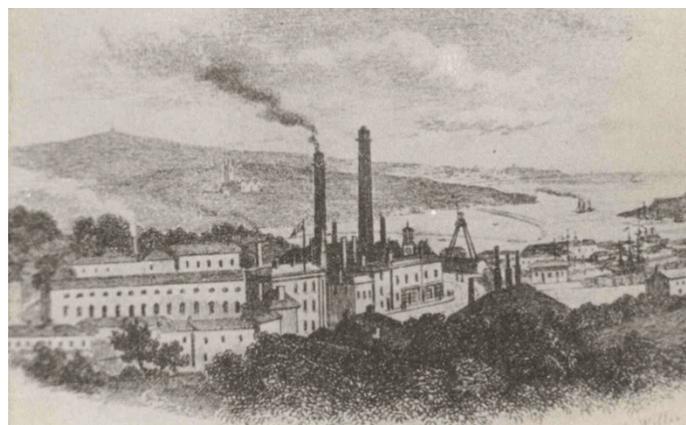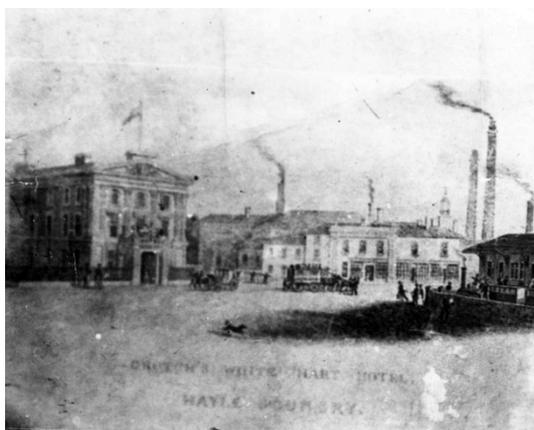
Figure 19: Images of Hayle showing Harvey's foundry. Photographs from Hayle Community Archive.

Conditions were certainly not good for the workers in Hayle in the late 18th century when Dr. Maton visited:

> So dreadfully deleterious are the fumes of arsenic constantly impregnating the air of these places, and so profuse is the perspiration occasioned by the heat of the furnaces, that those who have been employed at them but a few months became almost emaciated figures, and in the course of a few years are generally laid in their graves. (Maton cited in Noall 1979: 4)

The CCCo's copper smelting works introduced a new form of labour and 'wage slavery' into Cornwall (Rowe [1953] 2006: 64). Many labourers in Cornwall, almost a quarter of the workforce, were miners (Thorpe et al 2005a:21) who bid against each other for contracts – 'tribute' – or were paid by their results through 'tutwork' agreements rather than drawing a wage from a boss. This, according to John Rowe, 'suggested that the labourer was on equal terms with the adventurer with whom he contracted to do a certain amount of work'([1953] 2006: 64). Smuggling was also an option to earn money without becoming a wage slave. With approximately two million gallons of brandy a year smuggled in through Devon and Cornwall (White 1997: 18) the scale of the business and three miles of beach suggests that some Hayle residents would have been involved. *'A tunnel was blocked off from a cave by Black Cliffs that led to the cellar of a house in Phillack'* Gossip A*.*

Plenty of labourers moved to Hayle to work at the CCCo's copper smelter or Harvey's of Hayle foundry. In the late 19th century, Hayle's industrial landscape of noise, heat, fumes, dirt and smoke was one to be avoided by tourists, according to Black's Guide to Cornwall (1879).

> A dirtier, squalider, less interesting town than Hayle is not to be found in all Cornwall. Its population is composed of fishermen and miners, of labourers in its two iron foundries or tin smelting works, and railway employees, and its only claim to consideration is its position with respect to some magnificent coast scenery. But this may almost as easily be visited from Redruth or St. Ives – the latter a beautifully situated town, the Capua of Cornwall – and therefore we recommend the tourist to imitate our own course of action – leave Hayle as quickly as he enters it! (Moncrieff [1879] 1904: 356)

From 1740, Merchant Curnow's Quay (to be found today in front of St Elwyn's Church) was used to unload coal from Wales. Lines of 500 to 1,000 mules and horses moving to and from Hayle (Noall 1979: 3) were witnessed in 1758 by Cornish historian Dr. William Borlase as they carried the coal to the mines and returned laden with ore. The animals were kept busy

as two-thirds of the world's supply of copper at the beginning of the 19ᵗʰ century was mined in the West Cornwall district that Hayle belongs (Thorpe et al 2005a: 19 and 78). The surrounding area also produced a lot of tin, used in solder and the canning industry. Coins, pipes, vats, gun cartridges and ship hulls were all made from copper, which, when alloyed with tin, makes bronze. Many industries used arsenic; for example the Lancashire cotton industry used Cornish arsenic to make their dyes and pigments (Thorpe et al 2005a: 18).
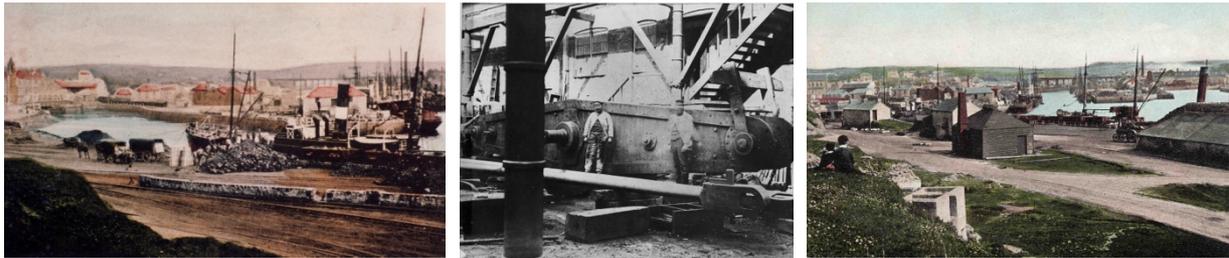
Figure 20: Images of Hayle. Coal is loaded onto the quays, a huge beam is made at Harvey's of Hayle foundry and a view of the quays shows a busy harbour. Photographs from Hayle Community Archive.

Set up during this period of high levels of production and demand for metals and mining materials were two businesses that defined the physical and psychological make-up of Hayle. The existing company established by Lemon, Stephens, Daniell and Curnow (Noall 1979: 3) that used Merchant Curnow's quay disappeared from sight as the town became split, in the late 18ᵗʰ and 19ᵗʰ centuries, between the two newer companies – Harvey's of Hayle and Cornish Copper Company. Two town centres, Copperhouse and Foundry, formed around each business, each with a Methodist chapel and a town clock. The CCCo moved to Hayle in 1759 and blacksmith John Harvey established his Foundry at the other end of town, in 1779, with the support of a landowner he reputedly helped get to church on time by fixing a fine silver shoe buckle (Noall 1979: 1).

CCCo and Harvey's of Hayle changed how they competed numerous times – in trade, shipbuilding, bell casting and foundries, for example – but they were never at peace. The intense competition, often referred to as 'the thirty years war' (S.R Thomas 2008: 4), pushed the companies to invent and create, fuelling the Industrial Revolution. Hayle was a contested landscape then, and still struggles to cohere as a community to this day.

Eventually, Harvey's bought all the CCCo access to the harbourside (1867) and its premises (1875) when it closed in 1869 (at that point called Sandys, Carne and Vivian). Harvey's

business continued to transform and lasted into the 20th century and so it is their side of the story that is now told in Hayle. Some of Harvey's documents survive but Hayle Heritage Centre has only managed to source two CCCo documents. "*They say the records were thrown down a mine shaft – standard practice in those days*" (Gossip B).

History is often told from the winner's perspective, and Hayle is no different. The archive and grants for heritage projects such as the Hayle Oral History Project are organised by Harvey's Foundry Trust. The Heritage Centre is housed in Harvey's old offices in 'Foundry,' the Harvey end of town. The town's dominant narrative then is the Harvey story. It is also a male story.

Mining in Cornwall led to 'more egalitarian relations between men and women' (Thorpe et al 2005a: 20), as some women worked above ground at the mines as balmaidens. 'Their reputations were as black as their aprons were white' (Schwartz 2007). When husbands left to work in the mines of Latin America (from the 1820s), South Africa, America and Australia, women were head of the household. Perhaps it is surprising then that in a town that supported the mining industry there is little written about women in this period. Three women mentioned were all closely connected with Henry Harvey, son of the Harvey founder John, who ran the business after his father died in 1803. One sister, Jane Harvey, married Richard Trevithick, the talented engineer and inventor (and a giant at well over six feet tall), in 1797. Jane's father and brother made castings and manufactured parts for his high-pressure steam inventions at Harvey's. Steam power drove invention and was 'the greatest of the technical innovations to be developed during the Industrial Revolution' (Thorpe et al 2005a: 45). An initial attempt to show off the first self-propelled vehicle powered by steam and invented by Trevithick was made on Christmas Eve 1801. Although it toppled over after a promising start, the event and invention became famous through the Cornish folk song *Going Up Camborne Hill*, still heard frequently in pubs. The second attempt (1803) was a successful run along Tottenham Court Road in London for around five miles (S.R Thomas 2008: 5). The 4am start, fire, steam, a terrible racket, a chimney that depicted a mouth that belched smoke (a racist chimney form and mouth, sadly) and the height of Trevithick and his driver John Vivian caused those woken from sleep to believe that the devil had risen from hell (Noall 1979: 8).

Trevithick went on to invent the world's first railway locomotive in 1804, and once Boulton & Watt's patent expired in 1800, he changed mining. The Cornish Boiler and the Cornish Engine were invented by Trevithick and were 'the most efficient equipment of its kind at that time anywhere in the world' (Thorpe et al 2005a: 20). It became possible for mines to go deeper (Cornish tin loads were often vertical and needed deep mine shafts to follow them) and grow larger, which enabled them to be worked more efficiently. Metal was extracted at a faster rate.

Richard Trevithick left Hayle for Peru in 1816 to install engines in the silver mines. 'It is said that [...] being a good family man [he] wrote home twice' (Rickard in Frears 2010: 24). In 1824 Henry Harvey built the White Hart Hotel (now the Masonic Hall, to the left of the modern-day White Hart) so that his sister Jane could support herself and her family while providing Henry's Foundry guests a place to stay. Trevithick returned in 1827 to a hero's welcome. *"I heard there was a couple of South American-looking boys with him that could have been his"* (Gossip C).

Officially, Henry Harvey lived with his other sister, Elizabeth, a spinster. In fact, Grace Tonkin, presumed to have been their maid, was Henry's long-term but unmarried partner whom he installed at nearby Mellanear House (Hosken in Frears 2010: 14). The first of their 11 children was born in 1818, when Henry was 43 and Grace was 25. Harvey was used as a middle name and an extra 'g' was added to the rather common surname Tonkin to distinguish them (Tonking 2013).

The main story of Hayle does not, however, focus on Harvey's personal life, nor Harvey's and CCCo's engineering achievements, but instead the struggle for domination of the town, the harbour, land and business potential by the two companies.

> "Harvey and Co was a law unto itself, weren't they? To be honest, they had the run of everything. They was a powerful family." (Noall [ex-Harvey's employee] in Frears 2010: 16)

The battle between the companies centred around water. Access to the estuary was needed to import coal, timber and goods for the mines and foundries and to export tin and copper. Established in Hayle before Harvey's, CCCo had initial access to the quays. The fight for more access, or to sabotage the competition's access, continued from approximately 1793

to 1834, using various techniques. Channels were dug to divert water away from existing waterways. Material dug out by one company was tipped back in by the other. Scoria was dropped into water to block or make channels impassable. "[Scoria blocks] are very hard indeed but if you try to cut them they shatter like glass" (Rickard in Frears 2010: 72). The estuary would get clogged with sand if not sluiced. Sluicing involved holding back water behind Copperhouse gates on a high tide and opening them on a low tide so that the force of a huge wave of water would push the sand out into the bay.

> "That was a terrifying sight to see, the sluicing […] a torrent'd go straight out into the bay. The water wasn't blue or green, it was yellow with sand." (Sullivan in Frears 2010: 62)

If sluicing wasn't done, ships couldn't 'cross the bar' to get in or out of Hayle or would get grounded – and business ground to a halt. At times both companies built ships and Harvey's ran a Steam Packet service between Hayle and Bristol. Regular movement in and out of the harbour, especially before rail travel, was vital.
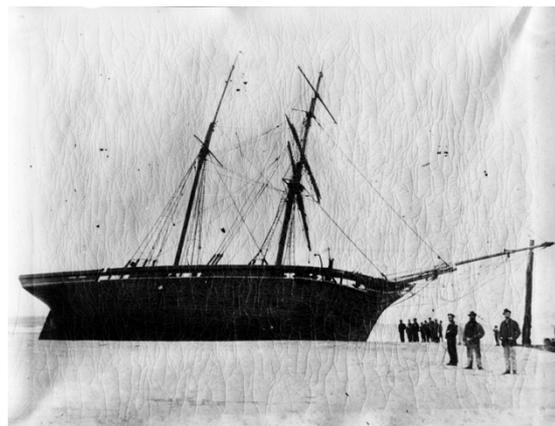
Figure 21: Sluicing is needed in Hayle to keep the channel clear of sand and prevent ships becoming grounded. Photographs from Hayle Community Archive.

There were many other clashes between the companies. Two reported incidents brought large numbers of CCCo and Harvey's men into direct contact. Both ended with a skirmish and Henry Harvey being knocked down. Boundary stones were moved on a Sunday night, a vessel was tampered with so that the load floated off with the tide, leases were obtained on contested land, actions were fought in court, agreements made were ripped up when broken. Ironically, this mutual aggravation to gain ultimate power pushed forward the engineering capabilities of both companies. For example, sluicing was reputedly used by CCCo to block in and obstruct Harvey's ships (Higgans 2013: 33). In order to avoid this, as

well as either a new sluicing levy imposed by CCCo on each ship entering the harbour or an annual fee of £200 (Noall 1979: 16), Harvey's dug out and built a tidal pool at Carnsew (adjacent to Asda and Jewson in the current Hayle), a masterful engineering achievement. When Harvey's sluice gates were installed at Carnsew in 1834, the company could clear a path for their own ships and engage in their own strategic tit-for-tat clogging of CCCo's channel.
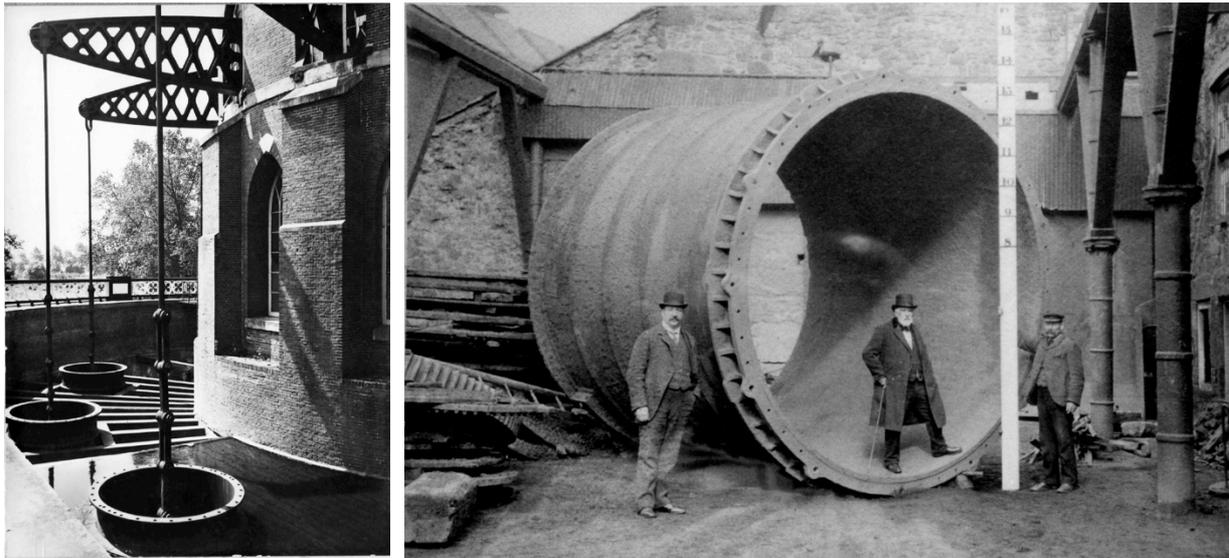
Figure 22: The Cruquius engine made by Harvey's of Hayle drained water from the Haarlem Lake and is a Dutch national monument. The photograph on the right shows Mr. Bickle and Harvey's co-workers in a cylinder cast by the foundry. Photographs from Hayle Community Archive.

In the 19th century the Cruquius engine (1847) was one of three huge engines made in Hayle that pumped and drained the water out of Holland's Haarlem Lake and used until 1933. In the mid 1850s Harvey's and CCCo's engines pumped three-quarters of London's water supply (S.R Thomas 2008: 6), while CCCo built the first locomotive made in Cornwall as well as the chain links for Brunel's Royal Albert Bridge across the Tamar and his Clifton Suspension Bridge in Bristol. In 1886 Harvey's drained the Severn tunnel (S.R. Thomas 2008: 5). At this time (the late 19th century) the pumping machinery used in international mines (as well as rock drills and safety fuses) 'were more likely than not of Cornish manufacture' (Rowe [1953] 2006: 127).

Simplified layout of a Cornish pumping engine house showing the position of principal components.

External features of a Cornish pumping engine house.

Local stone was used to build engine houses. This was sourced from quarries (commonly opened up near the site to provide the rubble walling), sometimes from mine waste and often from existing derelict engine houses on the same or adjoining mines that were pulled down to re-use the stone, particularly cut granite that was always favoured for the cylinder bedstone, the bob wall and coigns. Gable roofs were covered with Cornish slate and bricks were brought in to construct the topmost section of the chimney stacks and to form arch/window details. The necessary massive construction of these engine houses is the principal reason for their survival.

Figure 23: An illustration of mine workings showing parts, such as the 'beam', that were designed, engineered and made in Hayle. Image provided by Cornwall Council.

This period of success slowed considerably when copper prices fell in the late 1860s, followed by tin prices crashing in the 1870s in response to cheaper internationally mined ore. The Cornish mining industry was almost completely destroyed by the end of the century (Noall 1979: 40). When CCCo (now Sandys, Carne and Vivian) closed in 1869, half the town's jobs were lost – a high price for Hayle to pay. Before the crash of fortune, both companies had experienced a global influence on industry and invention through their products. Now their skilled workers dispersed in search of work. Some sailed from Hayle

harbour as 'Cornwall became one of Europe's major emigration regions with perhaps over 200,000 people leaving in the century after 1830' (Thorpe et al 2005a: 21). Meanwhile Harvey's still traded.

> During the 19th century [Harvey's] became the most important foundry in the world for making Cornish engines and Cornish boilers, and had many overseas sales offices […]Harvey's made the largest steam pumping engine ever built, the Cruquius steam engine in Holland. (Christon 2014: 6)

Harvey's exported more mine steam engines than any other rival. Holland made Cruquius a national monument (see Fig. 19). Other sites in Cornwall, the UK and the world have Hayle engines on show including Fresnillo Mine, Zacatecas, Mexico; O'okiep Mine, South Africa; and Levant Mine, near St. Just, Cornwall.

In Hayle today it is hard to find visible evidence of the achievements of the two foundries. Hayle manufactured engines for export but never had one working in the town as the break in granite that formed the estuary also prevented it from becoming a mining town. When Goonvean Engine, built by Harvey's in 1863, was removed from its engine house on the China Clay site near St. Austell, plans were made to move and reassemble it in Hayle 'where parts of it could be displayed' (Coad 2016).

> *"The engines were built into bespoke engine houses and to reconstruct them outside these structures for display is apparently not only difficult (they didn't supply kits) but not historically 'authentic' according to the Conservation Officer. Also, the original Harvey's beam of the Goonvean Engine broke and was replaced with one prominently bearing the legend "Holman Bros Camborne" making the engine seem as if it was Camborne built."* (Gossip D)

5.1.2 Hayle in World War II

Before moving to the present day, a period in Hayle's history remains missing, the one described through memories in the app. At this time Harvey's was still operating. "They had this whole area of Cornwall to themselves" (Sullivan in Frears 2010: 28). Its office in John Foundry House (now the Hayle Heritage Centre) was run like a 'Victorian counting house' (Sullivan 2011: 71). All business was written in enormous ledgers.

> "I went to Harvey & Company offices as an office boy when I was 14 in 1944, which was exciting in World War II […] I also had to get the ledgers out of the strong rooms – massive things, 40 pounds or so weight with copperplate handwriting. The men stood all day at chest-high desks." (Sullivan in Frears 2010: 28)

Harvey & Company still ran Hayle harbour, traded as builders' merchants (with branches in Falmouth, Camborne, Penzance and St. Ives) and owned lots of property.

> "When I started [Harvey's] had a mass of properties. [...] Their properties wasn't nothing at all mind you, they was only half a crown, 2s 6d a week. They sent a carpenter up to put a new lock on – that was well over a month's rent [...] they was in a poor state really." (Noall in Frears 2010: 20)

Figure 24: Hayle company J & F Pools made munitions in Hayle. Photographs used with permission from the Imperial War Museum.

In the 1930s and '40s, Hayle was poor, according to local historian and resident Brian Sullivan, who has written about the war period he experienced as a child:

> Given this situation many employers [...] were able to pay the lowest wages in the country. Dock labourers, for example, received just 5s 10d (29p) per day; and the Thomas W. Ward ship-breaking undertaking paid their men 30 shillings (£1.50) per week for doing that dangerous work. (2011: 11)

Finding employment wasn't easy. Dick Bowden remembered the men waiting around on the quays.

> "During the war [my father] went to work for Harvey and Company at the docks. All the men would be there from six o'clock and the foreman would come out and pick out men for that day's work. The rest, they were sent home. They had to be there six days a week in order to try to get a job. They were lucky if they worked three days a week." (Bowden in Frears 2010: 62)

James Noall remembers how it was working for the most powerful company in Hayle.

> "[Harvey's] was the bosses and we was the workers, put it that way. If they wished you Merry Christmas you was lucky. [...] Used to have two days off – Christmas and Boxing Day and back to work the following day. Used to work a five and half day week, eight o'clock til five, hour for lunch and always worked Saturday morning 'til the forty-hour week came in and then we had Saturdays off." (Noall in Frears 2010: 32)

Rather than the poor town becoming more depressed during the war years the large number of soldiers stationed in the town to train on the towans (sand dunes) and guard the industries, harbour and beach made it livelier. Nightly entertainment was put on to boost morale and to raise money for the war effort (Sullivan in Frears 2010: 90). One resident describes how the war broadened everything,

> "Father allowed my younger sister and me to go to the Masonic dance. There used to be a dance every Saturday night. We had to be home before midnight and make ourselves known that we were home safe. Well, the Yankee soldiers used to come." (Harvey cited in Frears 2010: 96)

Italian prisoners of war were moved into barracks in the neighbouring village of St. Erth but were allowed more freedom once Italy surrendered. PoWs worked on Doe Harry's farm along with the Land Girls who were brought in and given a cup of tea to warm up at the end of the day during the winter.

> "When they'd gone mummy used to go down to see to the fire and straighten the cushions on the sofa and chairs […] and she often found underwear stuffed underneath the cushions of the big sofa! They were a randy lot!" (Harry in Frears 2013).

The American army took over Hayle (Sullivan in Frears 2010: 90) bringing an African-American engineering corps from the North to build barges for D-Day and white National Guard units (territorials) from the American South. Hayle residents witnessed racism for the first time between the white and black soldiers.

> "The cause of the trouble — girls would dance with the black Americans and then a white American would say 'don't dance with that …" and then there'd be a fight." (Sullivan in Frears 2010: 96)

After heavily armed American Military Police broke up numerous fights, the white Southerners and African-American Northerners, already segregated in different regiments, were eventually segregated within Hayle and restricted to going out on separate nights.

The town missed the Americans when they left for D-Day. Hayle children had become used to tapping into the steady supply of chewing gum, sweets and chocolate bars by hanging around their favourite soldiers, whose departure also left some women heartbroken.

> "She wrote to tell him that she was pregnant and never heard back, presumed he'd been killed in action. The children thought her child was their uncle rather than a cousin. He

traced his father years later. He was already dead but he found out he'd already had a family when he came to Hayle in the war." (Gossip E)

Along with the memories that are interspersed throughout this version of the town's history of Hayle, those from the 1930s to the present day can be heard in the *Hayle Churks* app. Hearing 'intangible history' (Maeer, Mattinson and Knox 2015: 4) – accent and local dialect rather than reading it – brings to life the events and the people who experienced it.

5.1.3 Hayle today

The industries that filled North Quay during the war, the power station, the gas works, ICI and Esso and J&F Pool, the metal perforators in Copperhouse, all closed down long ago. Described as an 'urban centre' in the Cornwall and West Devon World Heritage Site bid (Thorpe et al 2005a), Hayle is marginal and suffers from post-industrial neglect and unemployment.

> Unfortunately much of the fabric of the history of the town has been lost and due to the decline of the town few visitors and residents, particularly younger people, appreciate the importance of their town. (Christon 2014: 7)

St. Ives's heritage as an artists' colony has continued to attract visitors. But industrial history has never been as glamorous, and as tourism became Cornwall's main industry, it appeared to be even less so. A cannon from the Boer War was on display by the 'Plantation' in Hayle but beyond that there were many highly visible abandoned and derelict buildings and quays. Cleaning up the town and getting the harbour sluiced and cleared again seemed the only way for Hayle to move on.

Figure 25: Hayle in transition during the research period. On the left a new bridge is built to improve access to a planned marine renewables industrial park (and beach). The photograph on the right shows the ASDA superstore structure going up. Photographs by author.

Harvey's may have become the lens through which the rivalry between the companies of Hayle is told, but beyond that story the company was not very good at preserving its legacy or the town's history.

> "It was 50 years since the foundry had been closed and the drawing office was exactly as if they were coming back at nine o'clock tomorrow morning to start work […there were] drawers containing drawings and plans of ships, plans of engines […] There were half hulls of ships' models with all the plates drawn on them stacked up in the corner. Harvey's firm wasn't interested in its past at all. They more or less gave everything away. I'm sure if I'd asked for one of the models they would have given it to me. Now they're a thousand pounds each." (Sullivan in Frears 2010: 29)

When Henry Harvey stepped back from the business he spent his time 'restoring' the Iron Age fortress at Carnsew at the head of the estuary. While cutting through the ancient structure to create promenades, a horizontal gravestone, ca 450 AD, was found four feet under ground (S.R. Thomas 2008: 2). The stone broke into three parts while being moved and was fixed into a nearby wall with a Latin (mis)translation next to it, also in stone. A more recent translation identifies it as from the tomb of an unknown woman called Cunaide, who was 33 years old. The gravestone, evidence of the earliest Christian activity in Cornwall (S.R. Thomas 2008: 2), is now so weathered and covered in lichen it is impossible to read. Hayle Heritage Centre and Harvey's Foundry Trust are making efforts to raise funds to save it. Harvey's approach to heritage also included constructing a Romanesque arch (1844) within the Iron Age fort site and laying out a plantation, which gives this green space its present name.
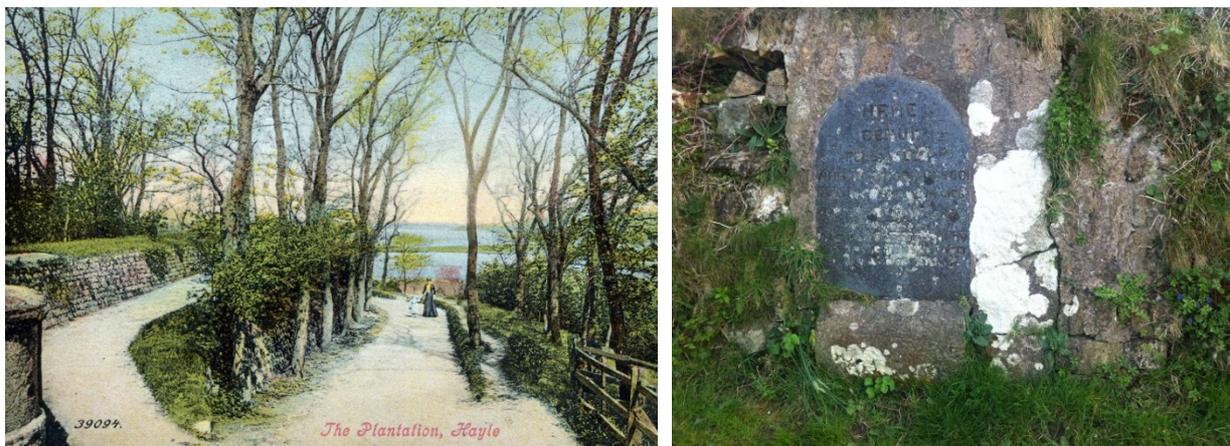
Figure 26: Henry Harvey 'landscaped' the site of an ancient Iron Age Fort to create 'The Plantation' during his retirement. Photograph from Hayle Community Archive. The Cunaide stone, evidence of the earliest Christian activity in Cornwall, can be seen on the right of what appears to be a gravestone but is the carved translation. The Cunaide stone is covered in light-coloured lichen. Photograph by the author.

Another insensitive approach to heritage took place in the 1980s, when companies controlled by millionaire entrepreneur Peter de Savary acquired the harbour. 'A grandiose scheme for regeneration driven by high-value leisure uses was then put forward' (unknown report author ca 1992: 2). By then the town and local council were desperate for the harbour's regeneration. *'Penwith Council demolished a lot of old Foundry buildings to keep de Savery sweet – that whole wall of Harvey's Foundry with all the arches, such a shame'* (Gossip F).

> "One morning at Foundry Farm about seven I heard a clatter so I went out. There was a digger, compressors and everything else all lined up so I said, "What you boys going to do?" He said, "We're going to knock this arch down!" I said, "You are not!" "We are, we've got instructions from West Penwith Council." I brought my twelve-bore shotgun out, I never had no cartridges in it. They took fright and the arch was saved." (Hawkins in Frears 2010: 22)

Before de Savary's 'Little Venice' was built the '80s property market collapsed and so did hopes for Hayle's regeneration. De Savary left (leaving some debts), his empire began to dissolve, and his planning permission for the harbour expired.

In 1985 the Hayle Town Trust started to fight demolition of the remaining derelict Harvey's Foundry buildings. Erasure of all visible links to the town's industrial heritage appears to have been interpreted as an effort to erase the town and its inhabitants' identity. Remains of the Hammer Mills and Ropeworks were saved and turned into a community green space, called Millpond Gardens.

World recognition of the importance of heritage on personal wellbeing and development was also growing as the 1994 'Nara Document on Authenticity' created by the International Council of Monuments and Sites (ICOMOS) describes:

> The diversity of cultures and heritage in our world is an irreplaceable source of spiritual and intellectual richness for all humankind. The protection and enhancement of cultural and heritage diversity in our world should be actively promoted as an essential aspect of human development. (Lemaire and Stovel 1994: 46)

Cornwall's mining heritage, a 4,000-year-old tin industry, became inactive in the present when the last mine, at 300 years old the oldest one in Europe, closed in 1998 (Thorpe et al. 2005b: 21; BBC 1998). South Crofty is less than eight miles from Hayle. *"They said I'd have a job for life. I was only there a few years"* (Gossip G). The slump in employment, spirits and

fortune that followed provoked Cornwall-wide efforts to instil pride in the region, (or the Duchy, as it is referred to) which included attention on local heritage.

The idea of 'Making Industrial Buildings Work' discussed at the 'Regeneration Through Heritage Conference' (Business in the Community 1999) gained wide support from Cornwall councils. Harvey's Foundry Trust (HFT), developed from the initial community group that saved the Ropeworks, began to raise funding to save or transform industrial sites. The Trust has been instrumental in protecting and celebrating Hayle's heritage through various projects, including the 2003 rebuilding of John Harvey House (now the Heritage Centre), the redevelopment of Foundry Farm (2007) and gaining funding for cultural projects such as the Hayle Oral History Project (2008-10).

The role and effect of using historic buildings in regeneration was linked to wellbeing in a report from the Office of the Deputy Prime Minister (ODPM) in 2004 that concluded:

> The historic environment has an important part to play in regeneration schemes helping to create vibrant interesting areas, boosting local economies and restoring local confidence. (2004: 42)

In 2015, to evaluate the worth of 20 years of Heritage Lottery Fund (HLF) support in Britain, a report was commissioned by the charity. Key findings by Britainthinks, which questioned 4,000 people in 12 locations, included:

> 81% see heritage as important to 'me personally'.
>
> 80% say local heritage makes their area a better place to live. (Maeer, Mattinson and Knox 2015: 2)

In addition to expected benefits related to investment in heritage such as tourism, jobs and a more attractive residential environment, the report found a positive link between heritage and an improved perception in quality of life (Maeer, Mattinson and Knox 2015: 2). Engagement was most significant when an emotional connection was made:

> Where the connection is emotional, heritage has a deep, personal resonance, and tells people something important about themselves, their family or their community. Through this emotional connection, heritage can provide a route map to help us to better navigate the world, and is able to deliver the benefits of strengthening local identity, encouraging local pride and fostering social cohesion. (Maeer, Mattinson and Knox 2015: 2)

Efforts to strengthen local identity and social cohesion through local pride of place and heritage have become stronger in Hayle in recent years, perhaps motivated by the successes of Harvey's Foundry Trust. There has been a series of hard-working, well-intentioned mayors. The townscape has had a general tidying up and has been improved by voluntary groups such as 'Hayle in Bloom' that enhance the town's gardens and streets using plants. In 2011, to make local heritage and history more visible and known, the council put up over 50 new blue plaques around the town.

> *"Hayle Town Council was terrible years ago when I was there. There were deep divisions between different members, different families, different parts of town, incomers and Hayle people. They weren't voting for the good of the town but against each other. I felt nothing could be done there and left." (Gossip H)*

The historical significance of the town has been assessed and mapped for English Heritage (Cahill 2000), the issue of contaminated land and water confronted and there have been increasing efforts to attract businesses and jobs to the town by providing new or improved office and work space.

Since 2006 Hayle has been part of the Cornwall and West Devon mining landscape inscribed as a UNESCO World Heritage Site:

> The Cornwall and West Devon Mining Landscape is an embodiment of the profoundly important process of non-ferrous metal mining, its industrialisation, and its social and economic consequences. This transformed the landscape between 1700 and 1914 and contributed substantially to the development of the Industrial Revolution in the rest of Britain. Cornwall pioneered the transfer of the British industrial revolution overseas and thus played a key role in the growth of a global capitalist economy. (Thorpe et al 2005a: 18)

In 2010 the arrival of a tidal energy test site, the Wave Hub, raised the opportunity of a marine renewables business park, built on the site of the partially demolished old power station near the beach in 2016.

The route to this site, North Quay, was once a busy industrial area, as a local resident describes.

> "When the hooter went at twenty past twelve a sea of bicycles came out off that North Quay. There were hundreds of men working at that time in the Power Station, ICI and Esso […] police used to have to stop traffic on the main road." (Trewartha in Frears 2010: 59)

Figure 27: The power station and many other industries used to be based on North Quay. Archive photographs by Hayle Community Archive and derelict images by Dr. Simon Clarke.

In 2011, the beginning of my initial doctoral research period, large areas of neglected landscape remained – sites that had been demolished sometimes decades earlier. North Quay was one, a rough overgrown road to the beach usually empty unless the St. Erth dump shop based there was open (see bottom row photographs Fig. 27).

Figure 28: North Quay today raised up on flood defences (photograph by the author). The weighbridge has been moved from its original position for display (shown in the archive photograph provided by Hayle Community Archive) and a piece of Harvey's machinery has been concreted into the promenade, on the left of the photograph.

Now raised up on flood defences, landscaped into promenades and made into a working harbour, North Quay is used once again by fishermen and residents. Historical features, however, have been moved and decontextualized during the transition, in an insensitive

and inaccurate interpretation of preserving history with which Hayle is familiar. A turning circle was cemented in and the weighbridge moved, removing the visitor's ability to understand how the quay once worked. A piece of machinery, probably from Harvey's, was found in the water and plonked into concrete on the walkway without explanation. Seaview real estate plots have been gravelled and fenced off, but as yet not built on. *"I heard that nothing is happening, because English Heritage weren't happy"* (Gossip I). New plans for low-density housing on the quay (a brownfield site) and 'Hilltop' behind it are expected to be submitted in summer 2016, when the harbour's newest owners finish liaising with World Heritage, which is now much more involved with Hayle's regeneration after the Asda controversy.

Cornwall Council approved the building of an Asda supermarket on historic South Quay; built rapidly, it now partially blocks the view to the estuary and quays and dominates the 'Foundry' end of town. The promise of replacing gates to restart sluicing, to include some historic notices in the store and to build a bridge across the estuary linking the existing shopping street did not impress UNESCO as much as it did Cornwall Council. UNESCO decided that the supermarket altered the Outstanding Universal Value (OUV) of the Mining Landscape World Heritage Site and its unique historical importance.

In 2013 the World Heritage Committee called on the Government to halt the regeneration plans (Asda building) on South Quay (Smith 2014). Work continued and in less than a decade of being awarded World Heritage Site (WHS) status UNESCO put the whole of the Cornwall and West Devon WHS on the danger list. The threat of losing World Heritage Site status, of being de-listed (only two sites in the world have ever been de-listed), was only temporarily lifted in 2014 (Smith 2014).

Meanwhile the town was promised that sluicing would start from restored gates next to the supermarket before it opened. The store has been open for almost two years. The gates have been replaced, tunnels built and actuators and operating equipment installed. A collapsed harbour wall is in the process of being repaired, in order to prevent the force of water during sluicing causing more damage. Many in the town hope that sluicing will not only make the harbour more usable but that the huge wave of water will provide a unique tourist attraction. Dredging had replaced sluicing. Paid for by selling sand, dredging cleared

the bay but was blamed by local pressure group 'Save Our Sands' and scientist Anne-Marie Rance for causing rapid severe erosion to the dunes (Rance 2013 see Fig: 29). In 2010 dredging was halted temporarily in order that the harbour master could conduct a review. The sand is 'a finite resource from a finite budget of sand in a closed sand cell' (Save Our Sands 2016). Sluicing keeps the sand within the bay and firms up the dunes rather than destabilising them (Rance 2013).

Mechanical dredging started again in August 2016 as the build-up of sand in the harbour has become so high and dense that it will act as a barrier even to a surge of water released from the new sluice gates. Once dredging is done there are still potential issues to resolve before sluicing can begin. The harbour is a Site of Special Scientific Interest (SSSI) and the Royal Society for the Protection of Birds (RSPB) owns significant land and pools near the sluice gates. *"De Savery sold it to them for a pound"* (Gossip J). A sluicing protocol has been agreed among Cornwall Council, the RSPB, the Environment Agency and Natural England that only permits sluicing between April and September (Bennett 2016). When dredging is completed, sluicing can start up to the permitting sluicing window, and negotations are underway to extend the sluicing period defined in the sluicing protocol for this season (Bennett 2016).

Figure 29: Dredging caused rapid erosion of the towans or dunes (Rance 2013) and was stopped temporarily in 2010 for a review by the Harbour Master. The first photograph, a sign warning of erosion and an unstable dune edge, is by the author. The other photographs are from Hayle Community Archive.

Planning applications will soon be handed over to local councils to decide upon what can be built where. Hayle has, since 2014, followed many towns in developing a Neighbourhood Plan, a guide for 'the future development, regeneration and conservation of an area' (Chetwyn 2012: 7). I am involved in the Hayle Neighbourhood Plan process. The Hayle Oral History Project raised awareness of Hayle's history through embedded community

involvement, walks, exhibitions, gatherings and broadening access to memories, such as playing them from vintage vehicles at the town Carnival to making them available online. The book created at the end of the project (Frears 2010) created walks through memories and articles (1,500 copies in circulation and published for free online) and continues to connect Hayle's residents and visitors to the town's history. The *Hayle Churks* app (Frears 2013a) uses arts and culture to spread the stories through a different medium, again encouraging movement into and around the town. The app content reminds residents of the town's heritage and delicate ecology so that it can be considered in future planning proposals once devolved to the town. The Hayle Neighbourhood Plan is the next step, a political one. Since the beginning of the Plan process there have been annual attempts to draw opinions of draft aims from the public to engage them in decisions and to comply with Neighbourhood Plan good practice. Below are a sampling of comments, reproduced verbatim, that reference heritage from the 2015 online Hayle Neighbourhood Plan questionnaire prepared by the Hayle Neighbourhood Plan steering group and supported by Hayle Town Council:

> 'Hayle was at the forefront of the industrial revolution. More must be made of promoting this and showing our heritage positively.' Comment 5.

> 'The World Heritage Status provides obstacles to Hayle Development and does not provide adequate benefits to maintain it.' Comment 11.

> '[I]t's all becoming too "England" like.' Comment 13.

> 'Carry on being brave, like you were with Asda.' Comment 16.

> '[W]e need attractions that will bring the 'footfall' into Hayle! We can' t just rely on
>
> our history!' Comment 27.

> 'Like you say: the authenticity of the heritage is rooted in people's living memory. The local community should define what aspects of their own heritage are important. The criteria of UNESCO's OUV do not reflect local perception of heritage and should not solely define it. Heritage is intimately tied up with people's identity and sense of place, and any interpretation of it should be a bottom-up process if heritage is to mean anything to those it should mean the most to.' Comment 31 (Hayle Neighbourhood Plan 2015).

Hayle community's varied and outspoken opinions come from, according to Sullivan, the mix of workers who moved to Hayle to work in its industries,

> who having no inborn tradition of subservience to the local hierarchy of landowners, clergymen and farmers, developed an independence of outlook and attitude, that has

always been regarded as 'awkward' or even downright 'cussed' by the authorities. (2011: 11)

From comments in the survey including those not cited here, it can be summarised that heritage in Hayle is linked to pride of place but not as decided by UNESCO and the World Heritage team. There is clearly mistrust in the decision makers (and a misunderstanding of who those are) especially over Asda on South Quay. Respondents seem to want Hayle's identity to be rooted in its Cornishness and history, with the Hayle community having a say of what in the town is important to them. Regeneration through heritage is supported, but only if it doesn't stop progress.

In this historical and social context, where does an app fit in with Hayle? As the *20 Years in 12 Places* HLF survey by Britainthinks found, heritage activities to which the public connected emotionally have a positive effect on local identity, local pride and social cohesion (Maeer, Mattinson and Knox 2015: 2). Personal stories by local people had affected listeners during the Hayle Oral History Project, which also proved an eager and varied audience existed that crossed social divides. One thousand copies of the first edition of the book, including walks and a multimedia disc, went within a few days, and over 500 people turned up to the final event and exhibition.

Britianthinks found that outdoor activities in townscapes or parks increased participation by those not usually engaged with heritage and have been identified as a way 'to generate wider interest in heritage' (Maeer, Mattinson and Knox 2015: 2). The app takes place outside instead of in a museum, as it is the engagement with landscape while hearing memories that creates the locative media effect – the fusion of storyworld with the physical world.

There has also been pressure on the arts in recent years to assess impact. A 2013 study by Daniel Fujiwara found that arts participation and being an audience member had a positive effect on happiness that equalled that, for example, from sports participation (2013: 35).The evidence from Fujiwara's study and other research has encouraged the Arts Council to link arts and culture with personal and societal benefits. These not only include feeling happier and healthier with increased satisfaction with life. Arts and culture ' help us to make sense of our own experiences and to empathise with others' (Arts Council England 2016),

which could be an element that leads to another positive finding, that of increased community cohesion.

This historically contested site of Hayle, once a busy industrial town, has experienced decades of neglect, disappointment and low status, especially compared to its neighbour of St. Ives. The Hayle Oral History Project shared Hayle's tales, some of which were unknown or forgotten, some were about important global events, while others were small stories revealing life as some people live it. The project's success demonstrates that there is a real interest in knowing about the town's past from residents as well as visitors. Throughout that project there was enthusiasm for all the events: talks, walks, bike rides, training, intergenerational interviews, exhibitions and film screenings. *"Don't expect anyone to turn up, this is Hayle!"* (Gossip K). The book, in its second edition, continues to sell. The book's success, which included over 500 people queuing to receive a free first edition, perhaps initiated the support and publication of other books, walk maps, an MP3 walk and proposed apps about Hayle that have appeared or been proposed since 2010.

The Hayle landscape has transformed from being partially derelict but 'pregnant with the past' (Ingold 1993: 153) to multiple building projects, though some of the 'regeneration' has caused disharmony and disempowerment within the town rather than drawing the community together. During the change I decided to tag the landscape with invisible aural graffiti that would continue to haunt the site with stories no matter how the landscape transformed. Longitude and latitude triggers the broadcast of memories through the app whatever is built on each spot in the future.

In order to connect people, residents and visitors to a challenging landscape with few visible reminders of the past, I decided to create an app. Increasing residents' understanding of place could influence future planning decisions and building design. An understanding of place, according to the Britainthinks survey results, can lead to more understanding of ourselves, our family or our community (Maeer, Mattinson and Knox 2015: 2). New forms of dissemination and creative engagement are needed to reveal the past in order to connect or reconnect people with the landscape. Locative media is an innovative medium used mostly outdoors in public spaces. Thus, a *deep map* app could be the right tool to

strengthen local identity while increasing local pride, land stewardship and social cohesion (Maeer, Mattinson and Knox 2015: 2).

This chapter outlines the urgency in finding new creative approaches to experiencing landscape and its multiple (contested) histories. Neglected landscapes and communities in crisis need to be included in these layered interpretations of place as perhaps they have the most to gain from them. The need for increased awareness in heritage and land stewardship in Hayle has been described in this chapter and the argument lain out in favour of using an innovative art form – a *deep map* app. The potential threat of the de-listing of Hayle and the region as a World Heritage Site has been lifted, albeit temporarily, but the Hayle Neighbourhood Plan needs to be approved in a town referendum before the local environment and heritage can be protected through it. The clock is ticking for Hayle, its heritage, delicate dune and estuary ecology. There is a pressing need to build houses for local young people who are priced out of the local market by the rise in second home holiday rentals. Building in Hayle is seen as more favourable than in more popular tourist destinations such as St. Ives, where development is becoming too dense. Cornwall Council has stipulated that 800 houses must be built in Hayle over the next few years. In the gap before the Plan and its protections are implemented there has been a flurry of planning applications. The new harbour owners are expected to submit their plans imminently. Their land contains heritage sites, SSSI (Sites of Special Scientific Interest) and dunes.

Local people must have a voice in what is happening – the comment above from the Plan survey, that 'it's all becoming too "England" like' (Comment 13), is relevant and pertinent in Cornwall. Who am I to tell Hayle's tale? Pearson's personal history and stories are imbricated into his work around Hibaldstow (2000; 2006; Pearson and Hardy 2006) but those who have endeavoured to tell the story of a place that is not 'theirs' have come under criticism. Barbara Bender, Christopher Tilley and Sue Hamilton's work in Bodmin was treated as an English 'invasion' into Cornwall's history and landscape by Cornish nationalists (Bender 2002: S108). Even with the grounding in community work preceding the doctoral research and app making, to proceed must be done with care, with the words of Alan Kent, Cornish poet, novelist and dramatist ringing in my ears. A section of his poem *Identity Theft* (2005: 22-23) is shared below so that his voice and concerns can be heard. They have been a reference for me during the making process, which shall be described in the next chapter.

They've taken my landscape and put a tree museum in,
cleansed the earth and sanitized it –
though I never asked them to;
they've taken my time and told me
how my history should be;
presented it in their cabinet,
with their labels – not mine.

They've reinvented me
for consumption, marketing, education;
romanced my real past;
made my present their swag;
and now control my future.
The heist's permanent.
The getaway car went long ago.

These things are all hard to replace,
and they are slipping – these treasures of the soul –
Falling into the void's hoard.
Every day, every hour, every second,
the void sings back to me,
belonging, belonging to be:
And sometimes I just don't know who I am anymore.

(Kent 2005: 22-23)

6 PRACTICE

This chapter follows the process of imagining, making and evaluation of the practice designed to answer the research question. Two initial explorations and one substantial piece of practice explore connection to landscape through narrative digital content and locative media. The findings and reflection of the first two pieces of work can be summarised briefly. The analysis of collaged quantitative and qualitative evaluations or interviews from three evaluations of the Hayle Churks *App and reflection on it is presented in more detail. How the practice process and gathered data respond to the research question through the conceptual framework of immersion, embodiment and landscape using the methods described in the chapter on methodology will be addressed.*

6.1 Three pieces of practice: an introduction

Here, the listener is cast not only as an audience of one
but also an active participant in the artistic construction:
negotiating complex shifts in time and subject matter; bringing their own physical
engagement – phenomenological encounter even – to the information and stories
embedded in the compositions; working with imagination in a landscape
lacking authoritative viewpoints; shifting from optic to haptic apprehension.
Betwixt and between…. Earth and sky… land and water… me and them.
(Pearson 2011: 284)

It is quite a complicated business, trying to re-create a multivocal
sense of place, a past that is both 'golden' and 'hard,'
one that is not over and done with but in process.
(Bender 2002: S111)

In this chapter the question of whether locative media can develop a deeper connection with landscape is explored through three pieces of narrative practice: *The Secrets Garden* app and live installation (Frears and Biscoe 2012)*,* the *Hayle Interactive Story Machine* (Frears 2013b) using Radio-frequency Identification (RFID) technology, and the *Hayle Churks* app (Frears 2013a)*.* Three main stages of evaluation of the *Hayle Churks* app took place between 2013 and 2015. Work on the main piece of practice – the *Hayle Churks* app – which is the core practical element of this practice-based PhD, started before the others soon after enrolment. This was done for methodological reasons (as practice is my main tool to learn about locative media narrative in landscape) and practical reasons (body-mind 'field work' to learn about the site and finding, learning and testing technologies in order to have enough time for cycles of creative design, evaluation, reflection and adaptation).

My practice developed in parallel with testing others' practice and desk-based research articulated in this thesis as a contextual review split between two chapters: Chapter 2: Locative Media – Background (p. 18) and Chapter 3: Conceptual Framework (p. 40). Combining the processes of making, 'field work' and deskwork kept the interplay and interdependence between practice, theory, ideas and tacit knowledge alive and in constant dialogue.

A more detailed description of the *Hayle Churks* app (Frears 2013a), its three evaluations and results of the analysis will follow brief descriptions and summaries of *The Secrets Garden* app (Frears and Biscoe 2012) and the *Hayle Interactive Story Machine* (Frears 2013b). The next chapter, Chapter 7: Synthesis, includes a discussion on the findings and a reference tool (p. 197 with a booklet version to photocopy p.382-392) created from the

knowledge gained through practice and desk research and is for those wishing to make locative media practice that connects people to landscape.

6.1.1 The Secrets Garden app: summary

The Secrets Garden app and live installation was made in collaboration with Ian Biscoe in 2012 for 'Environmental Utterance: A Performative Conference' at Falmouth University. I created the interactive app and soundscape using the app-making toolkit AppFurnace. In an attractive walled garden voices of women were 'hidden.' Participants drifted around the space with a smartphone wearing headphones. When found, a voice would whisper her secret about her relationship with her mother. Participants answered personal questions about relationships with mothers and others that were posed within the app by typing in text. Biscoe projected the anonymised text answers onto studio walls made to look like the walled garden. The app and studio background sound included recorded sound from the walled garden and music by Andrew Nephin that I manipulated, edited and layered.

Although work had already begun on the *Hayle Churks* app, the experience and lessons learned from making *The Secrets Garden* influenced that longer creative process. To summarise, locative media needs space. GPS drifts and was therefore unsuitable for the small enclosed space of the walled garden. Participants were contained within the garden walls, but the disembodied voice clips would wander with GPS, to lie outside at certain times and in certain conditions and so some remained unheard. This smaller project was an opportunity to test my ability to create with AppFurnace and whether it could produce the effects I was after. While testing others' apps and MP3 walks, such as *Ben Nicholson Tate Walk* in St. Ives (Mollett ca2011), getting cold while standing still in open landscape was a problem. I wanted participants to be able to continue to drift while listening to the *The Secrets Garden* app and stories needed to play to the end unless the user chose to skip or pause. In other apps, such as Kneehigh Theatre's *Rambles* (Murphy 2013), stories faded out and stopped if the listener exited a GPS zone. I did not want stories from other GPS zones to start or cut off other unfinished stories.

By keeping participants drifting rather than stopping I hoped to address a GPS problem. Technical glitches can occur when users stop on region boundaries (Reid et al 2005: 1736). The research on the locative game *Savannah* made in 2004 by Hewlett Packard Labs, Mixed

Reality Lab and NESTA Futurelab found that if users stopped at the edge of GPS zones there were frequent technical difficulties (Benford et al 2005: 724-725). I predicted that walking participants would cross a GPS boundary (invisible to the users) and walk further into the GPS spot, which could avoid the possible technical disruption caused by hovering at its edge. Having audio start to play a couple of beats after entering the GPS zone also addressed this issue. Coding beyond the toolkit interface was needed to set new rules of engagement with GPS zones.

Figure 30: Participants text their secrets within *The Secrets Garden* app. Participant secrets are displayed anonymously on the studio walls (Frears and Biscoe 2012). Photographs and screenshot by author.

The following discussion considers the findings that emerged through evaluations followed by questionnaire completion, observation and reflection of *The Secrets Garden*. A significant finding that went on to influence the core practice of the research was that participants reported that the link between the stories and the garden felt too tenuous. Some had missed the initial explanation that women's voices, reflecting on their time as girls, were hiding in the garden and that this represented an area of freedom within the home boundary that girls were often confined to. Some participants missed the introduction, as they were still settling into the experience at the point it began or were distracted by

greeting others. Due to a lack of smartphone ownership, some participants had to share a phone and headphone splitter, which interfered with their attention and raised issues on the availability of devices and headphones for locative media experiences. Locative media narrative is not always pinned to set locations such as in Rueb's *Trace* (1999).

After reflection on this piece of work, discussion with participants and reference to my experience with others' work and reading, it seems that an experience is more powerful if stories are located and better if done so in a space large enough to accommodate GPS drift. Participant feedback through questionnaires, conversation and observation indicated that the experience was engaging but that it was the oral histories, the stories rather than the experience in landscape, that was immersive. There wasn't a specific link between each story and its location so participants were immersed in the material and not drawn to specific features or places in the landscape. They became engrossed in the stories and detached from the landscape. They appreciated the setting, but the stories did not aid their connection to it. Interactivity interrupted the immersion, but participants enjoyed seeing their private comments in the public studio setting. Pairing people to share phones also disrupted immersion. The app stayed with a singular theme, at times a sad and painful one spoken by women around the same age. Feedback showed this had been moving for most participants, but different voices (ages and gender) and moods (some happier tones) would have made it more varied and enjoyable for listeners.

To summarise the main learning from *The Secrets Garden* app: a large space needs to be used to allow for GPS drift. How those without smartphones and headphones can access the experience needs to be planned for. A variety of types of stories, voices and moods needs to link to relevant locations in the landscape for real effect. In addition, movement while hearing the app presented some coding challenges as to keep moving while listening is unusual in GPS-activated locative media, but it presents no technical problems when working with MP3 players. A hunch about how movement could relate to connection to landscape encouraged me to keep the choice of walking within the app.

6.1.2 The Hayle Interactive Story Machine: summary

The *Hayle Interactive Story Machine* (Frears 2013b) enabled a participant to mark a place on a tactile map (laser cut in wood) and record their story about that location using an RFID

card. Existing technology developed by *Makernow,* a digital fabrication lab (FabLab) in Falmouth University, was adapted for this experiment. A laptop was hidden inside a box or platform. A map of Hayle was laser cut to fit the top of the platform. A card (containing an RFID tab) could be placed on a marked area in the map to activate a record function – it essentially pressed Record.

Figure 31: The Hayle Mayor records her story of being proposed to on Hayle towans using the *Hayle Interactive Story Machine* (Frears 2013b). The map is marked and the story about that location recorded using the microphone when the card is placed on 'record'. Photographs by the author.

The *Hayle Interactive Story Machine* was developed with four main aims. Firstly, it was as an object of interest that drew people towards it during the first few days following the opening of the Hayle Heritage Centre. Secondly, visitors could record their memories and 'pin' them onto the map and then, thirdly, were encouraged to participate in the second *Hayle Churks* app test (see Fig. 32). Finally, the *Story Machine* was portable and could be carried to different locations such as pubs and club meetings, to gather stories from those who were harder to reach.

A summary of findings from observation, discussion with users and reflection follow. Most users found the map, designed with a bird's eye view from above, hard to negotiate. This contrasted with my experience of walking and interviewing people on location. Walking seems to be a more natural way of locating memories than looking at a map image, as landscape is experienced in 'Streetview.' As visitors looked down at the *Story Machine* map, they chatted to each other as they tried to locate themselves. This conversation offered useful insights into how the map was being transposed into one they recognised from embodied experience. Locating their stories on the map required descriptions full of local vocabulary, alternative place names and other indictors of 'local distinctiveness' (Clifford

and King 2006). Another outcome was that although the place of their memorable event could be found the date was harder to locate, which supports findings in others' research such as Heike Roms and Rebecca Edwards (2011: 185).

Figure 32: *The Hayle Interactive Story Machine* (Frears 2013b) attracted attention in the first few days after the opening of the Hayle Heritage Centre. Once at the table visitors could be introduced to the *Hayle Churks* app (Frears 2013a) and encouraged to evaluate it. Photograph by Joan Johns.

The *Story Machine* was designed for someone to use alone as an audio diary after following the image and text instructions to pick up the microphone and place the red recording card on the map. Instead, users preferred human contact. If I stood behind the map box and chatted, Centre visitors were more likely to record their story. When they spoke, they looked at me for encouragement and approval. My nods and smiles elicited rich descriptive stories delivered in a confident tone. Users needed reassurance that they were doing everything correctly and that their story was interesting. Recordings made without me there were quieter and sounded self-conscious and hesitant. To find a connection with a future listener was difficult but by looking into my eyes they gauged my reaction. My presence and interest animated their voices and stories and made them feel more relaxed.

A major problem with the *Story Machine* was the combination of having users hold the microphone and recording in a public space. Recordings, especially from the Centre opening, were unusable due to the high level of background noise and inexperienced microphone use despite diagrams and my gentle direction. Based on my experience of interviewing people in their homes, speakers were less relaxed in public, with the exception

of a couple of people, a children's entertainer and the town mayor. Both were used to speaking in public. However, the *Story Machine* succeeded in raising awareness of the app and in recruiting people to evaluate it. It also encouraged the community to get involved in recording their memories and made people aware of the oral history project and community archive. Some *Story Machine* contributors were contacted afterwards and their stories recorded at a later date in a quieter location. Two of these stories are in the published app.

6.2 The main practice: the *Hayle Churks* app

The *Hayle Churks* mobile phone app is the main piece of practice created during this practice-based research. The primary contribution of this chapter and thesis is to provide empirical evidence from this piece of practice at the confluence of landscape, locative media and art on connection to landscape. There are two modes of writing in evidence in this chapter. The creative work is described with a subjective voice that articulates the process, tacit knowledge and why decisions were made from *within* the work. The analysis takes on a more objective tone, distance that comes from reflection on the work and analysis of data using different software packages.

The *Hayle Churks* app is available free on iTunes. Designed to be experienced on location the app triggers stories at certain locations. Embodiment, immersion, the participant's body-mind and the magic of locative media interact to build a connection to landscape. To review at home rather than on location the 'Listen at Home' mode can be used. There is a button on the 'introduction' page. The thesis is the written reflection on research that has taken place through practice – the making of the app.
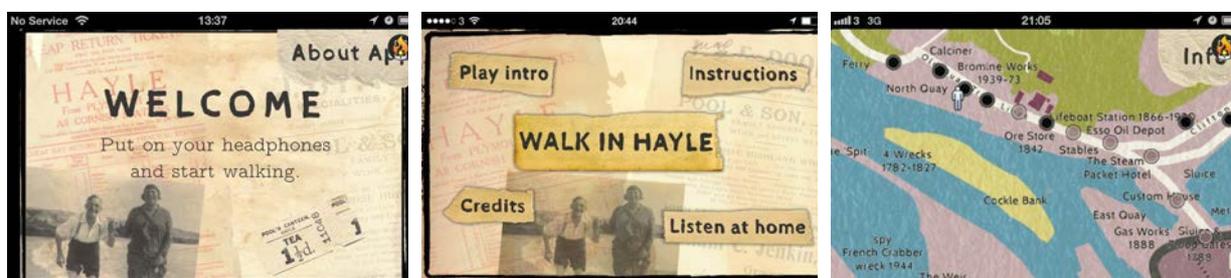
Figure 33: Examples of *Hayle Churks* app (Frears 2013a) screens: the 'welcome' page, the live map and, in the centre, the 'introduction' page. The participant can choose to hear the audio introduction again, press the "listen at home' option or, as the app was designed to experience on site, the large 'Walk in Hayle' button.

Between 2013 and 2015, 108 participant evaluations were completed and analysed. In addition to completing the questionnaires and informal conversations stimulated by the experience and their reflection on it, 25 participants completed a pre-app test, 25 were recorded in semi-structured interviews and eight were asked for further reflections six months after the experience. Efforts were made to recruit a mixture of people from within and outside the local community. Traditional and social media was used as well as networks that included those in arts, culture, heritage, geography and education within and outside Cornwall.

The published app is downloaded over Wi-Fi onto an iPhone (not Android, due to the app's size and restrictions on Android memory in 2013) and contains over an hour of audio. Content plays automatically triggered by GPS as the participant walks around the Hayle landscape. Reference to walking includes wheelchair movement in this thesis. Images such as archive photographs, old maps and a painting are used as well as audio that separates this app from most other locative media research. An on-screen map geo-locates the 'listener-walker-participant' (Myers 2010: 70) at all times.

6.2.1 App content

The audio content includes oral histories from the archive of the Hayle Oral History Project plus memories and expert interviews made specifically for the app. In addition to first-person accounts the content included: a seven-part fictional narrative called *Minnie's Story*; a five-part guerrilla takeover by the 'Counter Tourist'; three interactive questions; a layered field recording loop (with sounds recorded around Hayle); a musical loop (also containing Hayle field recordings);[35] three original songs;[36] a live map that locates the participant at all times; and images or a series of images that show with each new story. The initial interface had 'pause', 'play' and 'skip' buttons and a timeline to indicate visually how long the story was. I introduced the 'pause' button after trying out other apps with friends. If they wanted to speak to me I had had to miss content or ignore or delay them. All choices were uncomfortable and disrupted the experiences. A 'play' button was needed to replay the

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[35] The acousmatic musical loop was created by Philip Reeder.

[36] The songs were written and performed by Thirty Pounds of Bone, Johny Lamb.

paused content and 'skip' allowed the user to leave a story. A button toggled between the live map to the image that also contained a panel of information of who was talking.
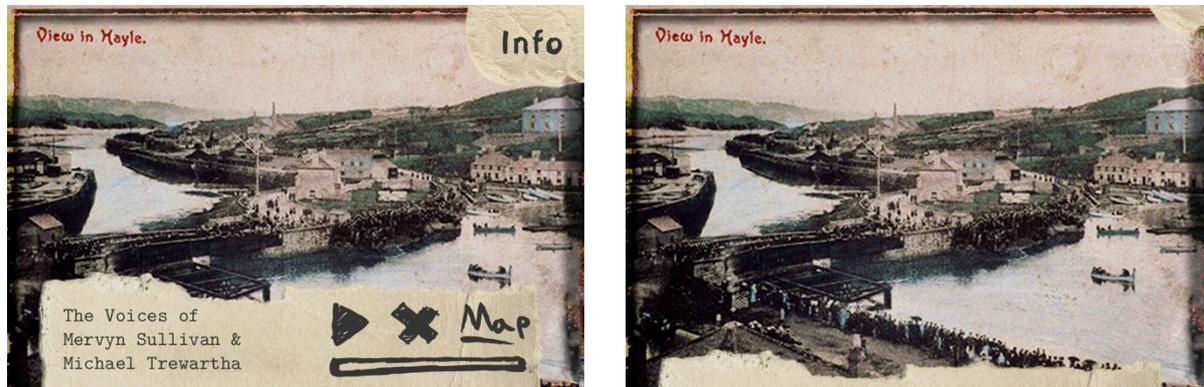
Figure 34: The app interface showing the on-screen buttons to control the audio if needed, otherwise the audio starts automatically triggered by GPS. The screen can be tapped to remove the buttons so that the whole image can be seen. A replay button was added to the published app, the third evaluation version, after requests from participants. Photographs are screenshots from the *Hayle Churks* app (Frears 2013a).

Most locative media research has concentrated on sound-only apps often located in a connected urban setting. This research uses image and is set in a marginal area on the edge of town in a semi-rural coastal location. The order in which each participant hears the content depends on her personal route around the site, although the drift (undirected movement) transformed into a suggested marked route in later iterations.

The discussion of the rationale for how content was selected for the app is intertwined with a response to the research question using the methods and conceptual framework. For that reason more information on the content is detailed here before describing the making and results of the first evaluation. The content can be used as a reference throughout all the evaluations as certain aspects are removed or appear throughout the process.

6.2.1.1 Oral histories

Oral histories are also referred to as memories and first-person accounts throughout the thesis. Memories are often used as a method within research (Abrams 2010: 1). In this practice they are the main app content, voiced instead of transcribed. Oral histories are embodied forms of history that are often viewed as unreliable (Abrams 2010: 5) due to 'faulty memory' (Portelli 1991: 52). Alessandro Portelli challenges this assumption. He

points out that documents taken as verifiable are often written 'sometime after the event […] and often by non-participants' (Portelli 1991: 52).

All the memories used in the first evaluation came from the Hayle Oral History Project (HOHP) that I coordinated part-time as the only employee between December 2008-10. Funding was awarded by Heritage Lottery Fund (HLF) to record 100 memories through community involvement and to create a publication. The activities and interpretation of memories, for example making them into animations with university undergraduates, interactive community events such as talks, walks, exhibitions, intergenerational interviewing, carnival participation (that won a prize) and multimedia book style and content, were my design. Volunteers I trained helped to gather, record and transcribe memories of over 100 people in the Hayle area. All the stories used in the app, except for five, were those I recorded. The reasons for this are both practical and personal. At the start of the project there was a need to start interviewing before all volunteers had been recruited and trained, as some older residents were considered at risk of becoming unable to share their stories. There were also some recommendations of people to interview that were acted on swiftly and these were often great natural storytellers. On reflection there was another rationale behind my decision to include certain interviews in the app – the personal interaction and connection I had made with the interviewees and their stories and how embodied listening had affected my memory.

An aim of HOHP was to interview the oldest people in Hayle first. The most memorable event of people in this age group was the Second World War. Hayle's main story comes, as mentioned in the previous chapter on Hayle (Chapter 5 p. 104), before the war, before living memory – the competition between inventive but rival foundries Harvey's of Hayle and Cornish Copper Company that split the town in the 18th and 19th centuries, a split that is still tangible today. One of HLF's required outputs was to publish some of the memories in a book. Unable to replace the book with an interactive document that played media, I included a multimedia disc (interview recordings, transcripts and moving image) at the back of the first edition, to put aurality back into the oral histories (Zembrzycki 2013: 100). Oral histories need to be listened to, not merely recorded and transcribed. Memories contain more than personal stories of place; they capture dying accents, colloquial expressions, vocabulary, the pace, pronunciation and tone of speech – the essence of place. As I

transcribed the recordings to use in the HOHP book I fought with how to write the voices into life on the page and how dropped 'h's and Cornish grammar could portray the speakers once on the page (Bender 2002: S111). To walk through voices and the sound of place they contain using the app puts them back into the community and landscape to create '*living history*' (Pollock 2005: 1 emphasis in original), an 'active archive' (Lorimer 2003 in Butler 2007: 370).

The way memories are recounted is usually nonlinear, jumping between events and themes rather than following a 'linear chronological sequence' (Portelli 1991: 63-65). The app is also nonlinear. Memories from different decades, different themes and different points of view were placed next to each other connected only by place. Before a route was created, after the first evaluation, when the app encouraged directionless walking or drifting, the walker triggered different stories depending on their route and pace. There was no guaranteed sequence of clips. There is not a narrator to provide context, coherence or a linear history in any of the app iterations. A note appears on the screen identifying speakers and historical information is written onto some of the closer zoom levels of the map. The app experience isn't a historical tour of Hayle, it is an experiential haunting of place. Voices fade in and out. Personal stories connect with listeners to share 'a private moment in a public space,' identified by Reid and Hull as a 'magic moment' (2011:196) during locative media experiences. *Hayle Churks* offers the chance to become other, to experience traces of others' lives rather than offering an objective representation or coherent story of place.

6.2.1.2 Expert interviews

Experts were interviewed who had specialist research and knowledge on geology, botany, dune erosion, ocean pollution, aspects and time periods of local history. An effort was made to get them to speak in the present tense and the first person so that their interviews would sit well next to first-hand accounts. Their interviews provided context and linked local themes with global issues such as climate change, which affects the coast and towans (dunes) considerably. The inclusion of these themes and man's effect on them was intended to lead participants to reflect on the future of the place and their role within it, perhaps influencing them to get involved with land stewardship.

6.2.1.3 Minnie's Story – a scripted narrative

I wrote *Minnie's Story* as a seven-part fictional monologue. Recorded in stereo, Minnie speaks in the first person, in the present tense, in a low voice gently into the ear. Minnie acts as a companion who is also discovering Hayle by retracing the steps of her Hayle grandmother. This setting is designed to frame the experience of hearing others' stories, many of which were set during the Second World War, when her grandmother was courting. Minnie passes on contextual and factual information. A female American accent is used to disrupt the flow of Cornish accents to awaken the ears and to provide more information about the African-American servicemen who were stationed in Hayle. In other audio walks in Cornwall, such as the Cornwall Mining Heritage Site MP3 walk, acted and narrated lines are often performed in an over-emphasised Cornish accent aimed at tourists perhaps more than locals. Few actors now have genuine Cornish accents and I am against an acted Cornish accent in my work. Not only do they clash with real, first-hand accented accounts, but like other clichés, by incorporating them along with phrases such as 'dreckly' and pasty eating, they reduce history and culture into a quaint digestible story of keywords. But without a Cornish accent, or to be more precise, a Hayle accent, a more neutral narrator would have introduced other issues such as whether they are incomers (not from Cornwall) or middle class. Hayle has an industrial past and is a much more working class town compared with St. Ives, for example. An American accent, I felt, would help the story stand out as something different and fabricated, rather than a memory, while making links between Hayle and international places, people and themes. Stories of Americans, Italian prisoners of war and Hayle residents emigrating to Australia also show the flows of people and stories through the town as well as the tides.

North Quay was a predominantly male working environment, unloading coal and sulphur, working in the bromine factory and gas works and manning the boats. A younger female voice talking about the past as though she was present with the listener and acknowledging how it had changed, broke up the dominance of older male disembodied voices talking only about the past. Her story opened up the opportunity to link the script to landmarks that could be sensed, usually seen although there was an effort to include other senses, such as touch (the black steps made of copper waste) and smell (mention of detail such as the sulphur) for a more sensory embodied approach to experiencing place and memories.

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Finally, the seven-part narrative was also written because there was a story to tell about the 'Jim Crow' segregation of African-American servicemen from white American soldiers and how it played out in Hayle and on their return to the States. African-American engineers from the more liberal Northern American states built barges in Hayle to prepare for the D-Day invasion but shared the town with reservists from the American South, which caused tension including the murder of an African-American serviceman outside a dance.

6.2.1.4 The 'Counter Tourist'

Five 'guerrilla interruptions' were in the first app version. By pressing an on-screen button participants responded to what looked and sounded like an incoming call and accepted or rejected it. In the mock takeover of the phone the 'Counter Tourist' (Crab Man 2012a; Crab Man 2012b), an alter ego of performer Crab Man (Phil Smith), changed the mood and mode of the piece. The 'Counter Tourist', recorded to sound as though talking through the phone, spoke directly to the participant and encouraged alternative approaches, both performative and playful, to exploring the heritage site through interaction and imagination. Here's an example of a complete version of the fourth 'Counter Tourist' intervention, written and performed by Crab Man/ Phil Smith:

> "…how... walking? How are you walking? In one line... are you walking a to be? Are you on a line, on a continuous line? Stop. Just stop where you are. A full stop. End the sentence ... here, now. And when you start again ... walk the first shape on the ground that you see, starting from now... a paving stone, stencil graffiti, road sign, spilled paint... whatever the first shape is... you are going to walk it, even of that walk is only in your head, you're going to have to walk it now... disrupt the a to b and move on to c, d, e, f, g, h, i...."
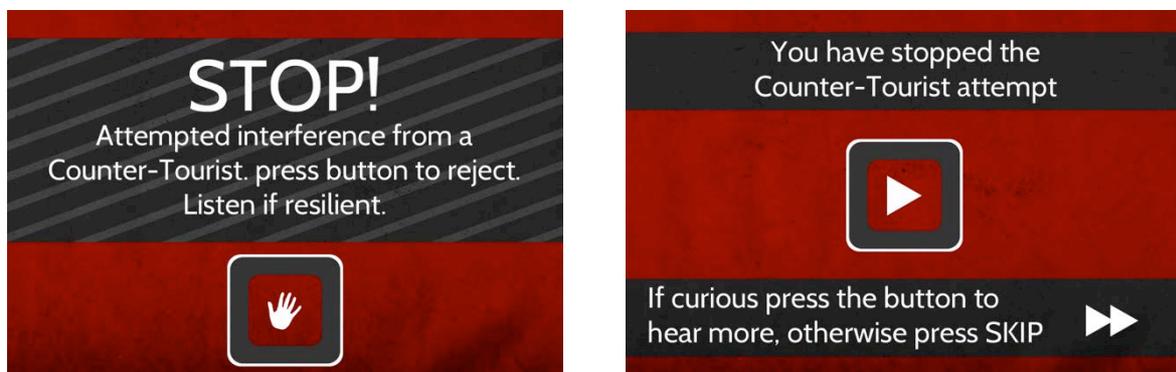
Figure 35: The screens that showed during the 'Counter Tourist' take over. The participant had to interact with the phone to accept or reject the intrusion. Photographs are screenshots from the first app prototype used in the first evaluation.

6.2.1.5 Interactive questions

Phone communication usually goes back and forth, one contributes as well as receives, the listener also speaks and is listened to and this was an intention of the app. Network difficulties (no 3G available on some networks) made co-authoring by uploading voice not possible. In the first evaluation, to get the 'view of the individual' (Boyd Davis 2009: 44), the participant is asked three direct questions to answer (for example, about the future of North Quay). Responses were written within the app in a similar manner as a text message. Unable to make the comments appear within the app as user-generated content, I planned to make comments from the first evaluation viewable online using a link rather than as part of an interactive online community such as Mediamatic Lab's The Memory of East Amsterdam (2003). Unfortunately network difficulties made uploading comments problematic. Without a network connection, users received an error messages when they pressed 'send'. Those that had a network connection felt unable or unwilling to answer questions written as a request for the community to upload their visions for the future of the area.
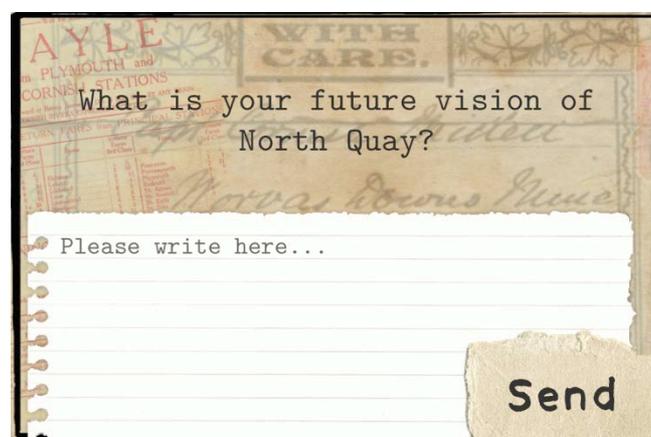
Figure 36: Participants were asked to interact with the app. Unfortunately inconsistent network coverage led to the removal of this feature. The photograph is a screenshot from the first *Hayle Churks* app prototype.

6.2.1.6 Sound effects and music

Walking and recording followed by reviewing recordings at home, or while walking a similar or different route, was repeated numerous times as body-mind 'field work': listening to place. Sound has been recorded on various settings using different recorders and microphones throughout the research process, motivated by interest in experimentation and access to equipment. Recording equipment ranged from binaural, mono and stereo

microphones, a hydrophone and a Zoom H4N recorder to impromptu recordings with an iPhone. The final result is of varying textures rather than the continuous powerful effect of binaural sound. 'Field work' recording includes experiments with the Penzance-based choir '50 Degrees'. I asked them to make noises and speak rather than sing but used their dynamics as a group to perform at different volumes and respond to conducted commands. Other recordings included recordings of birds, such as endangered Cornish choughs at Paradise Park, a bird and wildlife sanctuary in Hayle, and hydrophone experiments in water. The most successful recording involved sea swimming with a DIY recorder (inside a sandwich box bandaged around my body) made from discarded audio materials in collaboration with artist John Hartley. Recordings gathered from others include atmosphere recorded deep in a local cave and whale recordings.

I worked in collaboration with BA Creative Music student Ben Whitehouse on five clips for the opening of the Academy for Innovation & Research (AIR) at Falmouth University, in 2012, to sit alongside memories without effects. In 2013 some funding I had been awarded from the Heritage Lottery Fund grant was used to commission two fellow researchers to make music for the app to my brief. Both musicians had access to my field recordings and information I had prepared in addition to a site visit. Composer Dr. Philip Reeder made a background loop using sounds recorded around Hayle as well as recorded instruments such as guitar and cello. My brief included a request to create sound that immersed participants but also pulled them out of that deep immersion into a less immersed state. This was not only to manipulate the movement between stages of immersion, to bring the landscape into focus, but also to remind them subtly that there was traffic. Reeder transformed traffic recordings into waves and used them at various points.

Thirty Pounds of Bone/Johny Lamb composed and performed three songs. Two stories needed in the app were those from before living memory so had to appear in another form rather than oral histories. The style of Nick Cave and the Bad Seeds' 1996 album *Murder Ballads* was one that I felt could get across a story that mixed fact, hearsay and myth. The other song was used to explain sluicing, an engineering feat that allowed large ships bound for Australia and Mexico to navigate their way into the estuary. The halt of sluicing, allowing the channel to become clogged with sand, has affected Hayle's fortunes, though as cited in

Chapter 5 (p. 104) dredging has begun again, with sluicing planned to follow in the near future.

The two background loops, a soundscape I created, the other composed by Reeder, contain mostly binaural sound. Binaural sound (as mentioned in Chapter 3 p. 47) is used in the practice to open up a hyper-real three-dimensional aural sphere (Miller in Christov-Bakargiev et al 2012) around the participant's body. Binaural sound can be deeply immersive but it is also used in this practice in an effort to pitch the senses out into the landscape, to aid embodiment and the intertwining and interaction of human and landscape. It is therefore used to connect human to landscape in order to answer the research question. Binaural sounds provide texture by mixing ambient environmental sounds (such as seabirds calling and waves) that bleed in past the headphones to mix with the recorded digital sound to create what George Bures Miller refers to as 'a third reality' (Miller in Christov-Bakargiev et al 2012). Reid and Hull describe the 'synaesthetic confusion caused when you are not sure if a sound is real or virtual' (2011:197) as a locative media 'magic moment' (2011: 193 - 204). Deep immersion is temporarily interrupted as the participant looks around and listens to the physical world to confirm whether the waves or seabirds are real or on the recording. This could help to keep the participant embodied in landscape and influence the way that landscape is listened to once headphones are removed.

6.2.1.7 Images

Most of the images were archive photos, many from personal collections that had been discovered, *gathered* and scanned. One photo of African-American servicemen was sourced with permission from the United States National Archive. Photos taken of employees from J&F Pool's munitions factory during the war were sourced from the Imperial War Museum. Aerial photos and archive maps came from Cornwall-based archives. Gaining permission to use a Stanhope Forbes painting of Copperhouse Pool was important as it was on the walls of many people I interviewed and is one of the images that can be held up to the same scene today to get a similar impression.

6.3 App preparation using the conceptual framework

The conceptual framework (p. 40) informed the preparation and creation of the *Hayle Churks* App. Methods identified in the Methodology chapter 4 (p. 84) – *body-mind 'field work', body-mind research, gathering, journal reflections, drifting* and *collaging* were used. Approaches to landscape identified in Chapter 3 (p. 70), geopoetics*, chorography and *deep mapping,* influenced the practice process.

To answer the research question, experiments were undertaken to move the participant through layers of immersion and shift the emphasis of embodiment to connect them with both the digital storyworld and physical landscape. Something occurs when digital storyworld and physical landscape, immersion and embodiment, mind and body interact during locative media experiences, something I believe that can lead to connection to landscape.

6.3.1 Landscape

Elements of all three approaches to landscape were used in preparation of the app. **Geopoetics** connected the app creator to the lines of the world through body-mind 'field work,' walking the site and then reflecting on it. Walking continued throughout the whole making and evaluation process and functioned as a way to connect to community (stopping to chat) as well as place. Walking or embodied investigation using the body-mind, included different approaches in all weathers and seasons, alone and with others. There was a methodical wandering along all paths, using different directions to challenge habitual actions, footwear (affecting not only warmth and comfort), and sound of the body as well (for example when wearing waterproofs). Then there was *drifting.* Letting the mind drift as the body drifted was encouraged to let deeper ideas surface and connect with preoccupations in present working memory (Singer [1975 and 1978] cited in Gilhooly 2002: 210) when 'alone and in a restful state' (Gilhooly 2002: 196). Walking alone presents an ideal opportunity for daydreaming or 'unstructured thought' (Christoff 2014) that has been linked to creative thinking, problem-solving, increased wellbeing and life satisfaction (Christoff 2014). What brought the mind out of drifting was then of interest – the coconut scent of gorse or the sound of feathers being preened.

Inspired by Guy Debord's Situationist International drifts and suggestions by artist performer Phil Smith as the 'Counter Tourist' and his collaborations with Wrights & Sites, landscape 'situations' were set-up to open up new paths to knowing. For example, I walked a shape spotted in the landscape, followed a line, followed the flight of a butterfly.

On 2 June 2013 I participated in a geopoetics walk on the South Downs organised by the Scottish Centre of Geopoetics. Led by Alistair Duncan the walk aimed to

> develop our poetic knowledge of the geology, natural history and human history of the rich human/natural landscape and explore some relaxed practices as we journey to deepen our experience of the landscape through our senses and our body-mind. (Peters et al 2013:1)

Duncan's geopoetic landscape practices, taught in a quiet copse, involved guiding attention away from a frontal focus to open up peripheral vision, walking gently without making noise or leaving a mark and focusing on quieter sounds such as the rustling of a leaf, rather than being distracted by more dominant sounds (summarised from *journal reflections* in 2013).

Geopoetic exercises were practiced during some of the site walks from this date which, like the 'situations,' broke up habitual routes and ways of moving and sensing. Moving quietly and slowly though landscape with senses alert led to embodied observation. Tuning into different use of the body opened it to an alternative experience of landscape from which knowledge and ideas for interaction emerged. Small sounds were brought up in the audio mix to change the balance of sound in the participants' ears. Stereo and binaural sounds on both sides of the head stretched senses to the periphery.

Chorography inspired the *body-mind research* and *gathering* of myths from the site and people's stories. Recorded oral histories were reviewed as well as tales and characters from before living memory, such as King Teudar, a medieval king of Cornwall who lived on the dunes above Hayle. He is said to have martyred Christians (to him, invaders) who sailed over from Ireland.

The writer writes herself into a chorographic piece on landscape. For the first evaluation my hand as creator was felt through the choice of stories and their location in the piece rather than writing myself in as narrator. My voice appears three times in the final published app.

Deep mapping encouraged a wider search of sources through *body-mind research*. There was *drifting* through the site with experts, sometimes recording, sometimes not. Knowledge and passion for their subject was walked and talked into the site. I gathered gossip as I moved around and visited different archive buildings and websites. Gossip is a relevant source in *deep mapping* and can open rich unexplored and contested stories of site. How one responds to gossip if it cannot be substantiated needs sensitivity. *Collaging* layered my walking by listening to others' work using different headphones. Sometimes the recordings worked serendipitously with the new terrain. I recorded pertinent passages from books on landscape and my *journal reflections* and recorded memories and took them for a walk to embody the knowledge.

6.3.2 Immersion and embodiment

In addition to 'landscape,' the other elements of the conceptual framework are 'immersion' and 'embodiment'. They are mentioned together as they interact with each other. Provisional knowledge from reviewing others' work suggested that too much immersion in the digital storyworld led to less embodiment in landscape and visa versa. How they could interact to connect the participant to landscape could be imagined but needed to be discovered through the practice. Early in the research and practice process the first evaluation was a way to test hypotheses and design decisions as well as gather data. To draw out answers to the research question, whether locative media can connect human to landscape, I formulated hypotheses around the independent variables of locating (fixing a particular story to place), memory versus scripted speech (delivery style), and narrative story versus oral history trace (whole story versus story remnant), as well as levels of immersion and embodiment. In the first evaluation sounds were assembled for different effect. Some stories were illustrated through sound that helped tell the story (local dare devil character Bill's story). In other memories sound was used to create atmosphere (an Italian song about home for a PoW story). In others, the sound of the space of the interview was audible, teacups clinking and people chuckling at the Day Care Centre. How different sound effects and modes of address (narrator of *Minnie's Story*, interviewee and 'Counter Tourist', for example) affected immersion, enjoyment and embodiment could come out in the questionnaire and through observation of participants.

To aid immersion, stories played to the end unless the participant paused or skipped them. Minnie, the narrator of the seven-part script, was heard sometimes in one ear to encourage the participant to walk that way rather than interrupt the narrative with instructions on where to walk. A background loop of *collaged 'field work'* recordings was used to reassure that everything was working. Immersion was disrupted intentionally by 'Counter Tourist' interventions written and performed by Phil Smith. I recorded and included these to both interrupt immersion and to encourage embodiment by attention being directed to the physical site and thoughts about it.

Questions about the future of the site disturbed the immersive flow of oral histories as participants needed to stop and text their responses. Other interaction with the interface was through images. Would they aid imagination and therefore immersion and pull attention into features in the landscape and increase embodiment in the physical world? More subtle immersion interruptions designed to encourage embodiment were included in the narrative, for example references to seeing a couple and certain boats that might or might not be visible when the walk was undertaken. The narrative also provided a way to encourage participants to look for landscape traces; a turning circle and a remnant of a piece of machinery from Harvey's of Hayle were mentioned. Keeping the participant moving rather than having to stop and listen also encouraged embodiment in the material world.

6.4 The first app evaluation March 2013

For the first evaluation, during an unseasonably cold March 2013, there were 25 participants. Two walks were evaluated, the *Hayle Churks* app prototype and a published MP3 walk commissioned by the Cornish Mining World Heritage office. The MP3 walk, scripted and acted, focused on the linear story of rival foundries, a story of power, invention and violence. The app used mostly personal oral histories. On the first day, eight students (two male) and a female lecturer from a second-year site-specific theatre module at Falmouth University participated. On the second day, 15 students, nine female and six male plus their female lecturer, came from a University of Exeter heritage site geography module. Three of the female participants were over age 37; the others were all 18 to 25. Each group walked both the app and the control measure (the MP3) on the same day, with lunch in between. Users were split into groups at the beginning of the day, order 1 (app first then

MP3) and order 2 (MP3 first then app). Participants were required to wear closed-cup headphones that went over the ear.

All evaluators completed a pre-visit questionnaire (two sides of A4 see Appendix D p. 258) and one immediately after the evaluation or MP3 walk (four sides of A4). Drift direction and button usage were logged within the app and I observed the students at intervals during the app walk, noting comments and behaviour on my phone and taking photographs.

Figure 37: Theatre and geography students from Falmouth University and University of Exeter were the first to evaluate the app against an MP3 walk control measure in March 2013. Photographs by the author taken during participant observation.

Text boxes eliciting qualitative responses were embedded into the questionnaire but the majority of questions were in a graphic rating scale (Stone et al 1974) format. The advantage of graphic rating scales is to attenuate cognitive interference. In other words, it records more immediate, spontaneous responses by marking a line between two extremes rather than choosing a number or phrase that matches respondents' experience. Below is an example of a graphic rating scale question:

Figure 38: An example of the graphic rating scale. The participant makes a mark on the line, a scale that does not include numbering. The participant's response is intuitive or pre-cognitive.

The mark on the line indicates this respondent found the app easy to use.

The questionnaire data were analysed using SPSS (Statistical Package for the Social Sciences, IBM) to identify statistical descriptions. Analysis of variance (ANOVA) was used to explore differences while correlations analyse similarities. I was provided with access to and guided in my use of the software by Erik Geelhoed. Geelhoed used the graphic rating scale and analysis successfully in the empirical research on locative media narrative *Riot! 1831* (2004) by Mobile Bristol (Reid et al 2005; Blythe et al 2006; Geelhoed et al 2008). While exploring connection to landscape and its past, present and future, this research builds on the knowledge on immersion in the GPS-activated nonlinear historical narrative *Riot! 1831* using smartphones.

6.4.1 How sites are more commonly explored by participants

The undergraduate student participants (from Theatre and Geography) studied modules that included investigation of different sites. They were mostly in the 18-25 age bracket, an age range expected to have integrated technology into their lives. None of them had used *their* phones, apps or MP3 players to experience sites with an audio tour. In the pre-evaluation questionnaire, three said they borrowed MP3 players from sites (13% of those questioned). Seven used tour guides, but the majority explored sites by wandering around and looking (21 out of 24, or 88%) or wandering and reading notice boards (20, or 80%).
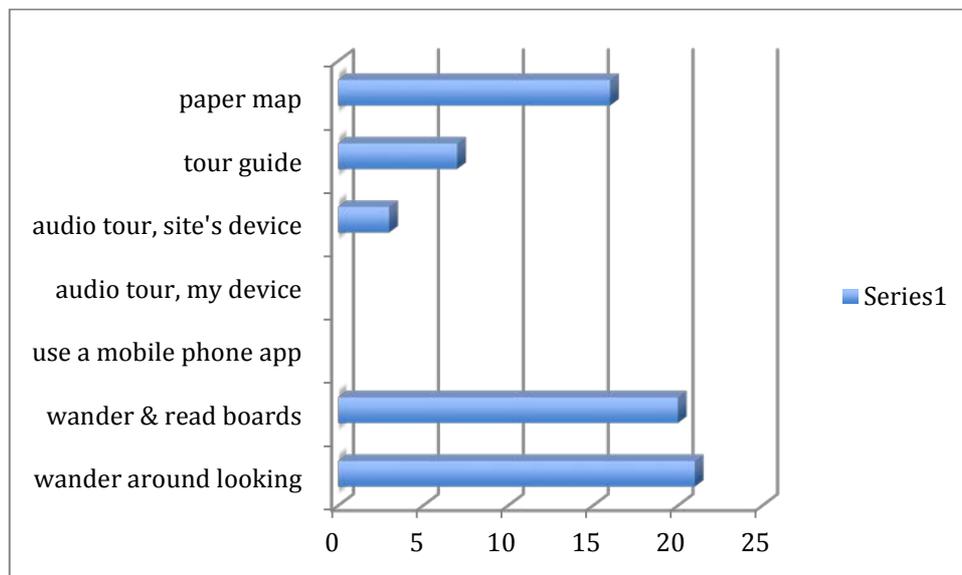
Figure 39: Students working with site-specific theatre or heritage sites were asked how they usually explored sites.

6.4.2 First evaluation findings

Key findings from the first evaluated app included the following: a high and close agreement that that the app was easy to use; that it was good (encouraging as it was unfinished); and it received a significantly higher enjoyment rating than the published MP3 walk. Qualitative feedback relates this to the app's magical hands-off appearance of stories (through GPS) and enjoyment of the memories. App users felt less lost than they did walking with the MP3, although the app had no set route or directions. The MP3 directed people where to walk and also included a paper map. Participants using the app and MP3 noticed more than walking around without a gadget, but the MP3 users noticed more because it informed users where to stop and look while explaining why they should do so. A finding of particular significance is that participants felt they had learned more with the app despite directions, context and facts scripted into an over-arching narrative in the MP3 experience, against nonlinear overlapping fragments of stories in the app that often had no connection between each other except place. Student's names are anonymisd but are identified as either theatre or geography students (T or G) and male or female (M or F).

The following correlations were found: those who felt more deeply immersed in the oral histories felt they learned more; those who learned more liked the app experience more; and those who felt they learned from the app also noticed more using the app. Some found the sudden appearance of media uncanny or disconcerting. Those who found the app disconcerting liked the overall app experience and felt deeply immersed in the app's oral histories. Theatre students linked stories to the location and were more immersed in them than geography students.

Specific themes emerged from the first app evaluation analysis that relate to the conceptual framework and locative media. All qualitative quotes from the first evaluation can be found in Appendix D (p. 258). Corresponding with the quantitative data, the magic of locative media was liked and commented on a lot:

> *'Stories caught you unawares, led you to places you wouldn't normally go' (GF4)*
>
> *'How app started playing in specific locations' (GM5)*
>
> *'Accidental meeting feeling' (TM1)*
>
> *'Put stories to the places - felt I was interacting with them' (GF8).*

The experience of walking in landscape with a portable gadget and open app encouraged an embodied and sensory experience of the physical world. Experiencing and embodying two places at once is common with a mobile phone, of being *there* – with the person speaking at the other end of the phone or while viewing online content – as well as *here,* as mentioned earlier (p. 14). Immersion occurs more readily in art experiences that separate a participant from others physically or by using headphones, for example, during sound walks pioneered by Cardiff (Christov-Bakargiev in Christov-Bakargiev et al 2012). The participants found the oral histories more immersive than the acted *Minnie's Story.* As participants also liked the MP3 less, there was a less favourable response to acted content compared with first-hand accounts.

One of the male geography students became separated from his friends during the first evaluation and enthused, '*Amazing, when you're on your own you get really involved in it*' *(GM6).* The '*really immersive experience' (GM6)* was enjoyed and how '*headphones closed you off from the present' (TF1)*. Although these comments can be interpreted as praise, the app needed to immerse the participants while keeping them embodied in the landscape. *'Enjoyable matching stories to the landscape […] and appreciate what's no longer there' (TM2)* is a comment that indicates that the theatre student was immersed in the digital and used them to enhance and interpret the physical landscape.

App participants were asked if they experienced a feeling of solitude, as it can be an indication of immersion, as Barry Mauer describes: 'Isolation is a state of separateness while solitude is a state of intimacy with oneself and the universe' (2010: 103). When asked if solitude was experienced, a geography student scribbled next to the rating scale: '*very much but in a good way*.' Again one has to be careful as constant deep immersion does not connect a participant to landscape.

Many students complained about using closed-cup headphones, citing that they felt cut off, although this seemed to mean cut off from their friends rather than just landscape. Rather than feeling solitude, but still connected with immersion, a conviviality or companionship was felt by participants due to the close-up and intimate nature of some of the stories. Two theatre students liked the:

> *'[C]ompany of stories' (TF3)*

'I enjoyed the company of the tracks AND felt I was part of a group.' (TF2)

Feeling accompanied in the storyworld by its characters and in the physical world by friends suggests that this student experienced dual embodiment and enjoyed it.

The app changed the way that some participants perceived landscape.

'Experience & imagine in past, made me appreciate & see landscape as more beautiful' (TF1)

'Different way to experience landscape' (GM5)

'Lots more than just meets the eye - real sense of how important places were' (GM6)

'Shows how many histories & narratives there are everywhere.' (GF9)

Whether participants felt *connected* to the landscape as well as experienced a different impression of it is of importance. Participants were not asked about connection to landscape explicitly in the first evaluation questionnaire because it was important to see if it emerged as a theme. Evaluators certainly connected with the *stories* from the landscape, which was the most liked aspect of the app and one many wanted to share with others. Some felt an increased connection to the landscape as these students describe:

'I felt more connected to the place and people and I felt a part of the history.' (TF3)

'Allowed me to understand presence and structure of older buildings as well as appreciating what is no longer there.' (TM2)

'More connected than walking with map' (TF2)

'Gave understanding and connection to place' (TF6)

'Feel a greater connection to the place.' (GF4)

Connection to place, in these comments and others, seemed to imply feelings of belonging, increased knowledge and understanding of the past place that was haunting and now knowable in the present.

While 80% of app evaluators said they would come to Hayle again and see it with different eyes, only 53% felt it had changed their impression of place after the MP3 walk. After using the app, 56% indicated that they would think about the future of the area, while 48% suggested they would pay more attention to planning proposals in the area.

6.5 The second evaluation August-September 2013

In 2013, from the 25th August (the opening day of the Hayle Heritage Centre was 29th), through to 22 September, members of the public were invited to evaluate the app using *iPhone* or *Android* during a long looped walk of approximately two hours wearing headphones of their choice. A Heritage Lottery Fund grant supported some additional coding, graphic design and music. The walk had increased in length, to start at the newly opened Hayle Heritage Centre, based in the old offices of the foundry and business, Harvey's of Hayle. The introduction asked the participant to stand and listen for a moment. This was in order for the participant to tune into the experience without having to walk and negotiate other pedestrians and cross the nearby road. Minnie, the American narrator of *Minnie's Story,* was the first voice heard. Surprised, people listened as they had presumed a Cornish person would speak. To avoid playing into the town's bias towards the 'Foundry' end of Hayle where the Centre was located, I lengthened the walk to incorporate the Cornish Copper Company foundry area, called 'Copperhouse'. The walk moved along the harbour and edge of town to reach North Quay and Copperhouse Pool, experienced in the first evaluation, and onto the towans (*dunes*) and coast. A shopping street became part of the route in order to pass the location of the rival foundry. Here, participants strained to hear the recordings against traffic, and some struggled with being conspicuous by wearing headphones and walking slowly. A Hayle resident felt embarrassed by what she interpreted as *'she's listening to music on one of those "fangled gadgets" looks from the general public,' (F9)* and a local couple, retired teachers, told me of their amusement when someone stopped in front of them, wearing their headphones, and shouted '*rock n roll' (F19 and M16).*

Figure 40: Some evaluators of the second app iteration that started at the entrance of Hayle Heritage Centre. Photographs by the author during participant observation.

Some participants in the first evaluation had asked for a longer walk as well as markers of where the stories were. Markers on the smartphone map now formed a route. Also requested were fewer modes. The 'Counter Tourist' was removed in this version as it had confused and disrupted perhaps more than intended. Younger voices and stories from the present were introduced including those from experts, breaking up the dominance of stories about the war. Most stories were re-edited and remixed to make them shorter or more richly layered, although some remained as voices without effects, to see whether they were less popular. The commissioned music (paid for by the HLF grant), an acousmatic composed musical loop of 15 minutes and three original songs,[37] were finished for this version. The songs were mixed with related stories. The grant paid for different zoom layers of the map, which now had historical detail marked (such as a submerged forest and a grounded spy ship location) to add visual context. The colour of OpenStreetMap was changed to those of geological maps, which fit the old archive or junk shop aesthetic that could be achieved within the budget. The home page had a new button called 'listen at home.' Once published, this 'armchair mode' would enable stories and images to be experienced at home. Of course the app is a place-specific sensual experience. Platform urges listeners to walk its operatic tour *And While London Burns* (2007), suggesting that

> '[l]istening to the piece without doing the walk will be like watching TV with the images turned off and is not recommended' (Platform 2007).

Offering an alternative way to experience the app for those not able to walk made the material more accessible. Those wanting to review material at home, such as photos that

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[37] Phil Reeder composed the musical loop and Johny Lamb composed and performed the three songs.

can be difficult to see while walking in sunlight, would be able to. By listening to participants I learned a lot about the app design and functionality and what parts of the experience didn't work for them. I let go of two aspects of the app that had been important to me; the disruption by the 'Counter Tourist' was removed and the 'drift' became a fixed route. It was at this point that the work, in an effort to be responsive and flexible, became less my creative work but one that responded to collaborative input from users.

Participants were self-selecting and invited via a *Facebook* page (reach of 2,000), local press (newspaper and radio), posters around town, requests forwarded through friends and networks, and some of the *Heritage Centre* opening publicity. Although more people walked the app, 60 evaluators, 33 women and 27 men between ages 13 to 69 (87% over were over 36), completed questionnaires by the deadline. Once again the questionnaire required users to both mark the graphic rating scale and write reflective answers, to provide quantitative and qualitative data that could be layered and compared. There was only one strongly significant result involving gender. Responses to the question 'Do you feel more connected to the landscape now?' showed a variation between male and female responses. Women were in close agreement with each other about feeling more connected to the landscape with a mean of 76.40. Men, with a mean of 55.36, barely over the halfway mark, did not feel so connected to landscape but were not in close agreement on this. Only a quarter of the evaluators (15 people) lived in Hayle. Some came from villages and towns nearby, the Hayle area, while others came from further afield, for example Penryn where Falmouth University and University of Exeter have campuses.

In the second evaluation findings the story told by the quantitative feedback is read by first focusing on the differences between the answers and then the similarities between pairs of answers and what they reveal. Examples of quotes and findings from the qualitative data then follow.

6.5.1 Quantitative data: differences

The bar-chart (figure 41) shows the means in descending order. In addition, the table (Fig. 42) shows the standard deviation (SD), whether those answering were in close agreement – for example if the SD is below 20 – or not.

Five significantly different bands of scores (indicated by the different colours) were delineated.

High ratings – red (mean 83.80)

Liking the experience was rated highly by participants. In addition to the high mean 83.80, there is a low spread of the ratings (SD = 14.27), indicating a high concordance amongst the participants. Enjoyment was rated significantly higher than all other ratings. In other words, it is not an exaggeration to say that the app was really enjoyed.
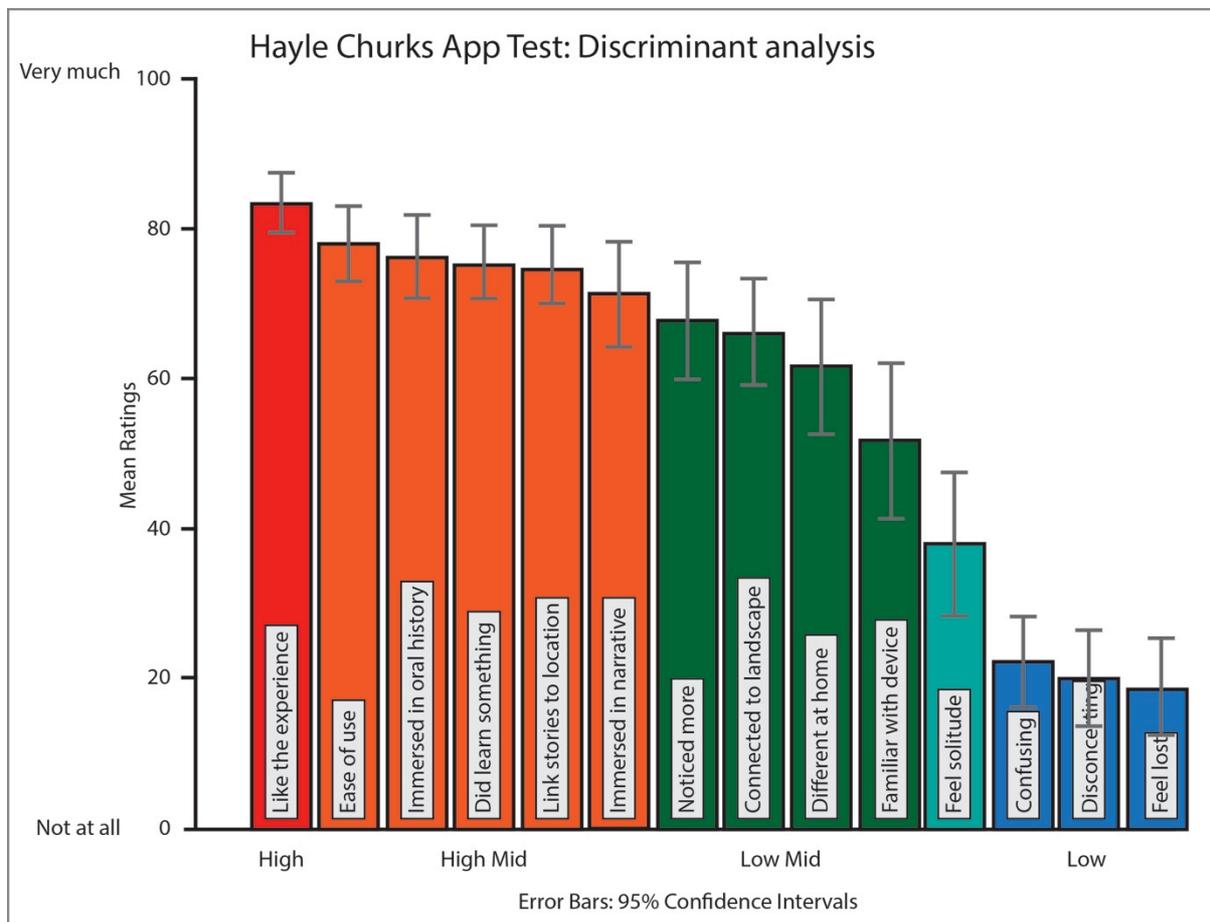
Figure 41: Mean ratings for the second evaluation of the *Hayle Churks* app.

High Mid ratings – orange (means 78.26-71.38)

This band of high mid ratings (around the 75% mark) is made up of five items: *ease of use* of the app, being *immersed in oral history*, feeling they have *learnt something*, feeling a strong *link between the stories and the location,* and being highly *immersed in the narrative*.

The app is very easy to use (mean = 78.23, SD = 17.84). Given the nature of a prototype this was very positive feedback. The ease of use helped participants engage with the content without the technology being a barrier and kept the human at the centre of Human Computer Interaction (HCI). The spread of the ratings around the means was mostly narrow (most SDs are below 20), which means high agreement amongst participants.

The high ratings in this band relate mostly to being highly engaged with the app and deeply immersed with the narrative situated in the location where the story takes place. However, this connectedness to story and location does not necessarily translate into feeling connected to the landscape as was found in the first evaluation. Immersion in the story can distance the participant from the present. The ratings for feeling connected to the landscape were significantly lower than this band of high mid ratings.

Low Mid ratings – green (means 67.93-51.75)

The next band of ratings, consisting of four items, is significantly lower than the previous band (high mid). There were relatively lower ratings for the app making one *notice more* in their environment and feeling a *connection to the landscape*. However the ratings were, on average, still above the 65% mark.

In this band there is once again a higher spread around the mean with SDs ranging from 25 to 36, indicating less agreement amongst the participants. The participants did rate that experiencing the app in situ would be *different from* experiencing the application *at home*, but the mean was lower than one might expect and in addition there was low agreement amongst the participants, some rated it much higher (than the mean rating of 61.69) and some much lower.

This is an odd finding, since one would expect a greater difference between being seated at home and roaming around with a mobile device during an embodied experience. As discussed later, some participants were so immersed and unaccustomed to hearing the spoken voice while walking that they kept their head down rather than looking around, which could have connected the content and themselves to the environment.

Band	Item	Mean	Standard Deviation (SD)
	Like Experience	83.8041	14.27053
	Ease of Use	78.2558	17.83731
	Immersed in History	76.3188	19.52584
	Learn	75.7278	17.63785
	Link to Location	75.3250	17.99512
	Immersed in Narrative	71.3847	24.71554
	Noticed More	67.9309	28.11735
	Connected to Landscape	66.4015	25.21415
	Different at Home	61.6913	31.06762
	Familiar with Device	51.7451	36.65427
	Feel Solitude	37.9503	33.53204
	Feel Confused	22.2027	21.59264
	Disconcerted	19.9091	22.57037
	Feel Lost	18.7442	22.74821

Figure 42: Descriptive statistics of the second evaluation of the *Hayle Churks* app showing the mean score of the answers and the standard deviation (SD) between different participants answers to see whether they were in close agreement (with an SD of under 20) or not (if the SD was higher than 20).

Comparing the high mid versus the low mid rating, one could speculate that the immersion in the oral accounts strongly linked to its location produces an experience similar to those of experiencing a site-specific theatrical performance, that it deepens the connection to the *people* and *their stories* that are grounded in that location rather than being able to describe it as a deepening of connectedness to the landscape itself. There could also be an issue with

the term landscape as questions about location received positive answers and qualitative responses spoke about feeling more connected to place and to Hayle.

Finally, participants rated *familiarity with the device* significantly lower than ease of use of the app. Almost half the evaluators (26) borrowed an *iPhone*. In spite of the appliance being unfamiliar, the app was still very easy to use, which is very positive feedback about its design.

Low ratings – turquoise and blue (means 20.20-18.74)

More positive feedback was received about the app, as there were very low ratings for possible negative aspects, such as *feeling lost, disconnected* and *confused* by the experience. Interestingly, *feeling solitude* took up a statistically significant intermediary position between the low and low mid ratings. In addition, the SD was over 30, indicating a relatively wide spread around the mean. Maybe the notion of solitude has different ramifications for different participants? It could be a more meditative state for some, whereas for others it could be more related to a more negative feeling of being isolated: perhaps loneliness.

6.5.2 Quantitative data: similarities

In the previous section, ratings differed and delineated five separate bands that were explored. Where responses to questions are similar can also be insightful. Between pairs of questions 91 correlations were calculated. Such a large correlation matrix is difficult to describe and interpret (see Appendix E p. 297) so Multi Dimensional Scaling (MDS), a technique that allows the depiction of a large correlation matrix as a two-dimensional plot, was used. Figure 43 shows how close (or not) questions relate to each other. For reasons of consistency, the same colours as in the bar chart (Fig. 41) were used. The size of the circles relates to the strengths of the correlations. For those questions where there were five or more significant correlations, the number of correlations was written inside each circle.

The question that correlated strongest with other questions was '*liking the experience.'* There were five significant correlations at p<.01 (depicted as thick lines) between *liking the experience* with *ease of use, immersed in oral history, connected to the landscape,* stories being *linked to location* and having *learnt something*. There were three (slightly less) significant correlations at p<.05 (depicted as thin lines) with *immersed in narrative*, *noticing*

more and *feelings of solitude* which, as it is liked, I suggest can be interpreted as immersed in a personal experience rather than feeling lonely.

Although correlations only show how responses co-vary and are not necessarily indicative of a causal relationship, it seems that those who gave high ratings for ease of use, being immersed and connected to the landscape as well as for the, possibly, more meditative feeling of solitude, expressed a high level of enjoyment. The comment *'quite enjoyable – meditation?' (M15)* in response to being asked about solitude seems to support this notion.

The MDS scaling of the *Hayle Churks* app data has been interpreted as follows. Most of the items are positioned relatively close to the X-axis. On the left are found all those items that relate to being immersed in the audio app and connected to the geographical location, i.e. deeply engaged with the app (including ease of use). On the right-hand side, items that indicate a level of bewilderment, even though this level was low, signified by feeling lost, confused, disconcerted and, slightly separate, a feeling of solitude can be seen. As such, the X-axis runs from 'Deeply Engaged' to 'Bewildered.'
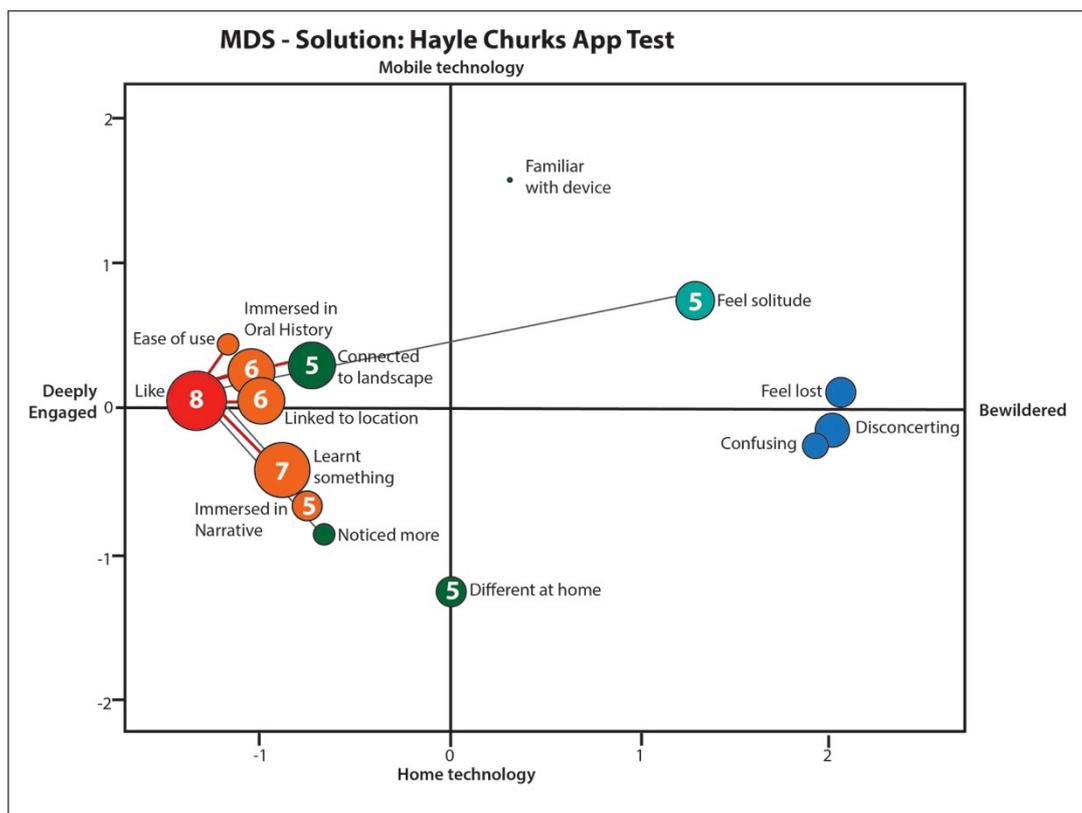
Figure 43: Multidimensional Scaling from the second evaluation of the *Hayle Churks* app. *Liking the experience* had five significant correlations, including feeling *connected to the landscape*.

For the Y-axis there is not much to go on. Based on the location of 'familiar with the mobile device' near the top of the Y-axis and 'different at home,' the Y-axis can be described tentatively as one that relates to (experiencing) the technology.

6.5.3 Qualitative comments

As illustrated in the quantitative data above, liking the app scored highly with all ages and genders. 'Liking' was unaffected by people walking alone or with others and often indicated that it included immersion in the stories *and* embodiment in the landscape that seemed to lead to a greater appreciation of the history and landscape in addition to an expansion of landscape's dimensions or their experience.

> *'It added a depth and colour that I was not aware of' (F18)*
>
> *'Gave me a better sense of place' (M14)*
>
> *'Feeling a different kind of connection with the familiar landscape through the stories' (F13)*
>
> *[G]ave an extra dimension to a familiar landscape' (F30 and M22)*
>
> *'The app added another layer onto my encounter/experience of the place' (F33)*
>
> *'It brought Hayle "back to life"' (F9)*
>
> *'I felt part of it, the place, the history, the people.' (F1)*

The stories were, again, well liked; 42 out of 60 mentioned them favourably:

> *'Range of stories: detail, personal, scientific […] and all the lovely Cornish accents' (F2)*
>
> *'[It's like] going through a living museum – almost an abstraction, it becomes poetic, removed from reality […] Unusual because you used your imagination and intelligence to make sense of it. We think we want facts but they are quickly forgotten.' (M15)*

The app aimed to use the poetics within locative media to connect participants to landscape so the mention of poetics is encouraging. Images viewed while listening to the stories helped some participants make the link between past memories and the contemporary landscape:

> *'I liked how the images overlapped with what you saw' (F15)*

> *'It allowed me to see the landscape in a completely different way and create pictures in my mind of how it was and visualise the detail of what went on there in the past. This would not have happened having not had the images in front of me on the phone and listening to the details in the stories at the same time.' (F16)*

Images seemed to aid immersion in the story but by drawing the senses, mostly the eyes, to the landscape this potentially helped embodiment and the overlap of digital and physical worlds.

The disjuncture between the past – brought to life through memories – and the present became more of an issue as the area underwent change through building projects. About 71% of walkers reported that after the experience they would think about the future of the landscape as well as reflect on the past.

> *'The experience made you concentrate on the surroundings and the history of the area and its future' (F12)*

> *'Being here, hearing the voices and walking made me aware of the dangers implicit in managing change' (F10)*

> *'It […] makes me more inclined to preserve what we can and avoid developments that will change how Hayle looks and feels' (F27)*

The app exposed participants to long-term effects of local and personal decisions, which encouraged some participants to think about their own legacy and could encourage land stewardship.

> *'It was curious to think that where I was standing/walking, people had stood before and will do again (with many similar themes e.g. family life), and it was great to have an insight into what happened in the past, and made me think about what memories I would leave to future generations of today's time.' (M19)*

For some however there was still an issue with deep immersion in the storyworld preventing connection with the material present.

> *'Because it was so good and immersive I felt disorientated and separated from the here and now.' (M17)*

More facts and context were requested by some participants:

> *'The stories were good: I think we felt some contextualising e.g. direction of attention, place, dates, relationships etc would help relate the stories to what is there now.' (M25)*

Some participants expected the app to be a comprehensive historical tour and wanted a marked route that they could 'tick off' as they moved through a factual explanation illustrated by first-person accounts. The intention was always to provide something else: an 'evocation' (Gillings 2010 cited in Sawchuk and Thulin 2016: 163) through a nonlinear haunting of memories, never a factual tour. Artist friends who had trialled initial versions of the app (before the first evaluation) had enjoyed it because it *wasn't* a factual tour. There were links within the app to archives so that more historical information could be sourced. The gap between what the app was and what some wanted it to be perhaps came as a result of words used in its promotion – such as 'memories' and 'the past', existing tours at heritage sites and how journalists framed it when adapting the press release to raise awareness of it. The app is rooted in the history of place and so assumptions can be made. The desire to listen and respond to the community (and funder), as it was the community that was being placed or replaced outside the archive into the landscape, changed the aesthetic. Butler also describes putting more narrative into his memoryscapes to please participants (2011: 212). Trying to please the community, making a piece of creative work while also wanting to experiment with levels of immersion, embodiment, voice and *deep mapping* that still needed more investigation, was a difficult task.

From the analysis of the evidence it is clear that some participants experienced the hybridity of overlapped digital and physical worlds and embodied both. Dual embodiment linked immersive stories to the location and they felt connected to that location. More understanding of what prevented others from experiencing the hybridity and magic of locative media was needed and a decision to use semi-structured interviews after the final evaluation was made in an effort to find out.

6.6 The third evaluation May 2014 - April 2015

In December 2013, thanks to HLF funding, the app was published on iTunes, which opened access, at least to those with an iPhone and iTunes account. While the app size was too large to be published on the Android app store, a QR code could be used to download the app onto most modern Android phones. Changes to the app included the dots marking audio points on the walk disappearing when played so that the map detail, which provided historical context, would become easier to read. I hoped this would also be enjoyable for

those interested in 'ticking off' every marker as they could see the number of stories counting down.

There was, once again, extensive re-editing and remixing of clips, replacement of stories and shifting of location and size of the GPS zones that triggered them. This was in order to encourage movement between immersion levels and embodiment in landscape. Tracking of participants' direction and how they responded to stories (for example skipping or pausing them) and interactive questions were removed. Tracking users in a published app they could access without being informed (as previous evaluators had been) is unethical. There was inconsistent 3G availability on some mobile networks (common in coastal areas), necessary to upload answers to the Internet and link to Twitter or email. Network difficulties made tracking results incomplete. Instead, observation of participants, especially in the first evaluation and discussion with them afterwards, caught information about direction and which stories engaged them more or less than others. When an aspect of the app didn't work, such as the interactive questions, participants lost confidence in the experience, which disturbed immersion and tainted their opinion of the app. A 'replay' button was added (it had been requested), which helped those who had missed the beginning of a story.

My own voice became audible in the app with the addition of three narrative segments that I recorded binaurally. The first provided context and started the app. The second described a historical place along the new route. The last came right at the end and finished with a question to try to encourage the participant to think of the story they would leave and their role in the town. My voice, never introduced, addressed the listener-walker-participant as though it was an internal voice and provided information about the place not captured in the oral histories and outside the timeframe of *Minnie's Story*.

The route, as mentioned was adapted. The last section, through Copperhouse, the noisy shopping area, was dropped (it was unpopular), which forced participants to double back along the tropical gardens by the Pool instead of completing a loop. This wasn't ideal but the only safe route available. As S4 pointed out, it should have been made clearer that '*it's what people in Hayle do, they promenade along this*' to make retracing steps more

acceptable. This was an irritant to many especially as it came near the end of the walk when people were tired.

Figure 44: Participants evaluate the published app in the third evaluation. Photographs by the author.

From May 2014 to April 2015, 25 people (eight male, 17 female) agreed to semi-structured recorded interviews after evaluating the app. Two female teenagers emailed their comments. From the group of 19 walking artists who evaluated the app (some of them makers of MP3 audio, filmed, photographed or performed walks),[38] eight returned additional comments about their connection to landscape after a six-month interval of reflection. All comments are anonymised and are referred to as subject 1, or S1. Six of all participants questioned evaluated the first edition of the published app; 19 (those from WAN, the Walking Artist Network) evaluated the second, which included small changes – code change to make the fades smoother and a second background soundscape loop to break-up the dominance of mood brought about by the musical loop. The new loop I created (unfortunately not heard in 'listen at home' mode) was a multitrack soundscape of field recordings – birds in the air, cave acoustics under the earth and tones from under the surface of the sea, for example – that was layered with overlapped fragments of stories. Influenced by Glenn Gould's (1932-82) counterpoint experiments with multiple voices played simultaneously in *The Idea of North* ([1967] 1992)*,* the collage of voices attuned the participant to an unfamiliar way of listening while transmitting the ghostliness of the disembodied voice. The *Merz* audio collage reminds listeners of many unheard stories and voices and the intangible nature of memories, which were noticed by S19:

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[38] The mixture of walking artists, performers and academics included: Jess Allen, Bibi Calderaro, Philip Crang, Kris Darby, Katie Etheridge, Giulia Fiocca, Rachel Gomme, Dee Heddon, Claire Hind, Mark Hunter, Sacha Kagan, Alison Lloyd, Blake Morris, Misha Myers, Simon Persighetti, Clare Qualmann, Phil Smith, Cathy Turner and Moira Williams.

> *'I quite liked the voices fading in and out – it was a bit like the past was there and it was gone – it didn't give you that false sense of I'm really knowing this. It was still that thing that you couldn't quite grasp, just given a glimpse of.'*

The walker encounters (*'the voices came to me' [S7]*) 38 sound clips. The sound clips last from between 11 seconds to more than four minutes, containing one voice or multiple voices, some with sound effects or music. Images or series of images (GIFs) were shown.

The initial interview topic in the semi-structured interviews after the app walk was left to the evaluators. Many mentioned technology and its functionality first. The qualities unique to locative media, the appearance and disappearance of audio and being able to locate oneself on the map at all times received favourable comments:

> *'The fact that I could walk and it could locate me and allow me to tap into the story of that site was really wonderful and I've not had that experience before so in that sense it was a really user-friendly application actually.' (S6)*

Various modes of address were still being evaluated in the published app. Traces of oral histories were still well liked. *Minnie's Story* was pre-recorded and scripted to drive the walker towards the next episode. Minnie's 'black steps' episode was often mentioned. The black steps are made from Hayle's distinctive bricks created by scoria or slag, the waste product of making copper. The steps could be seen, touched and stood on, which resonated with participants while hearing the story. Perhaps the sensory connection led to the easy recall of that story and hints at the power of hearing about others' experiences when standing in their footsteps. In someone else's shoes one makes contact with layered time and memories of place. Mention of the 'black steps' raised the question as to whether some participants realised it was a *scripted* story rather than a real memory:

> *'There is an extra power when you think that in this very spot these people stood and this was happening […] a bit uncanny […]. You've also got that distance from it as well – talking about the ICI and power station, all that stuff that's not here anymore, so you've also got that slightly weird feeling of, my god, this was a really industrial landscape.' (S19)*

The *'most immediate link to the present' (S1)* was through the voice of factual interviews. Human effects on the immediate environment, such as water pollution, dune erosion and climate change, were described, and more recent oral histories, such as by a younger fisherman were included:

'I liked those more contemporary things [...] could definitely have had more of those factual things in.' (S3)

'Contemporary heritage of the fisherman that couldn't wait to go out and see his basking sharks. There was something really nice about that in the mix with the history [...] that resonated.'(S7)

These expert and factual inserts placed next to oral histories disrupted the experience for some. Whether these disruptions are appropriate to disturb immersion, or whether the disturbance is rooted in the mixture and number of modes within one experience that some participants struggle with (and led to a decrease of different modes after the first evaluation), needs further reflection. What is interesting from the criticism below, in relation to earlier discussions of voice, is how the voice from an 'expert' was perceived and how well, or not, expert voices sat next to a memory, a first-person account.

'The woman talking about the dredging and the Surfers Against Sewage [SAS] they were fine but they were so different that it was jarring as well [...] The other voices are sort of more intimate or something. They're not talking at you, they're just [...] going inwards to give you the memory whereas the SAS guy he was just telling you some stuff.' (S2)

Before testing the app I introduced Hayle to the Walking Artists Network (2007-) group in person during a 'walkshop'. The preamble included the town's contemporary themes such as the Asda supermarket build controversy that let to Hayle and the whole 'Cornwall and West Devon Mining Landscape World Heritage Site (WHS) being placed on the danger list by UNESCO discussed earlier (Chapter 5 p. 124). The positioning of Asda was traced to insensitivity in the way heritage had been treated in the town for almost two centuries. The threat of de-listing has now been temporarily lifted but has left some questions on what happens in the future and how Hayle's history has been represented to win over the UNESCO delegation, panels representing Hayle's history inside the Asda store, on show in fixed window displays and their decision to have a 'community liaison' staff member. A booking to take an oral history workshop coincided with the UNESCO delegation visit based in the room next door.

The Walking Artists Network preamble added another layer to the app experience but also exposed participants to the gap between the recent transformation of Hayle and how the app content that evoked the town's history and parts of its present had not kept up with Hayle's rapid change. Of course this raises issues on how apps stay relevant, material needs

to be added or altered which requires time, and changes to published apps can incur costs. This reminds me of taking part in a guided walk in Tampa, Florida in 2014. A celebration blocked the street of the route so the guide quickly adapted his plan. With his knowledge he managed to illustrate features on the changed route spontaneously, a much quicker adaptation than that required by some apps. My pre-app talk also initiated reflections on the difference between a recorded app experience and a live 'guide' by participants.

> *'I was actually enamoured by being shown by a person who lives and breathes and knows the stories of Hayle. So I had this kind of dilemma all the way through about the lived experience and the live voice and the mediated voice.' (S8)*

> *'[We experienced] your whole pre-narrative […] and then we've got these kind of sepia voices - where's that voice going 'oh they built that and that went wrong ' […] If you could find the voices that linked bits of it maybe that would bridge that gap from the sepia into the now.' (S5)*

The contentious Asda build came after the app had been made but to mention it could help connect the listener-walker-participant to the landscape. The first piece of audio in the app, the introduction, includes looking at the estuary from the gates of Hayle Heritage Centre. The budget supermarket has now blocked this view.
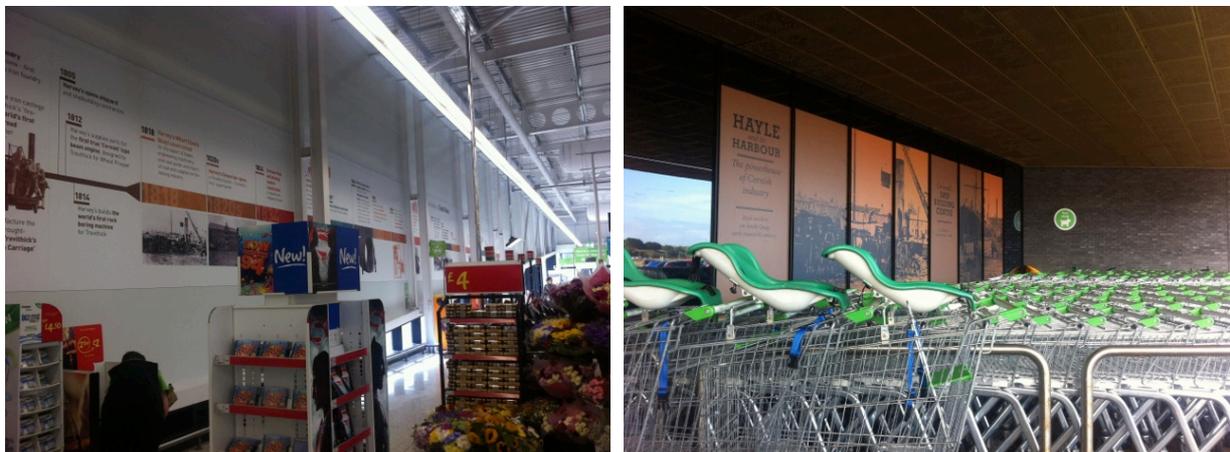
Figure 45: Hayle's history is depicted in an Asda window and in-store displays in an effort to prevent the de-listing of the whole Cornwall and West Devon Mining Landscape World Heritage Site due to the store's position on a prominent historical site in Hayle. Photographs by the author.

Hayle inhabitants' daily activities around the walkers mirrored those in the oral histories and therefore linked the past to the present, the storyworld to the physical world, for many participants:

> *'. . . bathing and having fun and being with their families, that was all happening around me.'* (S2)

For participants looking for physical reference points to match the voices, Hayle locals became part of the app experience, again merging the digital and physical worlds and keeping the participants grounded in place:

> *'I had this kind of overlapping of the voice in my head and the people I met on the way.'* (S20)

Disembodied voices in the memories linked participants not only to place but also to the people around them in the physical world. Engagement with Hayle's residents involved conversation and other acknowledgements. *'I smiled at him because I thought he was the one telling me the story,'* said S20, a participant who passed an old man on the quay. Experienced through others' histories and the liveness of the mediated voice the app seemed to encourage participants to reach into and engage in the present. This went beyond smiling at an older person who could have been a speaker (recounted by a number of participants), as this academic-performer participant explains,

> *'I sensed my own person-ness in doing this and also the other people who spoke and it made me more inclined to engage with other people that we randomly met, like the children who were catching crabs on the side of the quay. They were great and I think if I hadn't had this kind of immersive sense of being part of a performance – it felt they were actually choreographed into it – I would never have engaged with them.'* (S13)

Headphones both aided immersion, but also distanced some from the here and now. They made some walkers feel they *'couldn't properly say hello'* (S1). This academic-artist participant felt they were a barrier to connecting to the people around them. The effect of removing headphones surprised this geographer participant:

> *'I felt kind of lonely […] I felt like I'd had a companion with me and my companion had left me […] It was a much richer set of experiences that were going on while I was listening than when I just took them off and was walking.'* (S2)

As in all evaluations, immersion was frequently commented on using terms such as solitude that alludes to immersion. *'There is something really nice about the solitude of it,'* said (S7), a performer academic. Once again, deep immersion is good but as sustained deep immersion can inhibit connection with landscape this comment could indicate too much deep immersion and not enough embodiment. The combination of moments of deep

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immersion and at times an isolated route made some women feel uncomfortable. Solnit ([2001] 2002: 232-246, Myers (2009: 48) and Heddon and Turner (2010; 2012) have written about discomfort experienced by female walkers. Headphones can compound that discomfort as ambient live sound is intentionally distorted and reduced by audio played into headphones. Women spoke of listening to their surroundings when alone in an outlying location in order to detect danger. Headphones immediately made some feel more vulnerable. After hearing about a reaction close to a panic attack, a male performer said to me:

> *'The whole thing asks you to be hyper-sensitised so that's what will kick in. If you make that invitation you're going to get that response.' (S15)*

Walking while listening to an individual's stories in headphones opened up the landscape and community to some participants rather than cut them off from it. An artist academic reflected on the experience six months after walking with the app:

> *'I certainly think more warmly of Hayle because of using the app. I walked alone and the combination of solitude and the companionship of the voices made for a very intense, sensory experience of the place – the experience was intensified by the collaging of material.' (S16)*

The embodied sensory experience and app content forged a connection between the participant and landscape, as S2 explains:

> *'I was also getting a connection to landscape by really looking deep into it […] I was trying to look at the pictures and compare them to what I was seeing. I felt connected to the landscape, I feel much more connected to the landscape than if I hadn't done this.'*

To encourage and enhance a more embodied exploration or sensing of place, strong stimulation of hearing through app audio content aimed to reduce the dominant sense of sight. Using the body to hear but also move, balance, experience different temperatures, weather and textured surfaces heightened senses. Sound – invisible, immaterial but affective – creates atmosphere and animates the landscape that moves past the walker like frames of a film. Composer and sound artist David Prior compares the binary of passive *listening* and 'active engagement' during hearing (2010: 95) to the increasing scale of attention in the sight descriptive terms 'seeing', 'looking' and 'watching' (2010: 95). Concentration or effort to understand (*entendre* means to listen *and* to understand in

French [Iddon 2010:7]) implies cognition during hearing. Active listening or hearing is needed to catch and process a live layered mix while moving – fleeting traces of external sounds, recorded sound effects, recorded narrative and sometimes internal narrative. However, the internal voice was silenced in a way that connected this participant to the landscape:

> *'The experience of listening to the voices, it throws you out of yourself into the landscape because you're trying, you're listening to someone and not listening to yourself […] you don't have that little white noise of your own narrative going on.' (S2)*

Unfamiliarity with listening during movement, the immersive quality of the work combined with the 'newness' of the locative media experience, were reasons given by respondents for the *'the head down listening thing'* (S5) they did rather than looking around with senses open to connect with the landscape, a primary aim of the app. *'I suspect I listened and didn't look,' (S6)* said a female artist academic. An artist academic described why he enjoyed sitting down and listening to the tracks rather than walking:

> *'I […] was able to listen to them properly rather than listen to the contradiction between them and the environment I was in, or trying not to be in two places at once […] but that's possibly my dyspraxia […] having to really concentrate on what I'm hearing to be able to hear it properly.' (S1)*

The sensation of being in two places at once, physical and digital, is part of the locative media app experience – but, as the comment above indicates, this is disconcerting and difficult or uncomfortable to experience for some people. The contradiction between the embodied physical reality and the (sometimes embodied) digital stories was also hard to process. From a tourist's perspective, a participant commented, Hayle looks *'twee and peaceful,'* which made it

> *'[A] bit weird thinking of it as a really industrial landscape because that's not what you're sensing.' (S19)*

There is a clash between the busy industrial or wartime Hayle in the app and the transformation of Hayle through new buildings, some of which were built late in the app-making process.

6.7 Practice summary

Three pieces of practice explored connection to landscape, *The Secrets Garden* app trialled the AppFurnace app-making tool to create an interactive app. Participants comments were shown live inside a studio in collaboration with Ian Biscoe. Existing *Makernow* 'FabLab' technology was used and transformed to create the second piece of practice, the *Hayle Interactive Story Machine*. The third piece of practice, the *Hayle Churks* app, is the main piece in this practice-based research. The app aimed to connect the participant to landscape by bringing Hayle's past, present and future into the experience and participant's mind. Through local stories global themes such as climate change and land stewardship as well as how communities co-exist through stories on racism and personal conduct and its consequences, were brought into the experience. The site selected, Hayle, suffers from visible neglect after demolition of most of its industrial heritage. The landscape went through such rapid and significant transformations during the app making process (2012-13) that the app did not always keep pace with possible future change.

Data from three evaluations of the third piece of practice, the *Hayle Churks* app, was gathered from a total of 108 participants and analysed with the conceptual framework as a guide. Two evaluations used a collage of quantitative and qualitative data plus observation. The last evaluation used semi-structured interviews so that observations could emerge from participant's preoccupations rather than prompted only by questions. Discussion on the data is discussed in the next chapter, 'Synthesis,' while conclusions will be drawn from the discussion and the research question answered in the final chapter.

7 SYNTHESIS

This chapter synthesises findings and reflections that have emerged through the practice-based research. This research suggests that levels of immersion and embodiment affect the body-mind during smartphone locative media experiences that in turn affects the participant's connection to landscape. Changes in levels of immersion and embodiment can be designed for, while others occur accidentally. A diagram (p. 187-188) illustrates how embodiment and immersion work together to connect to landscape using locative media with suggested causes and their effects. A summary of processes and tools developed through my practice and collated from the work of others is presented as a reference guide and toolkit. The guide aims to assist those creating deep map *apps – locative media with the intention of connecting participants to landscape, although many of the elements are transferable to locative media technologies other than smartphones, such as MP3 players.*

7.1 Synthesis: an introduction

> [W]alking is very calming. One step after another, one foot moving into
> the future and one in the past. Did you ever think about that?
> It's like our bodies are caught in the middle.
> The hard part is staying in the present. Really being here.
> (script trace of *Her Long Black Hair* 2004 in Schaub and Cardiff 2005: 53 and 75)

This chapter returns to ideas and questions that were raised in the contextual review chapters – 2: Locative Media Background and 3: Conceptual Framework – in order to answer the research question. Initial instincts on how to connect to landscape during a locative media experience are linked to data analysis from the preceding chapter – 6: Practice – and reflections on it. The discussion that follows uses elements of the conceptual framework – immersion, embodiment and landscape – to synthesise the findings in order to reach a conclusion which shall be outlined in Chapter 8.

First, a hypothesis is fleshed out on how to connect participants to landscape through immersion and embodiment. This is based on provisional knowledge from testing others' work in the field such as *Ghostwriter* (Blast Theory 2011b), *Tomorrow the Ground Forgets You Were Here* (circumstance 2012) *The Lost Cinemas of Castle Park* (Croft 2012), *Inspector Tripton* (Sprylab Technologies 2012), *Sea of Voices* (Invisible Flock 2012) and many more. Desk research, hunches and experimental practice have added to these experiential interactions with locative media experiences. Critical reflection on the comparison between this provisional knowledge with the findings from the practice offers a clearer idea of how embodiment and immersion are interdependent in locative media experiences and how this could connect participants to landscape. A diagram (p. 187-188) has been created to illustrate the interaction. In addition a reference tool has been created to assist those interested in making *deep map* apps (those linking participant to landscape) and those interested in further research in this area.

7.1.1 Immersion

According to Alison McMahan in her work *Immersion, Engagement and Presence: A method for Analysing 3-D Video Games* (2003) immersion is an 'excessively vague, all inclusive

concept' (2003:67).[39] Interaction designer Janet Murray, who gives the example of plunging into a pool, describes immersion as 'being surrounded by a completely other reality' (cited in McMahan 2003: 68). Getting 'lost' in a good story, in a book or heard on the radio, can be described as immersive as 'our brains are programmed to tune into stories with an intensity that can obliterate the world around us' (Murray cited in McMahan 2003: 68). Listening to stories during locative media MP3 walks through headphones, (that already can cause a separation from the present), can be deeply immersive (Bradley 2012: 101). In this research, however, a connection between the app or MP3 mediated world and the everyday environment is sought – the participant needs to remain aware of their real environment *and* the mediated one rather than getting 'lost' in the app narratives.

In Cardiff's popular MP3 art walks disconcertion is used to keep the participant aware of their body while absorbed in her digital narrative (Egoyan and Cardiff 2002), as mentioned earlier (p. 34). Disconcertion tactics employed include positioning her voice 'within' the participant and narrative and sound disruptions, for example a startling sound or an observation about something that is no longer there. Cardiff believes this prevents the participant from becoming passive, such as while listening to a radio play (Egoyan and Cardiff 2002). This can be interpreted as an attempt to keep the participant embodied.

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[39] Author, filmmaker and academic Alison McMahan redefines what is often described as immersion in locative media, performance and this thesis as *presence*. McMahan's more precise definition describes many aspects attributed to immersion, for example - the 'intimacy and immediacy' of mediated communication despite 'constraints of time, location […] and distance (Lombard and Ditton in McMahan 2003: 73) and how *presence* 'is enhanced by how the user perceives space' (McMahan 2003: 75). For example 'a sense of foreground and background' (McMahan 2003: 75), which in this research context is derived from 360-degree binaural sound, increases *presence* or immersion in the work. Despite the clarity of definition offered by the term *presence,* there is still potential for confusion with other uses of the term in performance scholarship. *Presence* has numerous meanings in theatre such as '"[i]mmediacy", "spontaneity", "intimacy", "liveness", "energy", "the presence of the actor"' (Power 2008: 1), as 'the fulcrum of the relationship between watcher and watched […] the construction of charisma, and "stage presence"' (Giannachi et al 2012: 16) while explorations of theatre archaeology and site-specific performance 'invariably produce experiences of 'presence' by addressing the absences of place (Kaye 2000; Pearson 2010)' (Giannachi et al 2012: 8). However, in *Presence in Play: A Critique of Theories of Presence in the Theatre* by Cormac Power (2008) and *Archaeologies of Presence: Art, Performance and the Persistence of Being* edited by Gabriella Giannachi, Nick Kaye and Michael Shanks (2012) momentum builds towards replacing the term immersion with *presence* in performance, especially performance that uses interactive/ digital media. Sections of Giannachi et al's text draws in ideas of *presence* from virtual reality discourse using the term to describe: 'engagement with 'multipleness' of time, place and performance' (Giannachi et al 2012: 8); the feeling that, for example, Janet Cardiff is with you despite her voice being played through headphones from an MP3 player (Féral 2012: 29) and the 'moment of awareness of the exchanges between the subject and the living environment of which they are a part' (Giannachi et al 2012: 13).

Disconcertion disrupts the notion of complete psychological immersion of the participant as though 'submerged in water' which is experienced, as Murray sustains her pool analogy, 'as different as water is from air' (cited in McMahan 2003: 68). This opens out the discussion on whether the term *presence,* as proposed by McMahan, should replace immersion. Responding to the virtual reality discourse and use of media in performance such as app/ MP3 walks, theatre and archaeology scholars Gabriella Giannachi, Nick Kaye and Michael Shanks use the term *presence* to describe,

> the individual's sense of doubling or division in relationship to their context and place, while the perception of 'environment' at once participates in and is experienced as other to this emergent sense of being (Giannachi et al 2012: 13).

Despite *presence* being a term that will aid research on locative media and its performance into the future, at this point the thesis continues to use 'immersion' in order to look back to earlier locative media and performance studies and compare present and past work using the same terminology.

The empirical study on *Riot! 1831* (2004) by Mobile Bristol used a GPS-triggered narrative (a mediascape, as they described it) based on a historical event in Bristol. Participants highly rated their sense of enjoyment, immersion and history coming alive. Highly significant intercorrelations between these three top-scoring elements indicated that immersion in the nonlinear narrative based around a real event was highly enjoyable and made the participants feel involved in the story. However, immersion experienced in *Riot! 1831* was not constant; it was 'fleeting' or could 'last for several minutes' (Reid and Hull 2011: 200). This immersive transience was initially described as flipping in and out of immersion or as flows (Reid and Hull 2011: 203, see Fig. 5 p. 46). Reasons were identified as to why immersion was disrupted – for example a problem with the technology or someone speaking to a participant. Factors that increased immersion, including the mention of a familiar place, were also identified.

This thesis is concerned with answering the research question: does locative media allow people to develop a deeper connection with landscape and, if so, how? Since deep immersion has been described as making participants feel separate from physical surroundings, disruption of deep immersion in an experience should help connect participants to landscape. In this practice, ways to disrupt immersion intermittently using

the medium of locative media *and* the body were experimented with in order that the story and everyday worlds were engaged with on a meaningful level. Moving participants backwards and forwards through stages of immersion, from deep immersion to shallower, to deeper to mid to shallow, rather than in or out, was trialled. Shallower immersion implies a shallower experience but as explained in the next section, the changing levels of immersion lead to a greater depth of immersion *and* embodiment in the experience. This fluctuating movement between depths of immersion, at irregular moments and which include pauses, is called here *immersive flux* and affects embodiment in the landscape.

7.1.2 Embodiment

Into this discussion on immersion, raised by the research on the practice *Riot! 1831,* must come embodiment. Merleau-Ponty's ideas on embodiment have been explored by media theorists Farman (2012) and Moores (2012), philosophers Ihde (2002) and Brey (2000a; 2000b) and feminist Grosz (1994). How immersion and immersive flux affect embodiment is a central concern, as the participant, I hypothesise, needs to be embodied in the physical surroundings *as well as* the digital content to connect to landscape.

 The separation experienced by some using headphones while immersed in audio-rich locative media experiences distances them from the physical surroundings. Embodiment in the physical world then decreases and embodiment increases in digital content – just as a phone call (digital content) can engage a participant more than a (physical) person next to them. Overlapping digital and physical, immaterial and material, virtual and real worlds within a hybrid space (de Souza e Silva 2006) has become the norm for many smartphone users who connect to the Internet while on the move (Farman 2012: 46). The boundary between digital and physical worlds linked by the smartphone interface can no longer be imagined as a portal connecting different worlds. The boundary has become so porous that for many users, especially younger ones, it does not exist and so does not need to be crossed. The overlap between digital and physical worlds extends embodiment and other senses into both worlds.

Dual embodiment is when both digital storyworld and physical material world are embodied simultaneously. These moments are when, this research proposes, connection to landscape happens during a locative media experience. When experienced with immersive material

there is no separation between digital and physical, but also between the body and the landscape, from within an embodied sound world. Immersive flux moves the participant between levels of immersion that also shifts the participant between levels of embodiment. The participant must become embodied in the immersive digital story at frequent moments to become engaged and informed by the content, which in turn reveals information (aural or narrative for example) to aid their connection to landscape. If engagement and embodiment in digital content is sustained too long they become disconnected from, or less embodied in, the landscape.

Observation of the practice and reflection on it showed that keeping the participant moving and their senses and 'somatic sensations' such as proprioception and balance (Paterson 2009: 768) helped maintain embodiment in landscape. For some, though, this had a different effect, a sensory overload, and they needed to stop to listen and experience the everyday or decide to focus on just the story or just the surroundings. Mentioning landscape features in the narrative that could be sensed momentarily shifted the participant into less immersion in the story and grounded the participant, or embodied them, in the physical as well as digital environment. The shift in an immersive level actually deepened the experience and its dimensions as the experience then became immersed and embodied in multiple layers of time and place, by encouraging embodiment in the landscape as well as the narrative. The black steps mentioned in the *Hayle Churks* app, for example, able to be touched by the hands and feet, were visible and could be walked on. Sound effects that blurred the border between digital and physical worlds (sounds of seagulls, for example, or less-disruptive non-human noise) also brought attention back into the surrounding environment. These could be used as subtle interruptions of immersion and were experimented with in the app. Recorded traffic sounds, gently undulating, sounded like waves, and footsteps of others moving nearby encouraged the participant to look around for the sound's source.

This hypothesis developed throughout the practice-based research period and emerged through the practice as well as independently of it. Some making of the practice was intuitive and needed deep reflection to extract why certain decisions were taken and for what reason. Journal reflections, peer presentations and participant feedback helped aid and enable this reflection and articulation. The conceptual framework and the hunch about

the interdependence between immersion and embodiment emerged from this intuitive doing, reflection on it, articulation and feedback.

Experiments were made to design deeply immersive elements into the *Hayle Churks* app. In addition, features that disrupt deep immersion and/or encourage embodiment were also added. Since everyone experiences embodiment differently due to variations in bodies and their senses, personal history and cultural differences, it was important to gauge how individuals responded to immersive flux and dual embodiment, if at all. In the exploration of immersion in Chapter 3: Conceptual Framework (p. 40) sound was identified as having a powerful effect on immersion. Binaural sound, headphone use and different effects of voice were described. If sound is used as a category, other elements belonging to the 'sound' category and a new category were discovered through practice. Although appearing rather obvious, parts of the narrative that link the participant to the live environment can be described as 'words' and belong to 'sound'. Words or narrative draw attention into the landscape; while keeping attention or immersion in the story they can play an important role. 'Comfort' isn't sound related and is not so much about additions to the app as being aware of the site and how to adapt the app, if possible, to consider local weather and temperature as well as places where some participants may feel nervous or self-conscious. If gloves need to be removed on a day cold enough to cause discomfort (for example during the first evaluation), or if a participant feels nervous or embarrassed, deep immersion might not be experienced at all while those sensations prevail. Images were used in the app. Data suggests that images play a role in both aiding immersion in the audio narrative and in interrupting it when they pop up. For some, the appearance of an archive image on the smartphone screen provided traces of the past, which could be searched for in the landscape or imagined. This increased their embodiment in and engagement with the landscape.

Disruptions and elements that aid immersion are suggested in the reference tool below. The reference tool has been created for artists making a GPS-activated locative media app (a geo-poetic system) that aims to connect the user to landscape (a *deep map* app) and has been informed by the research, mine and others' practice as well as subjects discussed during consultancy on locative media apps. More factors that aid or disrupt immersion will continue to emerge from future practice and further research. There are of course

accidental interruptions of immersion, unplanned sounds, such as road works, a couple laughing or a passing large vehicle. These can sometimes, by chance, work serendipitously with the narrative to become 'part of the experience' (Reid and Hull 2011: 195). Accidental situations such as a couple in the same space laughing while someone is talking about their happy relationship, can fit in with an experience (participants presume that everything is part of the experience once their headphones are on) and become part of the magic of the experience.

Other experiments on how to disrupt immersion were made in the practice but failed to make it into the reference tool. For example, the phone vibrate function was used during the 'Counter Tourist' guerrilla takeover of the app in the first evaluation. The vibration was certainly disruptive and enjoyed by some. It also caused confusion and consternation, as if something had gone wrong. Some users left the app to check messages presuming it was an alert. There are therefore two orders of disruptions – some lead to deeper engagement, dual embodiment and enjoyment while others just disrupt in a way that loses all immersion, and sometimes also loses interest in the work or a user's confidence that they are able to make the app work properly. For these reasons, the vibration and other experiments did not make it on the list of usable and simplified (for a mixture of readers) disruptions that maintain enjoyment, but further experiments beyond the reference tool are encouraged.

7.1.2.1 Other factors that affect embodiment

As mobile phone and app design improves, I propose that embodiment in the overlap of physical and digital worlds, dual embodiment, will become easier during smartphone locative experiences. Robinson, Marsden and Jones point out that although access to the Internet has made smartphones portable, 'our devices often immobilise us' (Robinson et al 2015: 90). Instead of remaining mobile, users 'stop-to-interact' (Marshall and Tennent 2013: 1), which distances them from their immediate environment: 'Heads down is the default interaction style for mobiles. Users stare down at the screen while prodding and swiping.' (Robinson et al 2015: 131). Mobility will increase, as could connection to place and people around the user, once 'Face On' (Robinson et al 2015: 131) mobile phone design incorporates the whole body and its gestures rather than digits and eyes to activate the phone.

The smartphone's size and portability affects immersion and embodiment. The data showed that if the interface and functions, such as buttons, are easy to use, immersion is less disrupted for negative reasons, whether the device is familiar or not. Of course this can be used as a way to disrupt immersion too while keeping the experience enjoyable and the users comfortable with technology. Ease of use of the *Hayle Churks* app seems to have kept the body at the centre of the experience enabling embodiment in landscape. Computing and excessive attention on it that could disrupt the experience instead moves to the periphery of the user's experience. The participant receives content without being overburdened (Weiser and Seely Brown 1995) and without having to think or worry about the technology.

In the section on embodiment in Chapter 3: Conceptual Framework (p. 40) it was suggested that Merleau-Ponty's ideas on embodiment could be extended to include the different experiences of embodiment by every individual's body-mind, which includes their daily health and mood, any sensory impairments in addition to their personal experiences and cultural differences. Many found the sensory load lessened once on the edge of the town and when they had settled into the new experience away from traffic and people. The initial busy-ness of the town and the unfamiliarity of the sensory experience combined with their role as performer – slow walk, headphone costume and regular attendance to the phone – attracted attention. A few participants unfamiliar with wearing headphones, hearing binaural sound and using mobile phones while moving (for some in a strange town) found the experience bewildering. What exactly was affecting them and how that corresponded with their senses and general health and fitness needs more focused research. It is not possible to say that those with hearing impairment did or did not experience the binaural sound in an interesting way. People weren't asked about their hearing so it is not known whether those with perfect hearing or hearing impairment were more or less immersed. Few people know how their hearing rates against others. I have been tested so I know I have good hearing but without the test results I wouldn't be able to give an accurate answer if asked. Some people hear well but they do not, or cannot, *listen* well or process what they hear well. The comment by an artist–participant with dyspraxia suggests that dual embodiment was hard for his *brain* to process rather than his senses. Some, such as the artist mentioned, when overwhelmed by binaural sound or mixed media or dual

embodiment, stayed still. This was either to hear the audio clips better or because they were too deeply immersed to walk or just overwhelmed by the aural stimulation. For some, standing still or sitting in order to listen to digital content kept them aware of the storyworld and the everyday without becoming overwhelmed. For others, movement and the changing sensory information it offered assisted in embodying participants in the physical world through sensory stimulation. With each individual body-mind experiencing embodiment differently in the physical world, designing for dual embodiment and immersive flux to connect with landscape becomes more challenging until more is researched and known.

To connect participants to landscape using locative media is a specific challenge but one that has been met in a majority of participants (a mean of two-thirds, or 66%, in the second evaluation of a prototype). Some participants who evaluated the app said in qualitative feedback that they were connected to landscape, to location, to place, to Hayle – one of those terms. A GPS-activated locative media experience in landscape is a personal, for some a magical, experience, that is at times immersive and embodied and affective. It uses art and poetics (and a little GPS magic) to connect participants to the *taskscape* – a landscape that can be heard through the activity and movement of the community, and the people who move through it (Ingold 1993: 159-170). It is through art, Grosz believes, that new sensations are activated, 'perhaps not capable of being experienced in any other way' (2008:73), which intensifies bodies (Grosz 2008:71). Intensified bodies might sense, respond, embody in a different way. It may also open the body to the landscape and the contested stories of its community.

This section has described the thinking and reflection on it that emerged through traditional deskwork, experiential 'field work' and the making and evaluation of practice. The diagram below attempts to illustrate the proposed inter-relationship between immersion and embodiment, namely that immersive flux and dual embodiment during locative media experiences create the conditions for connection to landscape. MP3 walks and shared listening without headphones are also mapped onto the graph to show their different relationships with immersion and embodiment.

7.1.3 Diagram: immersion and embodiment in *deep map* apps

Digital Storyword

Embodiment in physical landscape

Merging of site pre-recorded & live ambient sound leads senses, eyes & ears, into site

Story mentions elements in physical world that can be seen & touched.

Body senses location while walking

Discomfort: weather, terrain needing exertion/ attention
Loud external noise or activity in the environment

Embodiment in digital content

Skilful body senses & comfortable body

Merging environmental sound in digital content

Engaging stories & sounds

Images of place aids imagination

The ideal conditions for a *deep map* app (connecting to landscape during a GPS activated locative media experience), involves fluctuating levels of immersion, *immersive flux* and embodiment of storyworld and the everyday.

Spaces on the graph will remain empty, as there cannot be deep immersion and embodiment in landscape or embodiment in the digital storyworld when there is no immersion in it.

Embodiment in landscape

Dual embodiment, embodiment in digital & physical

Embodiment in digital

Listening community around mobile phone speaker

A *deep map* app connects participant to landscape

MP3 audio walks

immersive flux

Deep immersion

Shallow immersion

No immersion

Immersion in digital content

The way the voice is recorded, spoken & heard in headphones

Binaural 360-degree hyper-real sound heard in headphones

Engaging stories & rich textured sound

Comfortable & skilful body senses & body

Immersion interruptions

Loud external noise or activity in the environment

Uncanny sounds from site recorded in different seasons

Technical problems & low quality recording

Narrative links storyworld to physical world

Discomfort: weather, body pain, embarrassment, anxiety

7.2 Discussion of findings

After the summary of ideas on the interrelationship of embodiment and immersion above, those ideas need to be compared with the actual findings of the practice to gauge whether locative media is an effective tool in connecting humans to landscape. In this section of the chapter findings are organised into sections named by the conceptual framework – immersion, embodiment and landscape. The app experience was quantified and supported with quotes, and some have been selected to underline findings.

7.2.1 Embodiment

> *'[The] app certainly introduced me to the landscape and stories of Hayle in an embodied way.' (S10)*

The body plays the content by moving into GPS zones loaded with multimedia content. Although having the function of a computer mouse activating media on a desktop, the body is more than the 'playback head' (Rueb 2013: 146), the needle in the record groove (Hight 2013: 245). The moving body is brought right into the landscape reducing the distance and separation of the detached static gaze that Pearson, Shanks, Rose and Wylie identify as tension in landscape (Pearson and Shanks 2001: 151; Rose and Wylie 2006: 475; Wylie 2007: 1). As the resonating body together with the app becomes the medium through which the information is transmitted, one can follow through the phrase coined by Marshall McLuhan in the 1960s, 'the medium is the message' ([1989] 1992: 6), by suggesting that the body affects how the message is received (Egoyan and Cardiff 2002). The body, or rather the body-mind (White 2005: 200), as it is referred to in this thesis, has a central role in this human computer interaction (HCI) rather than technology and rather than the just the mind suggested in the geopoetic concept of mindscape-landscape. As the earlier discussion revealed, disparate bodies have disparate embodied experiences, human beings are not as predictable as a piece of technology such as a computer mouse. The body-mind takes a central position in the experience because the size and familiarity of the device and invisible ubiquitous computing and locational technologies it contains shift to the periphery but closer to Mark Weiser's vision of ubiquitous computing (1993; 1996; Weiser and Seely Brown 1995).

7.2.2 Immersion

These research findings support the notion that located oral history traces produce a very enjoyable immersive experience. Nostalgic experiences, according to Robinson et al (2015: 185), make participants feel good and deeply affect wellbeing. Significant correlation between two variables demonstrated that feeling connected to the landscape definitely contributes to the enjoyment. Interestingly, being immersed in oral history and narrative, the performative aspect of the app, as well as feeling a (close) link between a particular story and its location, was rated significantly higher than feeling connected to the wider Hayle landscape.

Feedback showed that absorbed listening or deep immersion in the sound cut off the everyday for some participants, which resulted in a more passive immersion such as that experienced while watching a film, reading a book or listening to a radio play – a disconnection from location. Being deeply immersed in digital content meant that other matter became 'concealed' (Merleau-Ponty [1962]1978: 67-68), in this case the landscape.

Mobile phone development needs to move on from 'stop-and-interact' (Marshall and Tennent 2013: 1) peering and prodding at phones while standing. Robinson et al (2015) believe that audio cues will draw participant's attention to 'viewpoints' and bring the present physical world into focus for the participant. Audio cues are used extensively in the *Hayle Churks* app, which, as GPS is used to trigger media, does not require the user to stop and touch the screen to manipulate the audio or images unless they wish to. In the app audio cues overlap or encourage movement between levels of immersion, between digital foreground (phone content, such as memories) and physical background (landscape, the everyday). Sound such as narrative and sound effects increased an awareness of the immediate surroundings, the landscape. Images shown on the phone interface encouraged some participants to look about them into the landscape. However, recurrent issues that impacted on the effectiveness of the visual content included the reflection of the sun on the screen or participants with visual impairment (not having reading glasses to hand).

Many of those who evaluated the app were unfamiliar with hearing spoken digital content in headphones while walking, and this could have affected immersion. Necessary for enveloping the 'listener-walker-participant' in a sphere of sound to aid immersion, headphones worked well to slow down participants and increased their ability to open their senses to the passing landscape, similar to the careful treading and listening experienced in geopoetic practice (Duncan 2014) and during night walks described by Chris Yates (2012).

Embodiment was affected by sensory impairment, for example, hearing, sight or mobility issues. The healthy male body implied in Maurice Merleau-Ponty's phenomenological writing is an unattainable ideal rather than the norm. Other factors disturbed embodiment in landscape and immersion in the experience, such as embarrassment in wearing headphones, feeling conspicuous by doing something different, or being mistaken for someone who walks through their community listening to their music rather than interacting, seemingly a faux pas in a small Cornish town. App design needs to remain flexible to accommodate different people and *Hayle Churks* is no exception. Features such as the 'listen at home' version, first experienced as 'armchair mode' in Charlotte Crofts's *The Lost Cinemas of Castle Park* (2012), were created in response to requests for more control from participants unnerved by the magical appearance of media, or those with mobility issues that prevented them walking Hayle's past into the present.

7.2.3 Landscape

> *'The landscape feels so dense when you're doing it. When I took my headphones off it sort of flattened. There was a lot of depth because I was engaging with it on so many different levels – when I was listening to the sound and then trying to match that up to what was going on around me and then all of a sudden noticing things which are very contemporary which wouldn't have been referenced but were somehow interesting … things like a skeleton of a steel building across the estuary that looked a lot like the new ASDA but brown - weird little resonances.' (S2)*

The dimensionality of the media (some 360-degree sound effects), the fusion of that digital content and the physical world and the extension of embodiment to include embodiment in digital content in addition to embodiment in the everyday world (dual embodiment) increased the dimensions of the experience while moving within

physical landscape. The landscape layered with voices, stories, information and sounds became more three-dimensional than without for some, for example the geographer who commented above. The locative media *deep map* is transformed into a portable, interactive, embodied experience *in* the site rather than viewed as an object of interest *about* site often displayed elsewhere.

The app has a stronger (possibly temporary) effect around the performance and deepens the connection with the landscape, a more longitudinal philosophical effect, to a lesser extent.

> *'Not so much 'more connected'… as differently connected…. connected to a landscape that is historical as well as present; connected to a landscape that is storied and narrated and animated…. connected to a landscape that is layered with meaning' (S19).*

After walking and listening for two hours or more through landscape with voices of Hayle there was intensity in the response to the oral histories and their connection to specific locations. The main connectedness was to the stories of Hayle grounded in the landscape:

> *'there was definitely a grounding or rooting (in history) going on.' (S5)*

Participants felt connected to place through the voices and stories of its community; digital (pre-recorded residents' voices) and physical passers-by became companions along the route:

> *'It is incredibly potent. From my previous visit to Hayle I found it a run-of-the-mill, standard Cornish town. During (and after) the experience I feel as though I have discovered my own familiar connections. The town feels three-dimensional, or somehow more solid, now I have heard these stories, memories and seen the photos. I wasn't expecting such a strong reaction but walking back once the app had finished I told my friend "I feel at home here now"' (F2).*

The app invited participants into the community and gave them permission to explore and to feel comfortable. In Cornwall, 'incomers' often reported feeling a separation between themselves and residents with generational ties, despite often becoming active in preserving the history and character of place. The app appeared to bridge the gap, by increasing visibility and understanding of those with deep roots

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in Hayle. For some, the app gave participants 'permission' to enter an intimate world and feel they belonged there, at least while accompanied by the voices.

Participants responded best when stories linked to a physical object that could be sensed – seen, touched or smelt, such as the lobster pots. Stories became tangible and rooted in place, more so than simply hearing about them. Many mentioned the 'black steps' scene in *Minnie's Story* because it placed them in the same spot as Minnie's grandmother:

> *'The really interesting parts were where the audio directly related to the location you were in.' (M10)*

The oral history recordings used in the app were from an archive created before the app was envisioned. This meant that the detail needed for linking the story to the present time and exact location was, unfortunately, not recorded. Without viewpoints, one relies more heavily on 'earpoints' (Myers 2010: 59; Myers 2011: 70). The link between location and the story had to be made more explicit for listeners. After listening to whole interviews I knew why I had located stories in specific places. By the time the interviewees were heard, only a trace of the reason of the location remained, and sometimes even then it wasn't included. The link to the exact location, rather than Hayle in general was unclear in some memories.

Expectations before the experience and explanation proved to be important. Participants expecting an artistic experience, especially if they themselves were involved with the arts, felt a deeper connectedness. Those who wanted a historical tour were surprised, and sometimes disappointed, by the poetics, abstraction and nonlinear format, but they spoke of how the stories stayed with them afterwards, acknowledging that facts and dates rarely do.

Recent rebuilding in Hayle and the controversies around it were not articulated in the app, since many areas changed after the app was made. That there is a clash between the app and recent building projects illustrates how the area is going through rapid change, its post-industrial history being eroded or obfuscated. The theme of rebuilding could have been spelt out more rather than just placing the work within it. Some participants wanted information rather than simply witnessing

the contrast. Live discussion around the friction between present and past was, however, appreciated by the Walking Artist Network 'walkshop' participants (Frears 2015), who were introduced to the site before trying the app.

On reflection, in addition to including more detail of contemporary Hayle, an update of the Hayle app could also contain more content that bridges the gap between past and present, to pull faces up away from the screen and disrupt deeply immersed users enough to look into the environment around them. Experts could have been given more explicit instructions to use more of their personal perspective speaking in the first person and present tense when they wandered out of it during interviews so that their stories sat more comfortably next to the memories. Being spoken *to* rather than chatted *with* disrupted an intimate immersive experience for some. Disruption of deep immersion can have a positive or negative effect.

Interactivity might increase a connection to landscape. The use of interactivity with text was only used in the first app iteration and was dropped as some participants received error messages when the Internet connection could not be made. Error messages reduced their confidence in both the app and themselves, that they could use it. If interactivity worked better, especially involving recording stories, participants could place themselves within the experience and landscape by uploading personal stories. However, as previously noted, this is not yet possible in Hayle due to varied connectivity across mobile phone networks, a concern that may be an issue for making similar locative apps in other semi-rural and coastal contexts. Co-authoring with those familiar with the landscape would build on the original work deepening the layers of the *deep map* app as others would add to the original creative work as in *Merz* collage.[40]

According to a Cornwall Council's Historic Environment Strategy Officer, 'unseen historic evidence' (Cahill 2015) has been used to protect areas from developers. Has the app stood up to an initial aim: increasing awareness of histories of place with the hope that it would encourage land stewardship and possibly more careful town

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[40] Schwitters was open to others adding to his *Merz* collages.

planning? A review of Hayle-area residents' evaluations shows that for some participants, history came alive and encouraged them to reflect on the future and development of the town.

> *'Thinking about the past, particularly North Quay and how busy it was, gave me goosebumps' (F17)*

> *'Hayle is an area that needs developing, hopefully this can be done sympathetically incorporating its historical industrial past' (M16)*

> *'I grew to appreciate more what Hayle represented to people long ago, I understood more clearly its industrial background and landmarks like the power station and the copper house and foundry meant more to me than before' (F27)*

> *'The walk has made me feel closer to the area having walked those places before but without the stories' (F6)*

> *'Made me appreciate more about where I live [Hayle]' (F4)*

> *'Reaffirmed my love of Hayle.' (F29)*

Reactions in questionnaires and reflection from selected participants six months after evaluating the app confirmed that some stories, first-hand accounts and the written narrative *Minnie's Story,* stayed with them. Hayle's stories spread from the listener to others. One Hayle resident criticised the app initially as she was disappointed not to have experienced a chronological history tour. When she dropped the completed questionnaire back a few days later she said, '*I had to tell others, [the stories] stayed in my mind' (F22)*. Participants spread the stories and knowledge wider through word-of-mouth transforming them into 'storybearers who keep the narratives of the unique character, histories, and local experiences of a place alive' (Levine 2014: 143).

What this research needs to answer is whether the storybearer participants, now connecting others to Hayle's stories, felt more connected to the landscape. Walkers spoke of feeling connected to *here, Hayle*, its people and histories. Since this notion wasn't always supported by the quantitative data, the language used in the questionnaire was reviewed. I hypothesise that the term 'landscape' could have been an issue. There is more understanding of the term 'location,' used in one of the questions, than with 'landscape'. No doubt unaware of academic debates on the

term 'landscape' articulated in, for example, Wylie's *Landscape* (2007), this word for most participants would suggest a painting or distant view, rather than the environment or location around them, the place one inhabits and moves within. Thus the term 'landscape' may have caused some confusion. The use of the term in future work and reflection on its use in the thesis needs to be interrogated further in response.

Participants said they would be more likely to revisit Hayle, so a further opportunity exists for deepening the connection or attachment to landscape sparked by the app by returning to it. Without a physical return, the app has provided three-dimensional and embodied impressions and memories of the Hayle landscape that can be revisited in the mind.

The present phase of interaction and engagement with the community by the researcher, as well as through the arts, is political. This follows earlier phases of interviewing, intergenerational walking and talking, participating in local events, creating the *Hayle Churks* app from the town's memories and histories (Frears 2013a), while producing the *Hayle Interactive Story Machine* (Frears 2013b) and soundscapes for Golden Tree's World Heritage Site Hayle performance *Rags to Riches* (Golden Tree Productions et al 2015). In an effort to create a Neighbourhood Plan in which historic areas will be protected along with the local ecology, Hayle residents have been questioned about their likes and dislikes in the town (including in person by the researcher) and their vision of the future. The Hayle Neighbourhood Plan is still in development.

This chapter has synthesised and discussed ideas, questions and findings that have emerged throughout the research. A reference tool follows. It is a summary of processes, methods and tools used in my own practice as well as those gathered from others through testing work, research, discussion and conversation. It has been created within the thesis as a reference for those wishing to create GPS-located mobile phone app experiences using digital content (sound, images such as archive photographs and film, etc) with the aim of connecting the participant to, and while walking around, the site location (*deep map* apps). Most aspects can be adapted to

work with other locative media technologies such as MP3 walks. The language changes slightly in the reference tool to make it more accessible to those outside the academy (after the learning from the use of the term landscape) and so that it can be a takeaway tool used without reading the thesis. Although terms such as landscape and embodiment do not appear in the reference tool, the knowledge gained throughout the research concerning those areas of exploration can be found but described using other words. The reference tool enables these research findings to be taken forward by others in their practice. The final chapter follows the reference tool below in which conclusions from the practice-based research are made and the research question is addressed for a final time.

7.3 A *deep map* app reference tool

A *deep map* app aims to connect the participant to landscape using the poetics of GPS-activated locative media. Appendix H (p. 382) at the end of the thesis contains a version of this information in booklet form that can be photocopied and assembled.

Reference tool for making *deep map* apps

This reference tool guides the reader through the thought, planning and decisions faced by artists, practitioners, producers and commissioners of *deep map* apps – GPS-triggered smartphone apps that connect the user to the locations layers of stories. The guide has been compiled not only from the experience of making work but by testing and reading about others' work and so is indebted to many others. There are recommendations for further reading and projects to test on location as well as to listen to online at the end of the guide.

A good locative media app mixes the media (audio stories and sounds for example) with the location, the everyday environment to make something *different and more interesting* than when just media or just the place are experienced without the other (Stenton 2016)**.**

Fieldwork

Know the area	Walk the site.
	Go in all weathers and all seasons and observe changes.
	Attend local events, meetings, pubs and cafes to broaden the type of people you meet. Pick up leaflets. Be open to chat. Pick up gossip.
Recording people on site	Interview local people and experts while walking around the site. Ask them to lead you to a place of special significance and describe

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	it. You can suggest what kind of significance (a place they like, a place they don't like for example) or see what they come up with (the work of Misha Myers and Natalia Eernstman offer good examples of this).
	Encourage interviewees to use the present tense and to describe what they see around them.
	Make sure you have a 'pop screen' to protect your microphone from wind and during speech from words containing 'ps' etc...
	Use headphones to hear what is being recorded. Be aware that headphone volume is different from the volume or level the interview is recorded at. Some recorders can be set to an automatic recording level while others need to be adjusted. Record too loud and the distorted sound will be unusable. Recordings that are too quiet can often be saved.
Recording environmental sound	Record wild tracks – sound on walks, in different weather, seasons, times, to capture different birds plus natural and human activity.
	Recording the site using binaural sound will recreate the sound in a 360 sphere around the listener wearing headphones, creating a 'hyper-real' immersive effect. Other recording techniques will create texture and will also be interesting aurally.

Planning: Questions to ask

What do the funders want?	Funders might have a very clear idea of what they want and are paying for. Discuss and listen.
What skills are needed?	Some people involved in making the app will be able to take on numerous roles but many need specific skills, which will affect the project timeline and budget. These include:
	A period as artist in residence or someone as a community liaison. A closer knowledge of site and community will aid app content (by identifying people to record, for example) and how the app is received and used. A friendly sociable and observant person that uses social media is a good choice.
	Research of content – interviewees, images, history using archives, local networks etc.
	Sound recording and editing skills are needed to record interviews record atmospheric sound and to edit and mix recordings. Sound editing software is needed.
	Commissioning or making original music and or soundscapes.
	Coding – without coding skills a programmer needs to be found or

	an app-making toolkit such as AppFurnace by Calvium used, but discuss what you plan to make in case further coding and therefore budget is needed.
	Graphic design – used for phone interface (what is seen on the screen) and the style of the app. The design needs to be consistent across the app and promotional material. App-making toolkits such as AppFurnace have some graphic design integrated into the system to assist the maker.
	Marketing and promotion including press releases and design of promotional material (such as posters, banners, postcards, stickers) and its distribution plus effective use of traditional and social media.
	Assistance with publishing apps – app-making toolkit companies such as Calvium provide the liaison and licence needed by, for example, Apple. Discuss the publishing cost and the amount of app changes possible after publishing before starting.
	Writing funding applications such as arts, heritage, community and research grants, budget management and writing reports for funders, steering groups and stakeholders.
	Proofreading and information check: make sure all people who helped with the app are mentioned on a credits page with names correctly spelt. All speakers need to have signed a copyright agreement.
	Publicity needs to be clear about what the app does: what participants do and experience, what they need (headphones, app downloaded over Wi-Fi before coming to the site etc), the walk's distance and length of time required, and whether it can be done in smaller chunks.
Check connectivity	Is there Wi-Fi and/or good mobile network connectivity? If not, the app needs to be downloaded before coming to site and interactivity will be more challenging or even impossible.
Who is the app for?	Research the target audience. It is hard to intrigue and entertain all age groups at once.
	Who has access to a smartphone in this area? Don't presume.
What type of experience is it?	Be clear about what type of experience is being made: a historical walk? An artistic experience? A mixture of both? A game? An interactive experience?
How will the app be experienced?	Is there going to be a marked route on a map? Some participants like to work through and 'tick off' the content as they come across it. Others like to move where they want to 'drift' around the site without a map or set direction. Can you please them all?

	People could come with adults, children, dogs, in wheelchairs, alone – or it could be downloaded and listened to from a distant location. Will the app suit all of these? Find a way of making that clear to potential users or design alternative/ shorter routes or modes for them.
How do I make it accessible?	Make the app work on all platforms – iOS (Apple), Android etc...
	Try to make the walk route physically accessible for everyone.
	Try to secure funding for smartphones or tablets with GPS and headphones so that those who don't own them can still participate.
	Have an 'armchair' mode to use at home as well as a live version that only works with GPS on site. Armchair mode supports those with mobility issues, who live elsewhere and those who want to review pictures and stories again at home.
How long should the app be?	The app length is dependent on site (small or large area) and amount and type of content (memory used); what device it will be played on, which media is used, how media is recorded and so on. Apps (at the moment) have a memory size limit. If an app-making toolkit is being used, discuss how 'large' your app can be to publish on Android, iPhone etc...
What media to include?	Will it be sound only, or sound and still image such as photos and paintings, and/or film? All use different amounts of memory and so affect the app size and how possible it is to download over a phone network on location or via Wi-Fi before the experience. Stereo sound uses less memory than binaural sound. Film uses a lot of memory, photos less. Using film needs careful consideration as it involves standing and looking down at a small smartphone screen rather than engaging with the place.
How will people listen to the work?	Which headphones? People can have strong opinions about which headphones they feel comfortable wearing. Whatever the decision make sure that the person mixing the audio listens with the headphones participants will use rather than only studio quality headphones. Headphone choices include:
	Open-ear/open-back headphones allow in some environmental sound, which works well in some sites for a more realistic or immersive app experience. Open-ear headphones can be more comfortable as they allow more air flow and don't entirely cover the ear. The sound of the app content escapes through them and is audible to others nearby. They are large and conspicuous and ownership is low so they need to be provided.
	Closed-cup headphones keep out most environmental sounds so are useful in busy, noisy locations. The audio feels personal and close – inside the head. They are large and conspicuous, not

	everyone owns them so some need to be provided.
	Noise-cancelling headphones cut out environmental sounds. They are large and conspicuous and ownership is low so they need to be provided.
	In-ear or earbud headphones fit snugly into different parts of the ear depending on the model. More inconspicuous, more commonly owned and often more affordable, but sound quality, external sound leakage and comfort differ. If provided they cannot be reused by others so multiple pairs are needed.
How do I future-proof the app?	Plan for future changes, for example: a. in the location - for example building work. Talk to the Town Council and check whether there are any building or other projects that will change views, routes or make excessive noise. b. new phone versions and innovations that will affect interface layout. The size of images can be made to adapt to future models.

Deskwork

Research the area	Search archives, online and in local heritage centres for films, books, archaeological mapping, newspaper cuttings, songs, memories, local history, for stories, images, facts and mythology about the place. Search out local librarians, historians (arts and heritage), geologists, botanists, geographers, specialist groups, local cultural champions and enthusiasts. Look beyond the obvious: where are the stories of women, children, outsiders and the poor?
Copyright	Make up copyright forms for interviewees and those giving permission to use their images/work in the app/broadcast. Permission needs to cover use on local radio or television, the Internet and in presentations, academic thesis, by schools etc.
	Check if any costs are associated with using images/footage or other archive material.
Storing data	What is the protocol on storing personal data of interviewees, copyright owners, volunteers? Check recent data law.
Safety	Wearing headphones can make users less aware of environmental noise such as traffic, so choose routes carefully and remind users (in the audio track early on and again a little later) about traffic and the way that headphones might affect them.
	Make sure there is a pause button that can be used when crossing roads, reading a sign or speaking to people who interrupt for safety and to avoid missing content.

Making	
Using the magic of locative media	Make use of automatic playing of material by GPS if possible and 360-degree binaural sound that can be used to great effect to surprise, delight or scare the participant.
Music & background sound	A background loop creates an immersive atmosphere, reassures the participant that everything is working and prepares the ears for narrative clips. The *Hayle Churks* app (available free on iTunes) used both a musical loop and one using layered sound effects at different moments within the experience to keep the experience varied (although only the musical loop can be heard in 'armchair mode').
	The loop needs to pause when interrupted and play from the stopped place in the music rather from the beginning. This is done in coding.
	Gentle fade-ins and fade-outs smooth the transition between loop and narrative. This is done in coding. The stories/ memories need to have some space before and after the speaking starts and stops to accommodate for this which is done during sound editing.
	The loop needs to be long enough not to irritate the listener by repetition when it starts again and again. Both *Hayle Churks* loops were 15 minutes.
	Music style is a matter of taste and can repel or delight different participants. Test your choice on a mixture of people first and get feedback on how it affects their mood.
	Prominent sounds can be an indication for the listener that the loop has restarted and can disrupt their experience. Makers of *Riot! 1831* removed the sound of a dog barking after complaints.
Take me somewhere new	Users enjoy a different experience of place than they would experience otherwise. Find different routes against the usual flow of pedestrians or encourage them to explore new parts of the site.
Creative freedom	Gossip, imagination, myths and new tales could be mixed in with researched facts.
	The app listener tends to think that the general public they come across are part of the story (the old man they can see might be the old man talking on the audio for example). How can you use this?
	Is there a local occupation, such as the fishing industry, or a local custom that can be traced through the app to give it a structure?
	How can the themes of the app be expressed through the technology? In *Linked* (2003) by Graeme Miller, efforts to find

	audio clips and then hear them gave greater impact to the story about the destruction and removal of a community and its replacement by a noisy motorway.
What stories work?	A range of types of story (happy, sad, about personal or public events etc..) should be included as stories affect people differently and a mixture offers a variety of moods.
Can global concerns be linked to this local setting?	Be sensitive to how this area is affected by global challenges such as climate change, sustainability and migration as well as local initiatives such as regeneration. While hearing about the past and present some people will reflect on their and the area's future.
Leave in some space	Leave space in the work for thought, the background sound loop will play in the gaps.
Recording interviews inside	Record interviews in good quality – with a good microphone.
	After the interview record a wild track (just general sound) from that space. It might be needed during sound editing.
Recording oral histories	Interviewees need to be physically comfortable.
	Keep eye contact with interviewees to reduce anxiety about the microphone in front of them and being recorded.
	Nod encouragement so that the interiewee knows they are doing well. This also keeps the recordings free of unnecessary comments or 'uh-huh' noises.
	Record people of different ages, genders, backgrounds for a more interesting mix of voices, vocabulary and story perspectives.
	Some of the most interesting content, the stories many people want to hear (racy, political, sordid), can be libellous if names are used or people are identified through description. Try to get a version without names to keep the first-hand account. If using the voice is problematic, perhaps sections could be re-recorded using another voice or written into a narrative.
Choose the right narrator if one is being used	Audition narrators by listening to them rather than looking at them. Listen for a natural rather than read delivery – do they sound like they are chatting? In radio broadcasting lower voices are considered more pleasurable to listen to.
	Record the narrator close to the microphone so that they will sound close to the ear/s when played which creates a friendly one-to-one relationship with the listener.

	The way that the narrator speaks and their script needs to be considered as the listener needs to 'follow' them. They can inform the listener or can relax and immerse the listener by speaking quietly and gently, sounding friendly, as though they know them well already. The type of microphone used, the way of recording and way of speaking can effect whether the narrator is talking to, talking with or talking as the subconscious voice within the participant - see Lucy Frears' PhD thesis for more detail.
Take the walker deep into the story and location	An immersive experience can take the participant deep into a story. These are ideas of how to increase immersion.
	Make the app easy to use. Test on different age groups. The Pervasive Studio Cookbook mantra is 'test early and often'. See number 1 in the further reading section below for the link.
	Make sure that the phone doesn't hibernate and stop the app. This is done in coding.
	Make sure sound files, such as memories or stories, activate a few paces inside the GPS zone rather than on the edge so that they don't 'glitch'. This is done in coding.
	Use sound to lead people rather than words or text on screen, for example a voice speaking in the left ear saying, 'come with me,' to encourage them to walk towards the left.
	Use recordings from the site (such as seabirds, or passing trains) in the app so that recorded sound mixes seamlessly with everyday sound.
	Keep the app as hands off as possible and try to use physical gestures to control the content if needed (such as shaking the phone) rather than requiring participants to have their heads down tapping and swiping. Keeping faces up is a better way to connect users to the location (see number 2 in the further reading section below).
	Use archive photos or paintings to help users imagine the place as it once was.
	Lots of text on the screen is unnecessary and hard for many people to read (many of whom do not wear reading glasses when going out for a walk). The sun reflects off smartphone screens making them hard to view so audio is always better.
	Unknown stories about a place are intriguing.
	Feeling anxious about personal safety disrupts immersion. Be particularly sensitive to how women or 'outsiders' may feel walking around wearing headphones that diminish environmental sound,

	especially in an isolated or unfamiliar place.
	Consider how much an expensive gadget, such as a smartphone, should be on view in certain environments to avoid worrying about or being mugged.
	Participants will take a few minutes to settle in. Ensure that all the important information isn't packed into that initial few minutes as they will miss some of it. To start by standing and listening might help as will a 'replay introduction' button.
	Weather will affect enjoyment and speed at which the walk is done. Plan the launch of the app during the best weather conditions.
	If a tablet with GPS is used be aware that the larger the device the more disruptive, 'visible' and heavy it will be.
	Make it possible for the participant to keep walking while listening to a story until its end (this is done in coding). A participant will feel warmer, more comfortable and less conspicuous if able to keep walking at her own pace. Some people will always stop to listen.
Staying aware of the location. Suggestions on how to draw attention to the location.	If connection to the location is needed, then deep engagement or immersion in stories needs to be disrupted periodically. Here are some suggestions:
	Record sounds in different weather and conditions. The sound of rain or buzzing bees, when played back in different weather, draws the ears and eyes back to the environment and feels odd. Likewise hearing rain on a pavement while walking along it on a sunny day, or walking through a crowded market place and hearing it empty can increase observation in the present location.
	You can ask the user to choose to do something (or not) during the app experience such as sit somewhere or to perform an action. Some participants enjoy feeling part of a shared but secret experience, especially if others are participating in the experience at the same time (look up Duncan Speakman/ circumstance's work for examples) and the behaviour helps identify them.
	A location that is spooky, odd or isolated or rarely granted access to will disrupt immersion as people will be unnerved/ intrigued.
	Mention aspects of the environment that can be sensed – felt, seen, heard, smelt. The participant will search for them and remember them.
	Mention objects that may or may not be in the environment when

	played, prompting the listener to look around.
	Mention visible landmarks and reveal unknown ones.
	A landscape with some noticeable features will make it easier to pin stories. Whether or not there are landmarks, don't ignore features that others will notice: the nuclear power plant in the distance, the rubbish heap, the empty building, that infrequently used path. If visible landmarks are lacking, use what you have and recreate the landscape as it was, through rich description of sound and image or create a story about it for example.
Uncontrollable interruption of the app experience	If you know there will be building work or there is a busy road, try to write in some sections that can work with those sounds.

Further research

Artists work to review (most available online)	Janet Cardiff and George Bures Miller, Graeme Miller, Teri Rueb, Duncan Speakman/ circumstance, Blast Theory, Platform, Mike Pearson, Jeremy Hight, Jen Southern, Sam Thulin, Alex Butterworth, Lavinia Greenlaw, Geraint Francon, Proboscis, artists and academics in the Walking Artists Network and many more.
	Other site-specific performance methods are useful to learn from, such as those by Louise Ann Wilson, Pearson/Brookes, Wildworks and immersive theatre, for example by Punchdrunk.
Further reading for practical tips	1. *The Pervasive Media Cookbook* http://pervasivemediacookbook.com/ offers invaluable advice for locative work. The Pervasive Media Studio/ Watershed website has info on upcoming artist's talks and older documented ones: http://www.watershed.co.uk/studio/
	2. *There's Not An App For That* (2015) by Simon Robinson, Gary Marsden and Matt Jones. They describe the 'face on' approach to app design rather than 'heads down'.
	3. *Janet Cardiff: The Walk Book* (2005) by artist Janet Cardiff and Mirjam Schaub.
	4. *Site-Specific Performance* by Mike Pearson (2010) who has also worked with MP3 walks as remote performance.
	5. The project *Ambient Literature* at the Pervasive Media Studio (2016 -18) (run by Tom Abba and Jon Dovey) is researching and making locative media narratives with smartphones.
	6. *Remembering Oral History Performance* (2005) edited by Della Pollock.
	7. Websites of many artists mentioned above for examples of work and explanations on what they do – e.g. Janet Cardiff

	and George Bures Miller, Teri Rueb, circumstance, Blast Theory and Platform. The app-making toolkit websites such as Calvium/AppFurnace and layar include examples of work and tap into the deep knowledge of their creators. Look for articles/ talks/ chapters by Jo Reid from Calvium.
	8. Work is best tried in situ to understand the effect – the fusion of the everyday and the app content. Look out for work to try, usually on arts and culture networks, and follow the artists mentioned to find out when and where their new work can be experienced.
UK organisations that commission interesting work	Artsadmin, Artangel, Heritage Lottery Fund, National Trust, Arts Council – their websites contain examples of exciting work.
Please use this reference tool	This reference tool is authored by Lucy Frears. If you use it please cite it as you would any other publication. The reference tool is freely available for use in practice, research and education but if you cut, paste, and incorporate it or parts of it into your own proposals, lessons/lectures, research or consultancy reports, please be sure to include a link and citation of this resource. If you would like to add to this resource or have feedback please contact the author as this is encouraged and welcome in order to keep it current and useful. [Lucy Frears 2016 PhD Thesis *Unlocking Landscapes Using Locative Media*. UAL/ Falmouth].

Appendix H (p. 382) at the end of the thesis contains a 'takeaway' version of this information in booklet form that can be photocopied, assembled and used.

8 CONCLUSION AND CONTRIBUTIONS

This chapter brings together the conclusions that have emerged from the practice-based research to address the research question and highlight the original contributions to knowledge extending from the work. Suggestions for future research will be discussed.

8.1 Main contributions of the practice and thesis

> [P]erhaps the memoryscape can mimic the way our memories
> seem to work in the brain – it is an active, mobile process,
> connecting often disparate things in an intensely creative way
> to make sense of our past, present and the future.
> (Butler 2007: 369)

> [A]n art that is based on a phenomenological exchange will offer
> the participant a compelling, fully conscious experience of perceptive
> intensification of place, of body and of time followed by alteration. [...]
> The coordinates of consciousness may change radically
> (Sheller and Iverson 2012).

In this chapter the original contributions to knowledge and subsidiary contributions to knowledge are outlined and elaborated on before the original aims of the research are revisted, research limitations discussed and future research identified. This research has succeeded in the aim of providing empirical data on whether locative media is a useful tool to connect participants to landscape and is of interest for those working with locative media, creative geographies, geography, site-specific remote and sound performance, walking art, community art projects, deep-mapping, geopoetics, heritage and more. Throughout the practice-based research process, work has been presented at international and national interdisciplinary conferences, workshops and symposiums with two book chapters forthcoming. Learning and conclusions will continue to be disseminated to colleagues within these fields and to those both inside and outside the academy with interests in locative media art in landscape, and in fields such as tourism, heritage studies, archival practice, site-specific performance and anthropology.

As described in the introduction, I set out to create an original piece of locative media art to explore whether locative media experiences allow people to develop a deeper connection to landscape and, if so, how. I created an award-winning app, gathered and analysed the data and have provided empirical evidence as an original contribution to knowledge. Participants were connected to landscape with an interesting outcome of a much higher connection to the *community* that populated or worked in the landscape. The peopled landscape is described in this thesis as *taskscape* (Ingold 1993: 159-170) and can be traced back to the Germanic root of 'landscape', *Landshaft* meaning 'a unit of human occupation' (Schama 1995: 10). A

further contribution to knowledge is a timeline that offers an illustrated historical overview of locative media work and new technologies. The mapping and juxtaposition of selected art work, locative media and relevant technological devices or developments tells a new story of locative media's emergence. The summarised version can be seen on p. 31-32 in chapter 2: Locative Media: Background while the extended referenced version can be found in Appendix A p. 239-249. An investigation of the role that immersion and embodiment play in locative media and connection to landscape has been undertaken by reviewing existing work and through experiments within the practice. The interplay and interdependence between immersion and embodiment in GPS locative media experiences and elements that effect them (part of 'the how') have been identified. To enable others to continue to make apps with the intenton of connecting to landscape and to further research in this field a reference tool (p. 197) has been created for artists making *deep map* apps (also part of the 'how'). A 'takeaway' booklet version that can be photocopied is on p.382-392. Providing empirical data on connection to landscape and outlining conceptual and practical tools (the how) capable of aiding those engaged in locative media practice or research (whether in or outside the academy and whatever discipline) were the main aims of the work and have been met.

Subsidiary contributions add knowledge to the fields of locative media, which in this practice and research context can also be described as adding knowledge to a form of performance, described by Pearson as 'remote performance' (2010: 82; 2011: 282). Geopoetics has been used in this locative media practice to transform GPS into a geo-poetic system and to extend the geopoetic description mindscape-landscape to reflect inherent embodiment to become mindscape-landscape-bodyscape. This research proposes that the dimensions and layering of *deep mapping* remote performance can be expanded within site using GPS-locative media and multi-media content. A three-dimensional *Merz* collage methodological approach to locative media has been devised to increase the dimensions of locative media practice using 360-degree binaural sound, landscape and time. In order to connect people to

landscape immersion in digital content was investigated. The research identifies how recording audio, listening to audio and voice performance affect immersion.

A subsidary contribution to knowledge in the field of geography is through the embodied creative practice process that adds to existing explorations of the distance between people and landscape (Wylie 2007) and aims to animate the gap and its tensions. Research using creative practice, especially of audio in landscape and oral histories (for example by Gallagher [2012]) are built on in this research. Technology and visual media as well as audio, is used in the landscape practice as encouraged by Cresswell (2015a). Data collected relating to connection to landscape and its community is of interest not only to geographers but to those working with and within communities. Media theory is contributed to by taking theories on mobile devices and embodiment (Moores 2012; Farman 2012) into multimedia embodied *practice* in landscape and providing data. Information on access to smartphones and network accessibility outside urban centres emerged during the research.

I shall elaborate on the contributions to knowledge. Empirical evidence has been gathered and analysed systematically, a methodology which is unusual and distinct in arts-based practice. Quantitative and qualitative findings were summarised in Chapter 6: Practice (from p. 132). Qualitative answers were also referred to in Chapter 7: Synthesis (p. 178). The quantitative data story from the first and second evaluations shall be summarised here. In the first evaluation participants mentioned feeling more connected to Hayle despite not being asked explicitly about connection to landscape in the questionnaire. In the second evaluation almost half the participants borrowed an iPhone. Despite a lack of familiarity with the device and that the app at this stage was a prototype, the app was enjoyed and easy to use. The high mean of ease of use and phone loan suggests that less proficient users were also able to relax and potentially experience embodiment using an unfamiliar phone during an unfamiliar experience and, for some, in an unfamiliar environment. Participants were immersed in the narrative and connected the stories to the location. However, the app deepened the connection to the *people* and *their stories* that were grounded in the location, rather than all participants being able to describe the experience as a deepening of connectedness to the landscape. Women

were in close agreement with each other about feeling more connected to the landscape, with a mean of 76.40. Men, with a mean of 55.36, did not feel so connected to landscape but were not in close agreement. The mean average of all participants feeling connected to landscape is just over 66%, two-thirds of those questioned in the second evaluation. The third evaluation of the published app used semi-structured questions and so the results cannot be quantified but connection to landscape was discussed and supports the findings in the previous evaluations.

What prevented people from being connected to landscape during the app experience? There has been discussion of possibilities in the chapter that synthesises findings (p. 178). One important factor could be the use of the word *landscape* in the questionnaire. If participants presumed landscape was a distant view, as the term is commonly used, that did not include the land around their feet, it could explain why the mean of those feeling connected to landscape wasn't high. Feeling connected to place, Hayle and here was mentioned in qualitative feedback and in conversation as was connecting to the speakers, the community and the people. If landscape is taken as a *taskscape* as described by Ingold (1993: 159-170), a place of activity and movement of people, connection to *people*, it is suggested, could be interpreted as connection to place. McLucas speaks of people being removed from maps (2001). The app puts people back onto the map in two ways, first by locating voices and the spoken memories in landscape, which were greatly enjoyed (mean 83.80), then by attracting people to Hayle to try the app.

In the written thesis locative media's emergence and its trajectory has been viewed from a historical perspective and mapped against technological developments in a timeline. The timeline draws on and combines existing knowledge and research on locative media and technologies and maps them together, referencing selected walking, sound and performance art that preceded the emergence of locative media art. The interrelationship and cycles of creation sparked by creative ideas and new technologies is an interesting one. Locating stories and ways of perceiving landscape such as Streetview were experimented with before technologies became available. An online interactive timeline will extend the range of work. Other work (for example not just narrative work and that made in other languages) could be

layered and mapped onto the original timeline by other contributors, which will broaden its scope.

The reference tool uses a language and approach to enable its use as a takeaway guide for artists and their commissioners and producers. The European Social Fund supported this research to promote Cornwall's economic growth and transformation from being one of the most deprived regions in Europe. Treasure Trails, a business founded in Cornwall in 2005, was made a research partner in order to benefit from the findings. Through franchising they became a national company 'designing over 700 interactive, self-guided trails across the UK' (Myers and DeSilvey 2011: 1) and were exploring starting digital trails at the beginning of the research. The reference tool was compiled to support my consultancy with the digital strand of Treasure Trails. The most recent consultation took place in May 2016 for a Heysham Coast app commissioned by the National Trust. The reference tool enables and encourages research to be taken forward through practice.

The reference tool was developed partly through the use of geopoetics and *deep mapping* in the research. This is the first time that geopoetics has been used in conjunction with locative media practice-based research and led to my suggested extension of the geopoetic description mindscape-landscape to become mindscape-landscape-bodyscape. In June 2016 I sent a document to poet and director of the Scottish Centre of Geopoetics, Norman Bissell, detailing my reading of geopoetics and its use in my research to connect humans to landscape using locative media. In correspondence Bissell describes my research as opening up 'an important new field for exploration' (Bissell 2016) and has requested that I write about my ideas for the geopoetic journal and speak about my research at the 'Expressing the Earth' conference in 2017 organised by the Scottish Centre of Geopoetics in collaboration with University of Glasgow.

GPS-activated locative media (a geo-poetic system) offers an alternative, and, I suggest, a richer textured layering of *deep maps* than currently experienced using MP3 audio. The smartphone is portable, just as an MP3 player is, but it is also geo-located using GPS, has significant memory and can play various media rather than

just audio. It is already a 'familiar instrument' that fuses the digital and physical world for many users. Multiple layers of different media content – audio, film, image or text – can be situated at locations along a route or drift. I propose that GPS-activated *deep map* apps are a useful development in *deep mapping* remote performance (Pearson 2011: 282) within site.

8.2 Research aims and question

The recent building of a budget superstore on a prominent but derelict heritage location in Hayle caused UNESCO to threaten to de-list the whole Cornwall and West Devon Mining Landscape World Heritage Site (WHS) awarded only in 2006. The WHS status has been saved for now despite the building of the store. The app reminds the community and visitors of Hayle's industrial heritage and raises awareness before all traces of it are forgotten or obfuscated by further planned development. The Hayle Neighbourhood Plan, when implemented, offers an opportunity to protect heritage and the town's delicate coastal ecology. The Plan tries to engage the community politically, but the *Hayle Churks* app uses creativity to increase understanding within the community (those with generational ties and 'incomers') and its visitors about the town's history through its voices and stories. Whether locative media could connect participants to landscape was suggested by media theorist Jason Farman's proposal that locative media participants can 'gain a deep connection' to landscape 'and the various histories of that space' (2014: 6). This research proves that it can, which broadens the influence of these findings beyond the marginal Cornish town. That connection occurs is significant. Locative media apps could be used in other international sites where heritage and landscape is contested. An app (or MP3 walk if access to smartphones is an issue) could potentially redress the balance although clearly there is a need for sensitivity. Apps could also be used in areas similar to Hayle in which redevelopment ignores or covers-up landscape's past use or in areas under the threat of irresponsible or unsustainable economic growth and development. A layered multivocal evocation of place has a role to play and further research will explore what people actually do once they have experienced the connection moving beyond their suggestions on what they *may* do straight after evaluating the app.

The research question posed was: does locative media allow people to develop a deeper connection with landscape and, if so, how? The objective to create and evaluate a locative media app was fulfilled, which included identifying and describing elements of existing locative media art that influence connection to landscape. Different fields contributed to the theory, methodology, practice and research in numerous ways. Merleau-Ponty's theory of embodiment in landscape and chorography provided practical and theoretical knowledge drawn from geography. *Deep mapping,* geopoetics, *Merz* collage and practice-based research were sourced from within the arts. Media theory informed embodiment in digital content and the fusion of digital and physical worlds using mobile devices. A self-guided, locative media narrative experience was designed using available technology, AppFurnace, the app-making toolkit by Calvium aimed at artists. The *Hayle Churks* app is a locative media research tool and standalone creative work. The site selected was Hayle, a landscape in crisis undergoing rapid redevelopment throughout the research process, including the erasure and decontextualisation of its histories. The town's oral history archive was used as well as additional interviews conducted during the research period.

As a unique contribution to research in this interdisciplinary field three evaluations from a total of 108 participants were gathered from *Hayle Churks* app prototypes and the published version. Mixed methods, the collaging of qualitative and quantitative data and semi-structured interviews, were employed to catch anomalies. Questionnaires were completed after an embodied experience requiring levels of deep engagement or immersion. Spontaneous pre-cognitive responses to graphic rating scale questions were used in addition to qualitative questions and interviews that required reflection and cognition. Further reflection was gathered from some participants six months after their app walk.

Practice-based research presents its own challenges. At times, when results surfaced through the combination of tacit knowledge, research and creative practice, it felt the most natural way to research. At other times its varied demands seemed to scatter the research, making and thought. I faced and met the challenges and gained funding to produce and publish a smartphone app. *Hayle Churks* is not only a stand-

alone published creative work; it is publicly funded and places and replaces community voices back into landscape, as well as acting as a research tool from which data has been collected and analysed for this thesis. Different demands and outputs needed from one piece of work have been met successfully by balancing my creative vision with what was required by the research, funders and the community in which the app is placed. Partly funded by Heritage Lottery Fund and published on iTunes in 2013, the *Hayle Churks* app won a national award in 2014. The fact that the app received national funding and won a national award is significant. The Collections Trust Awards are open to projects from all arts, heritage and cultural organisations across the United Kingdom from the major national museums, and archives to smaller heritage centres. The award points to the broader reach and recognition of the app's applicability as a model for other practice in the area of arts and heritage.

8.3 Research limitation and suggestions for further research

A number of aspects have been identified as limitations in this research, some of which translate into suggestions for future practice. Re-evaluation of the use of terms such as landscape (which is subject to numerous contrasting interpretations within the academy) with the general public during research has been discussed in this and the previous Synthesis chapter (p 186). There is a need for further research on the effect of connection to landscape. Whatever was answered in the questionnaire, do participants actually pay more attenton to planning proposals, become more involved in knowing about and protecting heritage or the environment and pass on stories for example? This is seen as a important next step to follow this research. In addition, more research is needed into which type of experience connects which gender to the landscape, and whether those men or women experiencing a closer connection with landscape also experienced a sense of pride and community cohesion. Why did the app, an embodied experience based on stories rather than facts, appeal more to women than men? Is this consistent in other work? Could gender immersion be related to immersion in the voice and certain modes of address and how they have been recorded and played back?

The length of the app walk should be considered. The app length (just over an hour of stories) provided an experience comparable in length to a film or theatre performance. A longer experience was requested in the first evaluation, but on reflection, sensory and emotional stimulation, often experienced alone while walking, made for an intense experience for such a period of time. Although I walked the app in just over an hour, many others spent much longer, usually around two hours but sometimes as long as four hours. A shorter experience might have had a different effect and needs to be trialled in future work.

The site presented numerous challenges that would not be present in different environments and could have influenced the results. Inconsistent network coverage, for example and, from results (when Android phones could also be used), low smartphone ownership restricted the design. The landscape was also challenging as there are minimal surviving landmarks and the dunes left little to pin narratives to, which may have limited opportunities for 'magic moments'. Similar research could be made in a location with more visible markers and results compared.

There were many experiments within the app iterations but more work needs to be done. Effects of different headphones (closed-cup, open-backed) on immersion tested on the *same* piece of work is needed. Throughout this research evidence has been gathered relating to voice and immersion. There is room for more investigation through practice on who is speaking, how they are recorded, where in the headphones they are recorded and how they address the participant (to, at, or as).

Further investigation of the link identified between immersion and embodiment and their interplay and how this leads to connection to landscape, is suggested. Discovering which participants find embodying physical and digital hybrid spaces easier would be insightful. How hearing capabilities affect experience of the full binaural audio effects need to be explored. Screening for hearing could be introduced into future research on the impact of headphones and the effect of different recording techniques and audio delivery formats. This will inform and effect locative media design. The experience with the app sensitised the participants to

sound, the site and their role in the future during the experience but also, I observed in some participants, changed the way they heard the landscape (hearing implies cognition – active rather than passive listening [Prior 2010: 95]), once the headphones were removed, at least temporarily. This needs further investigation. Some participants found it challenging to walk, listen to speech and negotiate a new place, while others found the experience stimulating and would have liked more social media links within it: *'Integrate social, so users can help spread the word'* (M19)*.* Which human factors affect the ability to experience digital and physical space simultaneously and to move between deep immersion and dual embodiment? More information taken from participants about their cultural and educational background as well as engagement with the arts would be useful. Whether embodiment will change as apps are designed for 'face-on' bodily interaction, so that participants can 'maintain eye contact with the world around them' while on the move rather than 'heads down' tapping and swiping with digits (Robinson et al 2015: 131), requires further investigation.

8.4 Last words

Throughout the thesis the town of Hayle has been used to illustrate efforts to connect the community and visitors to landscape in order to encourage understanding of place, to feel connected to community and to encourage land stewardship stimulated by knowledge of its past and present. Hayle is a community with historic divisions between different ends of the town and more recently between families with generational roots and those described as 'incomers'. After a period of prolonged neglect, the post-industrial town of Hayle is now experiencing multiple building projects including the controversial supermarket on a World Heritage Site that has still not delivered on its promises to the community. Drawing on the experience of an earlier successful community oral history project that raised awareness of the town's history, locative media with its arts provenance, was selected as a new way to try to connect participants to place by locating community memories and information to be discovered and shared in the landscape. Qualitative data gathered in the evaluations (and discussed in Chapter 6: Practice, Chapter 7: Synthesis and Chapter 8: Conclusions) described how for some participants, the app

content brought attention to the walker-listener-participant's role in the present – encouraging them to reflect on how landscape is used, looked after and lived in. Both quantitative and qualitative data indicated that many participants felt connected to the people, the stories, the community. These findings coincided with research published during the doctoral period indicating that art (Fujiwara 2013) and an understanding of and connection to heritage (Maeer, Mattinson and Knox 2015) could increase community spirit, social cohesion, pride of place and sense of place. These factors were also linked to happiness and wellbeing in both the Fujiwara and the Maeer, Mattinson and Knox studies. By combining arts and heritage in a locative media smartphone app, knowledge of community and landscape were shared in an effort to have a positive connection to both for the participant. Knowledge of Hayle local heritage and the desire to promote and protect it have been brought into the Hayle Neighbourhood Plan discussions, which will affect the Hayle landscape and community's future.

Creative approaches to the layering of histories and stories of place have been made by writers (such as Benjamin 2002), artist-performers (such as Pearson 2000) and geographers (such as DeSilvey 2007a; 2007b; 2010; 2012). Through juxtaposition and layering, alternative stories and perspectives of the past, present and future are unearthed and exposed to a wide audience. Poetics and art within GPS-activated locative media – a geo-poetic system – is used in this practice-based research as a new way to 'unconceal' (Heidegger [1954] 1977: 5) the stories of place. The poetics within the locative media experience 'tinker with our locks, thereby putting our inner worlds in contact with the outer world' (Oswald 2006: x), leading to a potential opening of both landscape and participant. Rich layering of stories can be achieved through locative media in landscape, transforming perceived linear hegemonic narratives of place and the frontality of art into an immersive, embodied and more nuanced polyvocal experience of place in all its dimensions.

Depth in a *deep map* app is experienced dimensionally as depth in the storyworld and landscape, depth in a taskscape or community and time, and by experiencing stories through or as other people in a new hybrid space. Increased sensitivity to the expanded dimensions of landscape raises awareness that all places have layered,

textured histories, while increasing knowledge, understanding and empathy for the taskscape where the *deep map* app was experienced.
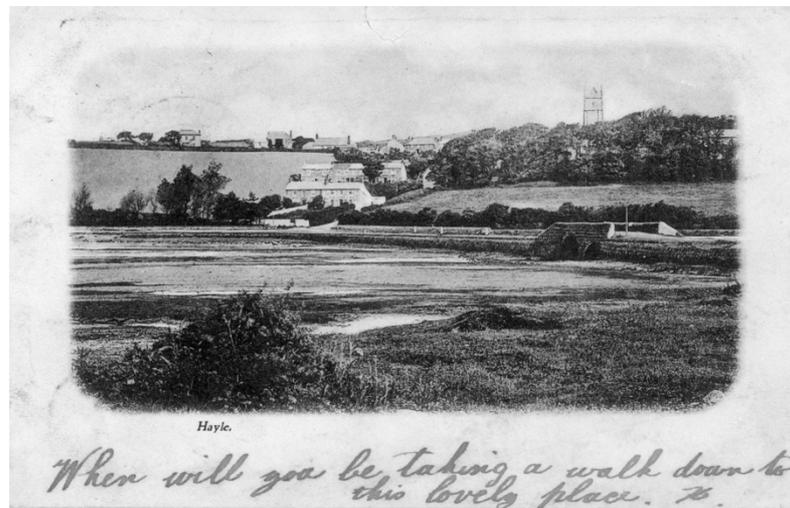
Figure 46: A Hayle postcard with a handwritten note that says, 'When will you be taking a walk down to this lovely place?' Photograph from Hayle Community Archive

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APPENDICES

Appendix A: extended locative media and technologies timeline

Extended locative media and technologies timeline		
The timeline illustrated in **Chapter 2 – Locative media: background** does not include the references found below, in this expanded version.		
	1946	Bell Labs launches its radio telephone used by dispatch drivers, doctors and other emergency service personnel in their vehicles (Jones and Marsden 2006: 9).
Chombart de Lauwe, Paris, maps all the movements of a female student over a year (Debord [1958] 2006b: 62).	**1952**	
Guy Debord creates the **psychogeographic guide of Paris** and encourages dérives, or drifts, through the city (Debord 2006a: 14-21; 2006b: 532).	**1955**	
The *Situationist International* forms to create situations and perform drifts in the city (Debord 2006c: 49-51).	**1957**	Sputnik 1 is launched by the Soviet Union (Frith 2015: 28).
Max Neuhaus composes a series of walks between 1966 and 1976 where the audience have their hands stamped with the word *LISTEN* before following him in silence around the neighbourhood in order to hear it (Neuhaus 1966).	**1960s**	First satellite-based navigation system **TRANSIT** developed by US (Frith 2015: 28).
A Line Made by Walking by Richard Long, Wiltshire. Land art, a walk and an image of the line made of the walk (Long 1967).	**1967**	
Spiral Jetty by Robert Smithson, Great Salt Lake. Land art/earth-work that is revealed through walking (Smithson 1970).	**1970**	
France on the Horizon by Hamish Fulton, a walk and a photograph from the walk. The artist walks	**1975**	Martin Cooper of Motorola is granted a patent for the **cellular handset technology**

leaving the landscape unchanged (Fulton 1975).		that enables mass use of wireless communication (Jones and Marsden 2006: 9).
	1978	Developed by the US Department of Defense as **Navstar** and still managed by the US Government, the first of 24 satellites are sent into orbit 20,200 kilo-metres above the earth in 1978 and working fully by 1995 (McCoy 2005: 27).
	1979	Portable audio players become available when the **Sony Walkman**, playing cassettes with stereo sound, comes out this year. Equipped with headphone sockets but no speaker, it is designed as a private 'personal stereo' aural experience (Sony 2016).
	1981	**Compact disc** (CD) is launched.
	1984	The portable CD player, **Sony Discman**, goes on sale (Sony 2016).
		Psion launches the handheld **Organizer** – a small computer-like device (Jones and Marsden 2006: 9).
	1985	The **Internet** becomes available during the mid-1980s.
The Lovers by Marina Abramovich and Ulay. Both artists walk from different ends of the Great Wall of China and meet after 90 days (Abramovich and Ulay 1988).	**1988**	Mark Weiser first mentions **Ubiquitous computing** (Ubicomp) at Xerox PARC (Weiser 1988).
Museum Highlights by Andrea Fraser, Philadephia. A guided museum tour is led by Fraser in the guise of a fictional docent Jane Castleton (Fraser 1989; 2005).	**1989**	
	1990	Selective Availability (SA), a function that reduced GPS accuracy on civilian devices, is turned off during the Gulf War (Frith 2015: 29).
Janet Cardiff makes *Forest Walk* during a residency at the Banff Centre, Canada, using a 4-track cassette deck (Cardiff 1991).	**1991**	Used successfully in Operation Desert Storm in 1991 to navigate Allied forces through the desert and identify targets, GPS captures the imagination of the general public (and artists – see Blast Theory 1999 and Levine 2004). The first Gulf War sees the first blow-by-blow use

		of global television satellite networks to broadcast its progress but is filmed primarily from the Allies' military perspective as media access is restricted.
		MPEG Layer 3 (later called MP3) is developed by Frauenhofer IIS (Fraunhofer IIS 2016)
		Internet access and use increase when creator Tim Berners-Lee and his collaborator Robert Cailliau's ***WorldWideWeb*** becomes available to the public. Chat rooms and other online communication and collaboration begin to appear.
		Selective Availability (SA) that limited GPS accuracy for civilians is turned on again.
	1992	IBM shows off the first smart phone, the **Simon Personal Communicator**, at a computer industry trade show (Frith 2015: 37).
		John Sculley uses the term **Personal Digital Assistant (PDA)** when talking about the Apple Newton (Jones and Marsden 2006: 9).
Ghetto Life 101 featuring LeAlan Jones and Lloyd Newman and produced by Dave Isay. A radio documentary montage of two African-American teenagers talking and interviewing those around them (without linked narration) while moving around their neigh-bourhood, the violent South Side of Chicago (Jones, Newman and Isay 1993).	**1993**	
	1994	IBM's first smart phone, the **Simon Personal Communicator**, goes on sale (Frith 2015: 37).
	1995	**Navstar** satellites fully working (McCoy, 2005: 27). The exact longitude and latitude location is identified or fixed by triangulating data from a minimum of three, better four satellites (Brian Holmes 2003; McGarrigle 2012) that are locked onto the user's position via GPS receivers, for example in smart phones and car navigation systems (Sat Nav) supported by ground stations around the planet.

		TRANSIT satellite-based navigation system is replaced by GPS (Frith 2015: 28).
		MP3 is named (Fraunhofer IIS 2016).
Louisiana Walk by Janet Cardiff, Denmark. An 11-minute binaural narrative dialogue/audio walk (Cardiff 1996).	**1996**	
Münster Walk by Janet Cardiff, Germany. A 17-minute binaural narrative walk (Cardiff 1997).	**1997**	Tomislav Uzelac invents the **first MP3 player** (Fraunhofer IIS 2016).
		Barriers between two types of hand-held device – mobile phones to keep in touch and PDAs for information management – begin to break down (Jones and Marsden 2006: 9).
the first five miles by Pearson/ Brookes, Wales. The texts per-formed by Mike Pearson while walking through the contested site at the centre of the narrative, were combined, via a live satellite link, with pre-recorded material simultaneously broadcast by Radio Ceredigion in a bilingual stereo radio work transmitted over an area up to 50 miles in radius from Mynydd Bach (Pearson/Brookes, Pearson and Brookes 1998).	**1998**	
Trace by Teri Rueb in Yoho National Park, Canada, during a Banff Centre residency using a backpack containing a laptop and portable GPS unit (Rueb 1999).	**1999**	
The Missing Voice: Case Study B by Janet Cardiff, a binaural film noir audio walk in London using CD (Cardiff 1999a; 1999b).		
Desert Rain by Blast Theory. An interactive war game and installation based on the Gulf War and the impression of it as a 'virtual event'. Uses motion, game		

controls, visual and audio media (Blast Theory et al 1999).		
The *Headmap Manifesto* by Ben Russell is published online. It is a document that predicts locative media and its potential (Russell 1999).		
A Large Slow River by Janet Cardiff, a binaural audio walk (Cardiff 2000a).	**2000**	**GPS accuracy increases noticeably** for the general public in 2000, when President Clinton announces the removal of 'Selective Availability' (SA), the 'intentional degradation' (McCoy 2005: 27) of the GPS signal accessed by civilians (Holmes 2003). '[T]urning off the feature changed typical accuracy from around 50m to 3m on a clear day' (Frith 2015: 29).
Taking Pictures by Janet Cardiff, a binaural audio walk with photographs (Cardiff 2000b).		Intel announces '**Computing, not computers**, will characterise the next era of the computer age' (McCullough cited in Farman 2012: 1).
Botfighters produced in Sweden by It's Alive. First commercially released location-based mobile game. First-person shooter game moves through urban spaces – shooting with text messages etc – playing in the hybrid space (de Souza e Silva 2006).	**2001**	Apple launches its first **iPod** – a successful and popular MP3 player.
Can You See Me Now? by Blast Theory in collaboration with the Mixed Reality Lab, Nottingham. Online players compete against members of Blast Theory on the streets. Tracked by satellites, Blast Theory's runners appear online next to up to 100 players on a map of the city. Handheld computers show the positions of online players so that runners can track down players. Players exchange tactics, send messages and eavesdrop on runners' walkie-talkie feed (Blast Theory et al 2001).		
Urban Tapestries by Proboscis, London. Participants share stories and experiences through text, audio, photographs and video	**2002**	The **Motorola A1000** is the only mobile phone with GPS sold in the UK (Lane et al 2005: 29) and mobile phone use is still very expensive.

using PDAs (Proboscis, Lane and Angus 2002-04).	■	Permission to use Ordnance Survey maps is costly (Lane 2015).
34 North 118 West by Jeff Knowlton, Naomi Spellman and Jeremy Hight in Los Angeles USA, using a PDA with a GPS card and headphones (Hight, Spellman and Knowlton 2002-03).	■	
[murmur] by Shawn Micallef, James Roussel and Gabe Sawhney in Toronto, Canada, use physical signs displaying a number to be called by mobile phones to hear stories of place ([murmur] et al 2003).	**2003**	MP3 players are integrated into some mobile phones.
Uncle Roy All Around You by Blast Theory. Online and street players collaborate to find Uncle Roy using mobile devices, Internet access and GPS (Blast Theory et al 2003).	■	**My Space** social media site launches.
Linked by Graeme Miller, a memorial to a community he belonged to, erased to make way for a M11 link road. Uses radio transmitters broadcasting constantly. Receivers that pick up the signal are loaned out (Miller 2003).	■	**'Locative Media'** is used for the first time by Karlis Kalnins, who comes up with the term in May 2003 when proposing a workshop called 'Locative Media Workshop: Mapping the Zone. Longitude 21.00, Latitude 56.55'. The workshop is held at K@2 Karosta, Latvia, in July 2003 (Galloway 2008; Hemment 2004; Tuters and Varnelis 2006; McGarrigle 2012) as part of the Art + Communication Festival (Zeffiro 2012: 251).
Milk by Esther Polak and Ieva Auzina. Uses GPS and personal stories to trace the route of milk from a Latvian farm until it's sold as cheese in Holland (Polak and Auzina 2003).	■	
way from home by Misha Myers in Plymouth, UK, uses analogue (paper, pencil) digital (photo, audio) played back in an online digital interface map (Myers 2004).	**2004**	**Facebook** is launched.
Shadows from another place – san francisco <-> baghdad by	■	

Paula Levine. Bomb sites in Baghdad from the first US invasion of Iraq in March 2003 are mapped onto San Francisco using photographs, maps and GPS coordinates, the same technology used by the miltary to target original sites in Baghdad. Each site contains a geocache, a cannister containing the names of all US military personnel who died in the war (Levine 2004).		
Drift by Teri Rueb in Cuxhaven, Germany, using a Pocket PC, GPS and headphones.		
Riot! 1831 by Mobile Bristol. A nonlinear acted narrative based around a real event in Queen's Square Bristol. The experience uses MPAD – a PDA and headphones. Data is gathered that informs locative media artists and technologists (Mobile Bristol et al 2004).		
Bronx Hip Hop Soundwalk with Jazzy Jay by Soundwalk on CD (Soundwalk 2004).		
Bio-mapping/Emotion mapping by Christian Nold. Users wear a device that records their 'galvanic skin response' that maps their 'emotional arousal' to their geographical location (Nold 2009).		
Ground Zero Soundwalk by The Kitchen Sisters and Soundwalk on CD (Soundwalk and Kitchen Sisters 2005).	**2005**	**Google Maps** offers public and free access to maps.
Frequency 1550 by Amsterdam Montessori School and the Waag Society. Pupils collaborate with online students to solve location-specific assignments that reveal the medieval history of the city through a fictional scenario (de Souza e Silva 2006: 274).		

Leonardo's Electronic Almanac special issue on Locative Media edited by Drew Hemment (Hemment 2006).	**2006**	**OpenStreetMap** offers public and free access to maps.
TXTual Healing by Paul Notzold in Brooklyn. Passers-by texts are projected onto a building as a speech bubble if they text the artist (Notzold 2006).		**Twitter** launches.
Cherry Blossoms by Alyssa Wright, Boston, USA. A backpack contains a microcontroller and a GPS unit. Iraq bombings are mapped onto a Boston map. When the participant walks into one of these sites the backpack detonates to release a cloud of confetti that looks like smoke and shrapnel. Each piece of confetti is inscribed with the name of a civilian who died in the war and the circumstances of their death (Wright 2006).		80 million smartphones are shipped worldwide (Best 2007 cited by Frith 2015: 37).
Carrlands by Mike Pearson, composed by John Hardy and Hugh Fowler. Three site-specific MP3 audio walks animate landscapes 'lacking in conventional heritage' (The Carrlands Project 2007; Pearson and Hardy 2006).		
Core Sample by Teri Rueb on Spectacle Island, Boston Harbor, USA. A GPS-based sound walk using open-cell headphones (Rueb 2007).	**2007**	Apple launches the **iPhone** (running on iOS, Apple's operating system) after a strong marketing campaign (Kerris and Dowling 2007).
And While London Burns by Platform. Uses an MP3 opera audio walk to expose the oil connections in the financial district of London (Platform, Suarez et al 2007).		
Rider Spoke by Blast Theory. Participants cycle through city streets equipped with a hand-held computer searching for a hiding		

place to record a short message. The search then starts for others' hiding places (Blast Theory et al 2007).		
Cross/Walks: Weaving Fabric Row by Hana Iverson. Geo-located oral histories are tagged to the changing 'Fabric District' via posters inviting passers by to call in using mobile phones (Iverson 2007).		
Transborder Immigrant Tool by Ricardo Dominguez, Brett Stalbaum, Amy Sara Carroll, Micha Cárdenas, Elle Mehrmand, Electronic Disturbance Theater 2.0/b.a.n.g. lab. Re-purposed mobile phones guide dehydrated immigrants heading to the US from Mexico to water safety sites and play poetic audio (Electronic Disturbance Theater et al 2008).	**2008**	The **first smartphone running on Android** operating system is released by HTC. Google develops Android as open source (code is available), which runs on various phones from multiple companies (Frith 2015: 38).
		Apple launches the **iPhone 3G** in 2008 incorporating GPS (located position on Google Maps) and Internet connection (3G).
		Apple's App Store opens. Applications (apps) can be downloaded to iPhones.
		Google's app store, Google Play, opens.
		iOS Software Development Kit is released so that apps can be developed for the iPhone. iPhone apps need to be approved by Apple before being published.
From this point onwards estimates are given on the numbers of apps available in the two main purchasing sites, the App Store and Google Play. Amazon Appstore and Windows Apps are still significantly behind the Apple and Android app stores so are left out of this table at this time. Since the number of apps is not released by the stores, figures have been gathered from websites that collate this information and often are run by companies working in the sector wishing to sell services to developers and businesses rather than objective outsiders. The figures are treated as estimated.		
	2010	By year's end the App Store (Apple iOS) has approximately 100,000 apps available (Costello 2016). Approximately 30,000 apps are available for Android smartphones rising from approximately 16,000 at the end of 2009 (Wauters 2010).

Audio Obscura by poet Lavinia Greenlaw. An MP3 narrative drift around a busy train station eavesdrops on others' thoughts (Greenlaw 2011).	**2011**	The app HistoryPin locates, or 'pins,' audio recordings (such as memories) photos, films and documents onto Google Maps (Shift 2011).
		27% of UK adults are smartphone users, 59% of these claiming to have purchased their phone in the past year. Phone calls and text messages remain its core function (Ofcom 2011).
Tate à Tate by Platform on MP3 reveals the oil sponsorship of Tate in Tate Britain, Modern and on the boat connecting them and questions whether BP, (who they accuse of polluting the planet) should be allowed to gain prestige and respectability through arts sponsorship (Platform, Liberate Tate et al 2012).	**2012**	Apple's App Store has approximately 700,000 apps available (Costello 2016) and Google Store has approximately 350,000 (Appfigures and Ariel 2015).
Tomorrow the Ground Forgets You Were Here by circumstance. Walking in Ghent, Belgium, shapes sound and narrative as live sound is mixed in with recordings as the participant moves around. Uses satellite positioning and Bluetooth beacons (circumstance et al 2012).		
Magic of Modern London by Amblr, produced by Alex Butterworth. An iPhone app treasure hunt around London collecting amulets and charms (Butterworth 2012).		
Indeterminate Hikes+ by EcoArtTech, Leila Nadir and Cary Peppermint. Ordinary places are reimagined as sublime landscapes with the smartphone app (EcoArtTech, Nadir and Peppermint 2012).		
Oil City by Platform during Artsadmin's 'Two Degrees' festival in London. Mobile phones and participant involvement (including	**2013**	

spying) in an immersive interactive performance in small groups in the financial district (Platform 2013).		
	2014	72% of UK online adults use social network sites (Ofcom 2016a). The number of Android apps available on Google Play overtakes those published in the App Store for Apple for the first time (Appfigures and Ariel 2015).
	2015	66% of UK adults own a smartphone, using it nearly 2 hours daily to browse the Internet, access social media, bank, and shop online. 93% own/use a mobile phone (Ofcom 2016a).
Pokémon GO app game becomes the App Store's No. 1 within 5 hours (Hoffman 2016). Using the smartphone's camera, AR (alternative reality) Pokémon characters become visible in the user's real environment. Social media is flooded with screenshots of retro Pokémon characters found in unusual places.	**2016**	An estimated 2.3 million Android apps are on the market (AppBrain 2016) and 2 million apps are available on the Apple App Store (Costello 2016).
		71% of UK adults own a smartphone. More adults connect to the Internet at fast speeds via superfast broadband or 4G and average 25 hours online a week. 59% consider themselves 'hooked' to their connected device, while 34% seek periods of time offline (Ofcom 2016b).

Appendix B: original studentship proposal

GREAT WESTERN RESEARCH

CUC Studentship Application

ID	762
Code	cucWRpG
Theme	The Digital Economy
Project title	Designing Landscape Narrative Experiences with Locative Media
Host HEI	University College Falmouth
College / Department / School / Faculty	School of Media and Performance, Theatre
2nd Institution	University of Exeter, Geography
Lead Business Partner	Treasure Trails
Lead Business Partner Address	Treasure Trails Ltd 6 High Cross Truro Cornwall TR1 2AJ United Kingdom
Nature of Business	Treasure Trails is an award-winning leisure company whose aim is to get people out and about exploring outdoors in a way that is fun, healthy, and educational. Founded in Cornwall in 2005, they are now a national company with experience designing over 700 interactive, self-guided trails across the UK. As a leisure company, Treasure Trails aims to bring the landscape and its stories alive for local people and tourists, while they enjoy spending time together. Walking narratives are central to their approach, and they currently present these narratives through paper-based methods or live guided tours (often in genres such as detective mysteries and treasure hunts). Treasure Trails is just moving into new modes of delivery using immersive and interactive locative technologies, and aims to become a market leader in the design and delivery of interactive trail experiences. An ambitious company that is growing rapidly through franchising, they have the capability and presence to quickly deliver new and innovative products.
Nature of Business Sector	SME /
Commitment Letter Sent To GWR	yes
Supporting Business Partner	
Nature of Business	
Nature of Business Sector	
Total Required from ESF-CUC Studentship	
Proposed Start Date	
Proposed End Date	

Project Description

The proposed project brings together expertise in performance/theatre and cultural geography to work in partnership with a Cornish business (Treasure Trails), with significant potential involvement from a public/third sector organisation (National Trust), to explore the following research questions:

How can pervasive/locative media technologies be used to facilitate self-guided, spatial narrative experiences of the past, present and future of Cornwall's changing cultural and physical landscapes?

How can new theoretical approaches to narrative and landscape be explored and expressed through pervasive/locative media?

Can co-authored spatial narratives engage participants in reflection on places and their histories in ways that allow them to perceive the dynamic and fluid processes of transformation and discontinuity that are always already involved in landscapes?

How can reflection on dynamism and change facilitate alternative ways of understanding and interpreting changing landscapes in the context of climate change and sustainable futures?

While new theoretical models conceive of landscape as dynamic and performative, landscape interpretation is commonly static, with kiosks, placards or paper-based guides providing linear, authoritative and singular narrative accounts. Tour guiding in the commercial sector primarily relies upon such conventional modes of delivery, as was clear at the recent International Forum on Guided Tours (IFGT, University of Plymouth, April 2011). To date there has been little enquiry into how pervasive technologies might offer new mechanisms for facilitating performative landscape experience and interpretation, and their potential for influencing the perception and understanding of sustainability needs and issues.

The proposed project aims to develop new dramaturgical and representational tools and frameworks for interpreting and designing interactive locative narrative experiences of landscapes. It will involve people in creating and communicating landscape-histories that articulate contested pasts, collect multiple memories, and complicate assumptions about static landscape forms (Desilvey 2011, 2010, 2007). Narrative, in the context of this project, is broadly defined, and refers to the sequencing and presentation of material that may include individual recollections, local folklore, natural history, community memories, scientific data and contemporary sources.

The 'storying' of this material will be achieved through the application of pervasive/locative media technologies. Locative media's flexible and dynamic repertoire of applications includes mobile communication and recording devices, GPS-enabled technology, interactive mapping and other hyper-media technologies. People are increasingly engaging with these technologies in their daily lives on mobile personal devices. The proposed project aims to explore ways to bring methods of landscape interpretation in line with changing technological behaviours and the media literacies of interactivity and participation that they demand and involve.

The project will explore how open-ended spatial narratives may be produced and shared to facilitate imaginative and sociable engagements with environment and physical space. The project will focus more on the design of experience than the design of technology, with an emphasis on how the pervasive technology applications most readily available to the public can be adopted to facilitate experiences that are co-determined or co-authored by participants. The approach is informed by aesthetic work, which employs locative media to explore the narrative experience of places, such as in the work of Graeme Miller, Blast Theory, Teri Rueb, Janet Cardiff, Mike Pearson, [murmur], Rimini Protokoll and Platform. These artists are using locative technologies, some as basic as mp3 personal stereo devices, to reveal multiple and hidden dimensions of a specific context, social space or subjective spatial experience. Their work creates networks of communication and exchange and composite mappings through digital and collective authoring, and archiving of public memory. These

projects provide alternative models for engaging with situated memory and narrative, models that we are interested in adapting in this project.

In their attempts to establish a theoretical framework for understanding the complex interactive experiences that emerge through the use of pervasive media, Mark Blythe and Steve Benford have both recognised that the fields of Performance and Theatre Studies can contribute concepts and techniques to inform the analysis of user experience in this context, and develop new dramaturgies of interactive performance (Blythe et al. 2006, Benford et al. 2009). Indeed, there is a need to develop this framework and set of techniques further by drawing upon more recent and directly relevant developments in site-specific performance, including both live and recorded modes of delivery, such as the examples of practice mentioned above along with more recent theoretical developments (Heddon and Turner 2011; Myers 2011, 2010, 2009, 2006, 2005, 2004; Pearson 2010 and 2006; Pearson and Shanks 2001; Wilkie 2002).

<div style="display:flex"><div style="width:25%">Project Abstract</div><div style="width:75%">

The project will develop and design innovative approaches to facilitate narrative experiences as people walk in landscapes with mobile devices, drawing on technological practices which have become integrated into the fabric of everyday life. The concerns explored in the proposed project developed out of outreach activities which sought input from businesses and third sector organisations about strategic research priorities. Communicating the nature and impact of climate change was identified as a key priority during these consultations, with a particular call for landscape interpretation approaches that help people understand and adapt to the anticipated effects of environmental change. The project will assemble an inter-disciplinary team with combined expertise in the arts, technology and cultural geography to address this need, building on previous research which has found that different ways of narrating landscape history can shape our understandings of contemporary environments, and how we envision what might happen to them in the future.

In collaboration with a Cornish business, Treasure Trails, the student will build on this research to develop techniques for involving people in the interpretation of landscapes via new locative technologies, with a focus on engaging people with environmental change and sustainability issues through the co-narration of alternative histories of place. In collaboration with local residents and stakeholders, the student will collect material about landscape history and landscape change in selected locations, and then use this material in the design of interactive experiences and resources that allow for self-guided exploration and way-finding. In an aim to facilitate the successful adoption of new pervasive technologies and address current challenges in the design of interactive and co-authored locative experiences, the project will develop new theoretical frameworks, dramaturgies and techniques of composition.
</div></div>

<div style="display:flex"><div style="width:25%">Alignment With Proposed Theme</div><div style="width:75%">

The pervasive media field is maturing, with the development of interactive mobile experiences that combine portable computing, embedded sensors and pervasive networking. However, Stenton et al. (Hewlett-Packard Laboratories) have argued with a sense of urgency that the successful adoption of these new technologies depends on designers acquiring new skill sets and techniques, and establishing new design guidelines and interaction styles to accommodate the extended boundaries of human computing opened up with the integration of physical space with virtual content (Stenton et al. 2009: 102). Therefore, there is an immediate and pressing demand for the inter-disciplinary exchange of skills offered in this project to meet the challenges and pace of technological advancement in this area.

The project brings together a pool of combined inter-disciplinary expertise in landscape interpretation, narrative and performative processes, climate change and technology to inform the development and application of ground-breaking approaches and the sharing of critical and creative skills. We intend to use state of the art technology, such as the Calvium Toolkit (www.calvium.com), a set of online tools and services for building mobile apps for iphone and Android devices. The student will have access to the Calvium team to explore new ways
</div></div>

of delivering narrative, which will be exploited by TreasureTrails.

While Blythe has called for further analysis of interactive user experience, this has been primarily concerned with aesthetic and experiential accounts, with a particular focus on creating pleasurable and entertaining products (Blythe 2006). This project will explore how to deliver both an engaging aesthetic experience and an informative one, that invites people to interact with and co-author complex and challenging perceptions and interpretations of landscape. Indeed, the urgency of issues of climate change and sustainability also demand this inter-disciplinary convergence of expertise. There is a need for new accounts about how complex and potentially conflicting landscape-histories are perceived and experienced to inform the design and application of locative media technologies, and to achieve wider social and cultural impacts.

Nature of Proposed Collaboration	The proposed partnership with the external business partner, Treasure Trails, would initiate a new collaboration with the proposed HEI partners. The business partner will host the student for a period of time in their Truro office, introduce them to their franchisees, and facilitate collaboration with the people who make their trails, providing original data for the student to engage with. This project could lead towards future collaborations involving the direct application of ideas developed through the project
	The proposed project would initiate and formalise a new collaboration between academics involved in an area of research that bridges their different areas of expertise. The project would contribute to the enhancement and presence of the research initiatives of each HEI partner, the Articulating Space research group in University College Falmouth's Department of Performance, the Geographies of Creativity and Knowledge research group at the University of Exeter, and the research network on 'Anticipatory Histories of Landscape and Wildlife' (a partnership between the University of Exeter Geography Department and the National Trust, funded through the AHRC Arts and Humanities Approaches to Researching Environmental Change scheme).
	The student will have access to technological expertise through advisors to the project, Professor Phil Stenton of UCF and Calvium. The student will also have access to expertise on climate change through an additional project advisor, Professor Catherine Leyshon, lead researcher on the ESF-funded 'Climate to Landscape: Imagining the Future' project at University of Exeter. In addition, the student may seek advice from Professor Mike Depledge and Professor Lora Fleming of the Eurorpean Centre for Environment and Human Health at Peninsula College of Medicine and Dentistry. Finally, ASPECT, a project exploring storytelling and climate change led by Professor Mike Wilson at UCF, will provide a portal for networking.
Other ESF-CUC Studentship Links	no
Link Outline	
Non CUC Based Qualification	The research will be carried out in Cornwall on Tremough campus, in Treasure Trails' office location in Truro, and in specific properties and locations in Cornwall, to be selected in consultation with project partners and local stakeholders.
Lead HEI Supervisor	Dr. Misha Myers
Email Address	
Address	University College Falmouth Performance Centre Tremough, Penryn, Cornwall TR10 9LX
Telephone Number	

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Experience of Working With Business	Often
Relevant Academic Experience	Dr Misha Myers' research as a performance artist and researcher is concerned with performative, participatory and interventional methodologies and mechanisms for eliciting and representing the experiences, affects and significances of place. Her recent work explores the dramaturgy and narrative choreography of walking tours, the theatricality and sociability of audio walks, walking as a mode of perceiving and making place in contemporary modes of performance that involve locative media, the re-framing, re-construction and sense-making of heritage landscapes through walking and the use of locative media, and performative structures of participation and interaction that allow for the voicing of dissensus and formation of new forms of community amidst conflict. These concerns have led to collaborations with geographers, sociologists and anthropologists and contribution to inter-disciplinary and international networks exploring related areas of enquiry, including the 'Nomadic Work/Life in the Knowledge Economy'project (University of Limerick, Ireland), the Performing Biographies Research Network 3 (EU Sociological Association) and the Creative Community Development (DCC Granollers in Granollers, Spain). Myers presented at the final open network event of the 'Anticipatory Histories of Landscape and Wildlife' project and the 2nd International Research Forum on Guided Tours at the University of Plymouth in April 2011. Her project 'way from home' involved an online interactive interface mapping walks and conversations with refugees and asylum seekers based in Plymouth created in collaboration with refugee support organisations. This work extended to other refugee groups and organisations across the UK through her consultation on the AHRC Knowledge Transfer project 'Trans-national Communities: A Sense of Belonging'. She works within the Articulating Space research group in the University College Falmouth's Department of Performance, a group whose membership has been central to new developments in practice and theorisation of walking and guided tours as modes of performance, and in contextually-based, socially engaged and site-specific theatre.
2nd HEI Supervisor	Dr. Caitlin Desilvey
Experience of Working With Business	Often
Proposed Inter-Institutional Arrangements	The supervision team is led by Dr. Misha Myers, with Dr. Caitlin Desilvey acting as second supervisor. There will be quarterly project meetings with both supervisors, the business partner and the student. These meetings will focus on project design, collaborative-planning, and ongoing evaluation. In addition, there will be monthly supervision meetings with both supervisors present. Both supervisors are based at the Tremough Campus, and informal meetings of the supervisory team will be arranged as needed.
R&D Benefits	
Details of R&D Benefits	
Technology Benefits	Yes
Details of Technology Benefits	The investment in broadband technology within the region will improve the reach and functionality of basic mobile technology. The project will capitalize on this investment and the changes to behaviour it will affect to explore new and improved ways for local businesses to access this technology, develop new products or markets and attract new business. The project will look at new approaches and techniques for designing and delivering landscape interpretation content and expressing it through interactive locative media. The application of these processes may then result in new technologies or new uses of existing technology. The project will also explore how media literacies and skills can be engaged and optimised through the design of locative media experience. The experimentation with new technology and alternative narrative genres will appeal to young people, who are increasingly media literate, but need access to

educational experiences that provide guided discernment of information.

The Convergence Operational Programme for Cornwall and Isles of Scilly identifies securing economic growth in a responsible manner as a key challenge. The project increases the intellectual capital of Cornwall through investments in the knowledge exchange, technology development, and research capacity in higher education, a priority for the Convergence Operational Programme.

Systems Benefits

Details of Systems Benefits

Cornwall & South West Benefits   Yes

Details of Cornwall & South   Four-fifths of Cornwall's 4 million annual visitors cite 'the landscape' and
West Benefits   'scenery' as their main reason for visiting the county. The proposed project will
                                 explore methods to enhance and enrich landscape experience for the region's
                                 inhabitants and its visitors alike. Whereas most visitors are drawn to activities
                                 that provide recreational experience of the landscape, the methods explored in
                                 the project will provide supplementary opportunities for meaningful engagement
                                 in the cultural and historical dimensions of the Cornish landscape.

                                 The potential for the project to enhance information about Cornwall and the
                                 South West will be realised through proposed collaboration with the National
                                 Trust, an organisation with significant investment in the Cornish landscape and
                                 presence in the region. The concerns explored in the proposed project
                                 developed out of several different outreach activities which sought input from the
                                 National Trust and other businesses about strategic research priorities.
                                 Communicating the nature and impact of climate change to clients, customers,
                                 and collaborators was identified by businesses as one of the key components of
                                 a responsible business strategy at the stakeholder events 'Briefing for Cornish
                                 Businesses: Climate Change Challenges and Opportunities' and 'Skills and
                                 Knowledge for Climate Change' held at University of Exeter in June and
                                 September 2008. Subsequent to these events, DeSilvey participated in a
                                 National Trust 'Shifting Shores in the South West' stakeholder seminar (October
                                 2008) and the National Trust became a formal partner in the AHRC 'Anticipatory
                                 Histories' network. DeSilvey's research with the organisation has been exploring
                                 the need for alternative framings of landscape histories and futures in coastal
                                 heritage sites identified to be at risk of significant environmental change.

                                 This studentship would present opportunities to take this work further with an
                                 inter-disciplinary team assembling combined expertise in the arts, technology
                                 and cultural geography. National Trust property managers have expressed their
                                 interest in being involved in the project, and applying the methods developed
                                 through the studentship to the adoption of new technologies and the explorations
                                 of alternative narratives in their interpretive activities at selected sites,
                                 particularly on the Lizard Peninsula.

Other Benefits

Details of Other Benefits

Benefits for Business Partner   The project will provide Treasure Trails with experience designing and applying
                                 immersive and interactive locative technologies, and will allow them to enhance
                                 their current strategies and reach new audiences and markets. To quantify the
                                 potential monetary value of this benefit is difficult. However the Truro BID
                                 example illustrates the potential to Treasure Trails through this partnership. Truro
                                 has programmed a £245K project to improve signage throughout the City next
                                 year. Previously Treasure Trails would not have been able tp compete in a bid
                                 for such a project. However, having now spoken to the project team, Truro City
                                 representatives are extremely interested in procuring the services of Treasure
                                 Trails to deliver the project based on the company having the resource of the
                                 HEIs to help them deliver it. Multiply the impact of this cutting edge project

across numerous cities in the UK and the potential quickly turns into millions of pounds. Treasure Trails are keen to explore the significance of digital mobile and locative technology to their company activities. They see changes in the digital economy as having a significant effect on their future business. Therefore, the project will help them develop their future strategy and will place them well in being able to deliver that strategy. As a small business, Treasure Trails has limited time it can devote to research, and the project will amplify the impact of that research.

Has the Partner Worked in the HEI Sector	no
Details of Previous Collaborations	
Future Collaboration Potential	Treasure Trails are citizens of the digital economy and they are only scratching the surface of what is possible at the moment. As sensor-based technology is in its early days, new innovative applications could be developed by Treasure Trails that are informed by this formative research. City signage is clearly one area for future research, but they also want to develop projects for education, leisure and health. The analysis, findings and conclusions that this research uncovers will provide the company with vital information that can be used to create new products and services. They host a website that pulls a community of people together to use the experiences they offer, and this connective practice is something that could also be explored in future research.

The project would facilitate an increase in PhD student recruitment for both HEI partners, as opportunities for related research projects emerge from the project activities.

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Appendix C: app preparation and making

Lucy Frears awarded nearly £10,000 for heritage projects in and around Hayle January 2013, which included the costs of app publishing

Camborne, Redruth & Hayle

West Briton

Reporting local life since 1810 | www.thisiscornwall.co.uk

Thursday, January 17, 2013

visit our website www.thisiscornwall.co.uk | WBR-E04-S2 | West Briton Thursday January 17, 20

Lucy's app to bring history alive

Johanna Carr
jcarr@c-dm.co.uk
01736 335515

HAYLE visitors and residents will soon be able to use their smart phones to get a feel for how the town was in the past.

Doctorate student Lucy Frears, of Falmouth University, has been awarded nearly £10,000 for her research using Hayle Oral History Project's memory recordings and Hayle Community Archive's photos to create an interactive mobile phone application.

The project is one of the first in the UK to receive a Heritage Lottery Fund (HLF) All Our Stories grant.

Ms Frears said: "The app will offer the community a place to hear memories and stories about the area for free but also contribute to research on whether a deeper understanding of landscape can be gained through mobile phone app experiences."

She will have £9,900 to complete the project, which will also look to the community for help.

GPS will trigger audio memories of what Hayle harbour was like in the past, a fragmented story that moves between different people and different eras rather than an historical tour.

Ms Frears, who hopes to work with Hayle Youth Project to reach young people to record their impressions, added: "I also want people in the community to be able to leave their own stories while participating, when their memory is triggered by the other stories, and essentially co-author the app."

The community can also help test the software and offer feedback.

Hayle Mayor Jayne Ninne would like to congratulate Luc team on designing such a usef way to access local history. Th make real stories come alive wander around our town."

If you have memories of t Harbour area from Copperhou the beach and chalets or photos contact hayle.history@btcon 01736 753962 or visit Brewery Sea Lane, on Tuesdays and T between 10am and 1pm.

West Briton this is Corr

Do you have a busine

REDRUTH O

Lucy Frears and her Falmouth University support team, from left, research student officer Jemma Julian; Ian McCormick, head of the Research and Innovation Office; Lucy, and Lucy's director of studies Misha Myers.

App idea sketches before coding

Appendix D: first evaluation

Pre-app evaluation questionnaire

Pre Churks Test Questionnaire

How would you normally experience heritage sites? Tick the ones that apply.
- a. [ ] I wander around looking about
- b. [ ] I wander around and read notice boards
- c. [ ] I use a mobile phone App
- d. [ ] I get an audio guided tour (MP3) on my phone/ mp3 player
- e. [ ] I borrow a device with an audio or multimedia tour on it.
- f. [ ] I go on a tour with a guide
- g. [ ] I use a paper map provided or bought to find my way around and read information from it as I go.
- h. [ ] And/ or, tell me about your approach/ method/ or dream method -

Do you like walking?

Not at all   Very much

|_____|

How often do you go for walks?

Not at all   Very much

|_____|

Do you listen to *speech* radio?

Not at all   Very much

|_____|

Which station/s?

Do you listen to radio drama?

Not at all   Very muc[h]

|_____|

Do you visit galleries?

Not at all   Very muc[h]

|_____|

Are you familiar with audio/ sonic art?

Not at all   Very muc[h]

|_____|

Do you visit museums?

Not at all   Very muc[h]

|_____|

Do you visit the theatre?

Not at all   Very muc[h]

|_____|

Name please (contact details if yes above – this would really help me with my research).

Age: 0-12 13-17   18-25   26 – 36   37 – 47   48 – 58 59- 69 70+

Sex: M   F

Do you have a disability: Yes   No
Thank you, yours Lucy Frears. lucy.frears@falmouth.ac.uk

Example of completed pre-app questionnaire anonymised – Falmouth University theatre student (before 11th March 2013 evaluation)

Pre Churks Test Questionnaire

Theatre Pre Q.

How would you normally experience heritage sites? Tick the ones that apply.

a. [ ] I wander around looking about
b. [✓] I wander around and read notice boards
c. [ ] I use a mobile phone App
d. [ ] I get an audio guided tour (MP3) on my phone/ mp3 player
e. [ ] I borrow a device with an audio or multimedia tour on it.
f. [✓] I go on a tour with a guide
g. [ ] I use a paper map provided or bought to find my way around and read information from it as I go.
h. [ ] And/ or, tell me about your approach/ method/ or dream method -

Do you like walking?

Not at all   Very much

|_____✗_|

How often do you go for walks?

Not at all   Very much

|_____✗_____|

Do you listen to *speech* radio?

Not at all   Very much

|_____✗_____|

Which station/s?

Do you listen to radio drama?

Not at all   Very much

|———————————————————————————————————|

Do you visit galleries?

Not at all   Very much

|———————————————————————————————————|

Are you familiar with audio/ sonic art?

Not at all   Very much

|———————————————————————————————————|

Do you visit museums?

Not at all   Very much

|———————————————————————————————————|

Do you visit the theatre?

Not at all   Very much

|———————————————————————————————————|

Name please (contact details if yes above – this would really help me with my research).

Age: 0-12   13-17   (18-25)   26 – 36   37 – 47   48 – 58   59- 69   70+

Sex: M   (F)

Do you have a disability: Yes   No
Thank you, yours Lucy Frears. lucy.frears@falmouth.ac.uk

Hayle App & Mp3 testing itinerary –
Tel   Lucy

Thanks taking part in my research. I have risk assessed the day and fee
should remind you that you need to take extra care when crossing roads
walking around by/ on roads with headphones on… and please keep wa

Before we start sure you have:
1. signed a consent form & give to Lucy
2. got an info sheet
3. got an itinerary for the timings today
4. got MP3 supporting paperwork (it's on the ipads too)
5. got headphones, or ask Lucy
6. got your iPhone or iPad or ask Lucy – they are delicate (they will
   if dropped) so please be careful with them.

The group will be split in half.
A: is order 1 (App first)
B: is order 2 (Mp3 first)

Itinerary – timing is vital so please keep an eye on the time.
1. **10.00 -** Arrive Hayle**, go straight to the Salt Bar,** under far end (
   viaduct.
2. **In Salt Bar,** coffee, loo, sort out ipads/ phones –how to use them
   app/ Mp3. If you know what you want for lunch, order it for 12 no
   (with 20% discount)!
3. **10.30 – leave Salt Bar,**
   A goes to the bridge – number 4 on map
   B goes to car park near White Hart - 1 on map
4. **12noon** - **Lunch 45 minutes –** I will buy some chips in Salt Bar to ha
   ready for 12 and you can buy other food in there (with a 20% discount).
   must come into the Salt Bar for me to take and log info from apps etc..
   do questionnaire before pm session. There are pasty shops & sandwic
   places nearby. Warrens has some chairs inside.
5. **12.45pm**   - A does Mp3, B does App.
   B goes to the bridge – number 4 on map
   A goes to car park near White Hart - 1 on map
6. **2.15pm** – meet at Salt Bar – questionnaires
7. **2.45 – walk up to train station** (involves walking across the line)
8. **3pm – train home** – thank you very much.

During the app there's a little café by the swimming pool, and along Per
terrace.
During the Mp3, there are cafes and pasty shops along Penpol terrace.

Hayle Churks App downloading

1. Check GPS is on (settings/ location services)
2. Check sound is on
3. Wifi password in salt bar is salty
4. Open Appfurnace Player by tapping the flame symbol (Appfurnace player is free from itunes store)
5. Press the + sign on the top right hand bar
6. This leads you to another screen with a 'scan and add' feature – ta the 'scan & add' button and hold over this QR code

7. This will now download Hayle_Churks onto the phone/ ipad.
8. Press the Hayle_Churks line
9. Next screen has an update button, if there's been a gap between downloading and using it, please update as there are changes happening all the time!
10. Press play
11. A welcome screen shows - you should also hear some sound.
12. Please wear headphones but be aware that your hearing and coordination may be impaired by the audio you're hearing.
13. Please give me feedback, positive and/ or negative. Thank you.

App participant information sheet (layout/ font has changed to save space)

Thank you for your interest in Lucy Frears' Hayle Churks App, part of a community & Falmouth University research project.

What is this project?

This **Mobile Phone App Test** is looking at new ways that technology can help us experience history & personal stories tied to a landscape. You will hear stories, mostly memories & see archive photos. You will be given the opportunity to leave your own memory of Hayle. I need your feedback to improve the app & for my research. I will be looking at your comments relating to many aspects, for example:

Success of the technology (did everything work well? If not what happened!)

Did it keep you engaged or did you lose interest at certain points?

Which points?

What you would change?

What did you enjoy? 3 things.

What didn't you like? 3 things.

I would love you to leave your contact details so that you can be contacted later - either to be asked questions on the phone or to participate in a group discussion, sharing ideas about the experience (focus group).

How long will it take?

The 'experience' could take 2 hours depending on your walking speed. You are the one that decides on how long you want to walk around, at what speed & whether you want to do it all in one go or not.

Are there any risks?

Your senses may be affected during this experience, for example, you will wear headphones. Headphones distance you from external sound as well as affecting your awareness and taking your attention away from traffic, for example. With no external sound but lots of new sounds being heard through the headphones from all around you (sometimes audio 3D) you may find this disorientating and may want to sit down to listen sometimes or just keep walking. If you keep walking please be warned that your attention to changing terrain, obstacles, uneven surfaces, cliff edges, people and traffic may be affected so please pay the utmost attention at all times to avoid accidents.

Taking part

If you volunteer to take part in this research project you will be given this information sheet to keep if you wish and will be asked to sign a consent form. Your personal details given on the consent form will be kept safe and secure. You decide how you will be referred to in the research work/ thesis/ outcomes of the project (e.g. first name). This will be written on the consent form and you will be given a duplicate copy as a reminder. The results of the study could be published in my thesis due 2015. My contact details and that of Falmouth University are given on both the consent form and this form at the bottom.

I do hope you will participate in the experience and give feedback about it to help with the research. You will be able to choose to discontinue participation at any time without having to explain yourself. Thank you very much for your interest… I do hope that you now take the next step. Please sign the consent form and get ready to start! (Researcher and PhD administrator contact details were given).

Control Measure supporting documents to be used with the published MP3 audio walk commissioned by the Cornish Mining World Heritage office

CORNISH MINING WORLD HERITAGE
Our mining culture shaped your world

Trail Information
Hayle: Feuding firms forge engineering genius

Port of Hayle
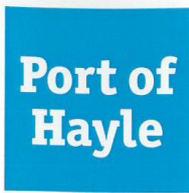
Approximate trail length
2 km (1.3 mile)

Time required
Allow 1½ hours

It's hard to believe that the quiet pools and quays around Hayle were once part of a major industrial port. It supported two globally renowned iron foundries which produced some of the largest steam pumping engines in the world.

1

CORNISH MINING
WORLD HERITAGE
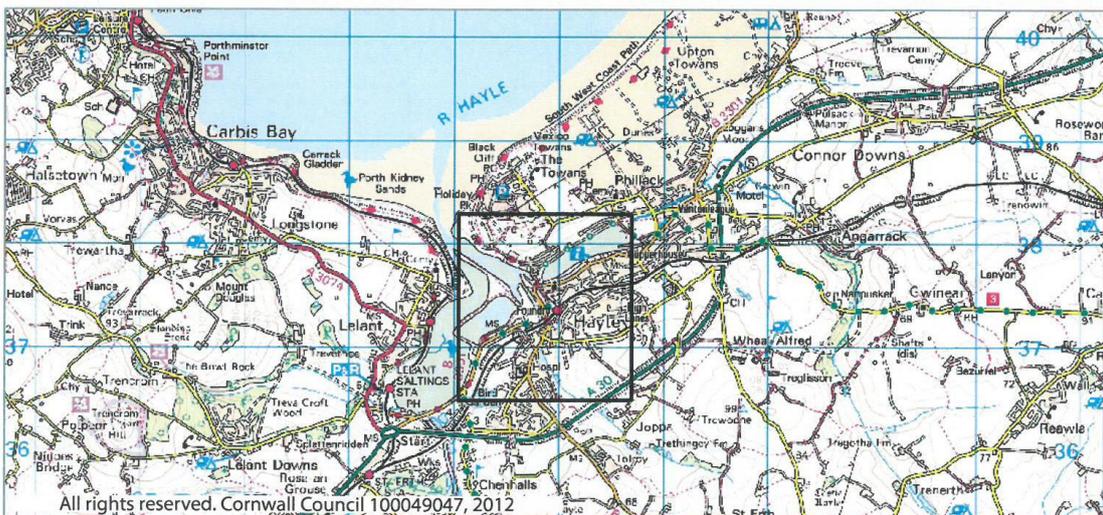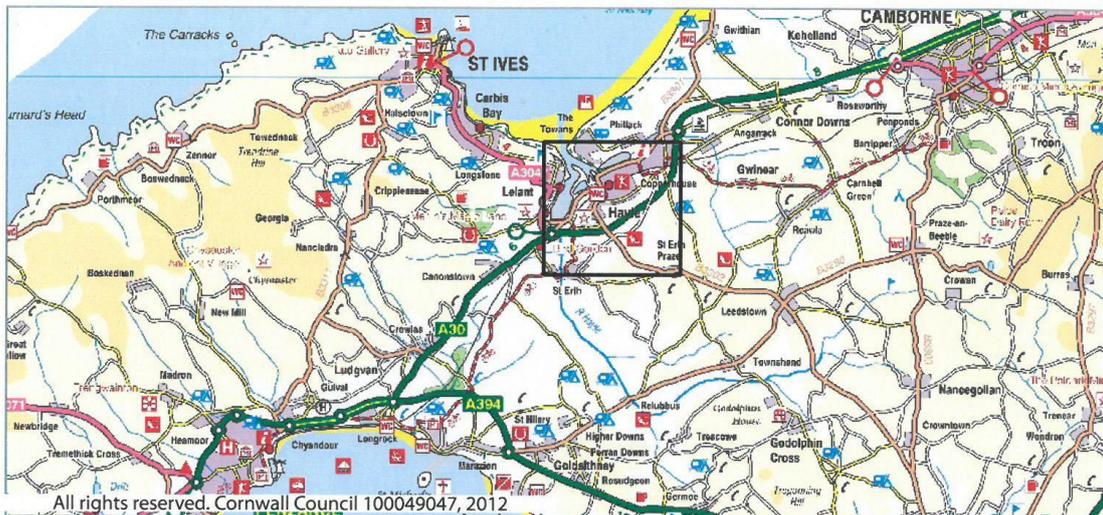
Starting point
OS Explorer Map: 102 SW 558 372   **Post Code:** TR27 4HH
GPS: 50° 11′ 01.64″N
         5° 25′ 16.31″ S

How to get there

For all latest public transport information please refer to **www.cornwallpublictransport.info**

By train
- Hayle has its own train station.

By car
- Hayle is on the B3301 signposted off the A30 between Redruth and Penzance. After passing below the railway viaduct turn left (from Redruth) or right (from Penzance) to arrive at Foundry Square.
- There are several pay and display car park in Hayle, and one at the beginning of the trail.

By bus
- No 18 Penzance - Hayle - Truro.
- No 19 Penzance - Hayle - Cambourne.
- No 547 Newquay - Hayle - St Ives.

About the trail

Approximate walking time: Allow 1½ hours.

Grade of Walk: Easy (moderate in places). The trail is mainly on level footpaths, however there are steps and some inclines on uneven terrain.

Accessibility: The trail is suitable for families, but not ideally suited to pushchairs or wheelchairs between stop 9 and 11.

Toilets: There are toilets in the Foundry Square car park.

Health & Safety: For your safety, please remember to take care on the roads.

Other trails: South West Coast Path. For more information about Britain's longest waymarked long-distance footpath visit **www.southwestcoastpath.com**.

Facilities: There are several establishments serving refreshments along the trail.

Download the "Delve Deeper" guide to look at Cornish Mining in more detail at this site.
Further information concerning the World Heritage Site:
Tel: + 44 (0)1872 322586 or **www.cornishmining.org.uk**

2

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Hayle Audio Trail Map

Iron swing bridge

North Quay

Copperhouse Pool

To A30 & Upton Towans

CORNISH MINING WORLD HERITAGE

East Quay

South Quay

4

5

3

Penpool Terrace (B3301)

Quay Branch Overbridge

Carnsew Pool

Penpool Creek

Royal Standard Inn

Siege cannon

HAYLE

6

Panel

2

7

Pratt's Market

11

10

P

1

START P

Carnsew Rd (B3301)

Foundry House

B3302

Key

Audio Trail point

Route

Train Station

P Foundry Sq Car Park

P Other Car Parks

South West Coast Path

Viewpoint

9

P

8

Archway

The Millpond

N

0   100m

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TO FIND OUT MORE

Harvey's Foundry Trust

Harvey's Foundry Trust is a charitable organisation based in Hayle, which works to promote Hayle's rich history and turn the nationally important site Harvey's Foundry into a vibrant multi-use centre.

www.harveysfoundrytrust.org.uk/index.html

Hayle Oral History Project

Co-ordinated by Lucy Frears, The Hayle Oral History Project has collected stories and old photographs from the local community and used them to produce a book and archive. 'Churks, Clidgy & Doodle-Dashers Hayle Tales and Trails' is available as a book, multimedia disc or free download. It contains archive photos, memories, expert articles and new historical walks around the Hayle area including St. Erth, the Dynamite Works at Upton Towans, Gwithian Tin Streams, and Godrevy.

http://hayletaleshome.blogspot.com/

Hayle Townscape Initiative Heritage Trails

Hayle Discovery Map leaflet and online version - **http://www.haylemap.org/index_hayle.html**

Hayletowncouncil.net

Haylearchive.org

The Hayle Town guide

For more information on Cornish Mining visit **www.cornishmining.org.uk**

With thanks

The Cornish Mining World Heritage Site thanks Harvey's Foundry Trust volunteers for their help in proofing the information in this guide and the audio trail.

Risk assessment form

College / Pro-Rectorate	UCF	School / Dept.	Performance
Name(s) of Assessor(s)	Lucy Frears 07877 456 998	Location	Hayle Harbour / Hayle Beach/ Hayle Riviere Towans Chalet Park
Date of Assessment	28th Nov 2011	Review Date	
Risk Assessment of	Landscape Narrative Experience for PhD Research		

1.   Description of task / activity / area

Members of the public will wander around a post industrial and coastal landscape wearing headphones plugged into their smart phone. The area is in the process of being re-developed in parts and is a harbour that develops into a sand dune/ cliff with paths down to the beach and onto a holiday chalet park on the sand dunes. Participants wander around at their leisure and choose their direction. GPS triggers soundscapes including memories, music and sound effects as they move into certain areas. They can interact by calling an answer machine or texting in memories and reflections. They may look at their mobile phone screen to see archive photos/ short archive films.

2.   Identification of hazards and risks

Identification of hazards and risks	Risk rating (with existing control measures)
1 At least 10% of awareness lost when headphones are on, awareness lost when looking at smart phone.	L/M
2 Mixed rough terrain – uneven surfaces, mud, sand, industrial waste for example rusty metal, rabbit holes etc.	L
3 Exposed sheer drop harbour walls and overhanging cliff edge at beach.	L/M
4 Some traffic, could be heavy machinery during re-development, otherwise a few cars heading to the beach, or vans with boat trailers heading to slipway. Most are very slow moving due to road condition.	L
5 Quite isolated near the beach.	L

3.   Existing Control Measures

Are the control measures adequate?		Yes		No	x

	Multiple deaths or over £1,000,000 in damage	Single death or over £100,000 in damage	Major injury or over £10,000	Lost time or over £1000	Minor injury or over £1000	Delay
Certain	Very High	Very High	High	High	High	High
Very likely	Very High	Very High	High	High	High	Medium
Likely	Very High	High	High	High	High	Medium
May happen	High	High	High	High	Low	Low
Unlikely	High	Medium	Medium	Low	Low	Low
Very unlikely	Medium	Medium	Low	Low	Low	Low

4.   Additional Control Measures Required

1 Clear instructions on a printed sheet to read. Clear instructions spoken to the participants by operators (name for stewards who may also have a performance role) with a chance to answer questions/ concerns. Warnings repeated as part of the audio at the beginning of the audio (cliff/ harbour edges and cars). There could also be an interactive Q&A on the mobile that has to selected and answered before starting the experience. Timing may differ between different participants and so a maximum length may need to be suggested.
2 Information before the event will grade the level of hazard/ difficulty including a guide to the terrain – sand/ mud/ uphill/ rabbit holes and so on. Possible suggested routes for those with limited mobility. There will also be advice on what to bring: strong boots/ waterproofs/ sun cream/ hat/ torch/ mobile phone with GPS/ water/ lunch. Operators will do a visual check on participants – their fitness/ footwear etc.. as well as checking that their phones have charged batteries, use GPS and can receive the audio information and make contact with an operator number before they go off. They will also make it clear that children need to be supervised and will check if women are going alone and may offer to pair them up with another woman as some areas are a little exposed and empty. Participants will be told that if there's light rain it will go ahead, heavy rain means cancellation. (Heavy rain is hazardous and also interferes with GPS).
3 Walk the terrain in different weather and then try the experience with operators before participants are booked in. Brief operators on what to do if participants need help (with technology or medical assistance such as a twisted ankle). Try to have an operator that does first aid on site. Operators will wear highly visible upper garments (T-shirt or waistcoat). A couple will greet and process participants at the beginning of the experience while others will be scattered around the site ready to help participants.
4 Stipulate hours to do it – 10 – 4pm to ensure suitable light to pick out terrain hazards.
5 Check the participants have the mobile number of an operator, the first aider, the coast guard and the number of a friend who will call us if they do not return back or make contact by an agreed time.

Will additional control measures reduce the risk to an acceptable level?	Yes	x	No	

5.   Actions

Action	Person responsible	Time scale	Date completed
Walk the site, preferably in different weathers, checking on GPS coverage, reception, terrain, possible hazards.	Lucy Frears, ramblers, locals		3 days before
Train/ brief operators in the terrain – find at least one who can do first aid (or possibly contact St. Johns Ambulance if not). Make sure they all have contact numbers and are confident about the process if there are any difficulties. 1 portable first aid kit will be on site, another first aid kit will be at the start/ finish.	Lucy Frears	Preparation, e.g. first aid, first aid kits and phone numbers for contact list	Before event starts
Prepare instructions as text, speech and part of mobile application and voice over. Also text that needs to go out with initial marketing and online so that people come prepared.	Lucy Frears		3 weeks before
Create a 'safe' open operator phone line for participants to contact for assistance.	Lucy Frears		Pay as you go mobile l
Tell the local coast guard office/ local police what is happening in case they receive an emergency call. Some participants may look lost or distracted to passers-by as participants will be listening to audio while wandering without a definite aim, hoping to walk into a GPS experience.	Lucy Frears		1 month before
Has a safe system of work been completed?	Yes	x	No	

Risk assessment **completed** by………………..…….(print name)……………...…........ ….(signature)……………..…….(Date)
Risk assessment **accepted** by (manager)……….............(print name)…………….…….(signature)……………..…….(Date

Completed app questionnaire by a University of Exeter geography student (anonymised)

Hayle App Questionnaire
Name:

(Order 1 / 2)
A: Order 1 is *Churks* **App** followed by *Cornish Mining* MP3.
B: Order 2 *Cornish Mining* **MP3** followed by *Churks* App

Could you tell me 3 things you liked about the experience?

- can learn about the past by listening and
- can learn through people experience.
- excited stories.

Could you tell me 3 things you didn't like about the experience?

- too cold / windy.
- sometimes unable to see the ipad screen due to the reflection of the sun. (ie: unable to see photos on screen)
- holding the ipad around in hands.

What would you change to make it better?

have more stories and (constantly)

Did you have any problems with the technology?

Pressed to the home button by accident.

Were you alone or with someone else? If you were with someone else, who was that?

friends.

Make a mark e.g. I, that crosses the line to answer these questions

Did you experience a feeling of solitude?

Not at all   Very much

|————————————————✓————————————————|
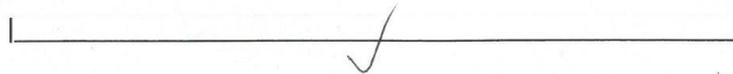
To what extent did you 'feel' lost?

Not at all   Very much

|———————————✓————————————————————|

Which elements should stay in the App?
Tick those that **should** stay in.

0 [ ] Counter-tourist - interruptions with the red button
1 [✓] Narrator – voice-over, not oral history
2 [✓] Oral histories (mostly older voices sharing memories) with sound effects
3 [ ] Oral histories with no sound effects – just the voice/story
4 [✓] Music
5 [✓] Sound effects
6 [ ] Photos
7 [✓] Map showing you where to find audio
8 [ ] Questions that asked you to type answers
9 [✓] The design and aesthetics of the App

Would it have made a difference if you'd listened and looked at photos at home rather than being on the site?

Not at all   Very much

|_____✓_____|
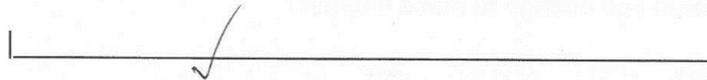
Did you link the stories you heard to the location you were walking around in?

Not at all   Very much

|_____✓_____|

Did you like the overall experience?
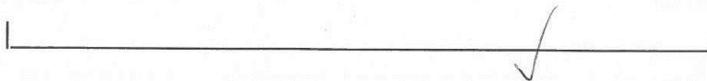
Not at all   Very much

|_____✓_____|

Did you notice more during this experience than you would have just walking around?

Not at all   Very much

|_____✓_____|

To what extent were you immersed (deeply involved) when listening to the oral histories?

Not at all   Very much

|⌐_____✓_____⌐|
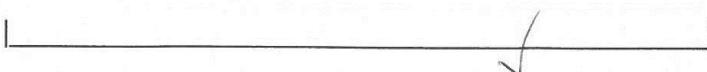
To what extent were you immersed (deeply involved) when listening to the narrator?

Not at all   Very much

|⌐_____✓_____⌐|

Were you MORE immersed in: (pick only one)
(✓) oral histories
( ) narrator

To what extent was the experience confusing?

Not at all   Very much

|⌐_____✓_____⌐|

To what extent did the experience feel disconcerting?

Not at all   Very much

|⌐_____✓_____⌐|


Are you familiar with an iPhone/ iPad?

Not at all   Very much

|⌐_____✓____⌐|

Did you find this app easy to use?
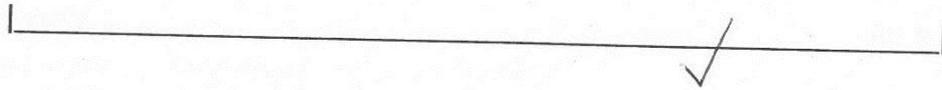
Not at all   Very eas[y]

(scale with checkmark near the right side)

Did you learn anything during the experience?

Not at all   Very muc[h]

(scale with checkmark near the right side)
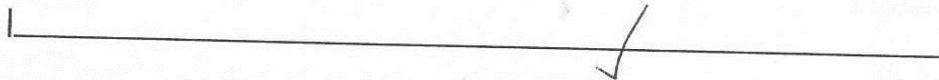
How did the experience affect your impression of the landscape and history?

not much, because this is my first time to visit Hayle.

Do you think you would now be more likely to: (tick the ones you agree with)

0 [ ] take people here and share information
1 [ ] pick up rubbish here
2 [✓] look up more historical information about the area
3 [✓] come here again and see it with different eyes
4 [ ] care more about the wildlife and flora here
5 [ ] pay more attention to planning proposals in this area
6 [✓] Think about the past of the area
7 [ ] Think about the future of the area
8 [ ] Think about what could be done in the present in the area
9 [ ] Follow-up links to archives
10 [ ] Get some archive photographic images

Any comments about your choices?

Would you be willing to be contacted again about this? Yes   No

Name please (contact details if yes above – this would really help me with my research).

Age: 0-12 13-17 18-25 26 – 36 37 – 47 48 – 58 59- 69 70+

Sex: M   F

Do you have a disability: Yes   No

What was the weather like?

cold / windy

What did you use? IPhone?   IPad?

Morning/ Afternoon?

Journal notes made on smartphone while observing geography students evaluating the app

C student led more

Mp3s miles away...and with local boy!

M- more comfortable exploring alone.

Wow, someone's talking! Shock & stopped & told everyone.

C- I can hear creaking, I can't ... Mine's not working. Sound low

We've got this! Stop! Read what the screen says & choose what to do!

Made it to each end... Stood & wondered what to do.

Error 3G

'I thought that was part of this'

3 screens froze

People worried when theirs didn't fire.

I like the song, I like the music

Did you hear the one about the guy breaking the record? A. Yes

And the Italian 'we liked the Italians' J.

Black dashes talking bit

Zig zag... C.

Amazing when you're on your own, you get really involved in it. E.

Oh, we were following the lines (railways and tramway) we thought they were the story lines.

If you want to hear something again quit the app and start it again.

First evaluation findings: anonymised. T= theatre, G= geography, F= female, M= male

App test results 11th & 12th March 2013
Age: 0-12=1, 13-17=2, 18-25=3, 26-36=4, 37-47=5, 48-58=6, 59-69=7, 70+=8/// gender: male=1, female=0. Disability: No=0, Yes=1
scale: 0-11.7   order: App first, MP3 later is order 1, MP3 first, App later is order 2
type of student: Theatre=1, Geography=0
questions: pre-test=000, App first=100, MP3 first=200
radio stations: Radio 4=0, Radio 5=1, Absolute radio=2, FIP=3, Radio 3=4. Source FM= 5
radio 2=6, Radio 7=7, Talksport=8, podcasts=9, Radio 6=10

		pre-test q	Theatre students	Order 1 - App am, mp3pm
		scale 11.7	Geography students	Order 2 - Mp3 am, App pm
			live in Hayle	

ID	date	gender	age	subje	type	disab	Q001: he	Q002: walking?	Q003: often walking?	Q004: speech radio?	Q005: which stations?	Q006: radio drama?	Q007: galleries?	Q008: sonic art?	Q009: museums?	Q010:theatre?
TF1	11/03/2013	0	3	TSO1	1	0	b,f	11.7	9.4	5.3	-	0	6.4	0	8	6.8
TF2	11/03/2013	0	3	TSO1	1	0	a,g	11.2	7.8	5	-	0.3	2.4	1.9	2.9	5.8
TF3	11/03/2013	0	3	TSO1	1	0	a,b,g	9.4	9.2	4.6	0,3,4,5	1.2	5.9	3.1	5.7	8.9
TF4	11/03/2013	0	3	TSO2	1	0	a, b, f,	11.7	11.7	0.5	-	3.9	11.7	10	11.7	11.7
TF5	11/03/2013	0	3	TSO2	1	0	a,b,g	8.6	8.5	7.5	0	1.9	8	6.3	8	11.7
TF6 (Hayle)	11/03/2013	0	6	TSO2	1	0	a,b,e,f,g	8.3	8.3	11.3	0,4,6,7	11.3	11.4	9.5	11.3	11.2
TM1	11/03/2013	1	3	TSO2	1	0	b,f	11.7	9.3	5.3	-	0	6.4	0	8	6.8
TM2	11/03/2013	1	3	TS01	1	0	a,b,f,g	8.1	8	6.1	0,1,2	5.3	5.1	6.8	7.2	7.9
TF6	11/03/2013	0	5	TSO1	1	0										
GF1	12.03/2013	0	3	GSO1	0	0	a,b,g,	11.7	7.5	0		0	1.8	0.3	2.8	2.7
GF2	12.03/2013	0	5	GSO2	0	0	a,b,g,	10.8	9.9	9.4	0	0.8	7.6	7.5	7.7	7.8
GF3	12.03/2013	0	3	GSO1	0	0	a,b,f,	5.9	2.7	0	-	0	9.6	2.9	9.2	0
GF4	12.03/2013	0	3	GSO2	0	0	a,b,e,f,g	10.7	10.7	5.5	0	4.9	7.8	9.1	8.3	0.3
GF5	12.03/2013	0	3	GSO1	0	0	a.b.e.g.	8.1	8.6	0.5	-	1.6	7.8	4.1	9	6.5
GF6	12.03/2013	0	3	GSO2	0	0	a,b,g,	8	6.7	1.2		0	3	0.7	4.5	2
GM1	12.03/2013	1	3	GSO1	0	0	a,b,	6.7	5.4	0	-	0	0.7	0.7	3	1.5
GM2 (Hayle)	12.03/2013	1	3	GSO2	0	0	a,b,g	7.3	2.9	6.2	1, 8	0.9	1.1	0.9	1	2.1
GF7	12.03/2013	0	3	GSO1	0	0	a,g,	11.7	11.7	0	-	0	5.8	0	5.7	9.4
GF8	12.03/2013	0	3	GSO2	0	0	a,b,g	8.4	6.1	10.2	0	1.1	11.3	6.2	10.9	11.7
GF9	12.03/2013	0	3	GSO1	0	0	a,b,g,	9.3	8.2	5.3		1.5	6.2	0.9	6.1	6.2
GM3	12.03/2013	1	3	GSO2	0	0	b	11.7	10.6	10.5	1	0	1.7	0	9.6	5.6
GM4	12.03/2013	1	3	GSO2	0	0	a,	8.3	7.5	3.2	9	2.5	1.9	6.5	7	7.7
GM5	12.03/2013	1	3	GSO1	0	0	a	11.7	6	1.1		0	0	0	1.8	0.4
GF10	12.03/2013	0	3	GSO2	0	0	a,b,g,	8.4	7.7	0	-	0	7.6	4.9	8.2	3.2
GM6	12.03/2013	1	3	GSO2	0	0	a,b,g,	9.7	9.8	5.3	0,10,	0.8	7.3	7.3	6	0.2

Order 1 - App am, mp3pm
Order 2 - Mp3 am, App pm
App questions
scale: **11.7**

ID	Q101: 3 things you like	Q102: 3 things you don't like	Q103 change?
TF1	hearing history, feeling involved with the history, headphones closing you from present	knowing that I wasn't connecting with the present& what was happening around me, interference tourist man	more accounts of memories of places we walked past - e.g. minnie's granny on steps, wanted more
TF2	own pace, freedom to choose, devices provided, I enjoyed the company of the tracks AND felt I was part of a group.	confusing sometimes, cold hands, hassle in the beginning, liked questions but think carefully... didn't like all	change some stories into soundscape only - narrative soundscape
TF3	fresh air, new place, company of stories	restricted by app directions, holding ipad, cold	wider map, more conversations between people
TF4	listening [to] people tell stories, trying to find same clips as others, pictures on ipad	insecure of route, if alone no chance to discuss, same people talking	making games, using the ipad more
TF5	walking to beach, johny lamb's song, colloquial speakers	missed any? Misha's intro speech came at the end. Sfx & music a bit tacky	points where audio is so you can tick them off as you go
TF6 (Hayle)	technology automatic dialogue without pushing buttons, different stories	where to walk after swing bridge & King George's walk apart from the map	more concise beginning & end, longer, more info in general
TM1	freedom, accidental meeting feeling, great stories, musical interlude, pause	-	-
TM2	own path, stories lots, variety	lost 3G, retrace from dead ends, slow to start	3D sound, more time, moving image
TF6	stories, johny's song, sea	couldn't find landmarks, walking back along same route, disjointed - all diff modes (song/ narrator/ oral history	loop walk, minnie as structural device, more songs/ local songs, integrate oral & fiction
GF1	funny & interesting stories, worked pretty easily, was straightforward, beautiful walk route	bitty, unlclear of overall picture of the history of Hayle, difficult to focus on voices & landscape, no memory dates	more like treasure hunt - told to go to a certain place at end of one recording to hear next. Heard them all? Wanted to know.
GF2	voices, movement - not having to touch buttons to trigger stories, the images	the intrusions, blank spots (often quite long) between stories, confusion about sequencing [of narrative]	more audio clips, better sense of boundaries, some way of knowing where there are untouched, unlistened to stories
GF3	can learn about past by listening, can learn through people experience, excited [ing?]stories	too cold/ windy,sometimes unable to see the ipad screen due to reflection of sun (re: unable to see photos on screen), holding the ipad in hands	have more stories (constantly)
GF4	very personal, all stories v. different, people from diff walks of life, stories caught you unawares, led you to places you wouldn't normally go.	could have missed some & they could have been good stories, cold	all centred on 1 period of time, would have been nice to hear modern stories too, signs on map where stories are - no missing
GF5	Great personal, scandelous stories, sfx good, automatic play, music good in surroundings, images	when questions popped up & stories interupted, listening to different stories then rest of group, looking at ipad	wanted to stop & take in surroundings, not enough of hayle, hints of where to go
GF6	personal stories, memorable, know where you are, maps & old photos	no set path, didn't know where, when you would hear things, had to stop app & audio to take photos	suggested paths & audio points on map
GM1	enjoyed stories, the walk nice to explore, music	responding to questions, closed headphones - uncomfortable, headphones restricted talking with others	use ear phones so we can talk to others
GM2 (Hayle)	great stories - alternative more personal narrative, info I didn't know, good images to compare to now	route to follow? Many in group thought railway was route, randomness of clips, wanted to select them, where route ended & where clips were	more interactive, select clips
GF7	interactive, audio, creative	bit hard to follow, seemed to interupt communication with others (group), cool voice clips but needed more explanation	clearer map
GF8	interactive experience, quality of stories, songs	difficult to get started, worried it wouldn't connect, others heard different clips- so I couldn't talk about mine	how to use it, when it stopped updating, how would I connect it [tried to download it on bad wifi connection]
GF9	different voices, own pace, different to other heritage tours	confused where to walk, not easy in cold (hats & gloves), ipads - big & heavy.	little more explanation of the route
GM3	individual stories, ability to follow your own path, musical interludes	large headphones - not practical, have to have iphone, only focussed on one decade of history	maybe music throughout
GM4	local stories, nice route to walk along, easy to use app	headphones made me feel cut-off from experience, don't really enjoy narrative histories, using ipad - easier with phone	Give slightly more diection on things to actually look at
GM5	how app started playing in specific locations, different way to experience landscape	wasn't clear where to walk or when the voices would start playing, pics not clear or relevant, don't know what date stories were from	place dots on map for audio/ pic location, more area specific info - general hayle, aerial photos show location of you on them
GF10	listening to memories, different topics, different people talking in different places	seagull sfx, couldn't take pictures without leaving app	points to show where voiceover is
GM6	really immersive experience, interesting anecdotes - really personal, paints a vivid picture	slight technical issues [app not working on 1 ipad], involves wearing headphones constantly	more anecdotes!

Alone=0
another person=1
group =2
started alone
but joined other/s=3

oral history with sfx=2
oral history no sfx=3
music=4, sfx=5, photos=6
map showing audio=7,
questions=8
the look of the app=9   16 is hayle person

ID	Q104: Problems?	Q105 Alone?	Q106: Solitude?	Q107: 'feel' lost	Q108: should stay in?	Q109: on site affect	Q110: difference at home?	Q111:link story to location	Q112: overall experience	Q113: notice more?	Q114: immersed oral h?	Q115: immersed narr?
TF1	-	0	5.3	0.3	2,4, 5,6,	really enjoyed it	11.1	9.9	11.3	10.8	11.4	8.3
TF2	I didn't understand all the stories	0	4.8	2	1, 4,5,6,	purposeful, a walk of H	10.9	10.7	7.2	6.1	6.3	9
TF3	no	0	10.8	2.5	2,3,4,5,6	more connected to the	5.3	10.9	7.8	5.6	7.7	5.2
TF4	yes I was thinking I was lost all the time	3	9.2	6.1	2,6,7	the tour could be bigge	0.4	9.3	8.9	6.4	8	8.3
TF5	Minnie's intro speech came at end.	3	5.4	5	1,3,4,6,7	liked comparing the old	11.2	11.2	6.9	9.1	6.1	6.2
TF6 (Hayle)	no problems, would be nice for the walk to be longer.	3	0	0	1,2,3,5,6	-	0	8.7	11.7	9.6	11.7	7.5
TM1	winnie's story was fascinating, the intro was a little unclear and I didn't hear the end	1	9.7	0	1,2,3,4,5	made it feel warm, who	9.8	8.7	11.7	9.9	11.7	11.7
TM2	screen dim, wider time period for stories e.g. recent	0	2	3.2	1,2,3,4,5	enjoyable matching sto	8.4	10.7	9.7	7.8	8.3	6
TF6	Minnie could have continued, or intersperced throughout	0	5.5	2.5	1,2,4,5,6	-	11.4	9.1	9.4	11.4	11.4	11.3
GF1	little pop ups	3	6	2.3	1,3,6,7,9,		8.2	2.5	6.8	6	7.7	8.1
GF2	not really	3	3	1.1	2,3,4,5,6,7,9,		10.2	10.3	9.3	9.1	10.7	2
GF3	pressed the home button by accident	2	5.7	3	1,2,4,5,7,9,		3.3	8.7	8.7	8.5	7.9	8.1
GF4	no	2	10	1.2	1,2,3,4,5,6,7,9,		7.1	6.4	10.1	8.8	8	6.7
GF5	questions popped up in wrong place & cut off - shame.	3	5.7	3.7	1,2,4,5,7,9,		7.9	3.6	8.1	5.3	5.2	3.3
GF6	no	2	3.1	1	2,4,5,6,7,9,		7.3	7.4	9.1	9.3	8.5	6.5
GM1	sometimes nothing played on the app & would only work when volume was reset [volume was turned right down at	2	7.1	7.6	1,2,4,6,9,		7.8	2.5	6.2	7.7	6.2	5.7
GM2 (Hayle)	clearer route, paths to follow.	2	2.6	6.8	1,2,3,5,6,7,9,		1.8	8.2	8.5	8.8	8.8	9
GF7	no	2	1.9	5.9	1,2,4,6,7,9,		6.5	7.6	6	3.2	5.8	5.7
GF8	froze at start	2	4.4	3.4	2,3,4,5,6,7,9,		8.6	5.4	11.6	10.1	10.8	1.8
GF9	one audio clip played twice, not major.	2	6.6	3.6	0,2,3,4,6,7,9,		6.7	10.4	9.3	10.4	6.8	6.7
GM3	first ipad didn't work, second did	0	10.5	10.4	1,2,4,5,6,7,9,		10.9	6.5	10.9	6.9	11.7	10.9
GM4	no	2	6.5	5.6	2,4,5,7,9,		8.1	4.6	7.8	6.3	7.2	6.3
GM5	some audio files cut short	2	0	8.7	1,2,4,6,7,9,		5.6	1.6	5.1	4.7	3.6	3.1
GF10	no	0	8.6	2.3	2,3,6,9,		3.8	8.4	9.4	8.4	8.5	1.9
GM6	stuck on screen, changed ipad [maybe ipad just freezing]	0	11.1	7.4	1,2,3,4,6,9,		10.3	10.5	10.8	11.5	10.7	3.7

ID	Q116: more immersed?	Q117: confusing?	Q118: disconcerting?	Q119: familiar iphone	Q120: App easy to use?	Q121: learn?	Q122: impression of landscape	Q123: More likely to	Q123a: comments	Q124: contacted again?
TF1	0	0.6	0.3	3	8.1	9.6	experience & imagine in past, made me appreciate & see landscape as more beautiful	0.1.2.3.4.5.6.7.8.		1
TF2	1	2.4	2.9	2.4	10.3	8.8	Quite much, more connected than walking with map	0, 2,3,4,5, 7.8.	I definitely see Hayle with different eyes	1
TF3	0	3.9	6.7	1.8	9.5	7.2	more connected, another person to pass through	0,1,2,6.7.	bring friends & explain what I learned	1
TF4	0	6	5.2	9.6	9	10.6	good starting point for something better. Could be more interesting as a game	0,3,5,6,7,	-	1
TF5	0	6.7	6.8	6.5	6	6.8	I could imagine what it was originally used for	0,2,3,6,7,8,	-	1
TF6 (Hayle)	0	3	0	5.3	11.7	11.7	I really enjoyed this app but felt that it's too short	0.1,2,3,4,5,6,7,8,9,	-	1
TM1	0	1.3	0.7	2.8	11.7	9.4	made it richer & more personal, intriguing	0.1.2,3,4,5,6,7,8,	-	1
TM2	0	1.8	0.4	9.3	8.9	9.2	presence of older buildings & appreciate what's no longer there	0,1,2,3,4,5,6,7,8,9,10		1
TF6	0	2.9	1.8	11.4	11.3	11.3	gave understanding and connection to place	0.2,3,5,6,7,8.9,10		1
GF1	0	8.2	5	4.3	5.7	8.5	yes	3,6,	-	1
GF2	0	8.3	3.9	6.4	7.2	7.1	loved oral histories & historic photos, more closer together - overlapping, option to repeat	0,1,2,3,5,6,7,10	-	1
GF3	0	2	7.1	9.4	8.7	7.6	not much, this is my first time to Hayle	2,3,6,	-	1
GF4	0	1.7	1.1	10.6	8.3	7	so nice to hear different oral histories - feel a greater connection to the place	0,2,3,6,8,9,10	-	1
GF5	0	3.8	6.2	9	9.4	8.9	honest portrayal of what life was like for residents, nice mix of a few younger voices too	2,6,7,8,10	feel there could be a bit of emphasis on its potential future	1
GF6	0	5.9	2.3	9.9	6.7	8.6	lots more than just meets the eye - real sense of how important places were	0,1,2,3,4,5,6,7,8,9,	-	1
GM1	0	7.1	5.4	5.5	6.4	7.6	technology helped me to further undertand landscape & history	3,6,10	-	1
GM2 (Hayle)	0	3.7	5.6	9.1	6.5	8.9	gave goood additional narrative through personal experiences shared by the various narrators	0,1,2,5,6,	gave scope for historical research into the time period but little on present/ future	1
GF7	1	7	2.1	11.7	3.5	7.5	learnt more	2,3,4,6		1
GF8	0	6.1	3.4	11.1	5.4	11.3	Put stories to the places - felt I was interacting with them	3,6,10	-	1
GF9	0	3.7	0.5	1.9	7.8	9.5	show how many histories & narratives there are everywhere.	2,5,6,8,		1
GM3	0	0.7	0	5.2	10.8	7.9	sense of the people in the landscape, and their individual lives	0, 2,6, 10,	stories interesting & definitely want to share them with other people	1
GM4	0	1.9	2.8	7	8.2	8.1	gave a good personal history, gave area a bit more character	3,6,7,8	-	0
GM5	0	8.9	5.7	11.7	9.8	0.6	How Hayle is quieter, less industry	5,6,7,		-
GF10	0	0.1	0.3	11.5	11.7	7.5	brought more of a personal experience to it by using memories and locals to voice over	0,2,3,6,		1
GM6	0	5.2	2.1	7	9	9.6	brought it alive, didn't realise Hayle had such a colourful past	0,3,6,	very enjoyable but inspires me more to go look at other places rather than hayle itself. Would love to see it applied elsewhere	1

cold=4,
very cold=5,

windy=6	**Order 2 - Mp3 am, App pm**	**Order 1 - App am, mp3pm**
very windy=iPhone=	**MP3 questions**	
rainy=8 ipad=1	scale: 11.7	
very rainy=9		
cloudy=10, sunny=11		

ID	Q125: weather	Q126 device	Q201: 3 things you like	Q202: 3 things you don't like	Q203 change?
TF1	5,7	1	directions on audio, description of building now Jewsons	not much description, I didn't feel like I understood what was being told most of the time.	more descriptive history, tell us what they were talking about and why
TF2	5,7,10	1	orienteering - finding my way! Very clear tracks - could have been shorter, deciding when to start track, clear instructions	I really liked this experience, bit lost but then I wasn't.	even better tracks, shorter, more soundscape
TF3	5,7	1	info, control of when audio started & stopped, being able to look around	holding map & ipad, clearer map,	clearer map
TF4	5,7,	1	friends, learn about history, using technology	paper map, directions, alone but talking in my ears	using ipads, using GPS and making it accessable
TF5	5,7	0	Hayle history, different voices, looking at town different angles	instructions - too quick & many, made me worried	how far is next place?
TF6 (Hayle)	5,7	1	info easy to understand, list of places to follow, being outside	confusing directions, more info better, cornish accent annoying	more info, a map within the mp3 app instead of paper.
TM1	5,7	1	unveiling history, pretty nice paths, group exploration	unclear/ false instructions, cold hands ipad, confusing route	A simpler, better, visually explained route, more personal stories, invitations to explore stop
TM2	5,7	1	interesting stories, taken to hidden places, gives context to town	difficult to manage map & ipad, prescriptive, wanting to know more but unable to	longer sections of speech or more detailed,
TF6	5,7	1	learned some interesting facts about Hayle, going to new areas	stopping & starting, informational mode, museum not experience	could walk while listening, different mode integrated, on bridge enemy territory, more performativity
GF1	11, 4,6,	1	felt like a treasure hunt, knew I'd heard & found all the recordings & sites, felt like it was a better overview	little long and less interesting than memories, some sites hard to find, unsure why those sites remarkable/ chosen	include memories
GF2	4,6,	1	discovering places I wouldn't have gone otherwise, being confused & figuring it out	being confused & not figuring it out, the dryness of much of the historical detail	better map! And remove confusing directions from audio files
GF3	4,6	1	finding our way through town while observing town, instruction, info related to uni work	don't like standing & listening, lost & wanted to look elsewhere, pause at end but played again in new site	
GF4	5	1	some interesting facts, going 'off trail' Pratt's market to see shops, so many different places in Hayle - wouldn't have seen them	freezing cold, got very lost - map no good, info - can't remember much now.. Not interesting	-
GF5	11,4,6,	1	liked being given a route having point & sites to aim for, control when to play audio, chance to look around without missing	awkward juggling map & ipad, wide range of hayle's past, confusing directions	change info, find other sites, engineering alone not interesting, doubled back a lot
GF6	4,11	0	interesting, clear, encompassed a lot but not too much	sometimes directions unclear, tracks didn't stop (had to pause manually each time then press next), no images	make directions clearer
GM1	5,7	1	was very informative, got to see a panoramic view over hayle & good route, interesting	honestly, nothing I didn't like	maybe add few more places of interest if possible, bit short for my preference
GM2 (Hayle)	5	1	good info, few first hand accounts [oral history] were good in adding to the narrative, interactive	confusing directions even with map (I'm local!), didn't cover north quay,what exactly was it refering to?	interactive map, better directions, more current info
GF7	5,7	1	clear directions, informative, up to you when audio played	strange route, lack of communication with others, have to start & finish in specific places	less structure
GF8	4,6,11	1	small facts, direct accounts from locals, short nuggets of info	map hard to read, lack of signposting, lack of integration of new things	signposting
GF9	4,6,	1	easy to follow the map & directions, interesting stories, viewpoint was nice and something you could overlook if not following trail	difficult in cold weather, headphones/ hats/ gloves/ ipads. Ipads big and heavy	shorter or longer versions
GM3	4	1	information, freedom to wander, scenic views	map, fixed location, no sign posts	signposts, clearer map
GM4	4	1	some of the info, seeing a new place, the quayside areas [quay is not in the walk - they got lost!!]	some of the narrative, being dictated a set route, confusing directions	clearer map/ instructions
GM5	4,6	1	free to walk, mp3 relevant to that specific area, map easy to read	easy to lose interest, content wasn't great, compared hayle to WHS like sydney opera house!!!!	-
GF10	4	0	lots of info, good description of places on mp3, read by local people	the map, directions were sometimes not very accurate, no historical images	add historical images
GM6	4,11	1	interesting locals accounts, nice overview of town, pleasant voices	difficult to follow map, cumbersome carrying ipad, headphones & map, helps to have prior knowledge	better directions

Alone=0
another person=1
group =2
started alone
but joined others=3
following=4, in and out=5

16 is from Hayle=0

oral=0
narrator=1

ID	Q204: Problems?	Q205 Alone?	Q206: Solitude?	Q207: 'feel' lost	Q208: on site affect	Q209: difference at home?	Q210:link story to location	Q211: overall experience	Q212: notice more?	Q213:immersed oral h?	Q214: immersed narr?	Q215:more immersed?
TF1	not enough description	0	3.9	6.1	not very m	2	6.5	5.8	6.8	6.7	4.2	0
TF2	-	0	7.2	1.2	-	11.1	11.3	11.2	7.1	7.5	10.7	1
TF3	confused between spots 1-7	0	2.3	6.2	made me u	9.8	9.4	8.2	8.2	7	8.8	0
TF4	uncomfortable, I was needing more info	2	8	6.6	good, all in	11.7	10.7	7.5	10.3	9.1	5.3	0
TF5	time span	3	7.5	11.7	-	11.7	11.7	7.4	11.7	11.7	8.2	1
TF6 (Hayle)	-	2	5.2	0	-	0	11.7	6.1	11.7	8.4	5.7	-
TM1	got lost, had to go back a lot and retrace, had to follow someone from Hayle	2	2.3	7.6	-	8.3	7.2	3.5	6.7	3.8	8.2	-
TM2	dangerous near pickle jar corner	4	3.9	5.7	able to spo	9.2	9	9.9	9.7	8.8	6	0
TF6	tracks weren't in order, directions weren't clear so had to refer to paper map, not helpful	0	7.2	6.2	-	5.8	8.7	5.4	9.6	10.5	1.7	0
GF1	no	2	3.3	7.2		7.3	8.7	7.3	8.4	9.1	9	1
GF2	yes, my audio files not numbered so tricky	5	2.9	8.4		9.2	4	6.1	7.5	2.8	2.9	-
GF3	no	2	2.1	4.5		2.2	9	2.1	8.6	8.2	8.1	1
GF4	-	2	3.7	7.3		4.8	5	5.6	10.3	5.6	4.6	0
GF5	moving between map and audio	2	1.6	5.1		2.9	7.1	3.7	4.1	2.7	2.7	0
GF6	couldn't download on iphone	2	2.3	5.7		7.3	8.2	6.8	9.6	3.4	3.4	0
GM1	no	2	3.4	2.4		8.3	9.2	9.4	5.5	9.3	9.3	1
GM2 (Hayle)	poor directions, annoying selecting each audio file	2	4.3	6.5		2.5	6.3	3.9	2.5	2.4	4.1	1
GF7	no	2	7.5	1.2		2.9	2.9	8.4	8.2	8.9	8.5	1
GF8	no	2	4.6	11.7		2.2	8.9	9.1	11.1	3.8	4.5	0
GF9	no	2	4.5	5.7		10.1	11	9.7	11.2	8.4	10.4	1
GM3	no	2	2	1.1		0	2	7.2	8.7	12.8	4.8	-
GM4	no	2	3.3	7.7		7.2	3.2	6.3	3.8	3.3	2.5	0
GM5	-	2	1.7	4.1		3.2	10.5	9.8	9.4	5	3.1	1
GF10	no	2	0	2.7		3.8	7.2	7.2	7.7	4.7	4.6	1
GM6		2	1.7	3.7		5.6	8.3	8.6	8.6	2.9	3.5	0

ID	Q216: confusing?	Q217: disconcerting?	Q218: familiar device	Q219:MP3 easy to use?	Q220: learn?	Q221: impression of landscape	Q222: More likely to	Q223: co	Q224: contacted again?	Q125: weather	Q126 device
TF1	5	3.9	5.1	9.3	5.1	-	2.6.	-	0	5,7,10	1
TF2	1.3	1.7	1.7	9.3	6.4	I learned much more when I saw the places LIVE at the same time when listening to the tracks	0,6,7,8,	-	0	5,7,	1
TF3	1.8	2.1	1.1	9.1	9.5	looked at it differently & I was more interested	0,4,5,6,7,	-	1	5,7	1
TF4	7.4	7.8	8.2	11.7	5.9	the importance of small sites, everything could be interesting	0,6,7,8,10		1	5,7	1
TF5	11.7	11.7	7.7	11.7	4.8	realise how old, look at things not walk passed	2,3,6,7,8,	-	1	5,7	1
TF6 (Hayle)	5.1	0	10.1	11.7	4.1	already aware of history, love the hertiage in Hayle	0.1.2.3.4.5.6.7.8.9,10	-	1	5,7	1
TM1	10.6	6.8	3.3	11.2	7.2	new respect, hint of magic	0,2,3,6,7,8,9,10	I don't fe	1	5,7	1
TM2	2.9	1.1	9.3	9.2	8	able to understand differences in style, size, opulence of architecture both sides of town	0,1,2,3,4,5,6,7,8,9,10	-	1	5.7.	1
TF6	3.5	5.7	11.4	1.5	9	understand global significance of Hayle	0,2,3,5,6,9,	-	1	5,7,	0
GF1	4.2	3.7	2.9	9.7	9.6	learned more about Hayle's history	3,6,7,8,	-	1	4,6	1
GF2	10.7	4.1	5.2	4.3	7.2	I feel like I now know some of the back lanes & paths better & will return to explore them	0,1,2,3,5,6,7,10	I didn't fi	1	5.7.	1
GF3	2.3	8.7	8.8	9.2	2	very causal	5,6,7,	-	1	5,7	1
GF4	6.6	1.2	10.3	9	4.6	made me realise there's a lot more going on & town has more complex histories than first appears	2,6,10	-	1	5,7	1
GF5	7.4	5.2	8.7	7.3	6.5	very informative - learned how hayle has grown over time	6	-	1	5.11	1
GF6	7.7	7.8	9.7	-	8.6	much more informed, looked at things in a different light, pint of view	0,6,8,10	-	1	5,7,	1
GM1	1.7	1.8	5.4	10.1	9.4	made me realise that hayle has a vast history	0,3,6,8,	-	1	5,7,	1
GM2 (Hayle)	7.1	4.2	9.9	5.2	5.2	consolidated my prior knowledge, contextualised my understanding	1,5,6,8	-	1	4	1
GF7	3.1	0.5	10.4	10	7.2	more general knowledge	2,3,6,9,	-	1	5,7	1
GF8	8	1.9	11.7	9.9	7.9	changed it -I wouldn't have known anything of the past - the history of 2 competing companies	2,6,7,10,	-	1	5,7	1
GF9	2	0.4	1.4	10.8	9.9	shows the old uses of buildings that you probably wouldn't notice otherwise	0,2,3,5,6	-	1	5,7	1
GM3	7.4	0.7	5.7	11.3	7.9	few interesting facts & an idea of the way things used to be.	3.6.8	more abo	1	5	1
GM4	7.4	5.3	7.8	7.4	7.1	more made of mining & industry than I would have otherwise thought	6,7,10	-	0	5	1
GM5	4.2	2.2	11.5	11.7	7.7	-	-	-	1	5	1
GF10	6.8	0.1	11.6	11.7	8.9	it made me think about the connection between how the landscape is now & purpose it used to serve	0,3,6,	-	1	5,7,	1
GM6	3.2	0.6	4.2	8.6	8.7	reiterated prior knowledge of harvey's/ copperhouse	2,3,6	-	1	5,11	1

Sections from first evaluation summary and draft report: app and MP3 audio walk

The Churks app in Hayle

The app encourages the participant to walk around a public post-industrial area in transition on the edge of town freely with markers on a map showing the boundary of the audio/ walking area. It is not a lead tour. As they walk the GPS triggers audio, which includes a mixture of modes at this experimental stage.

The control measure, a directed audio mp3 walk

The World Heritage Site Audio Trail is a historical factual tour completed in 2012 concentrating mostly on the engineering history of Hayle and involves being directed from A to B. The tour directs the listener to certain spots where they stop and press play to listen to scripted information performed by three actors, including two men, one with a pronounced Cornish accent the other with a softer accent and a woman with a standard English accent. There is one oral history memory clip used from the Hayle Oral History Project. A map showing the numbered stopping points was printed out for each participant in addition to being downloaded onto each iPad. The walking route was a figure of eight walk and included different neighbourhoods and viewpoints of the town. Users were saved from a complicated and frustrating process of downloading mp3 files (I did it) as the website was not functioning properly. A company from outside Cornwall created the tour. Perhaps this could explain why most users got lost despite having a map and instructions. Only one user reported not getting lost.

The second control measure, a paper map walk

This was dropped. With three different experiences (app, mp3, map) there would have to be nine orders, which would lengthen the day beyond what was possible. The map walk is not an audio experience and doesn't involve technology but maps are often used to explore sites as evidenced in the pre-site questionnaire. 16 out of 24 (67%) said they used paper maps to explore sites.
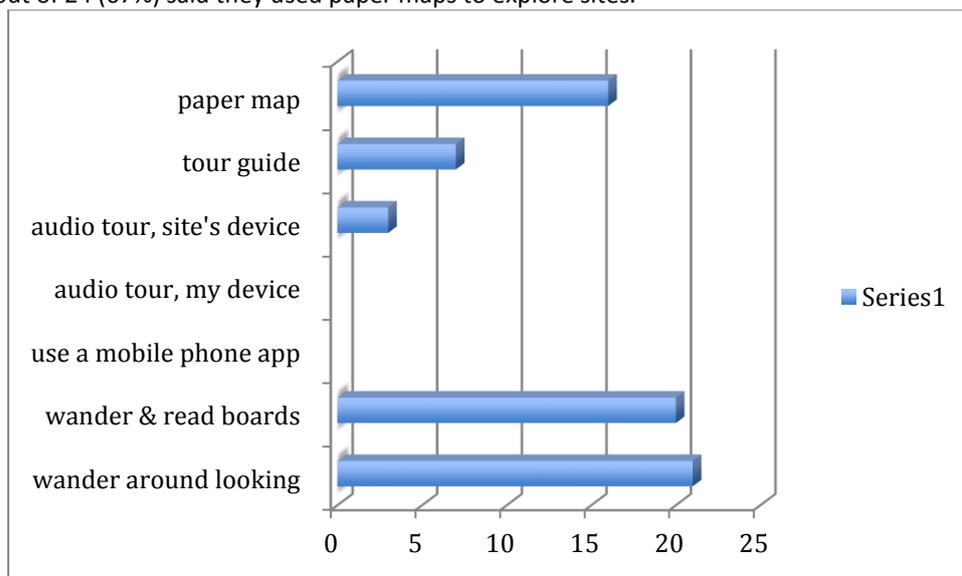
It is significant to note that although the majority of testers were in the 18-25 age bracket, an age range expected to be technology savvy, none of them used their phones, apps or mp3 players to experience sites with an audio tour, although three people said they borrowed audio devices from sites (13% of those questioned). Seven used tour guides but the majority explored sites by wandering around and looking (21 out of 24. 88%) or wandering and reading notice boards (20,80%).

The third control measure – armchair mode

Armchair mode is not on the app yet but will be an option in the published app with launch date (to coincide with the opening of new Hayle heritage centre) 29th August 2013. I am interested in how a passive or more active, embodied participation affects the results. In-app ratings and feedback should indicate whether using the app at home differs greatly from being in the landscape.

Hypotheses

My research question is: Can a deeper connection to the landscape be gained through locative media experiences? To draw out answers I formulated hypotheses around the independent variables of anchoring (fixing a particular story to a location), authenticity (delivery style), and narrative versus trace – (narrative or oral histories), based on my experience testing others' work (case studies), creating work, research, theory, discussions and 'hunches'.

a. Anchoring. Although vital to place audio in the landscape much more challenging with the oral histories as they were not recorded with an app and the location in mind. A narrative can be written for a specific physical location.
b. Authenticity. The oral histories are real people speaking in uncontrolled environments, recorded by some experienced and less experienced people. A narrative is scripted, acted and recorded in a controlled environment with good equipment.
c. Narrative versus trace. This is also closely interconnected with anchoring, what is preferred, an over-arching narrative or micro stories from different viewpoints? Here are the definitions I am using when referring to the mp3 narrative and the oral history 'traces':
    I. Historical narrative. A narrative that has been researched and is a broadly accepted view. It has been authenticated by, for example, respected local historians, but are they facts? Specific spots can be located as where events happened or could have happened, 'to your right is the bridge where....'
    II. Trace. Oral histories are different people's individual recollections often interpreted as an unreliable personal point of view. They do not fit into a standard narrative and are often more loosely anchored to wider areas rather than a specific spot. Do the stories 'speak' or link to others or do they form a non-narrative experience? Is the non-narrative experience confusing? If audio occurs in a certain locations without naming that place is the assumption that it happened there strong enough for the listener? Do oral histories offer an intangible moment when the listener feels what they are describing?
    III. Mix of traces and narrative – does this work? A balance of authenticity and context from an acted voice.

Other answers I want to tease out of the findings and through experimental observations are,
1. How important is the background ambience?
2. How does a shared or solo experience affected immersion and overall enjoyment?
3. What is the level of immersion?
4. What is the level of comfort/ disconcertion?
5. What did they do during the experience? What do they do now (after the experience) that they did not do before?
6. Are there any traces of the magical or poetic?

The dependent variables can be defined as:
1. Attitudes
2. Experience
3. Intentions versus actual behaviour - does the effect of the original piece affect the speaker who then passes that emotion on in the re-telling of the story?

Participants
Twenty-five participants, 17 female and 8 male, drawn from a level 2 site-specific theatre module at Falmouth University including 8 students (2 male) and 1 female lecturer and 15 geography students and 1 female lecturer from a heritage site geography module. Three of the female participants were over 37, the others, were all in the 18-25 age bracket. Each set of students' groups did both the app and the control measure (the directed historical audio mp3 walk from A to B) the same day with lunch in between and were split into groups at the beginning of the day, order 1 (app first then Mp3) and order 2 (Mp3 first then app). All identities have been anonymized. If their ID starts with a T they belong to the Theatre group, if they start with a G they are geographers.
Test environment
The tests were outside and involved walking around. The app site has two halves, one part a post-industrial coastal area, very exposed to the wind and the other part which leads the walker along an old tram line next to an enclosed pool with a cliff offering some protection from the wind. The mp3 walk directed users along a mixture of back roads and paths that were protected from the wind, and more exposed main roadways. The day included a meet-up (in a bar café that we used as a base throughout the day), which included a check of consent forms, risk assessment discussion and handing out of iPads, closed-cup headphones and maps supporting the mp3 audio experience (which were also loaded onto the iPads). The groups went out in the morning to do the app or the mp3 depending which group/ order they were in. We all met for lunch, a warm-up and questionnaire and then set-off for the afternoon app or mp3 test with a meet up at the end for a questionnaire, questions from participants and thanks. I ordered some hot food to be ready for the lunch

meet up so that there could be something warm to eat immediately while they ordered something more substantial if they needed or could afford it. Both groups travelled for at least 30 minutes to get to the site. The theatre students participated on Monday 11th March 2012, the coldest day of the year with a strong biting wind with a wind chill factor of -6 and threatened snow and gales. Apart from one student who took the train, they were driven to and from the site. Some were not wearing hats, gloves, scarves or winter coats. The geography students took part the next day, Tuesday 12th March. They all arranged and paid for their journey, travelling by train or car. The day was not as cold (slightly sunny) but still very cold and windy and some of these students did not have hats, gloves and scarves. The app is made for an iPhone (the app is too large for android smart phones) but I borrowed iPads for the tests from University of Exeter so that students would be using the same devices. Students were invited to use their iPhones too, although the internet connection in the bar was faulty which affected download of the app, and there were on-going and reported download difficulties with the World Heritage Site website so they all used the mp3 files I had loaded onto the iPads. A couple of geography students tested the app on their iPhones. A phone can be popped into a pocket while an iPad needs more holding so having cold hands holding the iPad and the weight and size of the iPad featured in some of the negative comments. Headphones differed as some students had their own but I asked them all to use closed cup headphones (going over the ears) to cut down but not eliminate the bleed of natural environmental sounds while the audio was playing and so that listeners would hear the binaural/ 360 degree audio effects on some of the recordings. I handed out headphones from the media store that were large and not very comfortable.

Experimental conditions, order, procedure

There were two experimental conditions:
1. The Churks iPhone app – unpublished/ unfinished test version
2. The World Heritage Site (WHS) mp3 audio walk/ tour – published

Each experimental session involved a student group that could separate or walk together as they wished. All participants took part in a pre-test day questionnaire and then took part in both conditions in one of two orders within the same day.
1. Order 1: App followed by MP3
2. Order 2: Mp3 followed by App.

Train times and student commitments on campus, 18 miles away, made the timing of the days very tight. The maximum time for testing each experience was 90 minutes. The mp3 started outside the door of our base and some people completed it in 30 minutes, most people in approximately an hour but the app site took 12 minutes at least to walk one way and involved a longer experience. Some participants felt rushed, "I would quite like the opportunity to stop and really take in the surroundings […](bit tight for time)" GSO1-14.

Methodology
1. A short pre-site (2 sides of A4) questionnaire including both tick response questions and the graphic rating scale format (Stone et al 1974). The graphic rating scales measured 117 mm. Questionnaires were completed before the test day asking for opinions about walking and exposure to speech and sound based arts.
2. A short group interview with geography students to get an idea of what they knew about the town Hayle and what they expected from a World Heritage Site as well as trying to work out whether they were people who preferred fact or fiction. The mp3 is fact based and the app although using oral histories balance leans more towards fiction. The app narrative is fiction, but based on fact.
3. A questionnaire (4 sides of A4) after each order including both open questions and the graphic rating scale format (Stone et al 1974). The graphic rating scales measured 117 mm. The app questionnaire included an additional question with 9 tick options about which elements should stay in.
4. In-app logging through the app (using GPS). It notes when a user;

- Enters or leaves a GPS region (identifying audio, time, location)
- Plays, pauses, resumes or skips an audio
- Moves more than 50m from their last logged location
- Switches between map and photo view
- Opens the twitter page

5. Observations and notes made during the test capturing comments as participants spoke and interacted with each other or me, physical reactions and body language/ facial expressions, behaviour of those in groups and walking alone. Some photos and short, filmed sequences were also recorded.

6. Comparison to questionnaire results, feedback and interviews after other app tests.

7. Follow-up questionnaire. Return to participants after six months, one year to see what the lasting effects are (this needs to be done in a few months).

Questionnaires

For both conditions participants answered 25 questions (app users answered one more) after the app or mp3 experience with an emphasis on these key areas:
1. Whether being on-site/ in the landscape during the experience makes a difference
2. Whether users gain a deeper connection with the landscape by using the app/ mp3.
3. How a non-led app experience in a defined area differs from a directed/ instructed mp3 walk from a to b. How an active experience compares to a passive experience.
4. Whether people speaking about their personal experiences (oral histories) elicit a different response when compared to the words of scripted actors. For example: whether participants feel more deeply immersed in the experience when hearing oral histories rather than a narrative.
5. Whether the experience can change the users perception of a place and their subsequent feeling towards the site and later behaviour when on the site.
6. Did they find the app experience 'uncanny' or 'disconcerting'?
7. Did they experience a feeling of solitude? Solitude isn't being looked at in relation to loneliness necessarily but as an indicator of immersion.
8. How easy to use were the app and mp3 walk, how familiar they are with iPhones and iPads?

Rating Scales

Participants were asked to make a mark on the scale between (and including) the two extremes on the graphic rating scale. The questionnaire data were analysed using SPSS (Statistical Package for the Social Sciences, IBM) identifying statistical descriptions, analysis of variance (ANOVA) was used to explore differences and correlations were used to analyse similarities. Results are statistically significant when probability of a result coming about purely by chance is less than 5%, (meaning that if I repeat the test 100 times I will receive the same outcome 95 out of those 100 times). This is expressed as the probability 'p' being smaller than .05, $p <= .05$.

Results

Access to the software to analyse quantitative data was provided by Erik Geelhoed who supported my use of the software and was available to discuss the results. Erik Geelhoed is an experienced psychologist and statistician based in AIR (Academy of Innovation and Research at Falmouth University), formally of Hewlett Packard Labs who has extensive graphic rating scale and SPSS use and analysis experience. His involvement is an indication of good practice and serves to remove subjective interpretation of the data by myself, the creator of the app, and the introduction of error resulting from less experience with varied and some new analysis methods and software.

Introduction to the results

Recorded on-site observations and significant correlations between the app and mp3 walk in the pre-site questionnaire and between the app and mp3 in both tests will be used throughout the sections to illustrate points made in open questions and the results from the graphic rating scale sections. There will also be considered response after analysis of the findings and the effect on the creative work, the app.

Firstly, I would like to set the scene and introduce the data using the words of the participants who tested the work. Any grammar anomalies are theirs, I have used their own words and sentence structures. I asked an open question in the questionnaire - How did the experience effect your impression of the landscape and its history? This selection of comments from twenty responses gets close to the essence of the app experience and the heart of my research. "Gave me an understanding and connection to place that I wouldn't have had if I

just walked around' TSO1-09, 'so nice to hear different oral histories – feel a greater connection to the place' GSO2-13, 'allowed me to understand presence and structure of older buildings as well as appreciating what is no longer there' TSO1-08, 'I felt more connected and aware of being another person to pass through' TSO1-03, 'Made it richer and more personal, intriguing' TSO2-07, 'Really felt like you were getting an honest portrayal of what life was like for many residents in Hayle - nice mix of a few younger voices too' GSO1-14, 'Show how many histories and narratives there are everywhere' GSO1-20, 'how Hayle is quieter, less industry' GSO1-23, 'Brought more of a personal experience to it by using memories and locals' voiceovers' GSO2-24, 'lots more than just meets the eye – real sense of how important places were' GSO1-14, 'sense of the people in the landscape, and their individual lives' GSO2-21, 'brought it alive – didn't realise Hayle had such a colourful past' GSO2-25, 'I definitely see Hayle in different eyes' TSO1-02, 'gave a good personal history, gave area a bit more character' GSO2-22, 'put stories to the places – felt I was interacting with them' GSO2-19.

Graphic rating scale question results

After initial analysis of the variance (ANOVA) graphic rating scale using SPSS these results stood out, due to the mean value of the app and mp3 scores and a probability value of less than 0.05:

1. **Did you like the overall experience.**
   The ratings of the overall experience of the app was significantly higher than the mp3 experience: Mean app 8.89 (SD= 2.15) mean mp3 =7.04 (SD=2.00), p=.011. The narrow standard deviation (SD) shows that many were in close agreement rather than having their opinions spread along the graphic rating scale.
   I have allowed for the possibility of participants trying to please me, as I was there, by giving the app a more generous vote, but I have found the comments and questionnaire results to be very frank. I made it very clear to the groups that they were being nicer to me by being brutally honest. Considering I made them walk around outside twice in exposed places for 90 minute periods on a day when the wind cut like a knife (with many wearing inadequate clothing) perhaps their scores were less generous than they could have been! It was unpleasant being outside on both days.

2. **The feeling of solitude.** Asked whether they experienced a feeling of solitude, participant GSO2-13 scribbled next to the question, 'very much but in a good way'. This was the effect I was going for, to put them into a bubble where the experience enveloped them – that they got closer to the people speaking and hopefully the environment but felt more detached from the present, the people around them; that they were immersed in the experience. More people experienced this with the app (mean 5.82) rather than the mp3 (mean 3.86) with a probability of p= .034.   In fact, the relationship with the speakers on the audio clip led some to express themselves regarding conviviality referred to later in this text.

3. **Did they 'feel' lost.** Even though the probability (0.085) value didn't indicate special significance it is interesting to note that those using the app (mean 3.84) did not feel as lost as those using the mp3 (mean 5.5, almost half the rating scale). Although the app is based in an area on the edge of town with less signs and people compared to the mp3, people felt more lost using the mp3.   Despite the point by point directions, a paper map and a PDF map on the iPad most people got lost at least at once during the mp3 walk, it was mentioned a lot in the comments and it is important to note that both Hayle residents got lost during this directed mp3 walk!

4. **Did the participants link the stories to the location** (anchoring) or could they have had the experience at home? A manual/ armchair mode isn't on the app yet but in this mode archive photos can be looked at in a larger size in comfort at home rather than the freezing cold and sound can be experienced without the bleed in of natural sound (which I actually wanted a little of during the app). The results show that app could be used at home as well as on site, which is disappointing in some ways for a site specific app but as I want to connect with the Cornish diaspora in Australia, America, South Africa as well as visitors to the area it could be positive. It could work well for an audience anywhere in the world. The mp3 received similar results. The app has been created out of oral histories most of which were not recorded with the app in mind. They are just stories for example about the regatta rather than saying, 'it was here on this corner that the band used to play…..'' which would plant the story within a particular location and improve the power and significance of the app. This is a weakness in a site-specific app, which is reflected in the scores. As most oral history archives have been collected without an app in mind I can imagine that other oral history related apps might experience this issue. This can be remedied by using a Radio 4 style reporter/narrator as mentioned earlier to introduce the speakers, which I have decided against. The mp3, on the other hand, was written around certain set locations on a mapped tour with the aim to get historical information,

elements of an over-arching story, across to people at those points. The script is written to make people understand the significance of each location, so it pins history to that exact point and tells the listener where to look to see anything of significance that relates to the past described. I wrote a narrative for the app (with narrator Minnie, talking about the experiences of her grandmother Winne in Hayle) to try to pin some stories to exact locations. I received this comment from TSO1-01, 'more accounts of memories of the places we walked past. For example Minnie talking about her grandma kissing her partner on the steps – I really like that'.

By contrast, theatre students only (my error) were asked to answer this open question, How did being on the site affect your experience? Here is an example of the answers which all included positive effects, 'Enjoyable matching stories to the landscape and seeing change' TSO1-08 and 'made it feel warm/ whole/ involving/ interesting' TSO2-07.

5. **Did you notice more during this experience than you would have just walking around?** Users of the app (8.06) and mp3 (8.28) noticed a lot more than they would have without the audio. The mp3 gained a higher rating, which can be attributed again to the script being written around specific locations with a clear context and participants being told what to look for while being informed why they are interesting/ important compared to the oral histories in the app which were more loosely attached to a location by my knowledge of its placement but no spoken explanation for participants. Also, the oral histories areas had to be larger and looser as GPS drifts sometimes by 10 metres.

6. **Immersive potential of authentic voices in oral histories compared to scripted narrative.** The definition of immersion is taken from that coined by an expert user group gathered together by Dovey and Fleuriot in 2004 but revisited in 2011 in Reiser's The Mobile Audience.

> that quality of the experience which held them in an imaginary or imaginative world, and left them feeling removed from the everyday surroundings of the experience.' (2011: 101)

This intimate, quite personal way of experiencing work - you, your mobile phone, your headphones – has been around since the '90s, but, according to the documenta 13 curator, Carolyn Christov-Bakargiev, people are still adjusting to artistic work that can only be experienced by one or a small number of people together. Christov-Bakargiev supports the creation of this work, as it is important for,

> 'a viewer, a hearer, a person experiencing art, to cut ourselves off from the rest of the world, at least to suspend our relationship to the crowd for a time' (2012 interview with Cardiff and Miller).

I asked participants how immersive the oral history stories and the narrative was in each order and then compared them within the same experience and compared them to the other order. In the app the majority of the audio is authentically voiced oral histories but there is also a seven-part story narrated in a conversational intimate style rather than 'acted'. Narration by actors made the main part of the mp3 content with one short oral history clip from the same archive as those used in the app. According to Dovey and Fleuriot,

> 'a less immersive experience will concentrate on the physical surroundings of the user, and may be more informative than evocative' (2011: 101).

This suggests that the mp3 factual tour is less immersive than the app, which the results confirm to be true.
> 'A more immersive experience would use data that complemented or in some way went beyond the physical environment, e.g. by evoking more than its factual history or memories of it' (Dovey and Fleuriot 2011: 101).

This suggests that memories, or oral histories are part of a less immersive experience but my findings suggest that oral history memories were more immersive than a narrative, perhaps because they were short stories. Those who felt more deeply immersed in the oral histories felt they learned more, p=.001 as evidenced in the correlation matrix.

Of course we have to take into account that it could have been both my written narrative in the app and the mp3 narrative that were less interesting and therefore less immersive than the authentic memories that were often complete short stories, or narratives, in the app.   Dovey and Fleuriot's paper admits that questions were raised during the research.   The effect of the type and quality of the narrative on levels of immersion was identified as something to investigate.

I wanted to look at the level of immersion with music as mentioned earlier, but as it's not finished this needs to wait for later tests. All the binaural/ 360 degree audio effects weren't ready for the test but I did include some music, sound effects and a range of binaural, stereo and mono audio for participants to comment on, for example, did they like the oral history clips with sound effects? The graph below titled What elements should stay in shows that people rated oral histories with sound effects and music significantly more than oral histories without.
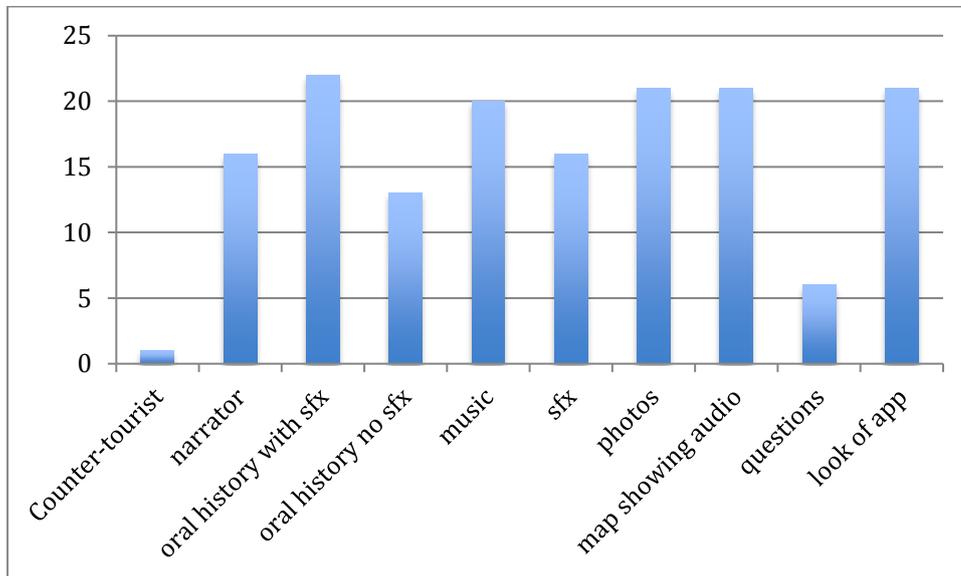
7. **To what extent was the experience confusing?** And to what extent did the experience feel disconcerting? Users can find locative media experiences confusing as they are unfamiliar and there's an assault on the senses at unpredicted moments while moving around an, often unfamiliar, area. Aspects that could cause confusion in the app are:
    a. Why do I hear audio when I hear it? What is the logic/ what is making it start? Do participants understand and feel confident to use the on screen controls to pause and stop the audio, go to the map etc...
    b. How long should I do it, when do I know I've 'completed' it?
    c. Where do I walk? How do I find the audio? The boundaries of the area to walk around in are given but the exact place to find the audio was not marked as explained earlier. There were hints in three parts of the narrative of where to go to hear the next clip.
    d. Is this a story with a beginning, a middle and an end? The narrative has this structure, but it cannot be guaranteed that each part will be discovered in a linear order.   At the beginning of each narrative clip I wrote in mini summary so that they could understand what had come before.
    e. How do I work the technology? Many people are familiar with mp3s but many people are not familiar with apps and apple devices and feel insecure about using them. To be using unfamiliar technology during an unfamiliar experience is a risk.

The results for whether the app and the mp3 were confusing were average which doesn't raise any concerns for me, especially as I will add some features to the app such as markers for the audio that change appearance when heard so that those that want to find audio and know they have 'completed' the experience will be satisfied. The question about whether the app was disconcerting was to see whether sounds playing in places relevant to the audio would create a feeling of almost magic/ the uncanny, that could be disconcerting rather than enjoyable. The results showed that the experience was not considered disconcerting with the app rating slightly lower than the mp3 audio. As many people became lost when taking the mp3 tour perhaps this is why it received a slightly higher disconcerting score. People that were disconcerted with the app were also disconcerted with the mp3 as evidenced in the correlation matrix, but further analysis of the matrix reveals that those that found the app experience disconcerting liked the overall app experience (p=.001) and felt deeply immersed in the app's oral histories, p=.005.

8. **Are you familiar with an iPhone/ iPad?** There was above average familiarity with the devices so I can conclude that differences between the app and the mp3 are not due to unfamiliarity with the iPad or iPhone. This is also evidenced in correlation matrix with a p=.000.

9. **Did you find this app/ mp3 easy to use?** Again there were above average scores indicating that both experiences were easy to operate, the mp3 slightly easier than the app. This is understandable as mp3 players are familiar to more people and have been on the market for longer than iPhones and iPads.

10. **Did you learn anything during the experience?** With the probability value, p=.039, SPSS highlighted this as a significant result with the app receiving a higher score than the mp3. This is especially significant as the mp3 tour was packed with facts and designed to 'teach', the app was more of a walking experience with stories that participants could become immersed in, could daydream through or could be skipped. There was information about the history wrapped within stories but there was also a sharing of personal information that appears to have been appreciated by participants. This perhaps backs up my hunch that more learning can be done during an artistic experience with intimate shared stories but without a prescribed learning agenda than during a fact-packed experience designed for learning. That more learning can be done while people are having fun or being exposed to more creativity is satisfying.

Those that felt they learned from the app liked the overall experience more. With a probability value as low as, p=.001, this is highly significant. Those that felt they learned from the app also noticed more using the app, p=.010 as evidenced in the correlation matrix.

Open Questions

Participants were invited to answer various open questions, which they answered, partly answered, missed or ignored at will. Some had to wait until their hands had warmed up sufficiently to write.

The first question. Could you tell me 3 things you liked about the experience? Although I have grouped many comments from this section into themes, which I shall go into below, there were some comments that could not be categorised and they are: 'unique' TSO1-08, 'memorable' GSO2-15, 'the range of experiences' GSO2-19, really immersive experience" GSO2-25. While walking near the students observing them, a student who had become detached from the group approached me animated and excited, 'Amazing, when you're on your own you get really involved in it' GSO2-25.
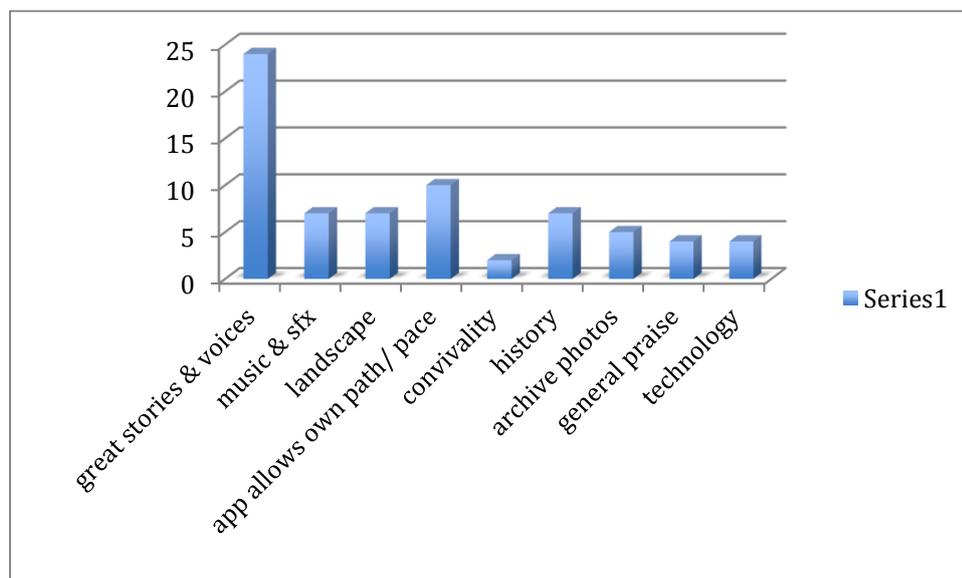
Themes that emerged are:

The stories, the oral histories and people/ voices who shared their memories. My written narrative was also described as a story. Anyone who has worked with, for example, film, theatre or journalism, knows that a piece is doomed if the story is not strong enough despite creative input. Therefore the oral histories mainly and the smaller part my written story/ narrative played were essential and thankfully were cited the most in the what people liked. The stories were praised 24 times. The adjective great was used four times, while interesting was used 3 times. Other adjectives included exciting and funny. Four people enjoyed the personal nature of the stories, two the scandalous bits, while eight people praised the variety and 'abundance of stories' TSO1-08. Four people cited the voices as having a special effect. Here is an example of some of the comments: 'Great stories – constructed an alternative more personal narrative' GSO2-17, 'all stories very different, people from different walks of life' GSO2-13, 'the quality of the stories from locals' GSO2-19, 'Great

stories, wanted to know more/ talk to people' TSO2-07. From other open question results came this comment from GSO2-21 'stories interesting and definitively want to share them with other people'.

1. **Freedom & independence (and technology).** Ten people liked not having to touch buttons, 'was interesting for the stories to play automatically – in relevant places' GSO1-14, 'the movement, not having to touch buttons to trigger stories' GSO2-11, 'the freedom and accidental meeting feeling" TSO2-07. There were others who were happy to choose their own route, 'freedom to create own path' TSO1-08, and how fast to walk 'going at own pace' GSO1-20. Similar comments also appear in the technology section which included comments such as, 'worked pretty easily – was straightforward' GSO1-10, 'the interactive experience'GSO2-19.

2. **Music & Sfx, Landscape and History** all received seven comments each.

a. **Landscape.** Although one of my main aims in making the app is that participants experience a greater connection with the landscape I am surprised they named the landscape as something they especially liked as it is mostly a site that is in transition between neglected post-industrial wasteland to plots being prepared for sale as waterside apartments and restaurants. Of course just getting a new perspective on a place is interesting, 'exploring a new place' TSO1-03, 'different way of experiencing landscape' GSO1-23. At the end of this section there is the beach, 'view of sea' TSO1-09, 'walking to the beach' TSO2-05. Although it's a rather scruffy bit of beach at this point, with metal waste from the tank & plane defence in the war now partly exposed in the dunes, the sand is golden and the water is turquoise blue on sunny days.   The comments have reminded me how important seeing the sea is and I am thinking of lengthening the walk to include more of it. The path gets rougher and I have resisted it in the past not wanting to penalise or exclude those with mobility issues. Part of the walk in the opposite direction is along an old tramline with a cliff on one side with exotic plants with a man-made pool, an RSPB protected site, on the other side, 'Beautiful walk route' GSO1-10. Please refer back to the other comments on landscape used as a creative introduction to this results section.

b. **History.** Users spoke about 'hearing history' TSO1-01 being pleasurable and that the experience 'paints a vivid picture' GSO2-25. Some users felt as though they were participating in history 'feeling involved with the history of that time' TSO1-01.   In answer to an open question TSO1-03 said, 'I felt more connected to the place and people and I felt a part of the history' and, 'stories interesting and definitely want to share them with other people' GSO2-21 and 'I would bring friends and explain some of the things I learned' TSO1-03.

There was **learning** through, what was for many, an unfamiliar experience: 'different to other heritage tours' GSO1-20, 'gave me info that I wasn't aware of previously' [from a student who lives in Hayle] GSO2-17, "can learn through people's experience' GSO1-12.

c. **Music & Sfx.** The music being created for the app wasn't ready for the test but one of the composers/ musicians let me use a slow, atmospheric fisherman's song from a previous work that was heard as users walked past the fisherman's lobsterpots and landing cranes and came up at the end of a clip from a local fisherman I recorded recently to have audio clips from different time periods. I included other original music clips including some experimental sound pieces I had created and recorded with a local choir (50 degrees) and some songs and sounds created by some friends in Berlin with pieces ranging from an Italian song to whistling but the quality varied and this was noticed: "some of the music was good – made you want to stop & want to take in the surroundings' GSO1-14. During the experience I observed participants looking about for birds or planes they can hear or looking around trying to work out where a sound is coming from – or what it is. I knew they were hearing something on the soundtrack. This is another 'magic moment' identified by Reid and Hull (2011: 197), 'the synaesthetic confusion caused when you are not sure if a sound is real or virtual' (2011:197).

3. **Archive and other images:** I'd gathered images, photos, postcards, aerial landscape shots and old map images from various sources (this has become the main 'headache' of the app as many archives don't have an app copyright policy and dealings can be lengthy, involve a lot of paperwork and, because the app will be published - cost, despite the app being free to all users). One image cost me £174 to use. It's a painting of Copperhouse pool by Stanhope Forbes who painted en plein air, (in the open air). I read diary entries about him working around Hayle and managed to identify the five children who modelled for him in Young Anglers. It's a picture that means a lot to people in Hayle, I've seen reproductions on many walls while interviewing. Images were scanned from interviewees and added to the Hayle Community Archive and gathered from archives and the record office. Five people commented on the images and enjoyed using them to compare the past landscape to the present. 'Images & prompts made you want to stop & want to take in the surroundings' GSO1-14, 'good use of images to compare to now' GSO2-17, 'knew

where you were - maps & old photos' GSO2-15 and one as an answer to the question, how did being on the site affect your experience? 'I liked comparing the old pictures to the modern scenes' TSO2-05.

4. **Conviviality.** I had hinted at whether people felt alone in later questions but I had hoped that people felt 'accompanied' by the stories and the local characters on the audio so I was delighted that without any prompting two people wrote these comments in their first answer: "feeling like I had company with the app stories" TSO1-03, 'I enjoyed the company of the tracks AND felt I was part of a group' TSO1-02. This is rewarding as the experience is more immersive when slightly isolated from others but I didn't want people to feel lonely, this last comment shows there was a healthy balance between the two.

When asked to name up to three things people didn't like about the experience I can split the responses into:

1. **Things I cannot do anything about:** such as the cold and wind, ('cold hands' TSO1-02) eight people complained about. I have programmed the app to make sure people can keep moving while listening to keep warm plus an iPhone can be popped in your pocket to keep hands warm and I have removed the need to take gloves off to press the screen buttons as it happens automatically. The mp3 was criticised because they had to stand and listen. Other complaints included; 'Sometimes not able to see the iPad screen due to the reflection of the sun (unable to see photos on screen) GSO1-12 'Having to hold the iPad' TSO1-03 (the app was made for the smaller iPhone), and 'often too absorbed in the iPad to look around' GSO1-14. **The app is made to be quite hands-off** which people praised in the things they liked. I believe that users will become more comfortable and familiar with the device as they walk around with it, leading to less worries and the need to check the screen. 'Had to stop app and audio to take your own photos' GSO1-14. As the user switches to camera the app closes but opens automatically again when you return to it without needing to start or stop it, just the audio stops while you're taking the photo.

The chart shows elements that more than one person did not like.
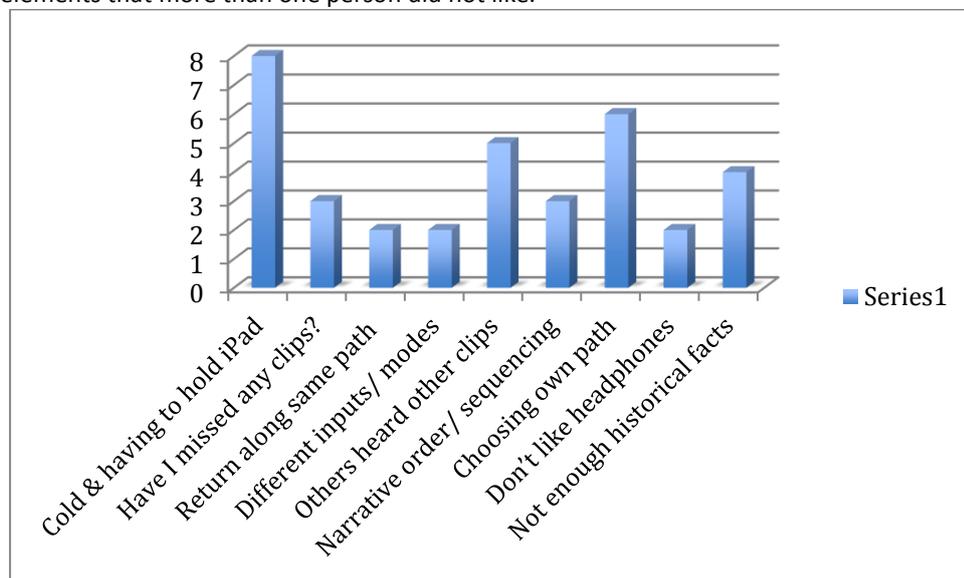
2. **Things I know are an issue and I'm working on:**

a. **The narration.** The first part of the narrative is rather essential as it includes reminders on how to use the app and how to stay safe while wearing headphones and being distracted with audio. As mentioned I couldn't load it onto the Welcome page and quite a few people heard this important structural and contextual introduction at the end when they were leaving the site, 'Minnie's intro speech only came right at the end of the walk' TSO2-05. This was also mentioned when participants were asked if they had problems, 'Winnie's story was fascinating, the intro was a little unclear and I

didn't hear the end' TSO1-02. This will be corrected. This will hopefully control the order that the narrative is heard a little better, although it is challenging. It should give more space to use the narrative as a structural tool that helps motivate the user to keep walking and discovering.

b. **How will people know if they have heard all the clips or are going in the right direction?** Three people were worried they hadn't heard all the clips 'uncertainty if I missed any' TSO2-05, 'could have missed some and they could have been good stories' GSO2-13 and in a section asking about what changes could be made to the app seven suggested knowing where the clips were, TSO2-05 suggested 'I would place points where speeches are on the map so you can tick them off as you go' TSO2-05 and GSO2-11 'some way of knowing where there are untouched/ unlistened to stories'. As mentioned, I had a problem with the markers, which will be remedied in the next version.

c. **The amount of different input** – oral histories, a narrative, a guerrilla counter-tourist interception, some direct questions, two people found this uncomfortable: 'disjointed – all different modes (song, oral history, narrator)' TSO1-09. Some elements will be removed from the next test on reflection of results of a different question later in the questionnaire that allowed participants to vote for what stays in. (see fig. … above)

d. **3G.**   I have removed the need for the iPhone to be on 3G, just GPS. This was not resolved by the test date but has been sorted out since then.

3.   Things I need to consider more deeply:

a. **The route:** At the moment it goes along a road that then forks in two ways. Users walk one way, come back (along a different road or path but parallel to the other) and then walk up the next fork and come back. It's not ideal but a loop means making the walk very long and goes on narrow roads with no pavements one way (very dangerous, especially with headphones) and effects the participation of people with disabilities one way or takes them along a very noisy road the other way which makes it impossible to hear audio files well, I have tried guided walks and tested the app there already. But, I am taking on board comments such as: 'walking back along same route, wanted a loop' TSO109, 'some dead ends mean retracing' TSO1-08. The amount of sound clips and photos that can be included in the app is limited so the app cannot be as large as I'd like but I am considering stretching it out over a wider route that would take in different viewpoints, enjoyed by the mp3 walkers, including more of the sea and by adding a small loop section with a suggested loop outside the app area that returns the walker to the start point and would address thoughts such as this from GSO1-14, 'stories were good but not sure we saw enough of Hayle itself.' On the test days there were enough clips along the routes to walk backwards and forwards along the same or parallel tracks and to hear many different tracks, I had hoped the lack of a loop wouldn't matter but would instead help to deepen familiarity with the area by retracing the same route. I personally would always prefer a loop so I can imagine why others would.

Using a larger area for the app I am hoping that I can control the effect of GPS drift and make sure that more of the clips are heard with less gaps between them, 'the blank spots (often quite long) between stories' GSO2-11 and also mentioned in section to suggest changes, 'have more stories constantly' GSO1-12.

b. **The lack of historical context.** I had decided it was to be a walk through some memories with some hints about time periods and who the speakers were on a short title on the app by the photo. The app involves history but I did not want to create a tour. Some people didn't like this lack of context and fact: 'bitty, unclear of overall picture of the history of Hayle' GSO1-10 while in another early test with artists, I was praised for resisting including an endless stream of facts.   In the suggestions for changes GSO2-13 commented, 'all centred on one period of time – would have been nice to hear modern stories too', 'wider time period for stories e.g. more recent memories' TSO1-08. Included are a couple of modern stories (e,g, fisherman and descendent of the Italian PoW). A session to interview young people (16-19) studying music BTEC was set for the week after the test. That session is now complete and I have their comments which give a young people's accounts of the present. I am also waiting for them to finish their music compositions and songs based on themes that emerged in the session, which I hope can be included into the app. From another comments section, 'feel there could have been a bit of emphasis on its potential future' GSO1-14, 'Gave scope for historical research into the time period but little on present/ future'GSO2-17. This has been addressed but interviews on the effect on the landscape and sea that dredging has had and the threat of new plans to extract tin from the sand were not in this test. The piece is dominated by the oral histories from people who were older members of the community during the Hayle Oral History

Project, to catch their stories before it was too late but who are not old enough to talk about Hayle's era when Richard Trevithick's inventions helped kick start the Industrial Revolution.

4. **Some things I won't change (or some changes planned or made already)**

    a. **Playing of clips automatically** in a space with no set route bothered five people. The clips start automatically in locations relevant to the audio. Some people wanted to be able to start clips where they want: 'didn't like the randomness of clips – would have preferred to select clips' GSO2-17, but this becomes indistinguishable from an Mp3 audio walk. Ten people had mentioned liking the magical appearance of audio, double the amount that disliked it, in the first question. For those who are familiar with locative media audio starting is expected but is still exciting, surprising and sometimes disconcerting. During observation the geography students seemed genuinely shocked and amazed that audio started automatically, perhaps because they are less used to staged performative 'tricks'. When the first clip played GSO1-10 stopped and gripped the headphones with mouth open, "Wow!" she said, grabbing the others around her, 'someone's talking!" Clearly this loss of control over starting clips and not understanding how it worked bothered some. I had to tell a few users that it worked with GPS so that they would carry on with the experience and at least 5 had guessed it was GPS but needed me to confirm it.

    b. **The freedom of choosing their own route** was difficult for six users but I still feel it is an interesting way to explore a site and feel that people will feel more relaxed about it when they have time to build up their confidence and the markers are in place. 'No set path, didn't know where/ when you would hear things' GS02-15. Four people asked for clearer routes in the 'suggested changes' section of the questionnaire. Left to choose a path, some were so sure that there must be a set route they followed old train lines one way and old tram lines the other direction that were marked on the map. They became confused when they reached the boundary of the app but the train/ tram lines continued. Users will be able to choose when and where to hear things in 'armchair mode', which is really designed for people to do at home rather than on site but can be used on site too. At the moment users can pause or stop/skip the clips but, as the programming is rather complex, they cannot repeat the clips unless they leave the app and start again. This is explained in the information accessed via an on screen tab marked 'info'.

    c. **Not hearing what my friends are.** As people walk at different speeds and along slightly different routes they heard different clips from their friends nearby and that really bothered some: 'Often we were listening to different stories than the rest of the group - was difficult would have liked to chat about them' GSO1-14. I want to keep this effect as I want people to pause and say, 'what are you laughing at?' to create a conversation and an encouragement for people to direct others to areas where they enjoyed stories. I witnessed this conversation (and others like it) while I was observing the group: "Did you hear the one about the guy breaking the record?" "Yes, and the Italians, did you hear that'. People got especially anxious at the very start when everything was new when others heard a clip and they didn't. This is understandable as people are often dubious that technology will work (or whether they are able to make it work) and are more insecure about it at the start of an experience. While following/ observing a group of students one said to her friend, 'I can hear creaking', the other said, 'I can't' and then turned to me, 'Mine's not working' but it was. This reporting of the app not working was usually because it wasn't playing the same clip as other group members. Exceptions are that twice the sound was turned right down on the iPad and twice the app or iPad crashed so I replaced it.

    d. **Seagull sfx:** this will be minimised when the music is finished but will still be included as, 'synaesthetic confusion […] determining whether the sound is coming from the soundtrack or the actual world ' (Reid and Hull (2011: 197), has been described as pleasurable in all my previous tests during stages of the app and in other research for example by Dovey and Fleuriot.

e. **Closed-cup headphones:** Although I advise users to use closed cup headphones to control the amount of sound coming in from the environment and to make sure the binaural/ 360 degree effect of the audio on some clips can be enjoyed, I cannot control this outside a test situation. People will use whatever headphones they want to, probably mostly in-ear ones that come with mobile phones or could even play the app over the speaker. The effect will be lessened, the immersion affected, but ultimately it is their choice. Because I insisted on closed cup headphones being used during the test two people complained (even before leaving the café). I feel that it was that they weren't what they were used to, the way they looked (large and conspicuous) as well as not being very comfortable (ones from the media store rather than high quality ones) and judging from my observations, they interfered with woolly hats and conversation.

I asked the participants: Do you think you would now be more likely to… and gave them eleven different options which ranged from questions about passive thought (e.g more likely to think about what could be done in the present in the area), increased awareness (e.g. pay more attention to planning proposals in this area) to activity ranging from pick up rubbish here to look up more historical information about the area.
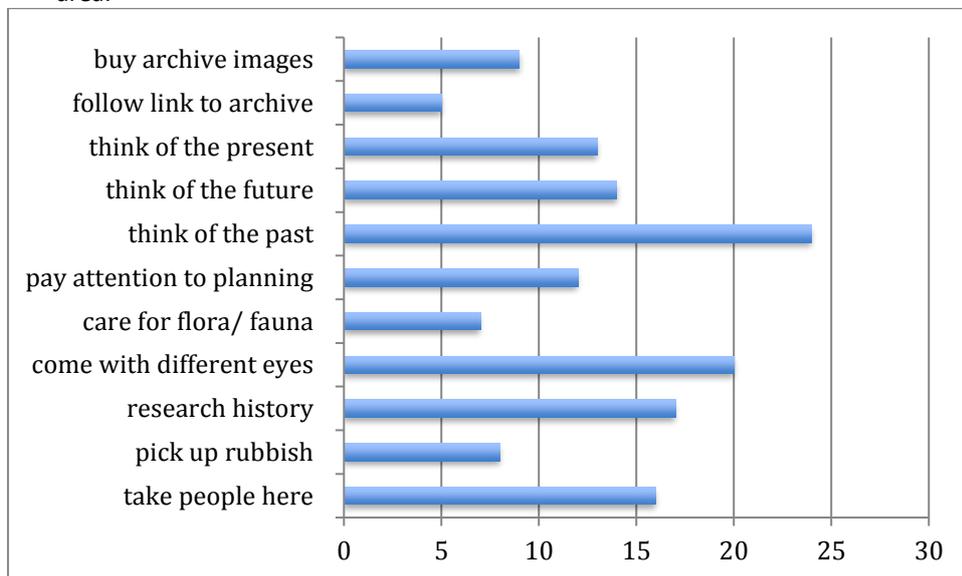
As noted in the hypothesis section, it is important to check people's intentions against their actual behaviour. I will be re-interviewing most of the interviewees after more than six months to see if they have followed up on any of their intentions, especially most live far away from the site, with two, one Theatre student and one geography student living in Hayle. At this point though their answers are interesting. 24 out of 25 testers said it made them think about the past of the area, unsurprising as it was all about the past. Although only 20% said they would follow the (in app) link to the archives and 36% would be more likely to get some archive photographic images, what is worth noting is that 68% said they were more likely to look up more historical information about the area. Again we need to reflect on the age of the majority of the group (18-25) and remind ourselves that none of the students were studying history to understand that relevance and that only two participants had a connection to the town before. Interesting for commercial business and those studying tourism, is that 64% they would take people here and share information, despite spending time in one of the least attractive parts of the town. 80% said they would come here again and see it with different eyes. Although few seemed to think they would care more about the environment, only 32% said they would pick up rubbish and 28% thought they would care more about the wildlife and flora here, but just under half of the group, 48%, said they would pay more attention to planning proposals in this area, which indicates that they do care about the landscape and how it might change. This also makes sense of the 52% who were more likely to think about what could be done in the present in the area and perhaps more significantly, the 56% who would think about the future of the area. It's important to compare these results with answers after the mp3 test. None of the mp3 scores were higher than the app scores but the same amount of participants, 24 out of 25 said they would be more likely to think about the past of the area and the same amount said they would

link to archives and get some archive photos. As there were no archive photos as part of the mp3 tour I looked into this further. Only one participant who had used the app in the morning (and seen a lot of archive photos in it) then went on to say they would be more likely to get archive photos after the mp3. Those that did the mp3 as their first Hayle experience perhaps had their interest raised in the town and wanted to see some archive images? Only 42% would look up more historical information about the area (against the apps 68%), with 53% (compared to the apps 80%) said they would come here again and see it with different eyes. Only 32% of those after the mp3 tour felt they were more likely to pay attention to planning (compared to 48%).

Correlations

To date I have looked at correlations between the app and mp3 walk in the pre-site questionnaire and between the app and mp3 in both tests. To illustrate what a correlation can show I shall use a simple, logical example that we could have predicted from the pre-site questionnaire ourselves: that there's a close correlation between those that like walking and go walking. Again, results are statistically significant when probability of a result coming about purely by chance is less than 5%. This is expressed as the probability 'p' being smaller than .05, $p <= .05$.

In the first stage of analysis, apart from those already mentioned, these results stood out:

1. **Those that felt they learned from the app liked the overall experience more**. With a probability value as low as this, $p=.001$, this is highly significant as evidenced in the correlation matrix.
2. **Those that felt they learned from the app also noticed more using the app,** $p=.010$
3. **Those who felt more deeply immersed in the oral histories felt they learned more**, $p=.001$ as evidenced in the correlation matrix.

Discussion

Music missing etc..

Disconcertion, something that can happen while making an app.

Weather – effect, hopefully more enjoyable in better weather with less clothes

Ipad versus iphone – more portable, although ipad has larger screen but pictures can be looked at at home on a computer screen.

Conclusions

Don't do a test on a Monday, you need working days to get help with coding or app software issues before a test!

Mixing answer styles on questionnaire for participant and me.

1. "an art that is based on a phenomenological exchange will offer the participant a compelling, fully conscious experience of perceptive intensification of place, of body and of time followed by alteration. […]The coordinates of consciousness may change radically"(Sheller and Iverson 2012).
2. Those that experienced disconcertion also enjoyed it more and felt more immersed… poetic…magical..?
3. Lengthen the walk, include HFT clips, some about the harbour etc,,,
4. Although both experiences used technology the app rated better on what people were more likely to do – perhaps less wanted to research about Hayle after the mp3 because they got a much more comprehensive history of a period in Hayle's history from the app, - with answers that showed a closer connection to the place (wanting to bring others there and seeing it with different eyes), and linking it to caring about the future of the landscape (keeping an eye on planning, thinking about the future) showing up after the app test.
5. **Can a sensory embodied interactive experience, facilitated by our smart phone, merge the landscape, mindscape and bodyscape into a feeling thinking whole?**

   Despite the looser anchoring learned more? enjoyed more? But didn't quite have a location specific anchoring… but I feel the effect of being in the landscape will be stronger with music.

   'lots more than just meets the eye – real sense of how important places were' GSO1-14

   authenticity

   implications on fact packed or creative

It's use in other environments: 'very enjoyable but inspires me more to go look at other places […] Would love to see it applied elsewhere' GSO2-25.

Appendix E: second evaluation

Banner to advertise the app evaluation to visitors of the new Hayle Heritage Centre

Second evaluations qualitative findings to four questions

Question: Three things you liked about the experience

Future
Really made me compare and contrast with today and think about the future when people look back at our time, what stories will we share (M19)

Minnie & Winnie's Story
Mini's story and the way it came & went and related to the other stories (M3l)
The Minnie narrative (M4)
Minnie's story (F3)
Minnie's story drove forward your movement
The narrative, wanted to walk more to hear more (M13)
I liked the narrative of the USA lady. I liked that you had to keep on moving to hear. (F15)
The use of a non-Cornish American sounding narration signified extra meaning. Our connected distance from past events and the multicultural nature of the town and its history. (M23)

History
The historical setting (M3)
I learnt about Hayle's History (M4)
Informative (M9)
Educational (M9)
History of Hayle (M1)
It was like going back in time (F9)
A nice relaxing way to wander around the area and discover interesting facts and history (M10)
Learnt some local history (M11)
Discovering and learning historical facts and features in Hayle (F16)
Informative (M14)
Informative & relaxing – great combo (F18)
Personal history of the people – going through a living museum – almost an abstraction, it becomes poetic, removed from reality not necessarily realistic (M15).
An excellent idea to give oral history of area, but an idea to get people looking in correct direction (F19)
Informative (F20)
Interesting facts about racial tension and work conditions (F21).
The potential of the technology to really educate and promote local heritage(M23)
Learned something (F29)

Stories & voices
The personal, anecdotal stories (M3)
Range of stories: detail, personal/ scientific etc... (F2)
All the lovely Cornish accents (F2)
It was personal because it used people's stories (M5)
I really enjoyed listening to other people's experiences whilst walking around (F4)
Personal stories were lovely (F5)
Interesting stories (M8)
Hearing the stories told in the Cornish dialect (F6)
Stories of old cornwall (Hayle) and people's lives (F6)
Also Stories relating to other lands (F6)
The stories were lovely (F7)
Loved the stories, interesting & informative (F7)
Loved the use of local people & language (F7)
The stories - (F1)
The fact that it wasn't just positive stories (F1)
I felt as though the people were there with me sharing their experiences(F9)
The experience of real local people brought it to life (M10)
The oral history (F10)

The anecdotes and accents (F11)
Listening to the speakers and hearing their stories (F12)
Listening to the stories of the people's lives and experiences from the past reminded me of time spent visiting
PZ grandparents when I was little. (F13)
Pinpointing particular events in location (F14)
Hearing first hand accounts (M12)
Feeling a different kind of connection with the familiar landscape through the stories (F13)
The talks were relevant to the areas (F4)
Understand people's experiences better (F5)
I loved hearing the real voices and stories (F17)
Good range of voices – male and female & SAS (F18)
Sound clips as going along King George V Walk (F19)
Moving oral history (M17)
The stories have really stayed with me, I wanted to pass them on. (F22)
Connected with people through their stories (F23)
Listening to real voices talking about their history (F24)
Worked well and individual stories clear and interesting (F30 & M22)
The stories were wonderful & insightful (F31)
The stories (F32)
Interesting narratives (M35)
Enjoyed listening to the accounts (F25)
Great app, well done! Good balance of content ... fascinating to hear
peoples stories and insights from the past. (M19)
I enjoyed that the stories were everyday and personal. (F27)
Oral history (F28)
I enjoy listening to people's reflections of the past. (M27)

Different experience
Artistic experience (F2)
The feeling of time travel (F11)
Hypnosis (M7)
Atmospheric (M9)
Fun (M11)
Surprise element – not knowing what was next! (F14)
V. different to anything done before! (F18)
Interesting (F20)
Atmospheric and evocative (F21)
The experience was most enjoyable (F24)
a sense of discovery of a time lost. (F32)
Different kind of tour (F25)
Told with humour – very good (M20)
Gave the human experience – books can't convey (M20)
Not knowing what to expect next (M21)
Novel concept (M21)

Place
Being in a familiar everyday environment, but being there under completely different circumstances and
appreciating it in a different way. (F16)
Gave me a better sense of place (M14)
The app added another layer onto my encounter/experience of the place (F33)

Hayle
I looked at Hayle in a different way (M4)
Learning more about places I'd been to before (e.g. Copperhouse Pool for the gig rowing) (F3)
Made me appreciate more about where I live (Hayle) (F4)
Took me to other parts of Hayle (I don't live here) (F5)
The scenery (F7)

Took me on a route I would never have walked and that I enjoyed (F1)
Walked a route I otherwise wouldn't (M2)
It brought Hayle 'back to life' (F9)
The views I saw (F10)
Developing a different kind of awareness of my surroundings (F13)
Being actually in the locations and being able to see old photos in situ and being able to compare with the current landscape. (F14)
Picturesque route (M12)
New perspective – saw things I would not have ordinarily seen (although see last point of next question) (M5)
Being able to see the relevant things the people talked about as I walked. (M6)
Information/ 'peopled' a landscape (with ghosts ha ha!) (M7)
Thinking about the past particularily North Quay and how busy it was gave me goosebumps (F17)
Walking on the beach (M15)
Gave good views over Hayle & Lelant from the Towans (M16)
Hearing about things previously unknown to me – war time activities in Hayle(F22)
Made me see the place differently (M18)
Having information about Hayle while walking around (F24)
Taking time to re visit areas of Hayle you probably wouldn't take time to stop & notice (F31)
Well-chosen locations: good variety (M25)
A personal, quite intimate view of Hayle (F25)
An app for Hayle (smiley face). – (M21)
Seeing Hayle from a different perspective (M21)
It is about a place that I grew up and am fond of. (M27)

Tech
It worked, but interface covered pictures too much. (M5)
Learnt how to use iPhone (M1)
Novel concept (M1)
GPS linked with location well (M13)
Experiencing a refreshing new way of learning using an iPhone (F16)
The placement of markers/ stories was perfect (F17)
Easy to use (F20)
New use of technology (F23)
No technical problems on Iphone (F30 & M22)
App worked smoothly (M25)
It made me think for the first time about the world of apps and their potential use in ultra-local situations like this. I don't have a smartphone, and this is only the second app I have used (!) (M26)
It was quite entertaining playing with and marvelling about the technology- felt like a game (F33)

Music
The music - 4 (F7, F32, F3, M6)
Music was used well to give atmosphere
The music for the Italian POW story and the music for Gwithian
I liked the music (although it did get a bit much towards the end) (F15)
Songs (M15)
Beautiful music (M17)
Loved the songs (F21)
Atmospheric music and feel to it – particularly last 'sluicing' song.
I liked the use of cool music to illustrate stories (F27)
I liked the music between stories, it is tranquil and relaxing (M27)
The atmosphere created by the sound track created realism. (M16)

Sound
Good atmospheric sounds (sea, birds etc..) (M8)
Atmospheric sounds (M16)
listening on headphones while other sounds are drowned out, gave the ability to feel closer to the narration and see Hayle through different eyes (M23)

Sound quality and recordings (F28)

Images
the images that showed (M6)
The clarity of the map (F11)
Images were in synch with view (M13)
I liked how the images overlapped with what you saw (but sometimes I forgot to watch them) (F15)
Visuals – historic photos – unusual because you used your imagination and intelligence to make sense of it. We think we want facts but they are quickly forgotten' (M15).
Having pic info to back up their stories (F24)
It was great to be able to see the old photos too. (M19)
Saw some new images (M20)

Map
Map was easy to follow (M16)
Map of walk easy to follow (F30 & M22)
The map with the location showing (F31)
I liked the interactive nature of the map and the fact that the stories started up without prompting. (F27)
Interactive map (F28)

walk
it gave permission for and form to a walk (M7)
the walking itself (F7)
got me out and about (M1)
A majority being away from traffic which made it a nice walk with the dog. (M10)
The walk (F12)
Got me out and about (M14)
A very pleasant walk around Hayle (F22)
Out and about – active (F23)
It's a great excuse for a walk (M18)
It enhances an already lovely walk (M18)
Using the app encouraged me to make time to walk and explore the area. (F33)
Family thing to do (F29)
Good walk (F29)

Alone
'if you were on your own you'd get more in to it'. (F19)
Conviviality
Discussing en route with friend (F23).

Personal
It reminded me that I really do need to carry my reading glasses with me when I go out (M26)

Qualitative answers: Three things you didn't like

Map
I would have liked the map to orientate to the north as I moved (M3)
Got lost a few times (M4, M5, F3, M6))
Directions needed in places – easy to get lost on the Towans (M8)
Slight map confusion (around Towans) (M2)
Make the map more free, I couldn't move the map far to see where the route went as it kept popping back to the man (M18 - using android)
If you weren't local then possibly more direction or markers required around the dunes section (F31)
Difficult to navigate, using the old map in the app if you did not know the area (M19)
Add marked out route to make to avoid confusion? Getting lost?
Difficult locations, better map
Possibly more directions (F31)
Google maps would make a better more user friendly (possibly adaptable) GPS map platform. (M24)
Using streetview, people wouldn't have visit the place to do the walk.(M24)
Footpath behind the Old Power station, is not marked on the map, and for non locals that rabbit warren might be difficult for them to navigate. (M19)
Improve the map by adding more detail with the ability to zoom in and out. People who do not know the area could become confused around the chalets and cricket club. (M27)

Felt I was being too directed. (F33)

End
A definite end!

Minnie's story/ intro
Found the Minnie character distracting – trying to fit her and her obviously fictionalised narrative in. The story was really good but it took a while for me to understand where she fitted. Is it a deliberate 'we are strangers together' thing? (F2)
Perhaps have a local voice framing? (F2)
The American introduction
Perhaps shorten the narration parts (M11)
An American narrator took me aback an it wasn't until her comment about being the first to return to Cornwall that it made sense to use her. (F17)
Too much about Winnie/ Minnie (F19)
Narration (F20)
Until I realised why there was an American lady talking her accent bothered me a little, I thought she was a generic voice. When I found out she was Winnie's daughter I warmed to her completely. (F24)
uncertain about the voice of narrator. Not warm in tone. (F32)
Maybe just have intro play when it starts at 1st marker? I wanted to skip it (impatient!) (F17)
Have a local narrating the story (F20)
Not sure if the fiction/ faction bit needs clarifying because the other voices are real stories. (F1)

Too little content
There were some long gaps between stories (M4)
Periods with no stories (but we did take a long road which was not on the map) (F6)
Sometimes long gaps between clips (F19)
A few more recordings on the way back from North Quay (M18) [a lot of people mentioned this.. a long file?… it's just making sure it doesn't get activated walking the other way as it'll be long.]
Long gaps without any memories (M21)
more stories please – F24
More stories more frequently (F5)

Too much content
It might be a little crowded ar the start, dense may be a better word (F10).
Audible narration distracted slightly from enjoying the scenery (M11)

Locative

Didn't really feel a connection with the geographical-based historical settings as we walked through them. (M12)

Have sound, picture and view marry up (F19)

Physical heritage connects us with the past. The stories did not relate very well to the heritage of the place. Often the tales were about other places away from were I was. The experience worked the very best when the tales was focused on where I was stood ie the black steps, the electric works... all other tales were a bit vague in terms of the location and this seemed to miss opportunity for promoting the value and meaning of the townscape. (M24)

The audio seems to kick in about 5 metres from where it should e.g. the steps (M25)

Relate to the landscape as it is now e.g there is a lot of development taking place. (M25)

The really interesting parts were where the audio directly related to the location you were in. Make more content that is specific to the actual location.(M10)

Add location specific narration/ background/ historical facts to integrate with the oral history.

the need to connect better with place its physical heritage (M23)

Direct relationship between audio and location. (M2)

More directions needed/ contextualised

There was no verbal direction or instruction on where to go next, I had to keep pulling my phone out and this is a distraction. (M24)

Narratives could be contextualised more clearly: narrator could point out landmarks (M25)

Contextualise the time of the speaker: looking at the screen is a bit distracting. (M25)

I would have liked to have a small amount of info about each location before the clip – I was in the wrong place for the electric works and also steps (F19).

I think I would have liked vocal guidance of where I should be going. [me – me an mp3 track?] (F4)

Add a marked route to avoid confusion? (M4)

Without wishing to turn this in to a general walk-about guide some indication of where to look linked to the narrative would be good. (M23)

Stories & voices

Probably too diverse stories (history, SAS, black soldiers, Italians) (M5)

Stories not light-hearted: teenage pregnancy, racism and murder (M8)

Bit sad in places (M1)

Too many 'old' voices – young ones would also be good (F18)

Could benefit from 1 or 2 uplifting beats – songs - children, happy etc.(F18)

Variety – more historically relevant facts, older ..prehistoric history. (M15)

I couldn't access any of the stories at home again. (F27)

I didn't want to hear the stories twice when I walked back past them so it would be good if it could tick off the ones you have already heard and not play them again to you. (F27)

More things from today – young people. (M15)

When I started the test I went straight into hearing a story – I am not sure if this was a mistake on my part and my failing to hear and activate an intro, but if I didn't miss an intro I think this would be a better way to start out the test. (F16)

More contemporary voices/ stories (F15)

Access stories again at home (F27)

Extra narrator help

Additional voices underneath telling me where I am & what was there before.

Easy for me to say - Introduce vocal guidance

Some more guidance so as not to miss stories (F6)

Provide occasional interjections such as:

You can go two ways here…

Look for a path on your right coming up

Whoops, you have missed the turning

Slow down

You are now off the trail   (M8)

Include a narrator to orientate the listener and introduce the stories. What are we looking at? I know it's Hayle Pool; would a non-local when the tide's out? The app suggests sitting down and listening above the Pool but there is no seat nearby: only someone's car park... (M25)

I feel some sort of narration between the audio clips to give the user an idea of what they were looking at/were supposed to be looking at when the clips triggered would make the app less confusing. As it is the segments trigger without warning and I found that I missed a lot of what was being said while I tried to work out where I needed to go and which way I needed to look. The clips also skip about through time and place and I feel that some sort of narration would help make sense of them. (M26)

Difficult to say.. perhaps more continuity of narrator to help the ear tune in (F33)

Walk
Felt a bit too long (M5)
Feeling slightly trapped by the walk (now that I've done it, I would go in and out another time. But that is just the way I am I think). (F10)
I thought it was a bit long (F15)
Walk a little too long – the loop around the pool long and ….interesting? The pool is not attractive (F18 - tide was out).
Slightly too long? Or I just needed more time? Perhaps if a bit shorter, I could stroll and ponder a little more – and pause to look at pics. (F23).
Feeling that my mind was not able to wander as usual on a walk. (F33)
I don't normally walk this far in one go. (M21)
Dog mess along the way – just saying (smiley face) - (M21)
2hrs is quite long due to the distance - may be 3 x 30min loops might be more manageable for people/families/OAP to chose from (M19)

Tech
Not being able to pause the app at first (F3)
Didn't work on my ipod (M6)

Phone small
Iphone a bit small & dark (subject to my long sight & a bright day) (M7)
I couldn't read anything on the screen. It was a bright day and I think that even with my glasses I would have struggled. (M26)
Mobile phone screen too small
Have a bigger screen to see the pictures/ map than iPhone, maybe iPad size(F13)
I couldn't read screen with interesting details on it. (F22)
Wasn't able to see pictures well enough (concentrating on walking/ listening!) (F23
Screen notes difficult to read in daylight and not good for some without their reading glasses! (M25)
No: apart from the size of font in daylight. Especially (M26) who is older than me....(M25)
I feel the iphone screen is too small to be read comfortably in bright daylight.
No. It was straight forward, easy to use and trouble free. I guess the only limitation is the size and brightness of the screen (although this could be age and wet glasses). (M24)

Issues
I wasn't sure if I had heard all the talks (F4)
Long gap from intro to first stories (only time for part of walk)(F5)
Don't know Hayle so reference to key places didn't mean much – but didn't look at screen much so info possibly there (only time for part of walk) (F5.)
Iphone locking itself. (F11)
My phone when it froze! (F12)
Be able to access the 'home' to re-hear or have a print out to read. (F13)
Problem with echo sound (M14– on main street android during a traffic jam).
I wasn't good at the iPhone and needed help (GPS sometimes didn't catch up). (F22)
Initially the programme crashed a couple of times, but I wasn't using an iPhone so my fault not yours (M18 on Sony Xperia)
I couldn't zoom in on the map more but again could be my phone (yes all androids M18)

Tried on IPod touch. Installed and intro played but no access to walk information because no GPS. (F30 & M22)

Lost GPS at somepoints but could be phone or location rather than the app(F31)

Gps triggered the audio clips about 50m too early - for example the clip about the steps started before we could see them so we had no idea what the interviewee was talking about (M26)

The first thing to say here is that I do not have a smart phone and have very little experience of apps: I may have been expecting too much of the technology, I may have been expecting an impossible level of functionality (something like google street view) and I may well have become too grumpy too quickly when things didn't work well. Please bear all this in mind when reading my comments! I am aware that I am a grumpy old git sometimes. (M26)

Technology took some time to get used to (F25)

Always looking down at my phone (F28)

No option to rewind the recording (M18)

Rewind feature would have been good, I sometimes didn't engage until after a story had started! (F17)

Can not rewind or fast forward the audio. (M27)

I think it is a newish process so misgivings are to do wit novelty maybe?(M7)

If possible to enable touch activation of location stories so no need for Iphone location data (F30 & M22)

The app needs to integrate with Facebook or other social media.(M19)

Clearer instructions of how it works at the beginning (F25)

Integrate social, so users can help spread the word. Also, not sure why I could not add my memories/thoughts at each point? or whenever they occurred to me during the walk? (M19)

Would like a windows phone app (M20)

The constant sleep settings was annoying (i.e. kept stopping)

Ability to fast forward and rewind the audio. (M27)

sun

Screen is hard to see – sun

The sun on the phone made it difficult to read even in the shade.

Difficult to focus on pictures in bright sunlight (M11 - but downloaded photos to android phones and so saw all of them including his chalet he's had 20 years and has looked for a photo of it as long!)

Screen difficult to see in the sunlight (M16)

Hard to read screen in sun (F21)

Difficult to view in sun. Map picture and writing too small (yes, I did have my glasses!). (F19).

Occasionally I accidently touched the screen & stopped it – my mistake(F1).

Struggled to get GPS connection (M10 – vodaphone on android phone)

Headphones

Just not used to headphones, so felt slightly cut off, which was nice in many ways though. (F14)

I suppose you'd feel a bit cut off from the world but that is the same with all apps stuff with earphones. (F1)

The initial feeling of disorientation, which did fade and go as time allowed me to adjust to the experience. (F16)

Because it was so good and immersive I felt disorientated and separated from the here and now – (M17)

Somewhat detached feeling (M2)

The technology worked better than I expected - though I did not have headphones and sometimes wondered if I was missing something. (F33)

Traffic

Traffic and technology mix a little bit disorientating (F25)

Paused when crossing roads (F8)

Headphones difficult in busy part of town. (F17)

The traffic noise cancelling out the other speaker's voices (F9)

Couldn't hear cars coming (M1)

When on the main road the audio became difficult to hear (M10)

Sometimes hard to visualise and locate traffic (M14)

Sound & noise

I would have liked for space for interference of the place. (F15)

Reference Hayle band and regatta (F20).
Audio started with no warning. Would have been useful to have a beep or some signal to give advance warning (to share earpiece) (F30 & M22)
The volume of the voices
Have more sounds in the background so that I can start to imagine things. Allow the background to mingle with the piece (F15)
I had the volume to low for the start, so I wasn't completely ready for the start - but quickly worked it out, however missed some of the story. (F16)
Echo sound near road on first and last part of walk (M14)
Hide controls to see photos better (M18)[it does this on iPhone]

Visuals
Some problems with being able to see the screen and to understand the map – too small (F6)
The images on the screen (what I could see of them) don't relate to the audio which is a bit confusing (M26)
This would be much better on an ipad obviously, but might an audio-only version be better for phones? I can't imagine ever really enjoying a walk wearing headphones AND reading glasses. I wonder if this problem might spoil the experience for a large number of over-50s? (M26)
Photos scrolled quite fast on the first stop (M19)
Lack of information with the photos.(M27)
Personally I am not sure that the photographs add any great value on such a small screen. An 8 inch display i.e. iPad Mini would work much better. (M23)
Adapt interface for pictures (hmmm John Hillman)
Old image overlay via augmented reality of all the old photos – i.e. mark on map where all the photos were taken, so that they can be overlaid the existing live image (M19)

History
Not enough historical facts! (F21)
Not quite enough info for me (F22)
I would love more info and more stories (F24)
I would have liked more facts on the route, I was hungry to learn more. (M27
More history in spoken form
More audio facts rather than on the screen or an indication when to look. (F21)
Mix in a bit of actual history where you don't have real people.
Natural history
At location points i.e. dots – a brief factual historical item as well as anecdotal stories. (M16).
Include more details for history buffs (F29).
I thought it would be more factual and that I would learn more. I already have a basic understanding of the history but wanted to know more. I realise there is a balance to be met here, too much info and you can put people off. Perhaps the local might want more detailed Information and the non local less. Maybe a couple of questions at the start could gauge the detail required by the user.(M27)
Maybe more knowledge before take off (F7)

Tech problems - None 20 (F9, M11, F10, M12 'due to excellent instruction', F15 – 'very easy to use and straightforward'. F17, F18 'no – amazing'. M17, F20, F21, F30 & M22, M19, F27 (not really), F28)
Not really once we began
Not really other than sunlight (M16)
A bit, but probably OK for someone with more nonce. (F7)
No, downloading & using the app was absolutely fine.
My ipad touch did not work, due to it not having GPS built in it or a connection to the internet. Maybe could be solved by letting the user tell the app where they are/ or use photos to show the person where to go.
I didn't find the pause button for ages.
Did not work on ipods only on iphones.
Kept self-locking to preserve battery
Don't have an iphone (have an android) so not familiar with functions – odd screens popped up at times. (F5 - this was being in her pocket).
Yes I did struggle with the GPS on the walk. I also struggled slightly with the app furnace part of the download. I guess this is just a testing platform. (M10)

It (technology) had problems with me because I wanted pauses to let my mind wander and to eavesdrop present day sounds and to dip in and out. (F10)

Iphone locked itself at irregular intervals (F11)

Yes, walking along the new North Quay my phone kept stopping. I think I missed a story along the memorial walk as my phone jammed (F11…jammed or was it the memory slide?).

Occasionally had to turn back on again (F13)

Initially I was waiting for it to start and didn't realise that I needed to walk to the first dot for information/ stories etc.. (F14)

Missed some of the dots, on the route –not sure how – eek just read notes – too fast a pace walking in the rain! (F14)

I accidently exited the app, it found me again though. (M13)

Closed down in my pocket – had to restart (M15)

Little man stopped moving, music still going, near Coop and at one point, 2 men appeared. (M15)

No real problems, easily solvable (M15)

A bit, but I'm quite a luddite! (F22)

Give a rewind option (M18)

No, 'partner' was in charge (F24)

Lost my position "GPS" on a couple of occasions & the home screen options(F31)

A few initially (F25)

yes, but of our own doing. It was annoying to be worrying about battery life on my daughters i phone! oops......Meant we didn't complete it. (F32)

I was sharing a phone operated by someone else so not sure, but the app itself seemed to work smoothly - however the gps triggering of the audio did not work well leading to much confusion. (M26)

the phone kept cutting out as my settings were not correct - but I did not want to spend time trying to change them. F33

On sony Experia 'problems with download, we downloaded app several times before it loaded completely. (F29).

I pressed the back button on my phone by mistake which meant I had to listen to the story from the start. Fast forward and rewind would heve been beneficial. Apart from that all went smoothly. (M27)

I have noticed that all pictures heve found their way into the photo gallery on my phone, the same goes for the audio files. Not that this is an issue it just means deleting them. (M27)

Only 2 crashes before Bigglestons, but then fine for the rest of the walk (M18)

Other people
Sharing the phone so I couldn't go at my own speed - (F3)

Having to pause to keep up with each other (F6)

Husband kept shouting (me – headphones in so didn't realise he was talking loud)

Only available on iphone so not good for friends without one and felt quite a solo activity as a result. (F27)

It's a bit lonely, there's an opportunity to share photos, or upload and access other oral histories by using established media. (M24)

Do it on my own (F3)

Embarrassment
Slight self-consciousness (M7)

I felt conspicuous (M1)

The 'she's listening to music on one of those fangled gadgets' looks from the general public. (F9)

[F19 & M16 told me that as they walked along both plugged into phones - retired people – someone from hayle went up to them and shouted 'rock and roll!' making them feel more self conscious].

Music
Music somewhat gloomy (I liked it but maybe a bit imposing – manages mood maybe too much?). (M7)

Generative music for long stretches a little tedious (F5)

Some of the music was doleful (M8)

The music (F10)

The music which at times became repetitive and sombre (F11)

Some music was very solemn (F12)

Liked the trance audio in the beginning, after a while, towards the end it lost its appeal. The birds didn't fit the streets, water sounded like rain. (M13)
The background music started to be a bit much – it was taking me away from where I was towards the end. (F15)
Background music was repetitive (M15)
Not too keen on ambient 'drone' (F23)
I found the music irritating - I didn't like the background music fading in and out between audio segments - it reminded me of being put on hold by a call centre.... (that's four – sorry – meaning 4 things he didn't like) (M26)
Would have liked more stories and less music (F12)
Use the trance (loop) sound for open spaces, birds in undergrowth…. Waves at the beach (M13)
Different music options (M14)
Maybe do it on an iPad (though would I be more self-conscious?)

Weather
(The weather) (F9)
The weather (It rained) (F12)
The weather! (F14)
Rain (F29)
It was raining during my test and it was proving difficult to keep my phone dry and look at the images. (F16)

What is it?
I was left not quite sure what the objective of the App was. It came across as random personal reflections of the town across time rather than an account of the towns physical history and I am not sure if it worked for me. Sitting watching images and listening to individual experiences works well for me (as in AWEN Productions TRE Project). Walking whilst listening fits better with the audio Museum/Historic Monument tour i.e. " if you look to your left you will see the remains of the sluice gates. During high tide theses were used to .....".(M24)

No first/ second/ third choice
Can't list a 3rd thing sorry too good! (F31)
4 – M24, F4, F25, M19)
second and third choice missing: 1 (F32, F28, F29, M6)
Nothing put in change to make better – 5 (2 referred to didn't like comments, F14, M9)
Nothing in things you didn't like
1 – M9

Timing
The time of day I was completing the app test, it was a busy time of day. (F16)

Me
Not allowing myself enough time to correct my mistakes of missing stories and going back and listening to them (I missed x 3). (F16)
Feeling dissatisfied that I hadn't completed as ran out of time. (F33)

Café stops
suggested stop off places for refreshment. Let it take the time it takes. (F32)

My personal observations
People stopping quite a lot so less audio to be heard and much longer
Glasses – people not able to see/ read the screen while walking, didn't bring or didn't want to wear glasses
Not sure whether to turn left or right, does it matter??
Things seemed to end abruptly for people (e.g. churks)
When I walked it I did it in just over an hour moving at a regular pace – not too fast but not slow either. I checked the photos etc.. as I went and opened up to the view. The weather changed my pace… in the sun I relaxed and slowed down as it was enjoyable and I didn't want to overheat. In the cold, I rushed on and kept more tucked up, head down.

Qualitative answers: any comments about your choices?

F1 – I am more interested in it all and better informed

M3 - I love Hayle now

F2 – I wouldn't bring people here but I would (will!) come again for my own explorations.

M5 – I'm not connected to Hayle but its history was interesting. However it's unlikely to alter my responses to the area as I don't live here.

F5 – I went to places I might not have

F5 – (from question – immersed in oral histories) Very short narratives, more snippets.

F5 – instructions to download too confusing to try.

M8 – I am not the right one to ask since I am so involved in the history and archaeology of the area. I don't think I learned anything new (although many will). And I don't think I can pay any more attention to planning proposals than I already do.

F6 – The walk has made me feel closer to the area having walked those places before but without the stories.

M10 – We need to look at how we can embrace this great work to help improve the prosperity of the area for the people that live here.

F10 – about whether it made a difference on location at home 'because I needed space to marry them with place'

F10 – about whether immersed when listening to oral histories – an earlier mark 'less involved with place' and a later one, 'deeply involved in story'

F10 – Being here, hearing the voices and walking made me aware of the dangers implicit in managing change

F10 – I ran out of time and had to double back: filling this form in a hurry. The app is great, love all the oral history and Minnie's story, frustrated to be unable to hear the stories I didn't walk to. It felt a bit dense for one visit BUT I am a wanderer, an eaves-dropper and need space to do that. I should have spent a day wandering in and out of the walk. I didn't anticipate that. The words I heard sent me off on a tangent. The music only annoyed me when I forgot to switch it off so that I could take in the walk.

F12 – The experience made you concentrate on the surroundings and the history of the area and its future.

F13 – would like to repeat (the experience – response to liking overall experience).

F13 – A few choices like picking up rubbish would apply anyway. But definitely have a closer affinity with the area.

M12 – I think the experience reinforced much of the above, I feel quite connected and interested from reading the original book.

F15 – a note against making a difference if listened at home – 'at the beginning it did really make a difference but the last loop it did less'

F15 – link stories to the location – 'not all I felt'

F15 – I felt I found it hard to listen and walk at the same time sometimes.

F15 – I think I generally feel connected to places already but having the human narratives did shed a different light on it.

F16 – I was alone and if I was to complete another test again I would complete it alone.

F30 – It would have been a completely different experience at home. I really enjoyed and embraced the experience out on site.

F17 – I didn't want to interrupt walk by stopping and looking at phone so I missed all of the visuals. I only used the map to check for markers

F18– in response to did you notice more – 'less as listening'

F18 – in response to Winnie/ Minnie – 'nice thread running through'

F18 – choosing oral histories 'would like to know more'

F18 – disconcerting? 'beginning 10 minutes & then OK'

F18 – easy to use? – 'although scared to pause or turn up vol! So as not to interrupt, I should have tested it first – loved the maps - visual information

F18 - All very positive as I love this area and would not wish to see it spoiled in any way.

M15– solitude? – 'quite enjoyable – meditation?'

M15 – you want the facts but when you get them you don't remember them or don't find them interesting.

M15 – link stories to location – fair comment - 'sometimes more sometimes less'

M15 – notice more during this experience than walking around? 'would have different experience'

M15 – immersed oral histories? - 'first not…….. then got into it'

F19 – wanted more info about the ferry/ black bridge/ diving story as approach the swing bridge.

M16 – we know the area quite well (and wife was a HOHP volunteer)

M16 – Hayle is an area that needs developing, hopefully this can be done sympathetically incorporating its historical industrial past.

M17 – notice more - put nearly not at all, 'immersed and detached'

M17 – 'I care'

F20 – I learnt things I didn't know and it made me feel like I know more about my local area than before. Overall a very interesting and informative app.

F21 – solitude, 'perhaps if F22 wasn't talking!'

F21 – didn't know the name of the scorrier steps, will pass that on. A story about black bridge would be nice to hear.

F22 – solitude? 'I would have if on my own'

F22 – 'walking was good'

F23 – link stories to locations, 'some'

F23 – (woman carrying her baby in a backpack and walking with a friend) I reckon it should be done on your own (i.e. no other distractions) to enable better 'immersion' – we also kept bumping into people we knew (which was nice! But didn't help the experience!)

M18 – solitude? - 'but we shared 1 pair of headphones and I suspect that we would do again. For that reason we were able to chat.'

M18 – difference if listened at home, 'not the same thing at all'

M18 – Minnie, 'initially not sure why they were there but by the time I was at Geoff's old chalet I was saying, 'but what happened then?' It was like a soap opera cliff hanger.

M18 – These are all things I already do generally in the area. The app has enhanced that particular bit.

F24 – The rubbish etc.. I do anyway but it all makes much more sense why – this is a great app and want to finish the walk.

M19 – narrator (interesting but one dimensional and not linked to location.

M20 – These cover both my personal and professional opinions.

F27 - It has helped me to think differently about the ponds and the history and that makes me more inclined to preserve what we can and avoid developments that will change how Hayle looks and feels. (F27)

F28 – I loved the text your experience of the Copperhouse Pool link – although I dismissed it at first, thinking I had nothing to add to the historical information. A bit more about oral history as a continuous adding would be helpful. I got the hang of it later and encourage my party to add to the oral text bank.

F28 – 'notice more during this experience..? 'focus changed

F29 – I felt it worked better with phone in my pocket. I then didn't interfere when the phone went to sleep. Worked fine.

F29 – learn anything? – 'I needed more detail'

F29 – connected to landscape –'I am very connected anyway but loved this experience'

F29 – I will do it again with friends visiting

M21 – alone or with someone else – I had informed that not all suitable for disabled as wife uses a scooter – 'alone but realised parts of the route were not suitable for people with disabilities)

think those online couldn't initially choose more than one choice for what youd be more likely to do

M23 – alone? 'Alone. it seemed like a very personal experience.'

F32 - How much should an area's past inform it's future? Imagine it would be delightful for reminiscence therapy.

F32 – alone? 'With my daughter. We shared our own memories in certain parts, those places she remembers when she was a child, before the more recent changes'.

M25 – I was very glad we tried out your app: we had a really interesting walk. Thank you!

M26 - Although it probably doesn't seem like it, I did really enjoy the walk. The experience has made me start to think about the world of apps - something which I have largely ignored up to now, and it has made me think more about Hayle. I can see that there is a very good idea here but I feel it needs a lot more development, especially in the way the app actually functions on the walk.

F33 - Possibly prompted me more to think of the history and people of the locale more and all the ongoing changes - though the very obvious visible landscaping 'improvements' here also were quite surprising and thought provoking! Curious to be walking along the very new hard landscaping with a new technology switched on... felt like quite a different place .

Qualitative answers: how did the experience affect your impression of the landscape and its history?

2 – A lot

3 – I felt part of it, the place, the history, the people

4 – enhanced my perception of Hayle's (previous) industrial landscape

6 – It is incredibly potent. From my previous visit to Hayle I found it run-of-the-mill, standard Cornish town. During (and after) the experience I feel as though I have discovered my own familiar connections. The town feels three-dimensional, or somehow more solid, now I have heard these stories, memories and seen the photos. I wasn't expecting such a strong reaction but walking back once the app had finished I told my friend 'I feel at home here now…'

8 – More 'history' than 'landscape' I didn't really relate stories to specific locations to an extent this as 'disorientating'. It was an interesting way to walk but it felt lonely, cut off & separate. (M4)

11 – It always felt haunted but now more so. Such industry that now is gone.

12 – To appreciate the past and the things that people did then and how different it is now.

14 – It is nice to relate the landscape to people and activities in the past.

15 – Made me feel nostalgia for old days – in a good way!

16 – It was good to get into the interior of Hayle – it's so full of surprises.

18 – I loved the stories about the sailing races and the local man swimming underwater, the story created really good visual images and made us chuckle.

20 – It is great to learn about the amazing past of Hayle. The prosperity and success of such a small remote town is inspiring. Hayle needs to become that prosperous vibrant location again.

21 – the historical information aspects of the app made it more interesting.

22 – I sat by a sculpture by a dear friend and listened to visitors talking about it while listening to foundry workers and I wondered if the young black guy who parked outside the chip shop was related to Minnie. I went back to sit on the black steps.

22 – poem in response to the app.

23- Made me feel rooted in past and present. I absolutely loved the whole experience.

24 – It made it more interesting to hear from people who experienced living in Hayle and were telling their personal story. Pictures and stories of the Regatta made it seem so exciting.

28 – informed and engaged in Minnie Story

29 – I definitely learned about its history but I would have liked a bit more contemporary stories, There were places along the way that I wanted to find out about, what was happening there now.

30 - It allowed me to see the landscape in a completely different way and create pictures in my mind of how it was and visualise the detail of what went on there in the past. This would not have happened having not had the images in front of me on the phone and listening to the details in the stories at the same time.

Second evaluation quantitative findings

ID	line measurement	who with? 1=alone 2= partner 3=friend 4 =family/ group 5=alone with dog/s. Orange means with friends who didn't fill out a Q!	solitude?	lost?	different at home?	link to location?	like it?	notice more?
M1	11.75	2	0.7	1	7.1	9.3	5.8	10
F1	11.75	2	8.3	1.8	9.7	8.1	11.75	11.3
M2	11.75	2	10.2	2.9	7.9	7.1	10	8.6
M3	11.75	3	0.5	0.4	11	10.7	11.75	8.1
F2	11.75	3	8	0.1	11.4	11.45	10.4	11.5
M4	11.75	4	7.1	4.9	7	10.7	11.6	11.75
M5	11.75	4	7.9	7.3	7.6	8.8	9.7	10.5
F3	11.75	4	0.2	2.8	2	5.4	9.4	10.6
M6	11.75	4	3.2	3.3	10.1	5.8	7.2	9.2
M7	11.75	1	9	2.8	0	10.8	11.75	5.6
F4	11.75	1	0.3	0.4	0.5	11.3	11.2	6
F5	11.75	1	7.1	1.5	9.6	3	7	2
M8	11.95	5	0	0	8.3	8.3	9.7	2.4
F6	11.75	3	2.9	5.2	6.9	9	10.4	9.1
F7	11.75	3	0.2	0.3	8.7	10.1	11.3	11
M9	11.75	2	7.3	0	0	11.5	11.75	11.75
F8	11.75	2	5.8	1.1	8.3	9.6	11.75	11.75
F9	8.9	1	2.5	0	1.9	6.6	7	2.5
M10	11.9	5	0.9	0.9	0.9	5.9	10.8	8
M11	11.85	1	6.1	3	9.2	8.2	8.9	5.4
F10	11.75	1	0.8	1.1	9.5	10.1	5.6	1.1
F11	11.75	1	3.4	0.9	9.4	8.3	10.8	4.4
F12	11.75	3	0.4	0.6	10.8	9.8	10.3	9.3
F13	11.75	1	10.4	8.3	11.2	10.9	10.8	10.7
F14	11.75	4	0.8	1.5	9	11.4	9.8	11.2
M12	11.75	3	0	0	5.5	8.1	9.6	2
M13	11.75	3	1.5	3.6	11.1	10.3	8.4	5.5
F15	11.75	3	1.2	1.6	7.7	7.2	8.1	8.2
F16	11.75	1	9.5	9.5	9.9	10.5	10.9	10.9
F17	11.7	5	10.2	0.7	11	11.2	11.1	11.1
M14	11.75	1	10.8	6.3	6.5	8.3	9.9	11.3
F18	11.75	1	11.5	0.2	11.4	11.1	11.3	2.5
M15	11.75	1	9.5	1.5	10.8	6.2	10.3	8.2
F19	11.75	2	0	0	3.4	3.7	5.1	2
M16	11.75	2	3.8	0	0	5.6	8.8	6

ID	Age	Group						
M17	11.75	3	11.6	11.2	10.9	9.5	11.5	1.4
F20	11.75	1	0	0	6.4	9.8	11	9.5
F21	11.75	3	7.5	0	8.8	11.5	10.2	11.2
F22	11.75	3	2.9	0.6	10.1	9	9.8	10.5
F23	11.75	,3	1.8	1.2	8.5	6.9	9.2	9.5
M18	11.75	2	1.3	0.2	11.3	9.2	11.3	11.4
F24	11.75	2	0.1	1.5	6.1	10	11.7	8.4
F25	11.85	3	2.2	3.5	3.9	7.6	9.1	8.8
M19	11.5	1	0.9	0.6	0.6	8.6	9	6.4
F26	11.5	3	4	1.7	7.6	9.5	7.4	9.8
M20	11	1	2.5	2.1	8.1	5.5	8.8	5.8
F27	11.85	,1	9.7	0.9	10.5	11.7	11.4	4.8
F28	11.75	4	5.7	3.3	3.3	7.5	10.1	9.2
F29	11.75	4	0.5	0.5	0.7	11.2	11.2	11.75
M21	11.75	1	9.3	7.2	9.3	8.2	8	7.9
F30	0-10	2	1	0	3	9	8	10
M22	0-10	2	1	0	3	9	8	10
F31	0-10	1	10	1	4	6	10	10
M23	0-10	1	9	0	10	2	8	6
M24	0-10	3	0	5	10	3	5	3
F32	0-10	4	7	7	5	6	-	8
M25	0-10	3	0	0	8	8	10	8
M26	0-10	3	0	0	10	3	3	4
F33	0-10	1	5	6	8	8	5	2
M27	0-10	1	9	1	0	7	10	4

alone - 21
partner - 11
friend - 17
family/ group - 8
alone with dogs - 3
60

ID	immersed oral?	immersed Minnie	more immersed? OH =1 Minnie =2 can't pick =3 no answer=4	confusing?	disconcerting?	familiar iphone & ipad, device you used?	easy to use	learn anything ?
M1	1.8	2.3	1	5.8	2.3	1.5	5.9	10.7
F1	11.4	11.5	2	0.9	0.8	0.9	10.6	10.7
M2	6.6	6.5	1	3.5	3.1	5.9	7.8	7.6
M3	11.35	11.5	2	0.6	0.5	1.6	11.4	11.75
F2	9	5.9	1	0.3	0.2	11.5	9.1	10
M4	8.9	9.3	2	2.4	0.7	11.75	11.75	11.75
M5	6.7	9.5	2	6.7	3.1	11.3	7.4	9
F3	9.4	10.8	2	3.7	0.85	10.6	5.75	9.1
M6	7.1	8.2	2	4.5	3.7	11.75	9.6	4.2
M7	11.75	11.75	3	0.8	0.9	11.1	10.9	11.2
F4	10.9	11.1	1	0.5	0.5	11.3	11.2	5.9
F5	2.7	4	1	1	0.8	1.7	4.3	8
M8	7.3	10.4	2	0	2.6	0	10.6	7.3
F6	10.5	10.3	1	4.4	3.9	5.2	6.6	9.3
F7	11.1	5.8	1	2.3	0.2	5.9	8.6	8
M9	11.75	11,75	1	0	0	3.1	11.6	9.2
F8	11.75	11.75	1	0	0	0	11.75	11.75
F9	7.2	2.2	1	0.6	0.8	7.9	7.4	2.8
M10	8.3	2.2	1	3	1.2	10.4	9.2	8.2
M11	8	6.8	1	2.6	2.6	7.7	9.4	6.1
F10	10.4	9.8	3	2.6	0.6	7.4	6.1	8.1
F11	8.2	8.9	1	3.1	6	4.6	9.7	8.8
F12	9.7	9.4	3	1.5	1.4	1.6	9.1	7.3
F13	10.8	10.4	1	0.9	3.8	5.2	9.3	11.3
F14	9.7	11.2	2	1.9	0	0	5.7	9.9
M12	7.8	9.7	2	1.7	1.3	0.2	11.2	9.9
M13	8.5	9.6	2	1	0.8	10.7	10.2	10.2
F15	3.3	8.6	2	2.1	2	2.5	9.5	8.5
F16	10.8	5.9	1	3.3	3.2	5.9	9.5	10.9
F17	11.1	10.9	1	3.9	5.8	11	10.8	10.9
M14	11	9.7	1	2.6	1.7	7.7	9.6	8.6
F18	10.6	10.2	1	0.4	4.9	7.4	10	11.75
M15	10.1	9	1	1.8	2.2	5.2	9.6	9.4
F19	4.2	4.2	1	0	0	1	11.75	4.6
M16	8.2	3.5	1	0	0	0	11.5	5.2

M17	11.75	9.3	1	11.4	11.4	4.3	11.75	11.6
F20	9	6.3	1	0	0.3	11.5	11.7	8.5
F21	9.5	11.3	2	2.1	3.3	1.4	9.8	11
F22	10	11	4	7.8	9.9	0	4.7	9.6
F23	7.8	9.8	1	6.3	1	2.3	9.8	10.1
M18	8.1	6.1	1	3.3	0.2	0.4	10.9	10.3
F24	10.3	8.3	1	1.1	0.1	1.7	5.6	10.7
F25	7.9	7.9	1	3	3.3	7.7	5.6	8.9
M19	8.1	6.5	1	2	3.5	10.6	6.7	8.3
F26	10	10.7	2	8.4	7.9	9.1	7.4	8.4
M20	8.9	7	1	1.5	1.4	9.6	8.7	7.7
F27	8.2	10.8	2	1.3	0	11.4	11	9.3
F28	9.5	10.4	2	2.9	2.6	10.4	9.4	7.2
F29	10.7	11.3	3	0.3	0.6	10.9	11.2	5
M21	7.8	8.7	1	8.2	8.5	7.9	8.3	9
F30	7	5	1	2	0	5	9	9
M22	7	5	1	2	0	5	9	9
F31	9	8	1	0	0	7	8	10
M23	7	7	2	4	2	3	8	4
M24	1	1	1	8	8	10	10	5
F32	8	5	1	1	0	4	6	8
M25	8	6	1	3	0	10	9	8
M26	2	0	1	10	5	5	5	10
F33	5	4	1	5	2 -		7	6
M27	9	8	1	0	0	7	9	3

Oral - 39
Narrative - 16
can't pick - 4
no answer - 1
60

ID	more connected?	more likely to: 1 - take people here	more likely to: 2 - pick up rubbish	more likely to: 3 - look up historical info	4 - come with diff eyes	5 - wildlife & flora	6 - planning proposals	7 - think about past	8 - think of future
M1	5.6	1	1					1	
F1	10.6	1	1	1	1	1	1	1	1
M2	7	1	1	1	1	1	1	1	1
M3	11.3	1	1	1	1	1		1	1
F2	11.45		1	1	1	1		1	1
M4	10.2	1		1	1		1	1	1
M5	1.9	1			1			1	
F3	9.7	1			1				
M6	4				1	1	1	1	1
M7	5.7	1	1	1	1	1	1	1	1
F4	9.8	1	1	1	1	1	1	1	1
F5	8.1	1			1			1	
M8	1.4								
F6	8.5	1		1	1			1	1
F7	11	1	1	1	1	1		1	
M9	10.6	1	1	1	1	1		1	
F8	11.75	1	1	1	1	1	1	1	1
F9	4.4	1	1	1			1	1	
M10	5.7	1			1			1	1
M11	4.4				1		1	1	1
F10	7.5	1	1	1	1	1	1	1	1
F11	6.5	1	1	1	1	1	1	1	1
F12	8.6	1	1	1	1	1	1	1	1
F13	11.1	1	1	1	1	1	1	1	1
F14	8.4	1		1	1			1	
M12	1.4			1				1	
M13	9.4	1	1		1			1	1
F15	7.4	1					1		1
F16	11	1	1	1	1	1	1	1	1
F17	9.3	1	1	1	1	1	1	1	1
M14	9.8	1		1			1	1	1
F18	11.75	1	1	1	1	1	1	1	1
M15	8.3	1		1	1			1	
F19	0.5	1		1			1	1	1
M16	5.8						1	1	1

		more likely to:- take people here	more likely to: - pick up rubbish -	more likely to: - look up historical info -	come with diff eyes	wildlife & flora	planning proposals	think about past	think of future
M17	6.2	1	1	1	1	1		1	1
F20	9.3			1				1	
F21	8.9	1	1	1			1	1	1
F22	8.8	1	1	1	1			1	
F23	5.3				1			1	
M18	8.9	1	1	1	1	1	1	1	1
F24	8	1	1	1	1	1	1	1	1
F25	8.1			1	1			1	1
M19	7.4			1				1	1
F26	10	1		1	1		1	1	1
M20	7	1	1	1	1	1	1	1	1
F27	11.2	1					1	1	1
F28	3.3	1		1	1			1	
F29	11.75	1		1	1	1		1	
M21	4.1			1	1	1		1	1
F30	9	1							
M22	9	1							
F31	9	1							
M23	6	1		1	1	1	1	1	1
M24	5	1		1	1			1	1
F32	5	1	1		1	1		1	1
M25	6			1	1	1	1	1	1
M26	7			1			1	1	1
F33	5			1	1		1	1	1
M27	5	1		1				1	1
		46	26	45	41	26	30	54	41
		2	7	3	4	7	6	1	4

ID	9 - think of present	10 - archive	11 - get images	contacted again? 1=Yes 2= No	Age: 1: 0-12, 2: 13-17, 3:18-25, 4: 26-36, 5:37-47, 6:48-58, 7:59-69, 8: 70+	Sex: F=1, M=2	Disability 1= Yes 2=No	Weather: 1=Sunny/fair 2=wet 3=windy 4= overcast
M1		1		1	6	2	2	1
F1	1			1	6	1	2	3
M2	1			1	6	2	2	3
M3	1			1	4	2	2	1
F2	1	1		1	5	1	2	1
M4	1	1	1	1	2	2	2	1
M5				1	6	2	2	1
F3				1	5	1	2	1
M6	1			1	2	2	2	1
M7	1	1	1 - very	1	6	2	2	1
F4	1	1	1	1	6	1	2	1
F5				1	6	1	2	1
M8				1	7	2	2	1
F6	1		1	1	6	1	2	1
F7				1	6	1	2	1
M9	1		1	1	6	2	2	1
F8	1	1	1	1	6	1	2	1
F9			1	1	5	1	2	2
M10	1		1	1	5	2	2	1
M11	1		1	1	7	2	2	1
F10	1	1	1	1	7	1	2	1
F11	1			1	7	1	2	1
F12	1	1	1	1	6	1	2	2
F13	1	1	1	1	5	1	2	2
F14				1	5	1	2	2
M12				1	6	2	2	1
M13	1			1	5	2	1	2
F15				1	4	1	2	2,3
F16	1	1		1	4	1	2	2
F17	1	1	1	1	5	1	2	1, 3
M14	1			1	4	2	1	1
F18	1	1	1	1	6	1	2	4
M15				1	6	2	2	1
F19	1			1	7	1	2	2
M16	1			1	7	2	2	2

ID	present	archive	get image	contacted again	age	sex		disability
M17		1	1	1	7	2	2	4
F20				1	3	1	2	1
F21	1	1	1	1	5	1	2	1
F22	1		1	1	5	1	2	1
F23				1	5	1	2	1,3
M18	1	1	1	1	5	2	2	1
F24	1	1	1	1	5	1	2	1
F25	1	1		1	6	1	2	2,3
M19		1		1	5	2	2	1
F26	1			1	6	1	2	4
M20	1	1	1	1	6	2	2	1
F27	1			1	5	1	2	1, 3
F28		1	1	1	5	1	2	2
F29				1	7	1	2	2
M21				1	6	2	2	1,3
F30				2	7	1	2	1
M22				2	7	2	2	1
F31				1	5	1	2	1,4
M23	1			1	5	2	2	1
M24				1	7	2	2	2,3
F32				1	6	1	2	4
M25	1	1		1	6	2	2	1
M26	1	1		1	6	2	2	1
F33		1		1	6	1	2	1
M27		1		1	4	2	2	4

think of present	archive	get image	contacted again	age	sex	disability
35	24	20	yes - 58	0-12 - 0	F - 33	Y -2
			no- 2	13 - 17 - 2	M - 27	N - 58
5	8	9		18-25 - 1		
				26 - 36 - 5		
				37 - 47 - 18		
				48 - 58 - 23		
				59 - 69 - 11		
				70+ - 0		

ID	device? 1=iphone 2=android 3=iPad	android make	borrowed phone from me 1=yes 2=no	network if mentioned or known. 1=vodaphone 2=orange 3=3 4=tesco
M1	1		1	3
F1	1		1	3
M2	1		1	3
M3	2	Nexus 4 (couldn't zoom, crashed once)	2	
F2	1		1	3
M4	1		2	
M5	1		2	orange
F3	1		1	
M6	1		1	
M7	1		1	
F4	1		2	
F5	1		1	3
M8	2	HTC Desire X	2	
F6	1		1	3
F7	1		1	3
M9	1		1	3
F8	1		1	3
F9	1		2	
M10	2	Samsung Galaxy GT-S5830 Android version 2.3.5 Gingerbread	2	1
M11	2	Samsung Galaxy Fame	2	
F10	1		1	3
F11	1		2	
F12	2	Samsung Nexus 5 operating system 2.3.7	2	
F13	1		2	
F14	1		1	
M12	1		1	3
M13	1		1	3
F15	1		1	3
F16	1		2	
F17	1		2	
M14	2	Samsung Galaxy Ace	2	1
F18	1		1	3
M15	1		1	3
F19	1		1	2
M16	1		1	3

Code		Device		
M17	1		1	3
F20	1		2	
F21	1		1	3
F22	1		1	3
F23	1		1	3
M18	2	Sony Xperia Go. Android 4.1.2 Jelly bean	2	
F24	2	Sony Xperia Go. Android 4.1.2 Jelly bean	2	
F25	1		2	
M19	1		2	
F26	1		2	
M20	3		1	
F27	1		2	
F28	1		2	
F29	2	Sony Experia	2	
M21	1		2	
F30	1		2	
M22	1		2	
F31	1		2	
M23	1		2	
M24	1		2	
F32	1		2	
M25	1		2	
M26	1		2	
F33	1		2	
M27	2	Samsung galaxy s2	2	

device
iphone - 48
android - 10
ipad - 1

borrowed phone
Y - 26
N - 34

ID	Live in Hayle 1=yes 2=No 3=village or town near Hayle 4=don't say 5= used to live in Hayle
M1	1
F1	2
M2	2
M3	2
F2	2
M4	2
M5	2
F3	2
M6	2
M7	2
F4	1
F5	2
M8	1
F6	2
F7	2
M9	2
F8	2
F9	1 iphone 5
M10	2
M11	4
F10	2
F11	1
F12	1
F13	5
F14	1
M12	1
M13	2
F15	2
F16	2
F17	1
M14	2
F18	2
M15	2
F19	3
M16	3

M17	2	iphone 5
F20	1	
F21	1	
F22	1	
F23	3	
M18	3	
F24	3	
F25	2	
M19	3	iphone 5
F26	2	tmobile vivacity didn't work correctly
M20	3	
F27	3	
F28	1	
F29	1	
M21	1	
F30	4	
M22	4	
F31	3	
M23	2	Visits Hayle
M24	2	
F32	3	
M25	3	st ives
M26	2	
F33	3	
M27	2	

live in:
Hayle Yes - 15
No - 29
near Hayle - 12
don't say - 3
used to - 1

Poet Pauline Sheppard's response to the second evaluation of the app prototype

Hayle scribblings

Hayle
has many faces.

Before the bypass
I met it as
a long street
of seven sets of
traffic lights;
all at red
after midnight.
The frustrating
end
of a long journey
beyond the Tamar,
with home
in my sights.

Two years ago
I visited
from Lelant
walked in
bussed out
never passed
the viaduct,
Home to Buryan
via Marazion
and gossip.

It's ten years
since I was intimate
with Hayle's streets,
since I watched
Sandpipers
between
the copper
and the iron.

First time
I've seen
the sweeping curves
of Jubilee Bridge.

I miss the men
on the quay,
bartering for scrap
off the
Ebenezer.

Today
the quay is
too clean
too neat
concrete,
a promenade.

Walkers in shorts
and headphones
parade
in the sunshine.
I am one
of them.

In my ears
Winnie collects
churks
for the fire;
Bill buzzes
his fighter plane
beneath the wire;
and dusty
wing-collared
'venturers
worship
at bank
and chapel.
And
lovers meet
on the black steps
up Clifton Terrace.
She stands
one step above
her man
so that
black
and white
may kiss.

Regattas are
re-sailed
re-rowed
in memories
of yesterday,
as a dog
tugs at my leg
and a friend
shouts 'Hello'
in today.

Beyond it all,
out in the bay
she sits,
the wave-hub,
waiting
to take us
into the
constantly
changing
future
face
of Hayle.

Second evaluation draft summary and report

Abstract

The Hayle Churks app plays approximately an hour of memories music and songs, triggered through the app by GPS on a smart phone, as the participant walks around the landscape. Memories include stories from the past and present with subjects ranging from intimate personal reflections, individual perspectives on large shared experiences ranging from the happy – the Regatta to more testing, the World War II as well stories from the workplace and about ecological decisions that have literally shaped the post-industrial harbour town of Hayle. The oral history recordings came from the Hayle Oral History Project archive (but most were recorded by me, this document author) or were recorded specifically for the app. Apps (Smart phone 'applications') although established, are still in an experimental phase and as some people do not own smart phones, are alien to certain groups in society. The app is a research tool but will be published on iTunes by January 2014. My research concentrates on whether an app is a useful medium to animate an area to reveal hidden layers in the landscape and hidden voices or opinions and whether that can lead participants to connect with the landscape, to think about the future of the landscape and even become involved in land stewardship. There is also an investigation into the affect of scripted narrative compared to first hand account or memory and the empathy with speakers that could also increase the connection to place. My research intends to inform current dialogues in geography, performance (especially site specific and walking performance and art) and locative media, with some clear outputs or even a toolkit for those in the archive, heritage, health and tourism sectors.

This document concentrates on and evaluates the second test that took place in late August to September 22nd 2013 and required participants to volunteer, which included walking for approximately two hours in exposed contrasting environments ranging from town streets, new harbour side concreted paths in front of real estate plots, pot-holed overgrown track or along the beach, tracks through chalets and the sand dunes, empty industrial wasteland, a planted tropical promenade near a central pool, and a busy shopping street. Additional time was needed to complete the questionnaire straight after the walk. The weather ranged from scorching hot at the end of August to very wet and windy at the end of the test period.

The app was made for iPhone but participants could use many Android models but unfortunately iPads didn't work. Participants were told the app was to be used with headphones (the app also reminded them). Closed cup headphones were recommended but rarely used, instead most participants used discreet in-ear headphones. There were two iPhones that could be borrowed at no cost by participants, although this couldn't be advertised publically. Nearly half of those that tested the app and returned the questionnaires were loaned an iPhone (26 out of 60).

Although more than 60 people tested the app, this research focuses on 60 responses as 33 women and 27 men returned their questionnaires by the deadline. 50 filled out a paper questionnaire with pens or by using their computers, while 10 people chose to fill out an online questionnaire.

Liking the app scored highly amongst all ages, gender and whether people walked alone or with others. Through analysis this 'liking' can be seen as being closely related to eight other factors. Those that liked the app also felt they learnt a lot, linked the stories to the location, were immersed in the oral histories, felt connected to the landscape and found the app easy to use. Those that liked the app, to a slightly lesser extent, were also immersed in the narrative (which is often referred to as 'Minnie's story'), noticed more around them and experienced solitude, which can indicate deep immersion.

There was also a small group or cluster, which I will refer to as the 'bewildered', who found the app disconcerting, confusing and felt lost.

There is inevitably suspicion when looking at statistics provided by others regarding their validity as especially someone new to statistical software or systems can interpret results in many ways. The statistics in this report have been analysed using SPSS software with training and guidance from an experienced statistician and user of the software, Erik Geelhoed who has consistently reviewed and agreed with the findings.

Introduction

This document focuses on an app test in late summer 2013 for 29 days and the analysis of feedback

The document discusses the method used in the research, goes into more detail describing the participants and the app itself, then looks at comments made in all 60 qualitative answers and proceeds to discuss the graphic rating scale questionnaire answers and results first from the 50 people that filled out paper

questionnaires then the ten who filled out the questionnaire online. A discussion of the results leads to a conclusion followed by references and appendices, including the original questionnaire, a poetic response to the app by a participant and so on.

Method
There have been various versions of the experimental app to date. The first versions were tested on small groups or individuals with immediate feedback. The first official test used closed cup headphones in experimental conditions and tested against a control measure (an mp3 scripted historical walk), and took place over two days in March 2013 with 25 people using loaned iPads or own iPhones during unseasonably cold weather. 23 of those that tested the app were students, mostly in their twenties, and were doing the test as part of their scheduled undergraduate learning. Questionnaires were completed immediately after each test condition.

For this second test, participants were recruited through traditional media, social media, online and email networks, posters, direct requests through email and when they walked into the Hayle Heritage Centre in an attempt to attract a mixed group of testers with varied backgrounds, interests, ages and experience with technology – essentially those from the general population. As those that tested the app were self-selecting they may have been more open to an app experience than others. Although some tests were completed in the week starting Sunday August 25th, the official advertised launch of the app test was planned to coincide with the opening of the Hayle Heritage Centre on the 29th August 2013. The app test launch at the Centre was intended to boost the heritage offer at the opening event and during the Centre's first two days of opening at no cost. It helped boost numbers coming into the centre. Oral histories from the Hayle Oral History Project (the same source as most of the app content) were already being used in the Centre opening as part of their exhibition. The app test gained more notice by being part of the event, for example it was promoted on the Hayle Heritage Centre website, the Hayle Town Council website and so on, although it wasn't included in all of the Centre's press releases. The Centre offered me, the app creator and researcher, a public event and base with public access to the Wi-Fi where I could meet and chat to anyone who walked through the door to encourage them to try the app, where I could help them download the app and complete the consent forms, and where they could start the app and head off as I had moved the app start point to inside the building or outside the gate downstairs. I had a display table and placed a large visible object, my created Hayle Interactive Story Machine on it as well as the app details to attract attention. The Machine recorded stories once people had pinpointed the location of the story onto a Hayle map surface.
Volunteers helped me keep interested people engaged and provided support with paperwork, for example consent forms and app downloading guidance.

Although the local papers and local radio were contacted, the local weekly papers, Penzance based The Cornishman and independent paper St. Ives based Hayle Times & Echo (also published in the same form as St. Ives Times & Echo) picked up the story. The publishing deadlines for the bi-monthly free local pamphlet, Hayle Pump didn't coincide with the Centre launch although a summary of how the app test went and when the published app could be expected was published in the October/ November 2013 issue.

Before the test I re-activated the Hayle History Facebook page originally set-up at the end of The Hayle Oral History Project in 2010 but hardly used once the project finished. Through the Facebook page I could reach those beyond my contact list to inform them about the launch of the app test, any technology glitches and updates, and I also tried to generate conversation and input. I encouraged people to share memories by posting interesting archive Hayle Community Archive photos on the page that I also have access to, which in turn generated interest and income for the Archive. I learned a lot about which posts/ photos/ and comments received the most likes and comments/ conversation. I also generated traffic to the Hayle History Facebook page and the Hayle Tales blog through QR codes on an A4 poster and links at the end of all my emails and information sent through various networks, ranging from museum and archive, locative & interactive arts, digital business, post graduate peer groups and so on.

I also connected with other cultural, arts, Hayle and local history Facebook pages to draw attention to the Hayle Churks app and encouraged friends and other networks to spread the word.   The Hayle History Facebook 'likes' grew from less than 10 to over 300 within the test weeks with a reach of over 2,000 and lots of comments and short memories in response to the photos.
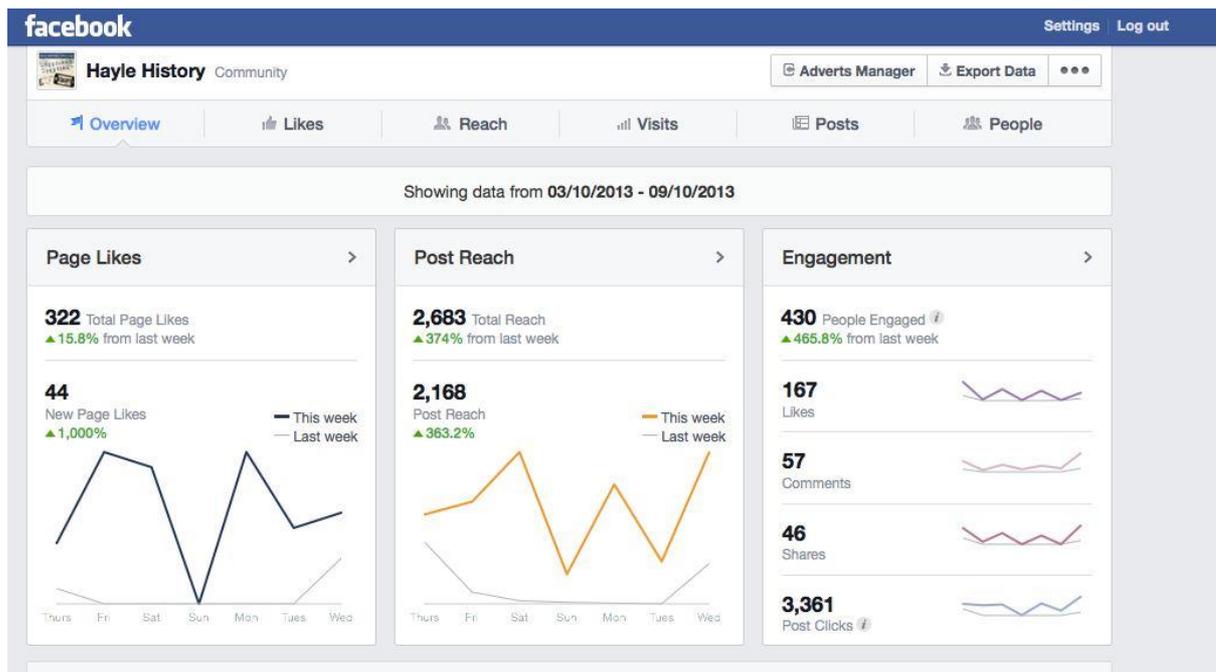
Fig. 5 : Facebook stats showing increasing reach (2,683 people) with a single post reach of 2,168 people. Included in the statistics are that 430 people are 'engaged' and that there have been 3,361 post clicks.

I am unsure why there was so much online interest in the app that then failed to translate into numbers trying it. I set-up a short questionnaire on the Hayle History Facebook page to ask why people weren't trying to the app but only received seven responses, although people could be reminded of this now as their answers would still be valid. From conversations on and offline and the results of the questionnaire it was the unavailability of a smart phone (and anxieties about being able to use one) that deterred most people. Unable to secure insurance for the University smart phones, I could not advertise publically that I had (expensive) iPhones to lend out so a lot of people were unaware of this opportunity.

Originally I decided to put the app download details on the Facebook page and blog, which included a list of instructions and the download QR code, a consent form, a participants information sheet (with an important health and safety notice about the disorientation that occurs when walking and listening to unfamiliar material and risks in traffic) and the questionnaire. I had concerns about people not completing the consent form (or reading the participation information and warnings) and not completing the questionnaire. After careful consideration I decided to control the app download process. People needed to message me on Facebook, email me or meet me to be given the app download details. There was also the option to drop into Hayle Archive (open two mornings a week) or Hayle Heritage Centre (open three days a week – not at the weekend) although the people working there were understandably less diligent about the paperwork and only two people from the Archive tried the app and felt comfortable explaining it to others. A lot of people picked up the information while I was at the Heritage Centre during its opening days (one evening opening event and the two following days) or downloaded the app and filled out the consent form there and then. Others were emailed the download information once they had given their consent.

Due to this control plus the loan of iPhones to 26 people I met a large number of participants. If someone borrowed one of the two Falmouth University iPhones the process was the most successful with a 100% questionnaire return. I met the participant and explained the process, risks and how to use the iPhone (many had never used a smart phone or an iPhone before). I then gave the walker the participant's information form and asked them to fill out and sign the consent form once they had read it. As they had the iPhone I arranged a way for them to contact me once they had finished the walk. I gave them a questionnaire and explained that I would need it to be filled out on their return. Some people filled it out before meeting me, but most people sat with me talking about the app while filling out the form. When they made certain comments I'd encourage them to make sure that they had written down those thoughts on the form. The app was opened after the walks once in a Wi-Fi zone so that in-app logged details about their movements and interaction could be pushed to Parse where I could retrieve the logged information. The paperwork was then filed and the phone charged-up ready for the next person or group.

Participants

From the questionnaires returned by 60 participants, 33 females and 27 males tested the app.
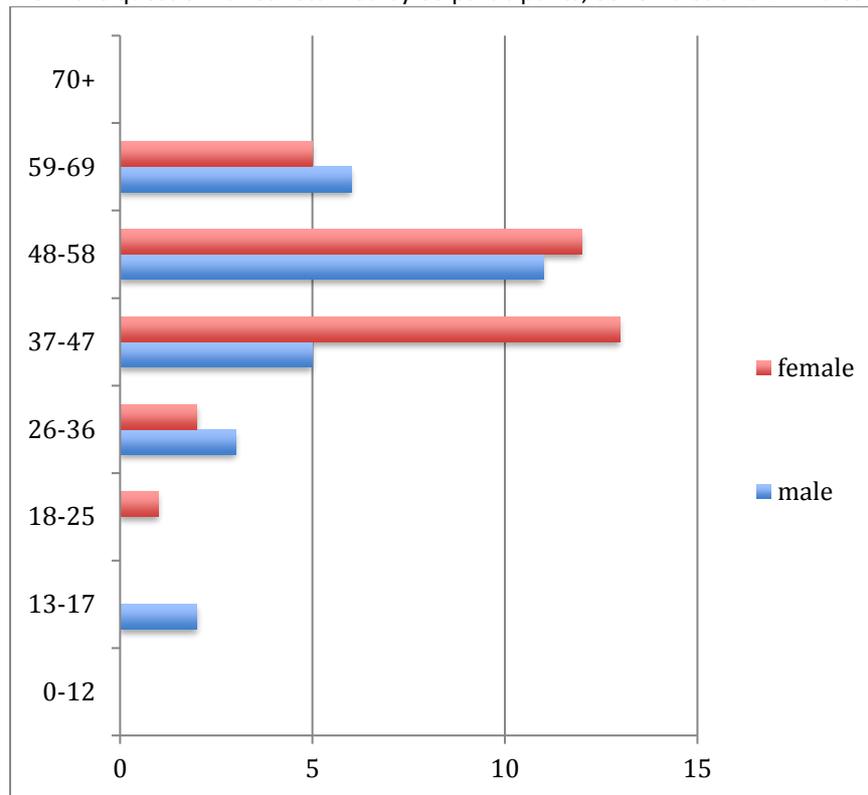
Fig 6: This graph shows the split between males (blue) and females (red) within each age group with a peak of women between 37-47 and a peak of men but still more women between 48-58.

The vast majority of people testing the app were mature, aged 37 to 69 with a peak of 23 participants in the age group between 48 and 58 and a peak in the females aged 37-47 (see fig 6).   There was only one strongly significant result involving gender. Responses to the question, 'Do you feel more connected to the landscape now?' shows a huge variation between male and female responses. The mean for females is a relatively high 74.40 with a fairly low standard deviation SD=22.30. The mean for males is 55.36, barely over the half way mark and significantly lower, with a normal standard deviation of 25.32. Not as significant, but of note is the reaction to the question about liking the narrative, Minnie's story. Again there's a relatively high mean of females who felt immersed in the story, mean = 76.74 with a fairly low standard deviation of 21.8. The mean for males is lower = 64.00 with a high standard deviation of 27.06. From discussions and emails as well as feedback after the app test I noticed that some men really enjoyed Minnie's story, others found it unnecessarily depressing and one wrote this comment in an email to me,
'Going towards the Towans and you hear the story of Black Americans etc you ponder on the fact that this is something different and something ladies in particular would be interested reading more about in a Mills & Boon book' (S51).

No one in the age groups 1-12 or 70+ tried the app, although some people in the 70+ group contacted me wanting a version they could listen to at home (which will be in the published version).
'Just offering an apology that I can't help with your APP project for the very simple reason that my knees and legs do not allow much wandering about.' (JD email).
Only a quarter (15 people) of those that tested the app lived in Hayle with 24 choosing to do the walk alone (three with a dog) while others went with friends (17), partners (11) or in a group (8), such as a family group.
Not all people in groups or with others filled out separate questionnaires. Participants had the freedom to take as much or as little time as they wanted to try the app, although I recommended allowing two hours for the whole walk. The longest walk I am aware of was over four hours on a very hot morning.
48 people in total used an iPhone, while ten used their Android phones and one tried to use his iPad. As mentioned, nearly half of those that tried the app (26) borrowed an unfamiliar phone from me. There were three distinct groups of smart phone users, those that were very familiar with them, those that were

unfamiliar with them and those somewhere in the middle. Despite this wide range of competence and confidence the app scored highly on being easy to use by the whole range of participants, although from observation and comments it is clear that shared phones were usually 'controlled' by a more confident member of the group.

Out of 60 participants two people marked down that they had a disability. This raises an interesting question on how people label themselves, as I know of two others with disabilities but they did not declare them on the form. I offered personal help to those who needed technical assistance or equipment. The majority of requests were to borrow a phone, specific technical questions and I met people to help them download the app on their phones numerous times.   Headphones were rarely borrowed.
58 out of 60 participants said that they could be contacted again as part of the research. The only two who didn't want to be contacted were a couple who chose to fill out their questionnaires online, and were two out of four people who asked to remain anonymous.

App
There will be some changes to the Hayle Churks app before it is published latest January 2014. Some changes have been prompted or confirmed by the results and observations made during the test.
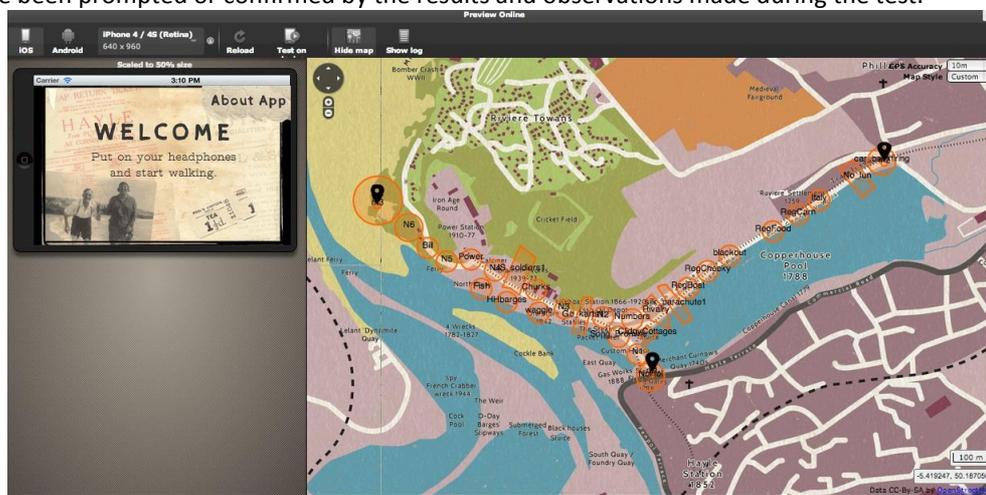

Fig 7: The app map used in the first app test. The audio regions are seen clearly in this preview pane (that only I can see, not the participant). The black markers show the edges of the app area to the user.

The previous test covered a smaller area. The app used in the second test contained more audio stories, music and involved a walk that was considerably longer.
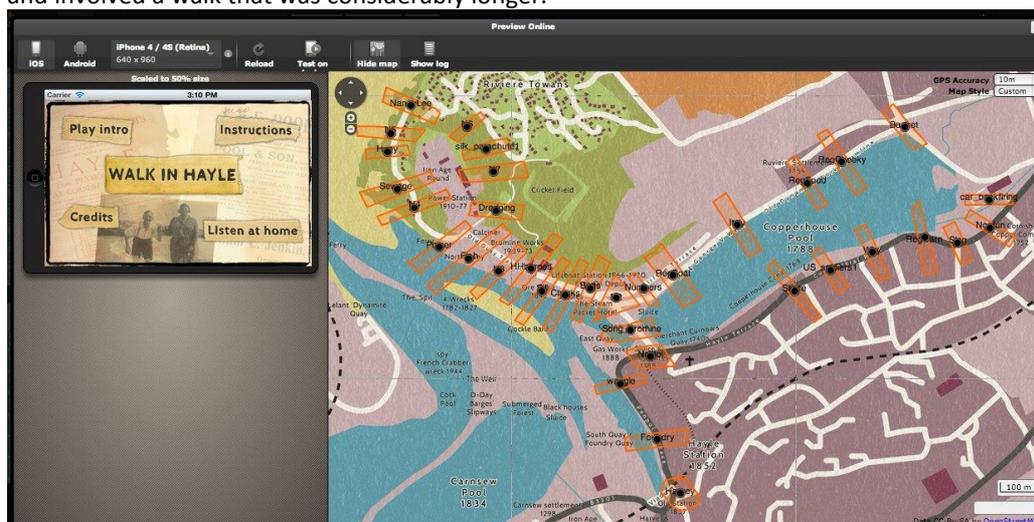

Fig.8: The interface and map used in the second test with areas marking where the audio was heard. Participants could just see the black markers.

The walk had lengthened not only to fit in more content but because I had tied the app to the launch and future of the Hayle Heritage Centre now based in the old offices of the foundry and business, Harvey's of

Hayle. By extending the app so that it started at the door of the Heritage Centre I had made the app express the usual bias of a bitterly divided town, towards Harvey's Foundry. I felt obliged to lengthen the walk to incorporate the Cornish Copper Company foundry area called Copperhouse, despite not having any recorded memories of that business as it closed earlier than Harvey's. This attempt at parity lengthened the walk and brought people onto the main road with a lot of traffic and bustle (in the late summer). There were creative advantages for this change of route; for example, a second circuit was created rather than requiring people to walk back the same way. By walking along a normal shopping street participants, who had been essentially walking through the past, were brought back into contact with the present before the app finished which, I hoped, worked as a transition back into reality. The walk didn't have to be completed in one go, it could be split into different sections but as a long piece it could work at the length of a play or film, with an 'interval' taken when needed.

The app in its present form contains more oral history recordings than the original test, mostly from older people recorded between 2008 – 2010 by the Hayle Oral History Project (HOHP). I was coordinator of the Project and trained volunteers to interview people in Hayle. My employers, Harvey's Foundry Trust, wanted the oldest people in the Hayle area to be prioritised in the interview process. The majority of interviews used in the both test apps were from people I had interviewed and recorded despite me being very familiar with all the interviews. This could offer some insight into the relationship between interviewer and interviewee. I conducted other interviews in 2012 – 2013 mostly with younger people that have now been included in the app.

In addition to the 29 audio clips (some of which included multiple voices), I wrote a seven part narrative inspired partly through memories by different people, partly through rumour (the Americans were reputed to have buried hundreds of their Harley Davidsons in the sand dunes to disguise their D-Day exit), partly fact (the racism between African-American and white American soldiers based in Hayle) and research (the reception of African-Americans in the States after the war and the fate of their European sweethearts and offspring compared to those of their white American peers). The purpose of the narrative was to introduce an unexpected narrator, someone that had a reason to know or understand the World War II memories that dominated the HOHP interviews, and whose younger female voice would break up the dominance of older male voices. I believed the narrator could have a secondary role – to warn about risks (such as walking with headphones) and to remind people how to use the app and the controls as well as grounding the app in the landscape by referring to visible traces of history. Oral histories can be vague, they hover in general locations, rather than an exact spot, which of course suits the wandering of GPS but not necessarily the listener. The final objective of the narrative was to move the walker forwards, to encourage them to search for the next physical object early on in the story and the next part of the story. This was done by trying to leave each part of the story with a suggestion that could make the listener curious rather than a soap opera cliff-hanger.
The story needed a narrator and I felt that as there were lots of strong lyrical Cornish accents in the oral histories, an 'acted' accent of a narrator could have clashed or sounded artificial next to them. Most people presumed they would hear a Cornish narrator. 'Acted' or over emphasised or exaggerated Cornish accents have been used in all the mp3 audio tours in Cornwall that I have tried. Then there was the option of a standard British accent - but this accent isn't always well received in Cornwall – it comes across as middle class and from 'up the line' and could alienate some listeners. Instead I wrote in an American narrator, which surprised many listeners, especially as her voice is the first voice heard. It suited the story I wanted to write that connected Hayle to the other parts of the world, and, in my opinion, the American 'acted voice' sounded more conversational and intimate than scripted, which I felt the narration needed. My work with radio drama was taught me that acting from a script is an art and although I know a lot of people with lovely speaking voices and rich Cornish accents, I know that they would find it hard to bring a story to life off the scripted page the way someone more familiar with acting and theatre could do.

I commissioned music for the app using the Heritage Lottery Fund grant, which included a background loop, an acousmatic composition using Hayle field recordings (by Dr. Phil Reeder) and three original songs by Dr. Johny Lamb. Background sound was needed to ease the ear into preparing for the stories, I had learnt this early on through testing other apps and by testing my own on others. The songs were used to tell three significant stories in Hayle's history that happened before anyone's living memory that I felt needed to be heard. I also recorded a lot of atmospheric sound effects and used them to illustrate the memories without trying to recreate what was being said. I experimented with semi re-creation in a couple of clips (using plane sound effects) with Ben Whitehouse who brought story elements to life with sourced sound effects.

The app had a visual side, the map and the images that came up when a clip stated. Android users, I discovered, couldn't zoom in on the map (so couldn't read historical information or see the markers clearly) and the phone's photo gallery was colonised by all the photos in the app.

Fig 9: App images (maps and photos) colonised Android phone owners' photo galleries. Two users complained but a couple enjoyed looking at the images again at home rather than just on location. This couple spotted an image of their house and then bought the image from the Archive. Photo by Daniel Harding

While audio played, the screen showed archive images. 'I liked how the images overlapped with what you saw' (S29). Five 'gifs', or photo slideshows, were used during longer audio clips. A tab displayed information on who was speaking. The phone screen could be tapped to make this tab disappear so that the whole image could be seen clearly and tapped again to make them reappear.

Fig. 11: iPhone screen with info and buttons tab up (left) and once it has been 'tapped' to disappear (right). The image is Stanhope Forbes 'Young Anglers at Hayle' 1930.

Participants could write in their memory and could go out of the app to use social media/ email to send information (there were links in the 'info' - information button) although one participant commented, 'not sure why I could not add my memories/thoughts at each point? Or whenever they occurred to me during the walk?' (S45). Another participant appreciated the memory page, 'I loved the 'text your experience of the Copperhouse Pool' link – although I dismissed it at first, thinking I had nothing to add to the historical information. A bit more about oral history as a continuous adding would be helpful. I got the hang of it later and encouraged my party to add to the oral text bank' (S49).

Using my brief, mood board and images, the interface was created by a graphic designer (thanks to the Heritage Lottery Fund grant). The garish Open Street map was made to look like an old geological map with selected historical information I had discovered in research marked on, such as a submerged forest and a medieval fairground, as well as some essential street names & buildings.

Fig. 13: The app map on the left was created to cover the Open Street Maps version on the right. Only selected historical information is written on the app map plus essential buildings and roads. The phone screen is small so the ability to zoom right in close to the detail is important.

Interactive buttons were created in the style of handwritten notes in the style of yellowed archive or second hand shop notes to toggle between different screens.

"Interface design felt coherent with the overall spirit of the app. Easy to read buttons, which imply they should be clicked but are not too "button-esque." (S08),

'I liked the interactive nature of the map and the fact that the stories started up without prompting' (S48).

The pause button had been installed to help foster conviviality.

The app was given a standing round of applause at the Hayle Town Council Civil Ceremony in October 2013.

Measures

1. A questionnaire with 26 questions requiring an answer. 14 questions used a graphic rating scale format (Stone et al 1974), six a written qualitative answer and six a tick or radio box. The graphic rating scale measured 11.75 mm.
2. Automated logging within the app and observations were documented through notes, photographs and films.
3. Qualitative details were transcribed in full.

Participants were asked to make a mark on the graphic rating scale between (and including) the two extremes.

The questionnaire data were analysed using SPSS (Statistical Package for the Social Sciences, IBM) identifying statistical descriptions. Analysis of variance was used to explore differences and correlations. Multi Dimensional Scaling was used to analyse similarities. Experienced statistician Erik Geelhoed introduced and supported learning in software use and analysis.

Free online questionnaire software used numbers as part of their questionnaires, rather than a graphic rating scale. I used Google docs and had to use a scale from 0-10 with 'not at all' and 'very much' at the extremes of the scale.

Below is an example of a qualitative question:

'Could you tell me 3 things you liked about the experience?'

Statistician Erik Geelhoed has noted in his previous research that qualitative data is frequently questioned,

> 'The discipline of psychology, through sound statistical method addresses [the] problem of being able to generalise from a small sample to a wider population […].But the […] patterns of numbers, tell their own very important story, as we try to titrate out what is behind the (patterns of) numbers. It is not a reduction but an enrichment: adding new and important insights which could never have come about without the help of surveys and their statistical analysis'.

The online questionnaire also required participants to select tick boxes (if offered more than one alternative). This function wasn't working on one question online for the first two respondents. Radio buttons, where only one alternative can be selected, were also used, for example to select gender.

A poem was written in response to the app and is included in the appendix.

Results

The findings are presented as follows:

The results for the graphic rating scale are not presented in the order they were asked but from the highest to the lowest scored 'mean' in the responses. Each question is followed by a histogram accompanied by the mean and the standard deviation (SD) with a short paragraph describing the findings from the answers to that question and, where relevant, some further illustrative comments from questionnaire feedback. At the bottom of this section there is a table (see fig. 24) showing how responses to each question correlated with the other questions - the inter-correlations between 14 graphic rating scale responses and a corresponding Multi-Dimensional Scaling graph that displays the data in a two-dimensional form for ease of reading. But first we shall look at the answers to qualitative questions returned by 60 participants.

Qualitative question results from 60 questionnaires
Could you tell me three things you liked about the experience?
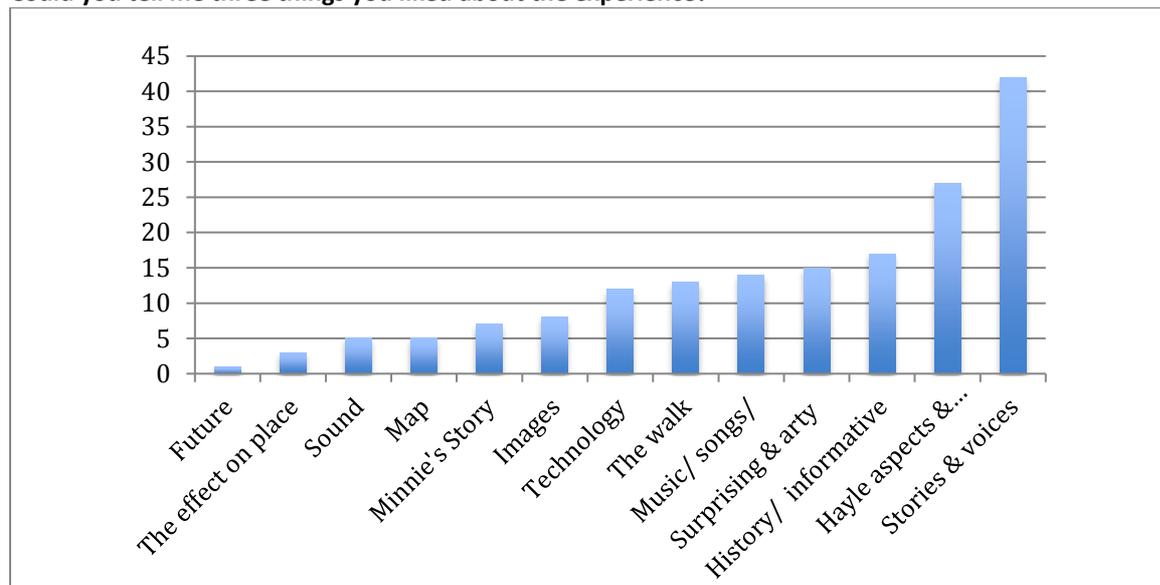

Fig. 14: Graphic representation of repetition of themes in qualitative answer to the question: Could you tell me three things you liked about the experience?

The answers to this question were split into themes, by how often something they liked was mentioned. The results show clearly that the stories and voices were well liked (42 out of 60 people mentioned them). Stories were also the top scorer in the first app test in March 2013. The 'new' experience in Hayle, the history and information as well as the surprising 'art' experience that the work offered, the music and the walk itself were also well liked.

Stories & voices

The oral histories, short stories, memories, first person accounts and the voices of the speakers were the favourite part of the app. Firstly the types of stories were commented on;

'Range of stories: detail, personal, scientific and all the lovely Cornish accents' (S06),

'Stories of old Cornwall (Hayle) [and] stories relating to other lands and people's lives' (S15),

'Good range of voices – male and female & SAS' (S33), 'the stories were everyday and personal' (S48).

The closeness and intimacy people felt with the person sharing their stories was commented on:

'I felt as though the people were there with me sharing their experiences' (S19), 'Understand people's experiences better' (S13),

'Connected with people through their stories' (S41),

'I loved the clink of the teacups in one memory - it was like I was having tea with her in her house' (S06).

The effect of hearing the stories located in the landscape affected some:

'Feeling a different kind of connection with the familiar landscape through the stories' (S25),

'[The app} peopled' a landscape (with ghosts)' (S11),

'I loved the stories about the sailing races and the local man swimming underwater, the story created really good visual images and made us chuckle' (S18).

As the app was not a glossy tour of Hayle but a way of exposing suppressed feelings and layers of memory, this was commented on and liked;

'The fact that it wasn't just positive stories' (S03),

'Although a lot of the stories are tragic I do not feel brought down by the content. These are the human real stories and I felt privileged that they wanted to share them with me. The drunken father and the shame over a half-Italian baby were extra moving because of this closeness that having them in my ears affords. More than written text' (S06).

Although the stories were complimented there was a request for anchoring and context; 'The stories were good: I think we felt some contextualising e.g. direction of attention, place, dates, relationships etc would help relate the stories to what is there now'. (S58).

Hayle aspects & views

The feedback indicates that revealing another side of Hayle was appreciated (by 27 people). These comments focus on the actual walk,

'It was good to get into the interior of Hayle – it's so full of surprises' (S16),

'Took me on a route I would never have walked and that I enjoyed' (S03),

'New perspective – saw things I would not have ordinarily seen' (S08),

'It added a depth and colour that I was not aware of' (S33).

While these comments focus on Hayle as the background to the experience, for some it was more than that,

'Being able to see the relevant things the people talked about as I walked' (S10),

Others commented on how they were affected by the past being played out in their ears as they witnessed the present with their eyes:

 'Pictures and stories of the Regatta made it seem so exciting' (S24), '

'Thinking about the past, particularly North Quay and how busy it was, gave me goose bumps' (S31).

This moved some residents to reassess their feelings of Hayle,

'Made me appreciate more about where I live (Hayle)' (S12), and

'reaffirmed my love of Hayle' (S50).

Many were encouraged to reflect on the future now they had heard about the past;

'It is great to learn about the amazing past of Hayle. The prosperity and success of such a small remote town is inspiring. Hayle needs to become that prosperous vibrant location again' (S18),

'It made me feel sad about the lack of industry here now and I would love to see big boats in Copperhouse Pool now' (S31),

'I found it very interesting to hear about the amount of sand that has been taken and the effect it is having on the landscape' (S61),

'Hayle is an area that needs developing, hopefully this can be done sympathetically incorporating its historical industrial past'. (S36),

For some participants the range of stories they heard limited their understanding of Hayle;

'Brought it alive and gave the area a sense of place from the period of recordings only' (S32).

Liked the historical information

17 participants selected history as something they liked using words such as 'informative' and 'educational'.

'A nice relaxing way to wander around the area and discover interesting facts and history' (S20),

'I learnt things I didn't know and it made me feel like I know more about my local area than before, overall a very interesting and informative app' (S38),

Although some found the combination of walking, seeing the landscape and hearing stories more challenging,

'hard to mix past and present' (S37).

Some people became excited about apps;

'The potential of the technology to really educate and promote local heritage' (S55) and,

'It made me think for the first time about the world of apps and their potential use in ultra-local situations like this' (S59).

With some enjoying the 'newness' of history in an app experience

'[It's like] going through a living museum – almost an abstraction, it becomes poetic, removed from reality' (S34).

Which brings us to the next section, which focuses on the app offering a different kind of experience.

Surprising, arty

15 participants commented on their delight with a new medium which surprised them.

V. different to anything done before!' (S33)

'Artistic experience' (S06), 'Hypnosis' (S11), 'Atmospheric and evocative' (S39),

'Being in a familiar everyday environment, but being there under completely different circumstances and appreciating it in a different way' (S30).

Again, some people found the combination of motion, sound and phone images and landscape difficult to negotiate, 'I felt I found it hard to listen and walk at the same time sometimes' (S29).

The music

14 people responded positively to the music,

'I liked the music between stories, it is tranquil and relaxing' (S61),

'The atmosphere created by the sound track created realism' (S36), but even if people liked the music they often tired of it despite the background loop being 20 minutes long,

'I liked the music (although it did get a bit much towards the end) (S29).

The walk

Encouraging the participants to take a walk was liked by 13 participants because it,

'got me out and about' (S02, S32, S41,),

'it gave permission for and form to a walk' (S11),

'It's a great excuse for a walk [and] enhances an already lovely walk' (S42).

Could you tell me 3 things you didn't like about the experience?
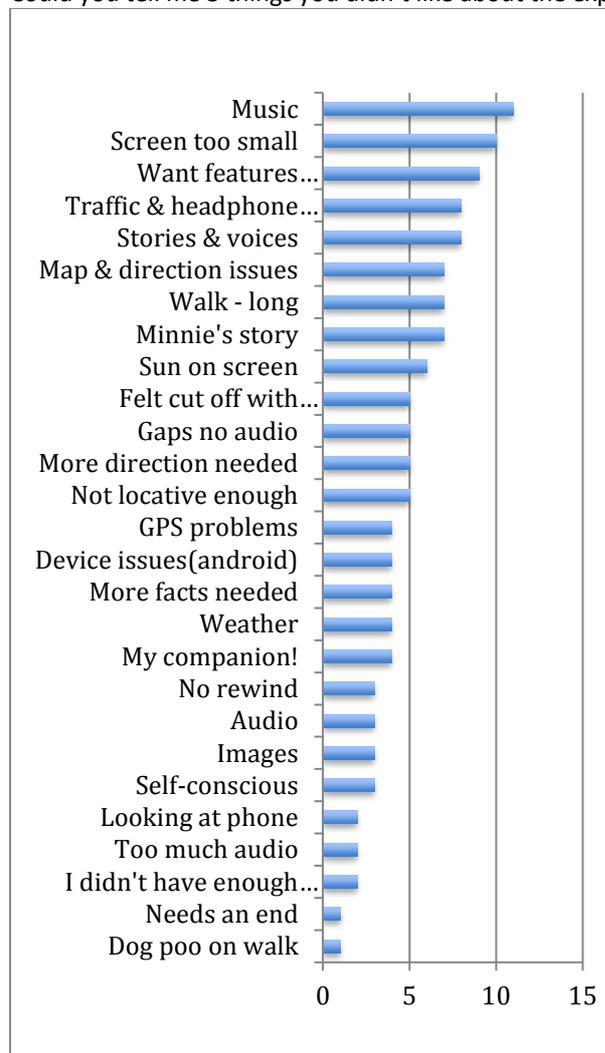
Fig. 15: Graphic representation of repetition of themes in qualitative answer to the question: Could you tell me 3 things you didn't like about the experience?

Music heads the table as something people didn't like or tired of with 11 people not liking it, which can be compared to the 14 people that selected it as something they liked in the previous question. The criticism included uncomplimentary adjectives such as: 'gloomy' (S11), 'tedious' (S13), 'doleful' (S14), 'repetitive and sombre' (S23), 'solemn' (S24), 'repetitive' (S34), 'ambient 'drone'' (S41) and 'irritating' (S59). The music seemed to set a mood for many people,

'Music somewhat gloomy, I liked it but maybe a bit imposing – manages mood maybe too much?' (S11).
I tried to avoid this by using a very long loop (20 minutes which requires an enormous amount of memory), with a definite mood change about halfway in, but I have since decided to try to have a section of background with no music. Instead, I want to go back to sound recorded in the environment (water, birds) similar to that I created and used in the first app test that introduced a 'third reality', one that confused the listener about what was recorded or in the landscape. Were they hearing something recorded or real? This should prevent some of the comments,
'The music only annoyed me when I forgot to switch it off so that I could take in the walk' (S22).
The size of the screen bothered 10 people, especially during a walk when people hadn't necessarily thought about needing reading glasses. The screen was also hard to see in bright sunlight – six people complained about this, 'iPhone a bit small & dark, maybe do it on an iPad (though would I be more self-conscious?) (S11).

Fig. 16: Some needed to wear reading glasses during the walk to see the screen.

Nine features that people asked for were already in the app such as: the pause button, the map zoom (although this didn't work on Android phones), the tabs disappearing off the photos, and an intro etc.. .
Others were details participants were told would be in published app (able to listen at home or play the stories manually).
Eight participants found the combination of traffic and headphones disturbing,
'Using headphones meant I felt disconnected from the environment especially when encountering traffic, which was not always a positive experience.' (S08).
Participant S47 (unfortunately a Cornwall Council employee) informed me that he had to slam his car brakes on while leaving Hayle to avoid running over someone wandering across the road with headphones on.
Eight people mentioned the stories and voices as things they didn't like. Their criticisms usually centred on the content; '
Probably too diverse stories (history, SAS, black soldiers, Italians)' (S08),
'Stories not light-hearted: teenage pregnancy, racism and murder' (S14),
'Bit sad in places' (S02),
or the need for younger voices,
'Too many 'old' voices – young ones would also be good, could benefit from 1 or 2 uplifting beats – songs - children, happy etc' (S33), '
More contemporary voices/ stories' (S29).
Minnie's story was ranked eighth in things people didn't like, but ninth in the most liked app features. Five people either didn't answer or wrote 'can't choose' when they were asked to select whether they preferred oral histories or the narrative. 16 people chose the narrative but oral histories (39) were the favourite. As well

as the narrative having functions mentioned earlier in this text I was also interested in whether a scripted story, the way others' stories are often re-packaged and presented, had more impact than a first-hand account. Of course the quality of my writing and the story itself, the acting etc… could all have had an effect on the feedback.

The narration received a number of positive responses in the qualitative feedback. The use of the narrative as a device to make people move through the app experience was successful with some participants,
'The mystery of the American voice of Minnie was a good device and I immediately wanted to find out why she was speaking on the app' (S08) 'Minnie's story drove forward your movement' (S00),
The interconnection between the first hand accounts and the 'faction' narrative was commended by some.
 'the way [Minnie's story] came and went and related to the other stories' (S05),
as was the device to connect a small town's stories with larger worldwide themes,
'The use of a non-Cornish American sounding narration signified extra meaning - our connected distance from past events and the multicultural nature of the town and its history' (S55).
As well as praise, the story and use of an American voice also received negative comments such as:
'An American narrator took me aback and it wasn't until her comment about being the first to return to Cornwall that it made sense to use her' (S31),
'Until I realised why there was an American lady talking her accent bothered me a little, I thought she was a generic voice. When I found out she was Winnie's daughter I warmed to her completely' (S43),
and 'Have a local narrating the story' (S38).
Some people complained about the wording of this question, preferring to mention things that they could criticise rather as labelling that they didn't like them. A significant amount of participants (how many) people left this section blank or just wrote one or two comments rather than three.
What would you change to make it better?
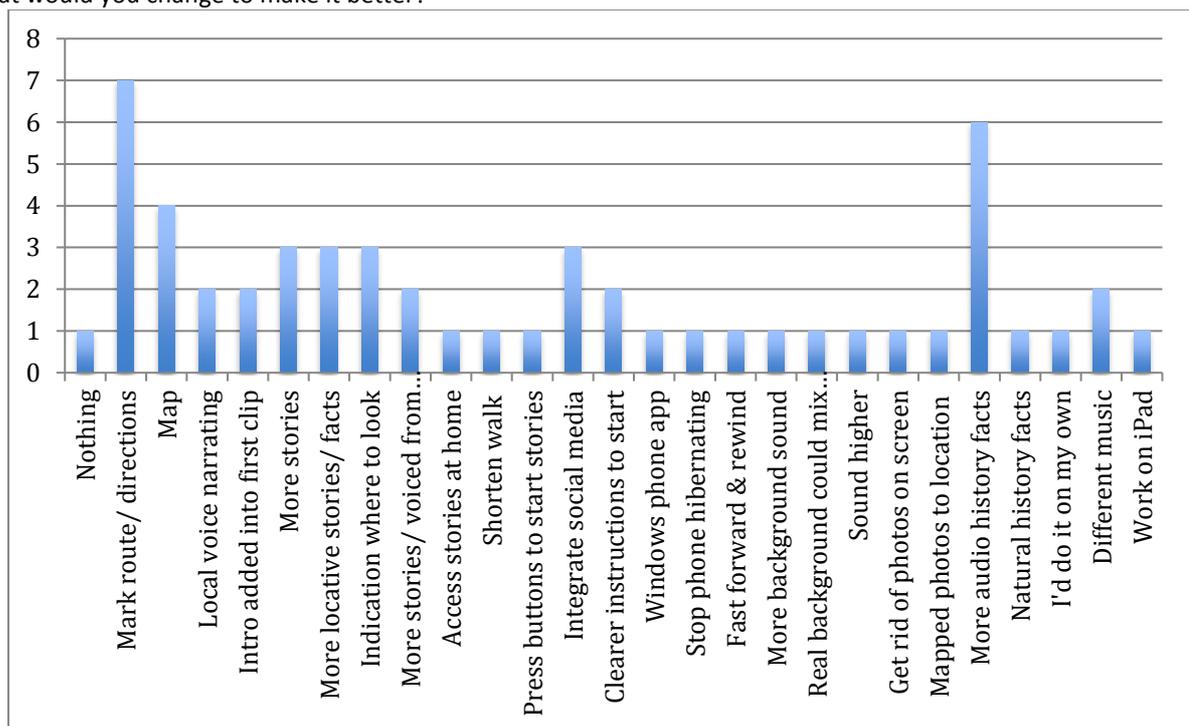
Fig. 17: **Things people would change**

Only one person made 17 of the 27 suggestions for changes, more than one person made ten comments. Although black spots marked where the audio was which marked a route (and the route was written into the in-app instructions and hand out), seven people wanted a continuously marked route.   An audio narrated route was also requested and three people requested an indication of where to look and why.
 'Add marked out route to avoid confusion? Getting lost?' (S07),
More audio facts rather than on the screen or an indication when to look' (S39),
I would have liked to have a small amount of info about each location before the clip' (S35).
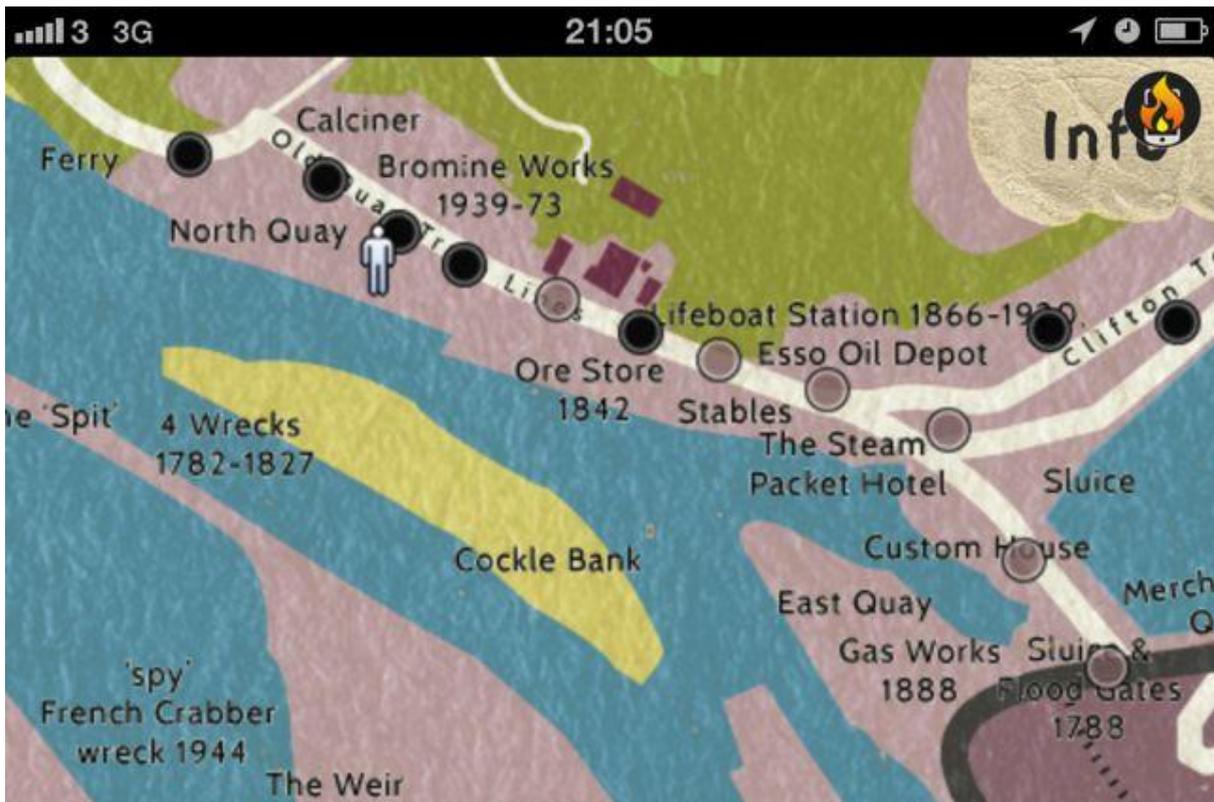
Fig. 18: Phone interface showing black spots that mark where the audio is as a prescribed route. The grey spots indicate that they have been heard. During the app test, the markers changed to be: black as unheard, grey as being listened to now and then the marker would disappear once heard to make the writing on the map more legible.

Six people wanted more audio historical facts and three wanted more locative stories and facts. The oral histories and the narrative are stories rather than a detailed description of what happened historically in a set place.

'I would have liked more facts on the route, I was hungry to learn more.' (S61),

'Not enough historical facts!' (S39),

'At location points i.e. dots – a brief factual historical item as well as anecdotal stories' (S36),

'There were places along the way that I wanted to find out about, what was happening there now' (S20).

Although only one person requested a shorter walk in the 'things to change' answer, the length of the walk was brought to my attention through answers to different questions;

'Felt a bit too long'(S08),

'I don't normally walk this far in one go' (S51)

despite my attempts to make it clear at the start that it could be walked in sections rather than the whole lot at once. Possibly the process of borrowing the phones made people do it in one go and possibly at a faster pace than usual. I complete the walk in 75 minutes with almost constant audio as my companion but most people took approximately two hours (120 minutes), which would account for some people mentioning that there could have been more audio stories.

Did you have any problems with the technology?
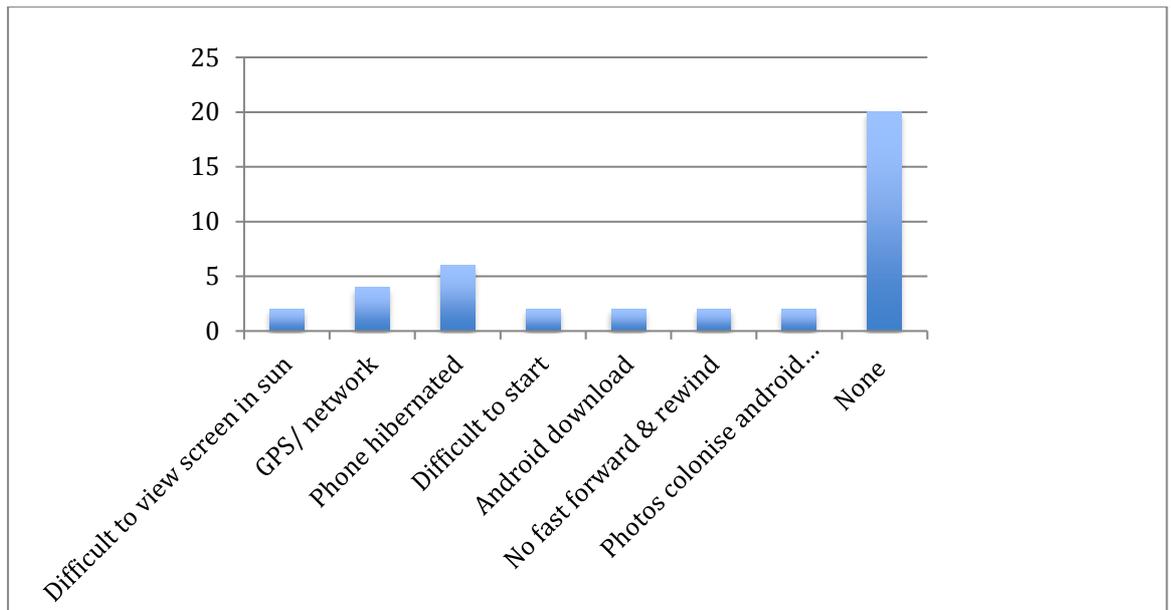
Fig. 19: Answers to the question, 'Did you have any problems with the technology?'

This graph eliminates technical problems made by only one person, although these are detailed here: Screen too small, I didn't have headphones, I had the volume too low at the start, echo on audio while walking next to traffic jam, I couldn't find the pause button, was unsure when a different display came up while it was in my pocket – it was an unfamiliar device, I missed a couple of markers – why? My battery ran out, 'my phone crashed', 'I was lonely and wanted social media', 'I couldn't keep my phone dry in the rain'.

Many people (how many) left this blank. Those counted as 'none' were those that wrote something usually 'no', 'none' or 'nothing'

Instructions on how to stop the phone hibernating were included in the download instructions given to participants and included on the introduction button within the app but six people, who had not followed these instructions were bothered by this. I am going to try to make the app stay open while in use.

'The phone kept cutting out as my settings were not correct - but I did not want to spend time trying to change them' (S60).

The GPS, an acronym for Global Positioning System, worked differently for people and four mentioned it in things to change but it was brought up in other answers. The effectiveness of GPS depended on the network (Vodaphone had no signal in the area for example) and their phone as well as the drifting nature of GPS on different days in different weather conditions. iPhone has very good GPS and some people noticed its accuracy,

'the really interesting parts were where the audio directly related to the location you were in' (S20).

Others felt there was a problem,

'The experience worked the very best when the tales was focused on where I was stood i.e. the black steps, the electric works... all other tales were a bit vague in terms of the location and this seemed to miss opportunity for promoting the value and meaning of the townscape' (S56),

'Have sound, picture and view marry up' (S35).

The lack of a rewind/ replay button was commented on and is something I was trying to implement before the test and will continue to try to, although it clashes with how the coding was originally organised.

Many were happy to have a new and positive experience with technology, especially an iPhone:

'Learnt how to use iPhone' (S02),

'Experiencing a refreshing new way of learning using an iPhone' (S30) and were excited by it,

'It was quite entertaining playing with and marvelling about the technology- felt like a game' (S60)

but others found it difficult, 'I wasn't good at the iPhone and needed help' (S40).

Radio or tick answer results

As part of the questionnaire participants were given 11 choices of what they were more likely to do after completing the app. They could select more than one choice although two participants could not fill in their choices online (until I fixed it) so the answers are out of 58 not 60. 46 out of 58 said they were more likely to bring people to Hayle, 45 were more likely to look up historical information, while 41 were more likely to come again with new eyes and to think of the future. 35 participants were encouraged to think about the present

with 30 more likely to pay attention to planning proposals. Some people scribbled on their forms or mentioned to me that they would pick up rubbish anyway.
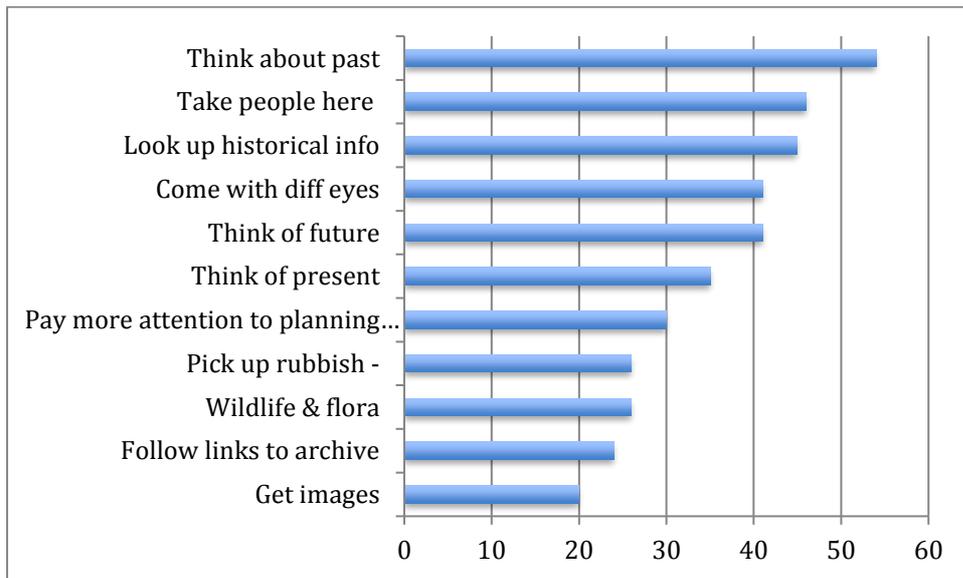

Fig. 56: What are participants more likely to do after using the app?

Graphic Rating Scale Questions

14 questions were answered using the graphic rating scale. The measurement of the scale was between 1-10 although no numbers were shown on the paper questionnaires but unfortunately could not be avoided in the online questionnaires; therefore the figures shown in these results are only for 50 of the 60 respondents, the 50 that filled in paper questionnaires.

The data has been arranged in the Order Of Mean from the highest to the lowest scores rather than question order from the questionnaires. The lines at the top of the bars indicate the margin of possible error, which are smaller or greater depending on the spread of answers across the graphic rating scale, the standard deviation. For example: when participants are in close agreement in their answers there is a lower standard deviation and a smaller possible error. To assist in interpretation of the histograms and information here are some details: Normal standard deviation is: 20 – 30, and significant p values are below: .05.
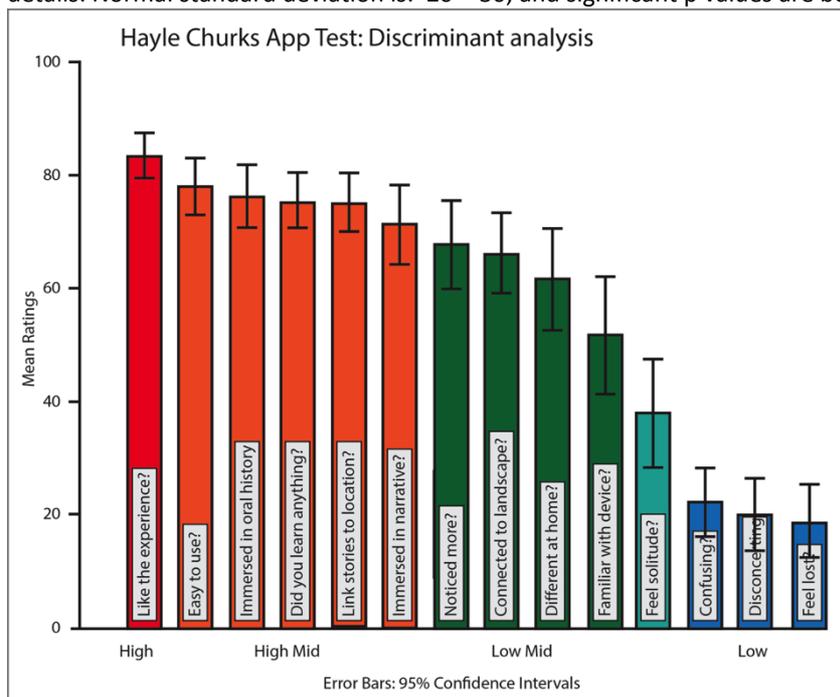

Fig. 20: 1 Order of Mean for questions answered on the 50 paper questionnaires.

The table above (fig. 20) shows five distinct sections represented by different colours for the answers from the 50 paper questionnaires. The data was divided into these groups after using SPSS analysis of repeated measures.

	Mean		Std. Deviation	
	Statistic	Std. Error	Statistic	Statistic
like	83.8041	2.01816	14.27053	-1.110
easyuse	78.2558	2.52258	17.83731	-.753
oral	76.3188	2.76137	19.52584	-1.348
learn	75.7278	2.49437	17.63785	-.741
linkloc	75.3250	2.54489	17.99512	-.782
narr	71.3847	3.49531	24.71554	-1.063
notice	67.9309	3.97639	28.11735	-.723
connected	66.4015	3.56582	25.21415	-.740
diffhome	61.6913	4.39362	31.06762	-.849
familiar	51.7451	5.18370	36.65427	-.088
sol	37.9503	4.74215	33.53204	.404
conf	22.2027	3.05366	21.59264	1.531
discon	19.9091	3.19193	22.57037	1.757
lost	18.7442	3.21708	22.74821	1.738
Valid N (listwise)				

Fig. 21: Table illustrating the order of the mean from paper questionnaire scores, the standard deviation of the scores to show agreement or a wide spread of opinion and the margin of error for the mean figure.
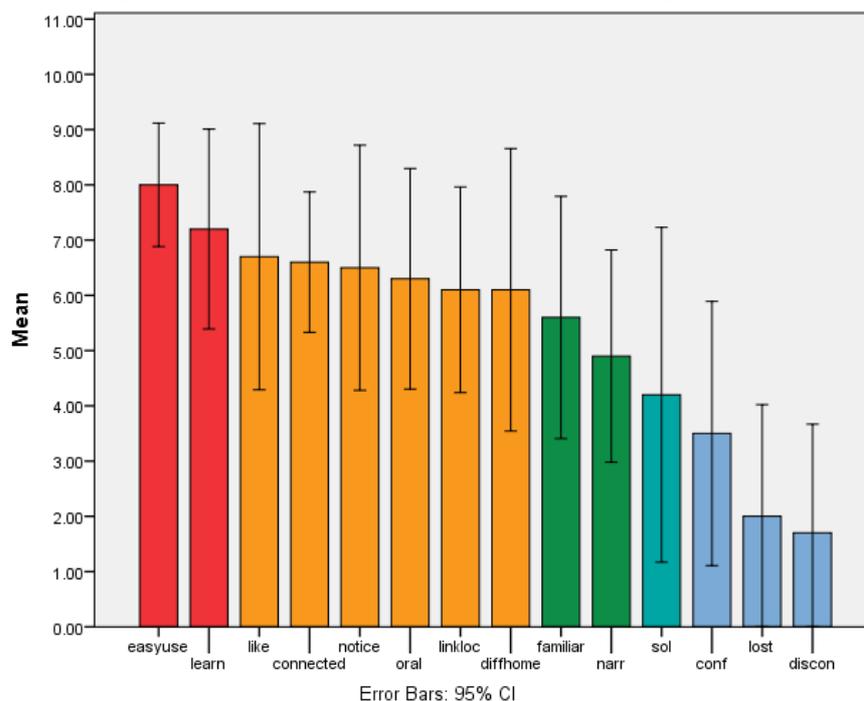

Fig 22: Order of Mean for questions answered on the ten online questionnaires. Please note that as only ten people used the online questionnaire the bars at the top of the columns indicating error margins are far greater than in the larger paper questionnaire sample. This diagram has some variation from the order of mean from 50 answers above but many aspects are mirrored.

Descriptive Statistics On-line

	N	Mean		Std. Deviation
	Statistic	Statistic	Std. Error	Statistic
easyuse	10	8.0000	.49441	1.56347
learn	10	7.2000	.80000	2.52982
like	10	6.7000	1.06510	3.36815
connected	10	6.6000	.56174	1.77639
notice	10	6.5000	.98036	3.10018
oral	10	6.3000	.88255	2.79086
linkloc	10	6.1000	.82260	2.60128
diffhome	10	6.1000	1.12990	3.57305
familiar	10	5.6000	.96839	3.06232
narr	10	4.9000	.84918	2.68535
sol	10	4.2000	1.33998	4.23740
conf	10	3.5000	1.05672	3.34166
lost	10	2.0000	.89443	2.82843
discon	10	1.7000	.86987	2.75076
Valid N (listwise)	10			

Fig 23: Table illustrating the order of the mean and standard deviation from online questionnaire scores.

	Like	Ease	oral	learn	linkloc	narr	notice	conn	diff	fam	sol	conf	discon
Ease	0.032												
oral	0.001	0.544											
learn	0.002	0.482	0.851										
linkloc	0	0.361	0.691	0.879									
narr	0.001	0.11	0.154	0.224	0.274								
notice	0	0.038	0.053	0.062	0.072	0.494							
conn	0	0.008	0.003	0.009	0.005	0.271	0.696						
diff	0	0.003	0.007	0.001	0.005	0.045	0.288	0.354					
fam	0	0	0	0	0	0.002	0.015	0.017	0.19				
sol	0	0	0	0	0	0	0	0	0	0.035			
conf	0	0	0	0	0	0	0	0	0	0	0.004		
discon	0	0	0	0	0	0	0	0	0	0	0	0.276	
lost	0	0	0	0	0	0	0	0	0	0	0	0.265	0.729

Fig 24: Table showing paired comparisons using repeated measures in 50 answers. The results, for example, link those that liked the app to various other features or effects of the app such as finding it easy to use, being immersed in the oral histories and narrative, learning from the app and linking the stories to the locations.

Histograms

This section looks closer at the graphic rating scale answers in the order of mean from the paper questionnaire answers. The 50 paper questionnaire answers are illustrated in the first graph with explanation and answers. The less significant (only ten) online answers are illustrated in the graph that follows with the blue columns with the mean and standard deviation shown on the top right of each histogram. The online histogram often mirrors or more or less copies the histogram for the larger sample of 50.

1. **Did you like the overall experience?**

Not at all   Very much

|_____|
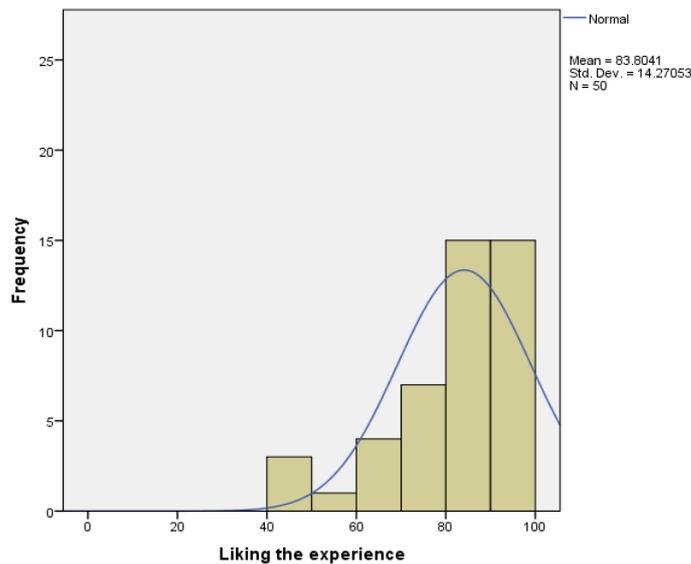
Fig. 25: Histogram illustrating 50 answers to: 'Did you like the overall experience?'

On average participants rated the level of liking the overall experience of the app walk relatively high, mean = 83.80. There was a peak in the ratings at the high end of the scale (between 80-100). However, there was a smaller group who rated this lower but starting at 40%. This is reflected in the relatively narrow spread, SD = 14.27.

Whether people "liked the overall experience" seems a pivotal factor as it inter-correlates with seven other questions of which there are five significant correlations, (please see fig. 24).
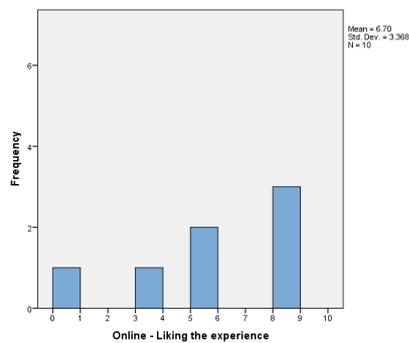

Fig. 26: Histogram illustrating 10 online answers to: 'Did you like the overall experience?'

2. **Did you find this app easy to use?**

Not at all   Very easy

|_____|
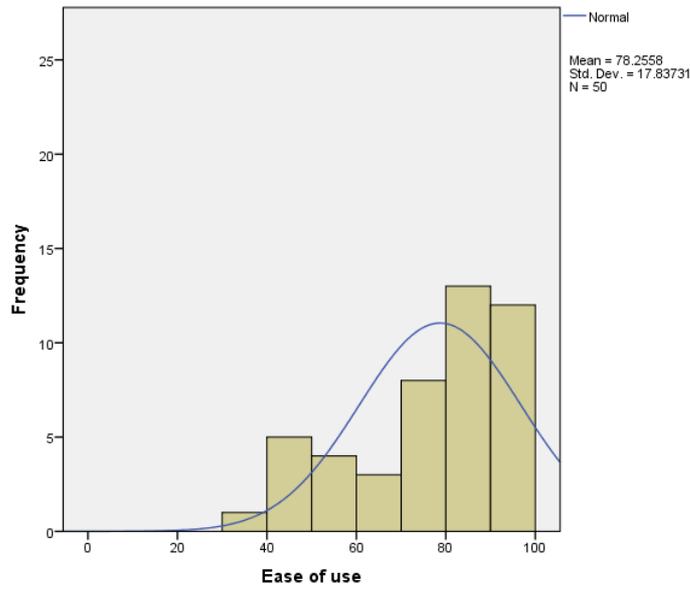
Fig. 27: Histogram illustrating 50 answers to 'Did you find this app easy to use?'

On average participants rated the level of app ease of use relatively high, mean = 78.26. There was a peak in the ratings at the high end of the scale (between 80-90). However, there was a smaller group who rated this lower, starting at 30%. The ease of use is reflected in the relatively narrow spread, SD = 17.84.
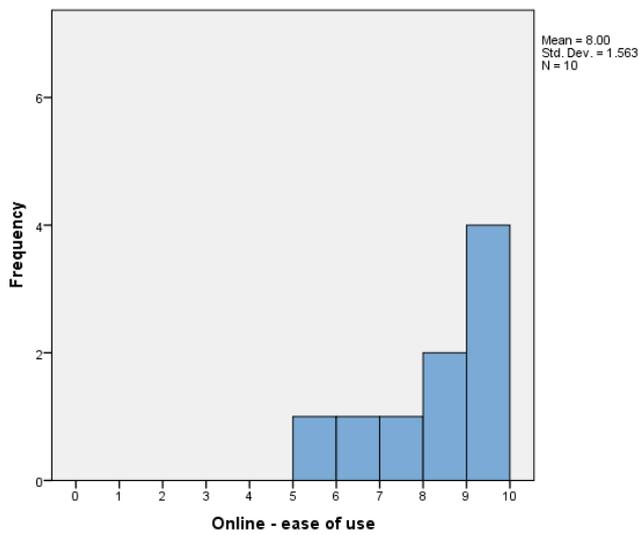

Fig. 28: Histogram illustrating 10 online answers to 'Did you find this app easy to use?'

3. **To what extent were you immersed (deeply involved) when listening to the oral histories?**
   Not at all   Very much
 |_____|
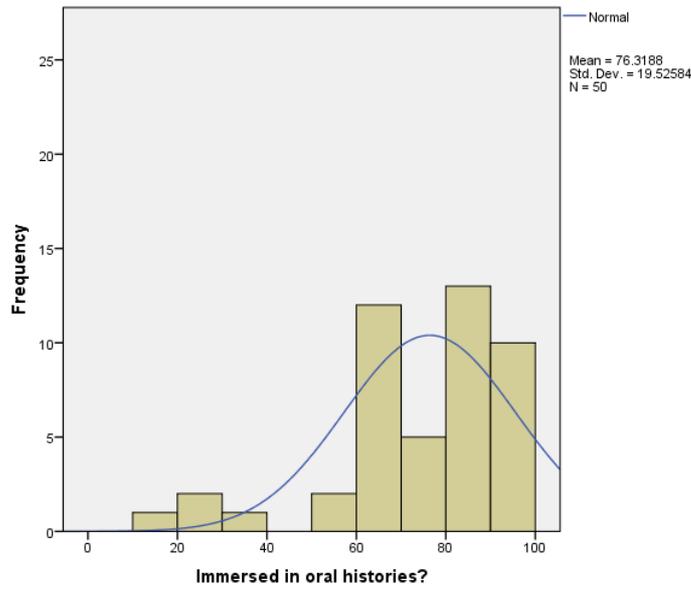
Fig. 29: Histogram illustrating 50 answers to 'To what extent were you immersed (deeply involved) when listening to the oral histories?'

On average participants rated the level of immersion in the oral history recordings during the walk relatively high, mean = 76.32. Two peaks occurred in the ratings (60-70 and 80-90) at the higher end of the scale. However, there were individuals and smaller groups who rated this lower starting at 10%. This is reflected in the relatively narrow spread, SD = 19.53.
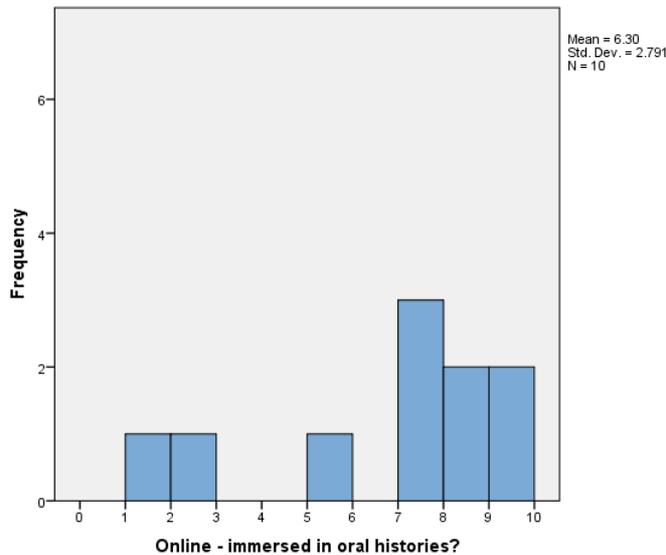

Fig. 30: Histogram illustrating 10 online answers to 'To what extent were you immersed (deeply involved) when listening to the oral histories?'

4. **Did you learn anything during the experience**?

    Not at all   Very much

     |_____|
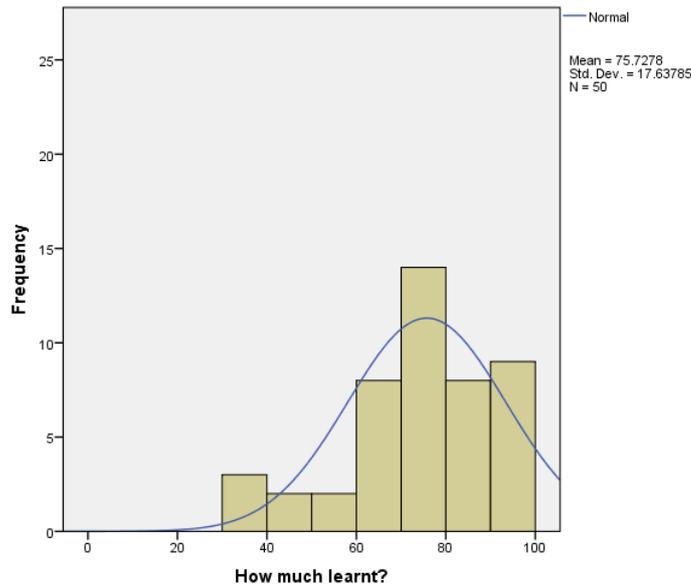
Fig. 31: Histogram illustrating 50 answers to, 'Did you learn anything during the experience?'

On average participants rated the level of learning during the walk relatively high, mean = 75.73. There was a peak in the ratings at the high end of the scale (between 70 – 80). However, there was a smaller group who rated this lower, starting at 30%. This is reflected in the relatively narrow spread, SD = 17.64
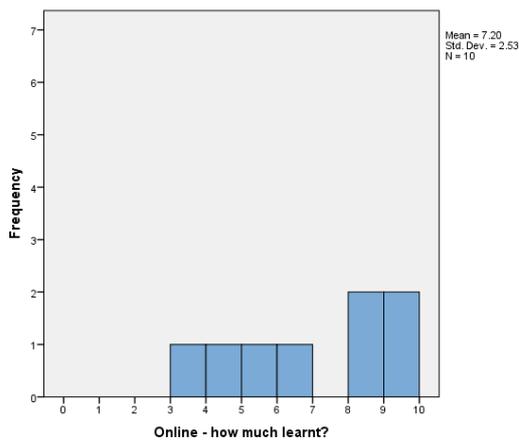

Fig. 32: Histogram illustrating 10 online answers to, 'Did you learn anything during the experience?'

5. Did you link the stories you heard to the location you were walking around in?

    Not at all   Very much

|_____|
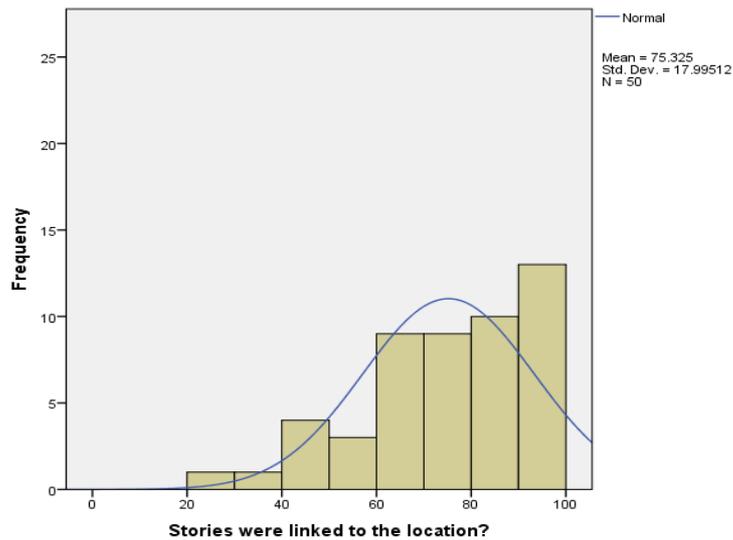
Fig. 33: Histogram illustrating 50 answers to, 'Did you link the stories you heard to the location you were walking around in?'

In hindsight, this question would have benefitted from better phrasing such as: To what extent did you link the stories you heard to the location you were walking around in? Despite this, the meaning of the question in its original state seemed to be clear to participants.

On average participants rated the ease of linking the stories to the location during the walk relatively high, mean = 75.33. There was a peak in the ratings at the high end of the scale (between 90-100). However, there was a smaller group who rated this lower (starting at 20%). This is reflected in the relatively narrow spread, SD = 18.00.

'The app added another layer onto my encounter/experience of the place' (S60),

'It always felt haunted but now more so – so much industry that now is gone' (S11),

'It is nice to relate the landscape to people and activities in the past' (S14),

'The fishing stories were so well placed! I was smelling the nets and wondering what it was when he started speaking and so was immediately located. It was a great feeling, very pleasurable. Almost like I'd 'got' something' (S06).
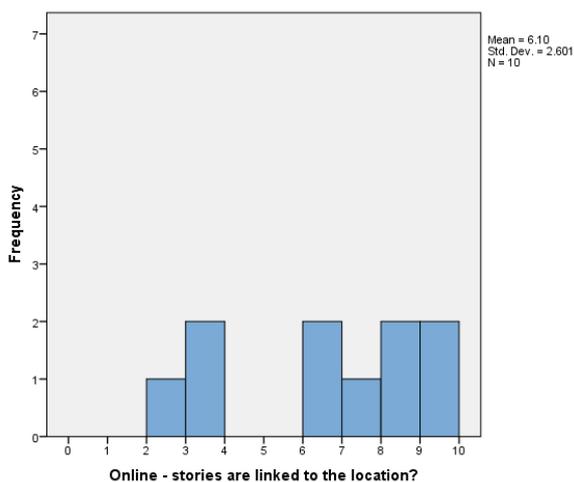
Fig. 34: Histogram illustrating 10 online answers to, 'Did you link the stories you heard to the location you were walking around in?

6. **To what extent were you immersed (deeply involved) when listening to the American narrator of Minnie & Winnie's story?**

Not at all   Very much

|_____|

347
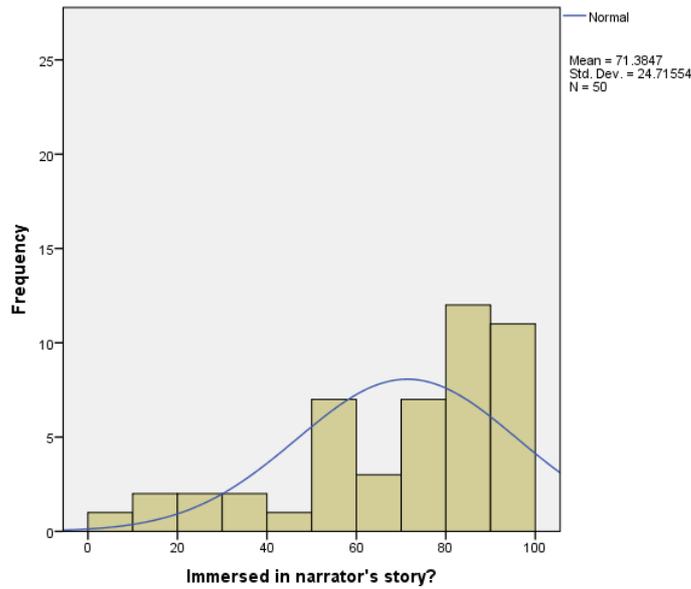
Fig. 35: Histogram illustrating 50 answers to, 'To what extent were you immersed (deeply involved) when listening to the American narrator of Minnie & Winnie's story?'

On average participants rated the level of immersion in Minnie's narrative during the walk relatively high, mean = 71.38. There was a peak in the ratings at the high end of the scale (80 – 100). However, there were smaller groups who rated this lower with two smaller peaks 50 – 60 and 70 – 80. This is reflected in the normal spread, SD = 24.72.
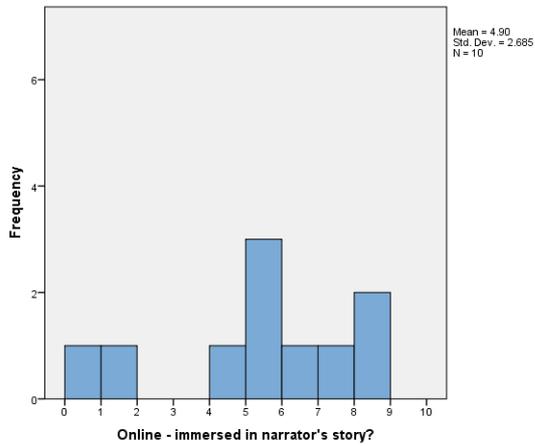
Fig. 36: Histogram illustrating 10 online answers to, 'To what extent were you immersed (deeply involved) when listening to the American narrator of Minnie & Winnie's story?'

7: **Did you notice more during this experience than you would have just walking around?**
   Not at all   Very much
        |_____|
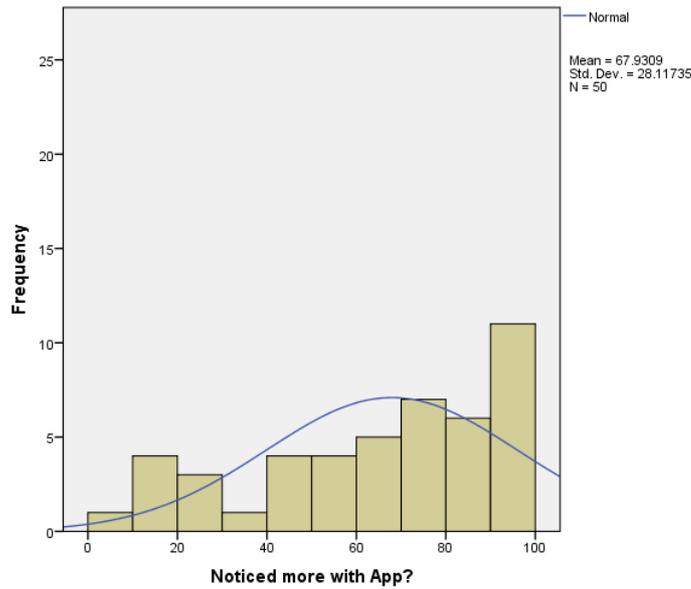
Fig. 37: Histogram illustrating 50 answers to, 'Did you notice more during this experience than you would have just walking around?'

This question produced a varied response across the whole range. The mean is above the halfway mark (mean = 67.93) as, on average, participants rated the level of awareness of their environment during the walk relatively high. There was a peak in the ratings at the high end of the scale (between 90 – 100). However, there were smaller groups who rated this lower throughout the range of the scale. This is reflected in the relatively wide spread, SD = 28.11.

Many said they were too immersed to look out much so they noticed, 'less as listening' (S33), because they were, 'immersed and detached' (S37) so their 'focus changed' (S50).
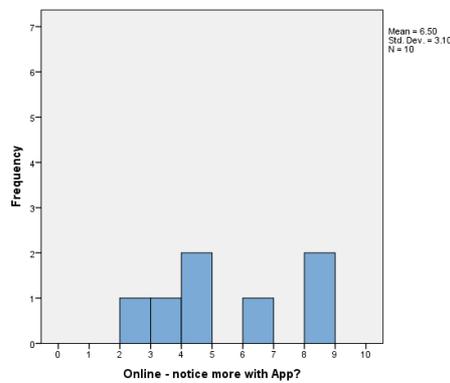
Fig. 38: Histogram illustrating 10 online answers to, 'Did you notice more during this experience than you would have just walking around?'

8. **Do you feel more connected to the landscape now?**

  Not at all   Very much

  |_____|
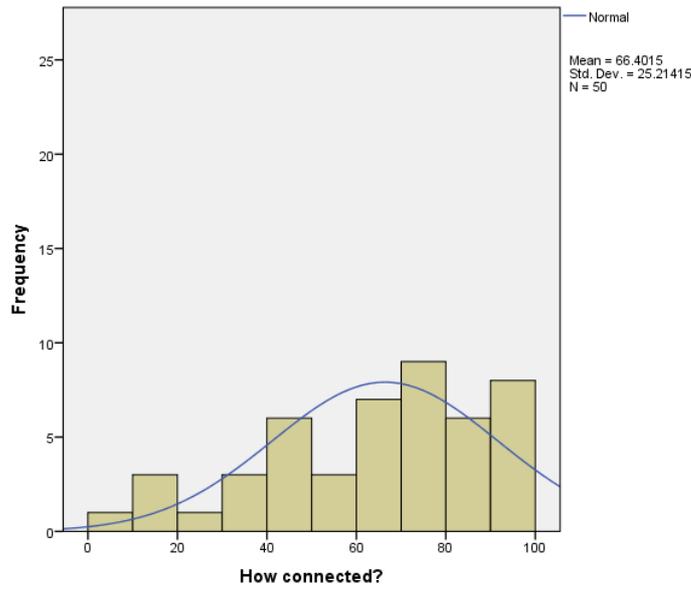
Fig. 39: Histogram illustrating 50 answers to, 'Do you feel more connected to the landscape now?'

On average participants rated the level of connection to the landscape during the walk relatively high, mean = 66.40. There was a small peak in the ratings at the high end of the scale (between 70 – 80). However, there was a smaller group who rated this lower. This is reflected in the normal spread, SD = 25.21.
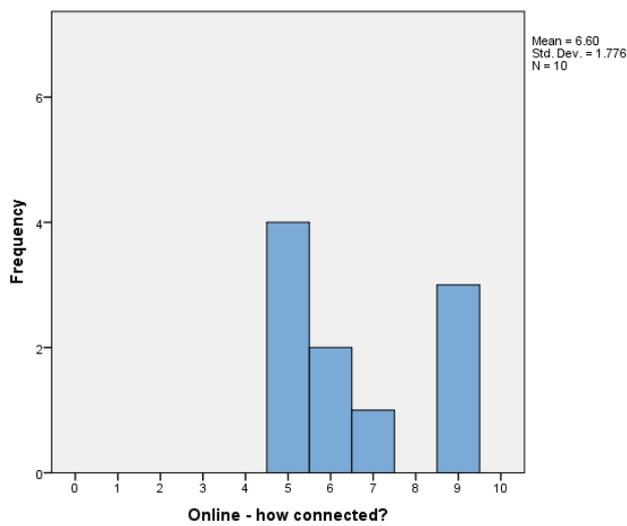

Fig. 40: Histogram illustrating 10 online answers to, 'Do you feel more connected to the landscape now?

9: Would it have made a difference if you'd listened and looked at photos at home rather than being on the site?

Not at all   Very much
    |_____|
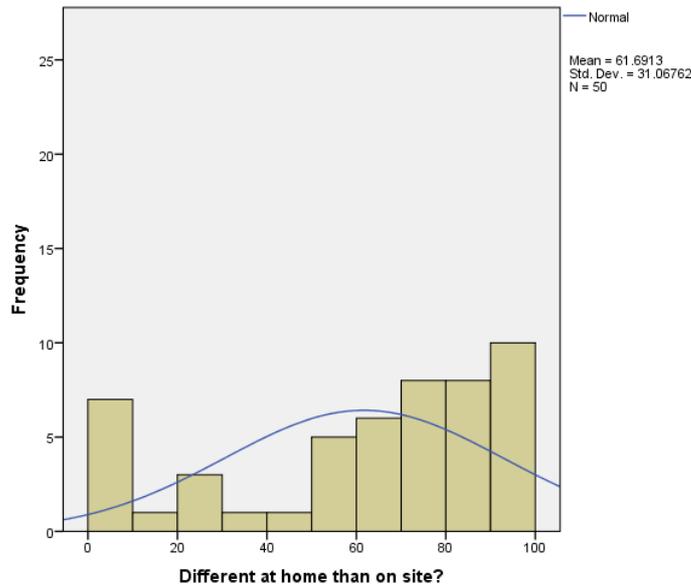
Fig. 41: Histogram illustrating 50 answers to, 'Would it have made a difference if you'd listened and looked at photos at home rather than being on the site?'

Here there is more of a bi-modal distribution with both extremes being well represented but the mean above the halfway mark, mean = 61.69. There was a marked difference in opinion from participants in their ratings of whether the experience tried at home ('armchair mode') or by walking/ moving outside would change the experience with peaks at either end of the scale (between 0 – 10 and 90 – 100). The majority of participants indicated that there would be a difference if tried at home, (mean = 61.69). This is reflected in the wide spread, SD = 31.07.
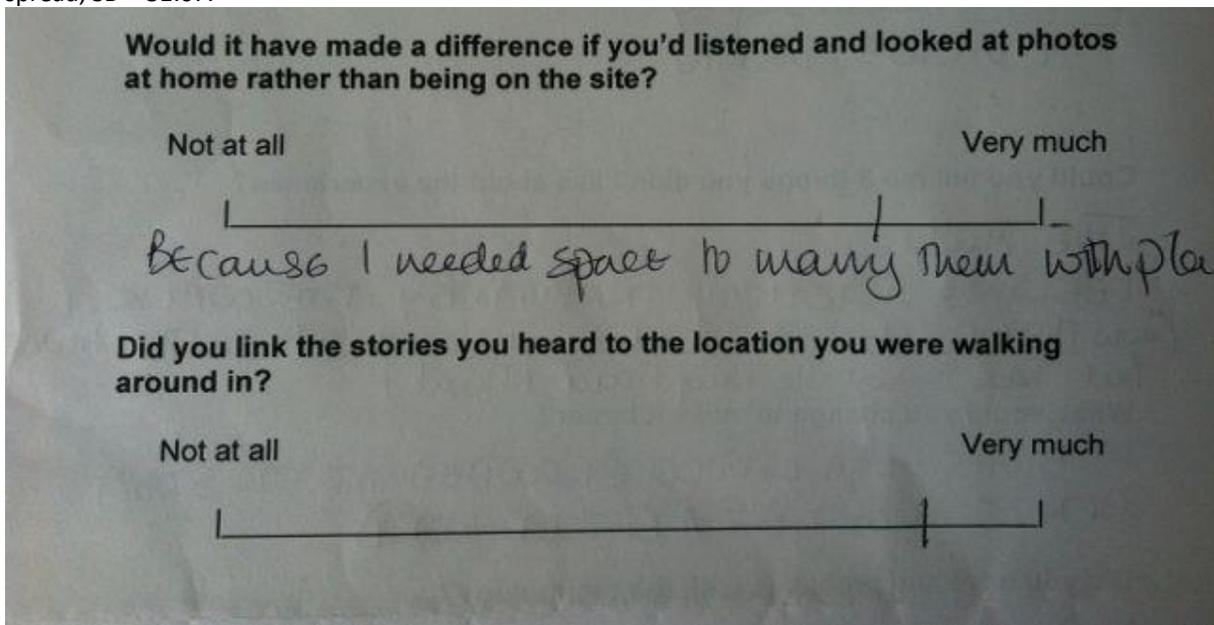
Fig. 42: Opinions varied on whether the app could be enjoyed the same way at home or by walking/ moving around the landscape. This image from a feedback form shows a great difference between home and location and the participant writes: 'Because I needed space to marry them with place.'
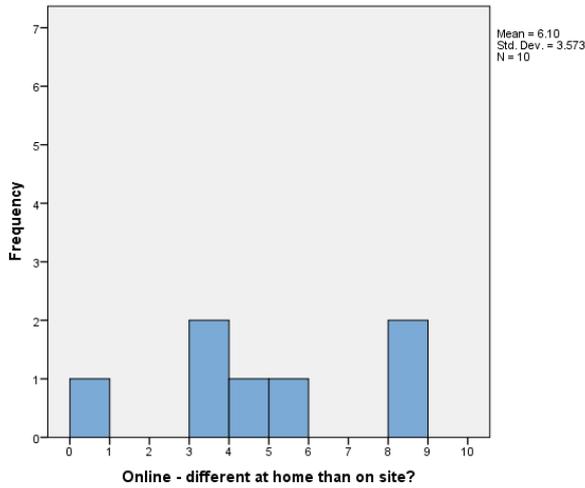
Fig. 43: Histogram illustrating 10 online answers to, 'Would it have made a difference if you'd listened and looked at photos at home rather than being on the site?'

10. **Are you familiar with an iPhone/ iPad?**

Not at all   Very much

|_____|
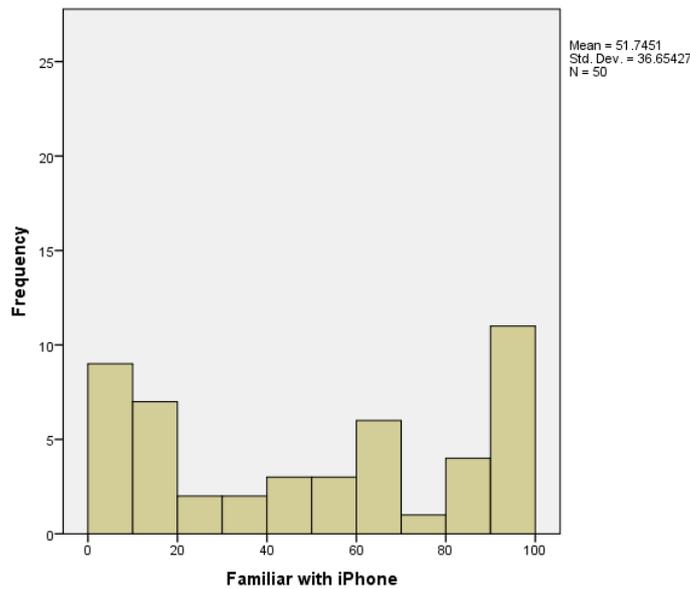
Fig. 44: Histogram illustrating 50 answers to, 'Are you familiar with an iPhone/ iPad?'

A better way to phrase this would have been, 'how familiar are you with the device?' as some participants used Android phones and others borrowed iPhones but perhaps owned an iPad.
There is a tri-modal distribution as participants rated the level of device familiarity in three groups – low, medium and high, reflected in the mean = 51.75, barely above the halfway mark. There was a peak in the ratings at the low, middle and high end of the scale (between 0 – 10, 60 – 70 and 90 – 100). This is reflected in the wide spread, SD = 36.65.
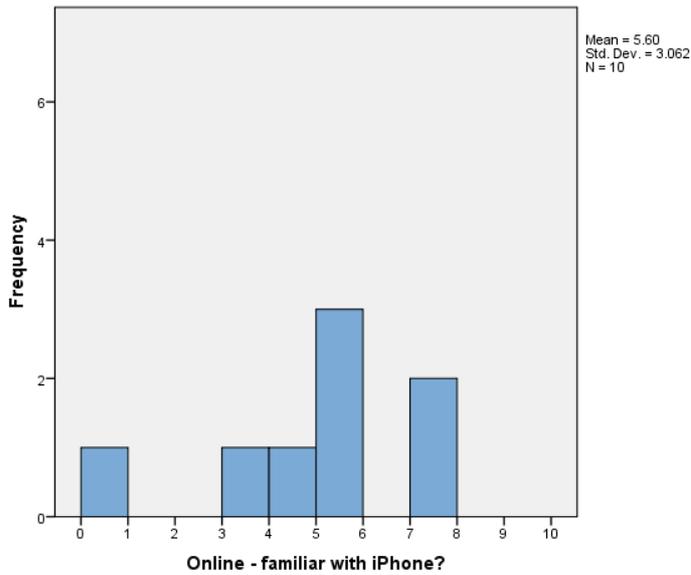
Fig.45: Histogram illustrating 10 online answers to, 'Are you familiar with an iPhone/ iPad?'

11. **Did you experience a feeling of solitude?**

Not at all   Very much
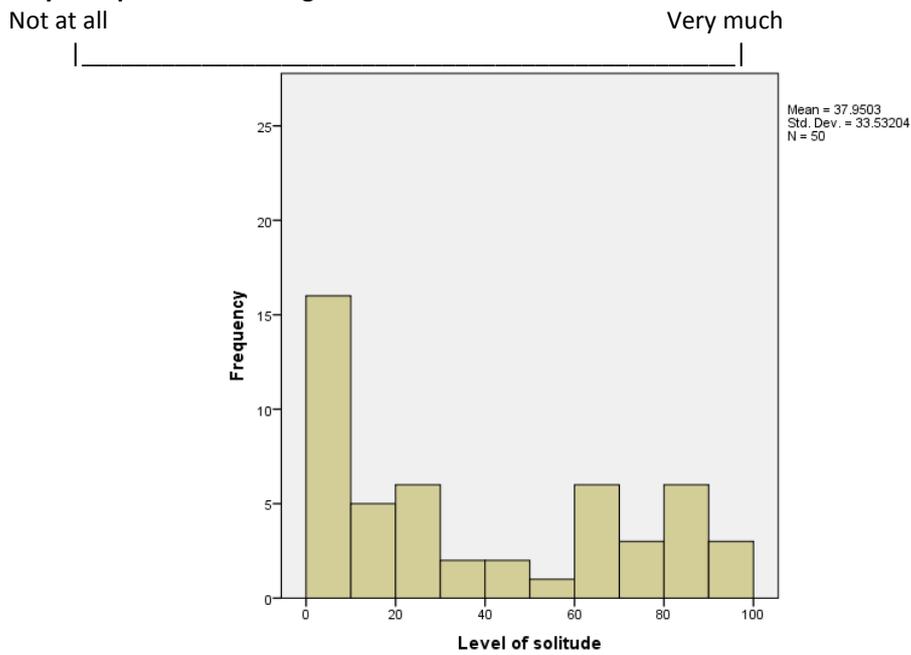
Fig. 46: Histogram illustrating 50 answers to, 'Did you experience a feeling of solitude?'

On average participants rated the level of experienced solitude during the walk relatively low, mean = 37.95. There was a peak in the ratings at the low end of the scale (between 0 – 10). However, there were smaller groups who rated this higher. This is reflected in the relatively wide spread, SD = 33.53.
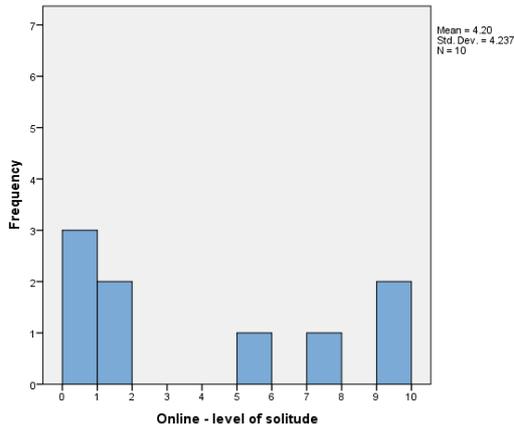
Fig. 47: Histogram illustrating 10 online answers to, 'Did you experience a feeling of solitude?'

12**. To what extent was the experience confusing**?

Not at all   Very much
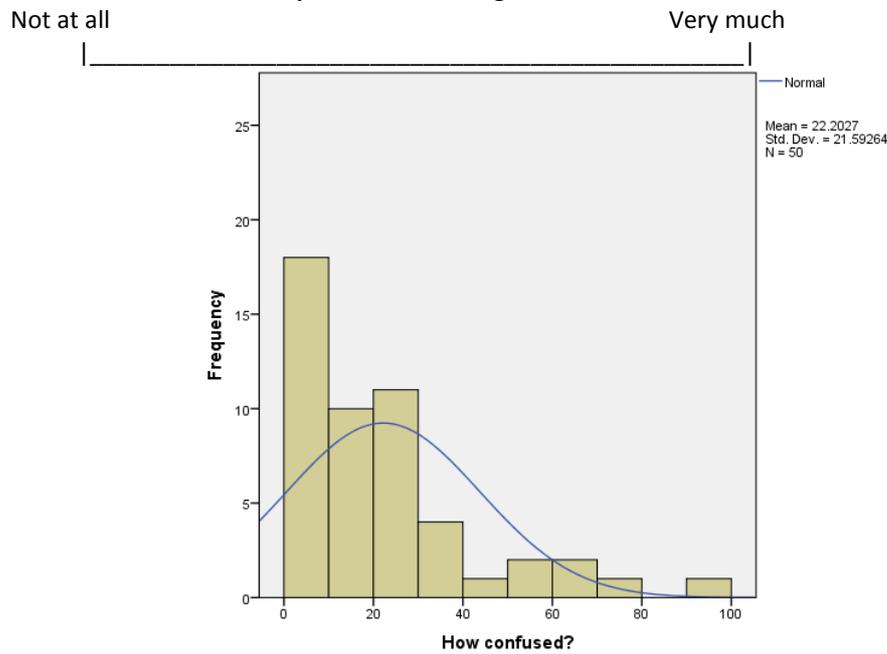
Fig. 48: Histogram illustrating 50 answers to, 'To what extent was the experience confusing?'

On average participants rated the level of experienced confusion during the walk relatively low, mean = 22.20. There was a peak in the ratings at the low end of the scale (between 0 – 10). However, there were smaller groups who rated this higher. This is reflected in the relatively narrow spread, SD = 21.59.
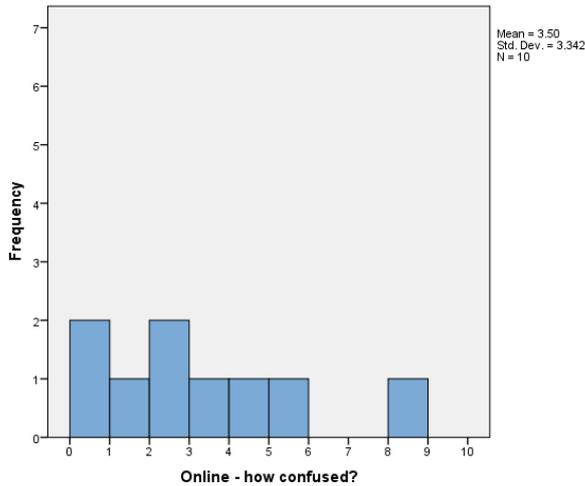
Fig. 49: Histogram illustrating 10 online answers to, 'To what extent was the experience confusing?'

13. **To what extent did the experience feel disconcerting?**

Not at all   Very much
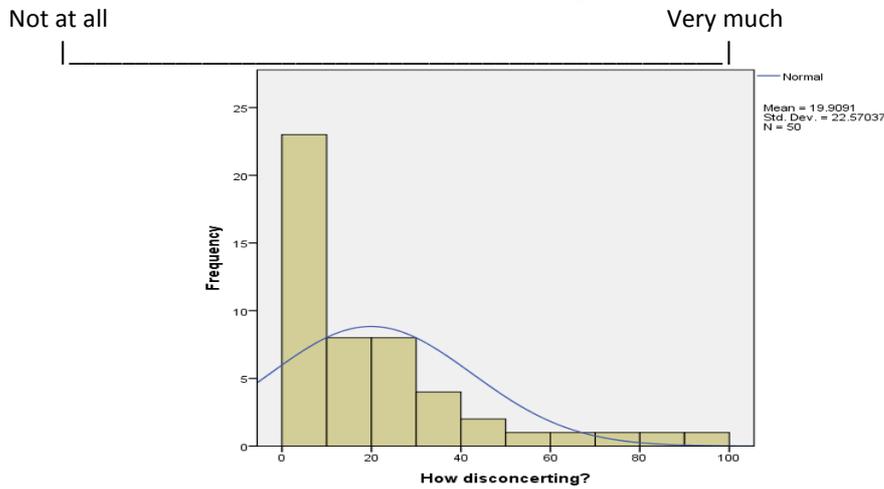
Fig. 50: Histogram illustrating 50 answers to, 'To what extent did the experience feel disconcerting?'

On average participants rated the level of experienced disconcertion during the app test significantly low, mean = 19.91 with nearly half finding it not disconcerting. There was a peak in the ratings at the low end of the scale (between 0 – 10). However, there were smaller groups who rated this higher. This is reflected in the relatively narrow spread, SD = 22.57.
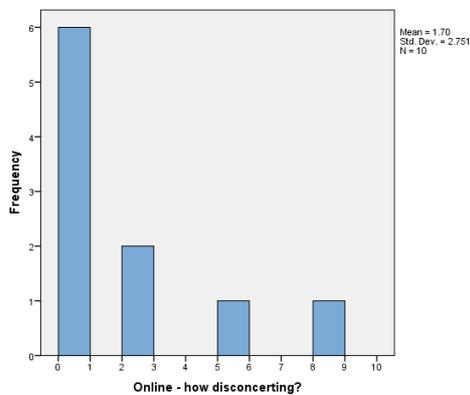
Fig.51: Histogram illustrating 10 online answers to, 'To what extent did the experience feel disconcerting?'

14. To what extent did you feel lost?
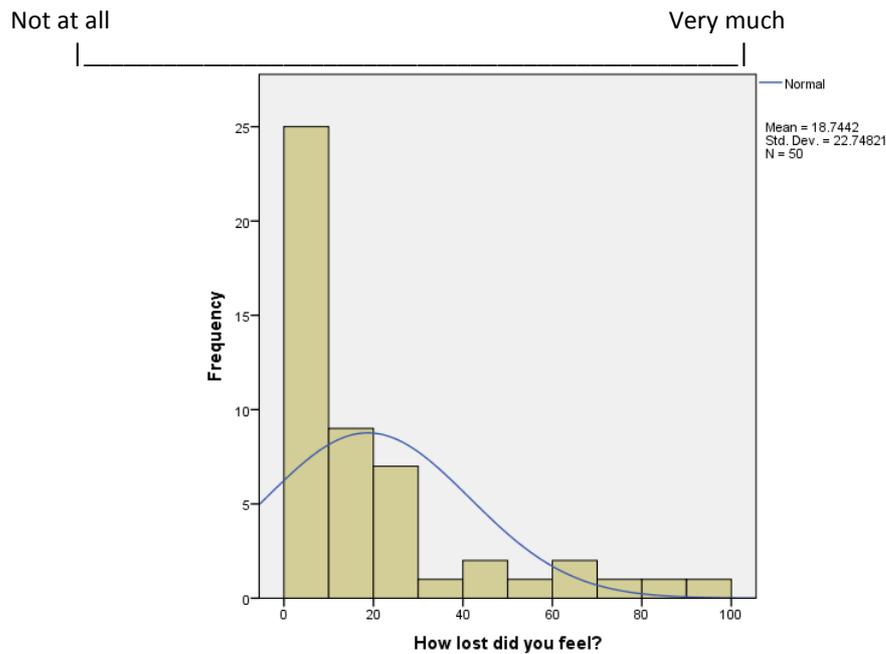
Fig. 52: Histogram illustrating 50 answers to, 'To what extent did you feel lost?'

On average participants rated the level of how lost they felt during the app test significantly low, mean = 18.74. There was a peak in the ratings at the low end of the scale (between 0 – 10) with a peak of 25 people (half of this paper questionnaire sample) not feeling lost at all and smaller groups on the scale mostly scoring between 10-30 causing a narrow spread, SD 22.74. However, there were individuals who rated this higher.

It is relevant to say that some people really did get lost which increased their walk length. Reasons for getting lost were that they could not see the screen well as they had not brought their glasses, chose not to look at the screen or preferred to keep the phone in their pocket.
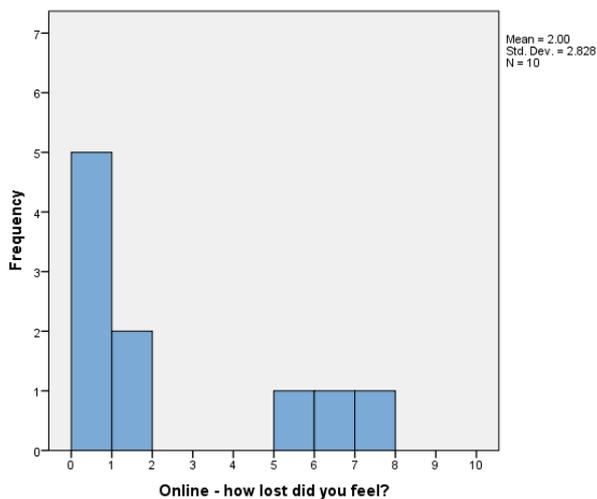
Fig. 53: Histogram illustrating 10 online answers to, 'To what extent did you feel lost?'

Correlations
The table below (fig: 54) is a simplified version of the correlations and shows significant p-values for the inter-correlations between all 14 graphic rating scale questions in the 50 paper questionnaire answers. The bottom row shows the total of significant p-values per question. For instance Liking the experience correlated significantly with eight other questions; feeling solitude, linking the stories to the location, noticing more, oral

history & narrative immersion, ease of use, learning from the experience and feeling connected to the landscape.

	sol	lost	diffhome	linkloc	like	notice	oral	narr	conf	discon	familiar	easyuse	learn
lost	0.000												
diffhome		0.029											
linkloc													
like	0.040			0.000									
notice				0.034	0.012								
oral				0.000	0.000								
narr			0.032	0.017	0.047		0.002						
conf		0.000											
discon	0.009	0.001	0.032						0.000				
familiar													
easyuse					0.003		0.045		0.022				
learn	0.009		0.002	0.001	0.001		0.041	0.015					
connected				0.000	0.000	0.001	0.000						0.003
Total	5	3	4	6	8	3	6	5	3	4	0	3	7

Fig. 54: Table showing correlations between different answers to 14 questions

Cluster analysis (Multi Dimensional Scaling [MDS])

As it is difficult to visualise and understand a correlation matrix of 14 x 14 elements, we applied multidimensional scaling (a form of cluster analysis), to visualise the relationship between all 14 questions in a two dimensional diagram, (fig. 55). We identified questions that correlated with other questions at a significance level of 5% or lower.
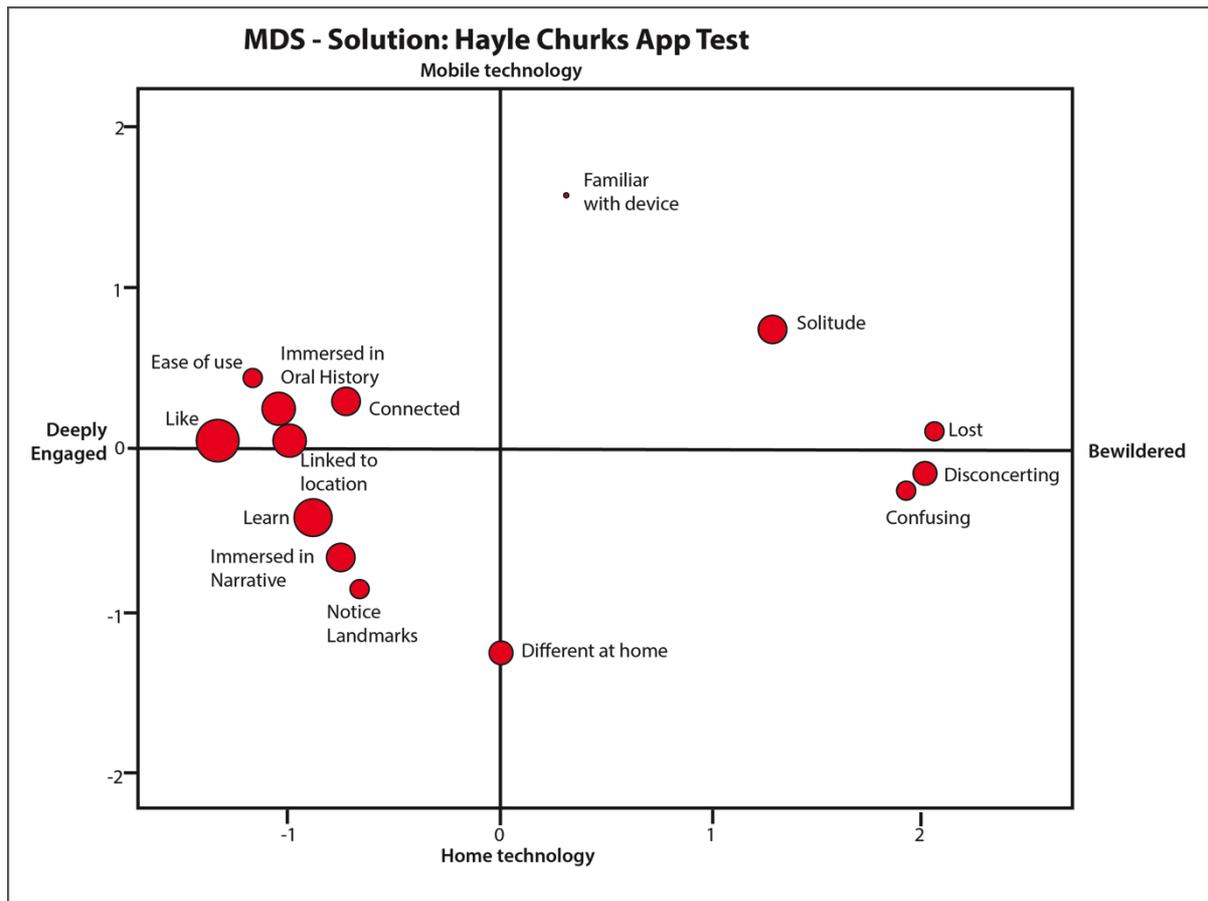
Fig. 55: Multidimensional scaling plotting the correlation between 14 answers

Based on the correlation matrix we identified two main clusters. One cluster on the left side of the plot includes: liking the experience, learning from the app, linking stories to the location, being immersed in the oral histories, feeling connected to the landscape, ease of use, being immersed in the narrative and noticing more. These elements correlate closely, signifying a deep engagement with the experience, for example; 'Made me feel rooted in past and present. I absolutely loved the whole experience' (S23).

On the right hand side there is a small cluster of three items, feeling, disconcerted, lost and confused, signifying some sort of bewilderment as a result of the experience. Therefore I propose that the x axis runs from Deeply Engaged on the left hand side to Bewildered on the right hand side. The y axis is harder to define mainly because there are only two items that are close to the extremes of the y axis, i.e. being familiar with the mobile device at the top and feeling that the experience would be different in the comfort of your home on a computer at the bottom. I suggest, tentatively, that the y axis runs from Home technology to Mobile technology.

The size of the 'spots' indicates their significance. So, for example, the tiny size of the 'familiar with device' spot indicates that whether the user was familiar with the device or not had very little significance on the answers to other questions. On the other hand, whether they liked the app or felt they had learnt anything from the app had a very high significance and could be correlated.

In-App logging
Movements, actions and stories typed into the interactive screen were all logged within the app and storied with Parse.. I *hope* to show the movement and app use by using GIS software.

Discussion
Firstly, it is important to revisit what the intentions behind the app are to understand what the app was and became. Although using historical archive material, (oral histories and archive images) and a desire to bring a

post-industrial landscape to life by evoking its past, I wanted to use locative media in an experience that was not a replacement for a human or mp3 player guided experience. I understood quickly that participants once hearing those key words, 'memories & landscape' expected a passive experience with a Cornish narrator directing ears and eyes to all the points of interest, and introducing the speakers while dating and contextualising the memories. Instead they were confronted with a more hybrid experience; one that used first hand accounts as stories and located them in areas that would be experienced in a multisensory way (while walking) and would perhaps haunt the participants' memories of the landscape after the experience. I expected participants to drift around the area coming across ghosts, whose stories that would transform time and space transporting the listener backwards and forwards through decades.

'The feeling of time travel' (S23),

was selected as one of three things participant, or subject 23, liked.

The listener has to use their senses and brain to piece the non-linear experience together – what era are we talking about? Is that where it happened? Rather than being fed information that could, perhaps, be quickly forgotten. As one participant said,

'Unusual because you used your imagination and intelligence to make sense of it. We think we want facts but they are quickly forgotten' (S34).

Links to historical information could be accessed from within the app to satisfy that need for more facts, although some local 'facts' are contested. My initial vision shifted when I was successful with my Heritage Lottery Fund (HLF) grant to support the publishing of the app by 2014, when new research was too irresistible to leave out and when it seemed wise to respond creatively to my first test feedback. Feedback to the second test illustrates clearly that on issues of taste and aesthetics human beings vary. What one loves another loathes and so one of the great lessons learnt from this has been the reminder that, as a creative, you need to keep the vision intact, not try to please everyone.

Putting in requested markers set-off a chain reaction of other adaptations that led to a significant change in the feel of the piece. Having markers meant that instead of poetic wanderings, I found participants engaging with completion mania, searching for the markers to tick them off rather than just letting themselves come across them while looking, listening, feeling and smelling the landscape they were walking through. With markers showing the route (still not clear enough for some as they were spots rather than a joined line) the position of the audio was sometimes compromised – the markers needed to be in places where the last one had ended, rather than where their speaker placed them. Locating some of the memories that didn't mention a particular spot was difficult to appreciate for a participant who didn't know the area, so more and more details were added onto the map and more content was edited out. Some people in the app test main age group found the map very hard to read even zoomed in, something I only realised once the app test had started.

'I couldn't read anything on the screen. It was a bright day and I think that even with my glasses I would have struggled - might an audio-only version be better? I can't imagine ever really enjoying a walk wearing headphones AND reading glasses. I wonder if this problem might spoil the experience for a large number of over-50s?' (S59).

A female narrator was added to break up the older male voices. The seven-part story could drive the story forward, name some visible landmarks to fix the story to, but had some story parts that could be placed anywhere, in locations where there were no recorded memories.

'The narrative, wanted to walk more to hear more' (S28).

This raised the question of whether the story parts should be heard in order? I had tried to write a narrative that would work in a non-linear order: each story part included a short recap at the beginning and tried to leave allude to something intriguing at the end. In the first test, participants didn't like hearing the story parts out of order, it made them think something had gone wrong, so I tried to ensure that they would be heard in order, although the non-linear character of apps was something I liked. The combination of a seven-part narrative and the markers meant pacing the whole content out and trying to make it simple for the user. This added a structure that more artistic participants found restrictive while others found it still too loose and undirected.

'There was no verbal direction or instruction on where to go next, I had to keep pulling my phone out and this is a distraction.' (S56),

'Provide occasional interjections such as: Look for a path on your right coming up/ You are now off the trail' (S14).

'Narratives could be contextualised more clearly: narrator could point out landmarks' (S58), '

'Audio started with no warning. Would have been useful to have a beep or some signal to give advance warning' (S52&S53).

While others felt already that they were given too much information,
'Felt I was being too directed' (S60).
As I paced out the app endlessly, I realised my pace changed with the weather, I dawdled in the sun and strode on determinedly in the cold or wet, and of course my pace became faster the more familiar with the audio placement and the new route/s I became. I was too familiar with everything - content, route, order of clips, so in the week before the 29th August, the official test launch date, I encouraged people I knew to do the app so that I could walk with them and see what they did and when audio triggered for them. In this first week I changed the app at least once a day responding to feedback and participant observation, but realised, that at one point I had to settle on a version and leave people to experience it and give feedback on the same piece. One of my main intentions was to create an interactive app. Walkers could leave their memories and continue to add to the archive and perhaps the app content. With no Wi-Fi and intermittent 3G (no network at all for some), this became more complicated in my location, which was on the fringes of town, rather than in the centre. In the first test, Twitter and the interactive questions were not always accessible which made people feel the app had failed which affected their confidence in it. When technology doesn't work people are quick to dismiss it.

'The first thing to say here is that I do not have a smart phone and have very little experience of apps: I may have been expecting an impossible level of functionality (something like Google street view) and I may well have become too grumpy too quickly when things didn't work well' (S59),
I think it is a newish process so misgivings are to do with novelty maybe? (S11).
Although most users found it easy to use, this differed between iPhone and Android users (as the app had been made for iPhones).
'Very easy to use and straightforward' (S29),
 is a typical comment from an iPhone user but Android users had complaints:
'On Sony Experia we downloaded app several times before it loaded completely' (S50),
'Two crashes .. but then fine for the rest of the walk' (S42).

I reduced the three interactive comments and five interactive experiences in the first test to just one opportunity to leave a memory, but even this surprised people. There was no background audio behind the interactive screen that appeared so many people felt their phones had crashed or frozen and quit the app and started it again, missing the opportunity to add a memory. There were links to email and Twitter in the information button for people to upload comments or find more information, but I realised that people are impatient and wanted to experience the app so didn't read those sections. My concerns about the hybrid nature of the app were noted,
'I was left not quite sure what the objective of the App was. It came across as random personal reflections of the town across time rather than an account of the towns physical history and I am not sure if it worked for me. Sitting watching images and listening to individual experiences works well for me. Walking whilst listening fits better with the audio Museum/Historic Monument tour i.e. " if you look to your left you will see the remains of the sluice gates. During high tide theses were used to .....' (S56).
An interest in oral histories and narrative have come from not only radio or audio experiences but also experiments in film, social media, the Internet, theatre and so on. I am interested in whether a tightly scripted story pulled together from numerous sources with imagination has more effect than wandering memories from one heavily edited speaker who actually experienced an event or emotion.   In cinema, for example, fictitious feature films sell more tickets than documentaries. Participants were more immersed in oral histories (39) rather than the narrative (16, with no answer from five). Minnie's story was based on fact, rumour and gossip. Many participants believed that Minnie's story was real and felt cheated that it wasn't.
'Not sure if the fiction/ faction bit needs clarifying because the other voices are real stories' (S03).
A question I wish I'd asked in the questionnaire is whether people presumed Minnie's story was real and whether they presumed the oral histories were true. If they had not read the information button within the app they only found out that Minnie wasn't real as they filled in the questionnaire, although I felt the intro had also made this clear. Some walkers were a little put out that there was fiction sitting alongside oral histories.
 'Found the Minnie character distracting – trying to fit her and her obviously fictionalised narrative in. The story was really good but it took a while for me to understand where she fitted' (S06).
Personal memories were remarked on most in the feedback,
'I really enjoyed listening to other people's experiences whilst walking around' (S12),
and sometimes triggered more memories in participants,

'Listening to the stories of the people's lives and experiences from the past reminded me of time spent visiting PZ grandparents when I was little' (S25).

Primary sources, the memories, were commented on a lot more than 'expert' content - a scientific advisor to an ecological group and a Surfers Against Sewage (SAS) spokesperson. The oral histories placed the person and let the participant imagine them during the period they spoke of, rather than showing them as they are now. There has to be an accepted looseness by an audience. How can one date the stories exactly when the speakers can't remember them? One person didn't fill out her questionnaire straight away. Although complaining about the lack of hard facts as she returned the iPhone she wrote,

'The stories have really stayed with me, I wanted to pass them on' (S40).

Something to research in the future is whether stories have a longer lasting impact on memory and understanding rather than a stream of facts and dates.

As oral histories are often accused of being partly fictional, I wanted to place unreliable memories between the real and unreal, fact and fiction, oral history and artistic interpretation and story telling The blurring of edges between oral history and the artist's fictional interpretation has been embraced in poetry, for example in the poems of Alice Oswald (for example Dart), in music –Let England Shake by PJ Harvey (2011?) and in film -for example Errol Morris' Tabloid (2010) so why not in an app? This could be an interesting area to investigate further. Another area of investigation could be the into the selection process of the stories I used. It was only recently that I realised that the majority of app clips are interviews recorded by me rather than project volunteers during the Hayle Oral History Project (2008 – 2010). Why? Is it because of my connection to the speakers? Is it about the way the stories affected my memory? Or is it about the interview style or sound quality? Did I make the speakers tell and retell the stories so that they were more coherent? Did I get better sound quality?

Initially I had intended on using the app to reveal layers in the landscape and intended to include more geological information to create a geopoetic experience. The oral histories dominated as expert interviews were more dense with less drama, less tonal change and consequently lost listeners quickly. What I did instead was to bring back the ghosts who had experienced the landscape before the participant and had something to say, perhaps everyday but possibly meaningful.

'It was more a landscape of the people inhabiting the area in the past and now' (S34),

'Gave the human experience – books can't convey' (S47).

The direct line into human experience that 'books can't convey' points to the effectiveness of using locative media technology to bring oral histories to an audience within the landscape they inhabited. One way to help people empathise with speakers is to have their voices resonating within a walker's head by using headphones.

In the questionnaire results, if we glance at fig. 20, we notice that the question whether solitude was experienced is in a separate section to any of the other questions. It sits above, but is not in the same group as the questions with the lowest mean, whether the participant felt confused, disconcerted or lost. It is important to separate out 'solitude' as it is often interpreted as not a negative attribute in apps when used with headphones, instead it indicates deep immersion such as one could experience when gripped by a book.

'Having a background noise constantly in the headphones does immerse you into the experience' (S51).

People identified the need to be in their own world by complaining about the behaviour or presence of others they walked with or acknowledging that they were a distraction that had hindered the experience,

'if you were on your own you'd get more into it' (S35).

'I was alone and if I was to complete another test again I would complete it alone' (S30)

'Alone. It seemed like a very personal experience.' (S55).

Headphones are important for immersion and as looked into earlier, for some, wearing headphones made them less aware or disorientated in traffic and I noticed this repeatedly when I loaned participants the iPhones and watched them start off. Some participants commented on the headphone effect,

'Because it was so good and immersive I felt disorientated and separated from the here and now' (S37),

'Just not used to headphones, so felt slightly cut off, which was nice in many ways though' (S26),

'Somewhat detached feeling'(S04).

Others appreciated this effect:

'Listening on headphones while other sounds are drowned out, gave the ability to feel closer to the narration and see Hayle through different eyes' (S61).

Headphones were also a great contributor to the feeling of three people's embarrassment while walking around with technical paraphernalia. Something I had not asked about directly in the questionnaire but appeared and that I noticed as they set-off.

'Slight self-consciousness' (S11),

'I felt conspicuous' (S02),

'the 'she's listening to music on one of those 'fangled gadgets' looks from the general public' (S19).

A retired couple (S35 & S36) told me of their embarrassment and amusement while walking along in Hayle trying the app with headphones. Someone stopped in front of them and shouted 'rock n roll'! Was it mostly older people who felt rude walking around with headphones and a device? Were people outside the app also feeling that it was rude, odd or funny as the anecdote indicates? Is this only an issue in a low-income town in the far west of Britain rather than a city?

It does appear that some people experienced real solitude rather than solitude from immersion in the stories;

'It was an interesting way to walk but it felt lonely, cut off & separate' (S08),

'It's a bit lonely' (S56).

When I forced participants to wear closed cup headphones in the first app test in March 2013, I noticed how some participants reacted badly to this – they were embarrassed by the size and found them uncomfortable, so took them off, slid an ear off and so on. Realising that I was going to be out of control of what people used once the app was published, for the second test I decided to remind participants to bring headphones and to wear headphones deciding that it was better if participants were comfortable. I also wanted to see what they used. As expected many used more discrete in-ear headphones, some used no headphones, and, even worse, usually did so in groups. Others borrowed headphones of various types and sizes from me. Knowing that people were not going to listen to the audio in the way that I wanted, combined with the memory issues in the app (I was trying to keep the app small enough to work on new Android phones 70MB for the test), I relaxed my audio ideals despite this being an area of great interest. I had to reduce the audio files to the smallest size possible. Music only works well with a larger memory and I had approx. 40 minutes of music (the loop was 20 minutes and as people already complained it became repetitive I couldn't reduce the length of it). This left little memory for the stories, photos, interface, map graphics and so on. I abandoned a few mixes of the voice and background sfx as they didn't work when compressed dramatically. As real sound would bleed in through most headphones at an uncontrollable volume the voices (often with accents, often recorded in non-ideal conditions) had to stay clear - often I went back to and used the bare edited clip. Once edited together in this form as a soundscape or to be heard in the 'listen at home' mode, the audio can sound quite stark.

One of qualities I am most fascinated by in locative media is its potential to create illusion and magic. Sound and photos appear without warning, unnerving some users and exciting and surprising others;

'Surprise element – not knowing what was next!' (S26),

'It was quite entertaining playing with and marvelling about the technology- felt like a game' (S60).

While some wanted to be playful, others wanted a lot more control. A replay button was requested (as well as fast forward by one person). Pause & skip were already functions within the app, (although some people had problems finding them), that allowed people to talk to each other. Some reported that this was an irritant that prevented them from getting immersed in the experience. S27 enjoyed, 'discussing en route with friend', while S15 did not like, 'Having to pause to keep up with each other'.

GPS, that triggered the stories and located the speaker at all times intrigued and frustrated participants.

'GPS linked with location well' (S28),

'The placement of markers/ stories was perfect' (S31).

If something played a few metres from an identifiable place (the black scorrier steps mentioned in the second part of Minnie's story was the one most mentioned in feedback) then people quickly became irritated if they couldn't see what was being referred to straight away.

'The audio seems to kick in about 5 metres from where it should e.g. the steps' (S58),

Others had difficulties, which included seeing two figures marking their location in two different places or losing their location.

'Lost GPS at some points' (S54),

'Struggled to get GPS connection' (S20).

Instead of walking on and searching playfully to find a place spoken about, some would stop and look about them and get frustrated rather than looking which I had hoped would lead them to observe and experience more. Lack of control and lack of precision upset some walkers. Mp3 players do not have these issues as the user can manipulate them. Perhaps an alternative version could be made for these people. With so many participants (almost half) borrowing phones perhaps they were more conscious of the time as they needed to return the phones to me to charge for the next participant. This could have discouraged them from having a more explorative, relaxed drift – an aim of the app. This comment is from someone with little time who couldn't find the pause button but wanting to use the app was the way it was created.

'It (technology) had problems with me because I wanted pauses to let my mind wander and to eavesdrop present day sounds and to dip in and out' (S22).

Those that drifted and stopped to enjoy the views and weather tended to spend half the day completing the app.

Markers on the route could also have restricted the movement and exploration of the participants across the space, although I encouraged participants to experiment, to use the beach at low tide for example.

Audio works well with walking, images not so well. I am very keen on many aspects of archive photos, for their quirkiness and artistic qualities rather than simply their view of a time now past, so I used them in the app. As soon as the screen became something that should be referred to, with an Open Street map to locate the walker and show the area, I started using the screen as a place to show photos. As a user, I listen to the app while walking rather than look at the phone, but would like the option to look at photos in the 'listen at home' mode when the landscape was not in front of me. I'm aware that some people really appreciated seeing the images and the landscape together.

'I liked how the images overlapped with what you saw' (S29),

'It allowed me to see the landscape in a completely different way and create pictures in my mind of how it was and visualise the detail of what went on there in the past. This would not have happened having not had the images in front of me on the phone and listening to the details in the stories at the same time' (S30).

What happened in the landscape visually added impact sometimes. S03 and S04 enjoyed seeing gig racing in the pool while listening to stories about the boats and seeing photos of the old regatta races.

I put in short slide shows (gifs) to encourage people to sit down to take a rest and have some time to reflect. Old maps, aerial photos and a painting from other collections were displayed in an attempt to get some images from collections to a wider audience for free. Although the archive and I have been contacted about images, following links to the archive and buying images were the least likely things to do after the app in the questionnaire.

In some ways it was surprising that only a quarter of those that tried the app lived in Hayle although there was great interest through Facebook and just less than a quarter lived nearby. Despite intensive use of traditional and social media it took a while to get the word out. I couldn't advertise publically that there were phones to loan for obvious reasons and iPhone was used on the posters around town. Just before the test the app started to work on Android phones but this news could only be spread through social media and in person at the Centre opening. A number of people couldn't do the app because the iPhones were already booked out. Residents in Hayle will be able to have access to the app when it's published but I do feel I need to offer free low tech alternatives, an mp3 soundscape and a possibly an Mp3 narrated soundscape to offer more context.

Hayle is more than the background scenery for this re-performing of oral histories. It is the main stage – like Cinderella, this underdog became the main character with the speakers acting as friendly extras that made Hayle, post-industrial and hovering between neglect and redevelopment, a place that people could connect with.

'I felt part of it, the place, the history, the people' (S03),

'It is incredibly potent. From my previous visit to Hayle I found it a run-of-the-mill, standard Cornish town. During (and after) the experience I feel as though I have discovered my own familiar connections. The town feels three-dimensional, or somehow more solid, now I have heard these stories, memories and seen the photos. I wasn't expecting such a strong reaction but walking back once the app had finished I told my friend 'I feel at home here now'…' (S06),

Locative media could be a tool to reconnect residents or connect strangers to place. The previous comment is from someone who moved to Cornwall and has experienced bring an 'emit', an outsider, but finally felt at home once able to get close to Hayle and its stories, its accents, its very human secrets.

'I grew to appreciate more what Hayle represented to people long ago [and it] meant more to me than before' (S48).

'The walk has made me feel closer to the area having walked those places before but without the stories'. (S15).

Not everyone felt that the app helped connect them to the landscape though,

'The stories didn't often connect very well to the places so other than when it did (eg black steps, electric works) my impression of the landscape wasn't much affected' (S55).

In a place of such rapid change and a divided community, one can't help hoping that if an app experience can ground people in Hayle, using locative media could be an model to use elsewhere, not only to connect people to an area but also to air controversy. The app brought hidden stories to light, sometimes dark stories, other perspectives from what one expects from a tour. Instead of boosting the importance of a place by building up stories of the rich and the famous, the app pointed out flaws, pettiness, in-fighting and the oppression of workers that had torn the town for more than the thirty years war referred to in the app. Ecological

destruction caused historically by large businesses and town council decisions were exposed. Personal stories linked to greater worldwide themes that we still confront and can do something about in the present - racism, treatment of foreigners and war for example, were brought to our attention.

Responses suggest that the app forced residents and those familiar or unfamiliar with Hayle to see and feel another side of the town – the landscape was made into a 'living museum' (S34). Instead of just leaving people in a reverie on the past, the app encouraged walkers (71%) to think about the future of the area.

'The experience made you concentrate on the surroundings and the history of the area and its future' (S24),
 'We need to look at how we can embrace this great work to help improve the prosperity of the area for the people that live here' (S20),

'Being here, hearing the voices and walking made me aware of the dangers implicit in managing change' (S22).
'It…makes me more inclined to preserve what we can and avoid developments that will change how Hayle looks and feels' (S48).

As the app exposed the human condition, it also encouraged participants to think about their own place in society, the world and the future.
 'It was curious to think that where I was standing/walking, people had stood before and will do again (with many similar themes e.g. family life), and it was great to have an insight into what happened in the past, and made me think about what memories I would leave to future generations of todays time' (S45).

Will the app have the same impact on those that experience it off-site? Publishing, including the 'listen at home' mode will happen by January 2014 and an mp3 soundscape could be made to make the audio available to download.

'It would have been a completely different experience at home. I really enjoyed and embraced the experience out on site' (S30).

To find out whether participants who tried the app on location have been motivated to become involved in land stewardship or make personal changes I will need to them to revisit Hayle so that I can observe their reactions to the landscape, their recollections in situ and interview them.

Conclusion

An app was tested which involved walking around the landscape while listening to audio and seeing images triggered by the GPS location of the participant with the intention of creating a different, a magical, deeper and more sensory experience in the landscape. The walk and app test in both sunny and rainy weather was followed by a questionnaire with 26 questions needing written qualitative answers, marks along a graphic rating scale between two extremes or ticked boxes.

Headlines:
- A mostly mature sample of 60 men and women volunteered to try the app. 55% were women and 87% were over 36 years of age.
- The participants' familiarity with smart phones or apps, which ranged from unfamiliar to very familiar, did not affect the results.
- Liking the app experience was highly significant as it correlated with high scores in eight other questions (learning from the app, linking stories to the location, being immersed in the oral histories, feeling connected to the landscape, ease of use, being immersed in the narrative, noticing more around them and experiencing solitude) linking to a deep engagement with the app content and landscape for a high number of participants.
- A small number of participants were bewildered by the app experience marking high scores for feeling disconcerted, confused and lost.

If we look at the discriminate analysis (fig. 20), of questionnaire data from 50 paper questionnaires we can examine the five groups that the data divided into after using SPSS analysis of repeated measures. The highest scoring group was those that liked the app. Five other questions form the next group, which also scored highly. The app was easy use and the participants were immersed in the oral histories, learnt something, linked the stories to the location and were immersed in the narrative. With a slightly lower rating four questions form the next group, which indicates that the participants in general noticed more, felt more connected to the landscape, were a little more divided in opinion about whether using the app at home would be a different, and were only reasonably familiar with the device. The direct questions about how connected people felt with the landscape was a new question that had been alluded to in other questions in the first test questionnaire but was spelt out in the second test questionnaire. Ironically, whether the participant felt solitude is in a group alone. Solitude was also part of the correlation with the 'liked' question perhaps pointing at the greater enjoyment in being immersed in the experience. It is important to note that 'solitude' is

separate from the negative feelings expressed in the next group. The last group has been named the 'Bewildered' and tended to be the same few people that felt confused, disconcerted and lost during the app experience.

Building on the work of Jo Reid, Richard Hull, Erik Geelhoed (..ref..) using a non-linear narrative triggered within set areas in a city square with bespoke devices and geographer Toby Butler's research into located oral histories using mp3 players the app experiment results suggest locative media is an effective tool that can be used to connect people to familiar and unfamiliar landscapes and the people that inhabited or worked there. The data indicates that the experience was highly enjoyable and easy to use for the majority with immersion in the content, especially audio content, facilitating a deep connection to the past, present and future of the site. The research results remind us that oral history recordings can encourage listeners to empathise and understand human experience through first-hand accounts being heard with headphones, 'inside the head', playing where one's internal voice is heard. This helps build a close connection with the landscape and its people while moving through it and offers the opportunity for a multi-sensory and multi-vocal learning experience in the landscape. Using audio rather than film indicates that recorded voices, their accent, tone and emphasis, are effective in helping participants imagine the place in the time period the speaker describes. A scripted, performed story can drive the movement of a participant with the help of formulaic tactics such as recapping of the story and a 'cliff-hanger' end of the episode as well as including extra historical or precise information that the vagaries of recollection sometimes don't cover. In her keynote at the Expanded Narratives conference (Nov 2013 – Uni of Plymouth) Jo Reid mentioned the use of interviewing people in situ. Although not possible for this project as much was recorded in a day care centre or the homes of elderly, often frail, residents before the app project, I will experiment with this in future hoping that the rooted story compensates for less control of sound.

Feedback revealed distinct areas where the answers of some participants differed greatly. Despite the interest sparked by the app, more historical context was required by some participants, (also a finding in Butler's research, which changed the direction of his work subsequently), although some participants, mostly artists, found the lack of context liberating. Some felt the movement in the landscape was an integral part of the experience, but others wanted to review or finish the piece in the comfort of their home on a bigger screen. There will be a 'listen at home' option on the published app called 'armchair mode' which could support those with mobility issues or who live in different regions of the world experience the app. Different versions (soundscape mp3s) could be created to suit different personalities after the main app is published – perhaps one with a more standard use of a narrator as someone who ties stories together giving information about historic sites passed that could tie in with paper Blue Plaque walk, historical references and stories.

The age of those interested in testing the app is significant as it raised challenges with the size of the visuals on the screen and the use of information and images on the screen as well as possibly length of the walk and the use of headphones. Participant attention was kept for the usual duration of a film or theatre performance (90 minutes). Comments described it as relaxing and enjoyable although the last bit along a busy road (adding another 20 minutes) seemed to tire listeners not just physically. They strained to hear the recordings and struggled with being conspicuous to others. The location, a post-industrial site with high levels of unemployment in South West Cornwall, I believe, influenced some of the responses. In a city location the use of headphones is often the norm for many ages. In Hayle, wearing headphones while walking around is unusual for many especially older people and some found it embarrassing and unfriendly and were concerned with what others would think if they cut themselves off. This was also confirmed in the reaction of people on the street. The ubiquity of smart phones in this region is lower than in cities. Locative media is often described as the media we all have in our pocket. This research shows that in an area of low income and low network reception and 3G, not many participants had a smart phone, although this again may be connected to age.

'Only available on iPhone so not good for friends without one and felt quite a solo activity as a result' (S48). There were many people that wanted to try the app but couldn't make time when the phones were not booked out or borrowed by others. This also leads again to the need for options on other media platforms so that older, more disabled and poorer sections of society are not denied equal access to the content.
 An encouraging aspect of the research is that a locative media app can use the past to help people reflect on the future and the present and their role within that which I hope could lead to more land stewardship. The opportunity to share their own memories also offered a chance to reflect and add their own impressions into a 'living archive'.

Appendix F: third evaluation findings

Semi-structured interviews anonymised content:

Pre-evaluation completed questionnaire example: M1 male artist academic
Pre Hayle Churks App Questionnaire

1. **How often do you go for walks?** Please circle or write in your answer.

   Not at all   rarely(how often?   )   often (how often?   )   <mark>very often</mark> <mark>every day</mark>

   Why not / Why? Best way of figuring out where you are – geog & psycho sense

2. **How long do you normally walk for?** 30 mins practical, walk 3 hours

3. **How often do you go for walks alone?** (or with dogs not people)

   Not at all   rarely   <mark>often (how often?   daily</mark>   )   very often

4. **How often do you listen to *speech* radio?** Please circle or write in your answer.

   Not at all   rarely   <mark>often (how often? daily)</mark>   very often

   Why not/ Why? Daily breakfast half listening, actively listen to a programme probably once a week

5. **How often do you listen to speech such as radio/ speech podcasts/ audio books through headphones?**

   Not at all   <mark>rarely</mark>   often (how often?   )   very often

   Why not/ Why? Generally I'm going for a walk to think – I can do that listening to music but <mark style="background-color:red">speech you need to concentrate</mark> on it. could be part of my dyspraxia… the way I need to interpret speech properly, I need to concentrate.

6. **How often do you listen to speech radio/ podcasts/ audio books etc.. through headphones while moving? e.g gym/walking/jogging**

   Not at all   <mark>rarely</mark>   often (how often?   )   very often

   Why not/ Why? same

7. **How often do you listen to music through headphones?**

   Not at all   rarely   often (how often?   <mark>)   very often</mark> <mark>every day</mark>

   Why not/ Why? Relaxation, headphones on that make the world look like a cinema, gives the world a cinematic experience. I'm also a DJ and have a radio show so listening to music is research and a hobby and brilliant.

8. **How often do you listen to music through headphones while moving? (e.g. gym/ walking/ jogging).**

   Not at all   rarely   often (how often?   )   <mark>very often</mark>

   Why not/ Why? Walking a lot but not while jogging, they fall out.

9. **Do you listen to radio drama?**

Not at all   <mark>rarely</mark>   often (how often?   )   very often

Why not/ Why? Incidental when it comes on radio 4

10. **Do you listen to guides in galleries & museums?**

<mark>Not at all</mark>   rarely   often (how often?   )   very often

Why not/ Why? I hate being told what to think before looking into it first – there's something about people who look at the explanation before looking at the painting that I find really annoying.

11. **Do you need glasses to read text on mobile phones?** no

12. **How would you normally experience heritage sites? Tick the ones that are correct.**
    a.   <mark>I wander around looking about</mark>
    b.   <mark>I wander around and read notice boards</mark>
    c.   I use a mobile phone App
    d.   I get an audio guided tour (MP3) on my phone/ mp3 player
    e.   I borrow a device with an audio or multimedia tour on it.
    f.   I go on a tour with a guide in a group
    g.   <mark>I use a paper map provided or bought to find my way around and read information from it as I go.</mark>
    h.   <mark>I let someone in my group share their information about the site.</mark>
    i.   <mark>I research before I go and use that information.</mark>
    j.   I avoid heritage sites.
    k.   And/ or, tell me about your approach/ method/ …or dream method
Pottering around and looking, not looking for concrete answers.

13. **Do you usually have a satisfactory experience using this/ these methods?** Why? Why not? Yes…

14. **What do you know about Hayle?**
    Auntie Joyce lives here

Name please M1

Age: 0-12 13-17 18-25 26 – 36 37 – 47 48 – 58 59- 69 70+

Sex: <mark>M</mark>   F

Do you have a disability: Yes   No
Does you disability affect your ability to walk for more than 1 hour?

Third evaluation: artist academic [S1] evaluation transcription example: 14th May 2014

I'm [S1] - I did from the start to the end Towans, King George Walk.
.44 – initially at the start, I went out and pressed the walk Hayle button and you don't get an intro - <I turned volume right down on your phone, plays straight away> It didn't do that so I didn't hear the intro at all until I sat down there and found the play intro button on the menu. Bit weird, I was stood around wondering how long the intro music was going to take to finish.

…… Because I'm used to using my iPhone in a certain way I did that thing of pressing the top button kind of because I assumed I'd be putting it on my pocket but your intention is that you keep it out and look at it quite frequently. I did that and it stopped it. Then I had to start it again….. so that was odd in the sense that I imagine from the interview that we did before that   - this isn't something I do. That I'm not really attracted to. I wanted to put it into my pocket, I didn't want to walk around looking at a clever phone. It's not a thing I do. For a while I carried it and then I put into my pocket to see what happens. That was fine but I definitely wasn't looking at it. I didn't get it out to look at pictures when I was told stories…… <map> I only looked at it to look at the map when - I had a vague notion that I followed this round. And naturally it was sunny so I wanted to go down to the beach and it still worked… eventually I twigged that if you went off the path it would play music at you for quite a long time & by that you're intimating that you're off the path. I also didn't see a place to come off the beach until I saw a really obvious sloping path by the lifeguards. It was only when I came off that I realised how far off the map I'd gone. I either want to be where I am with my own thoughts and look at things or just engage with place by listening to it, so when I'm being told stories about the place I feel like I'm immediately not quite in it. So that was a constant slight odd thing.   <actually takes you out of place> Yes, there were a couple of moments when I felt it really linked with where I was at that moment I don't know whether that was because quite often I wasn't in the right place. The scorrier bricks - that was one of the neatest synchs of what I was being told and there they are. And the SAS guy when he came up on the beach was really nice. And I guess they were the two things I was interested in because they were the most immediate link to the present, I felt an awful lot of this was about how this used to be which is obviously what it's for - it's a heritage app – but that tied in with the really melancholy music made it quite a sad experience - made me feel I was being perpetually told how good Hayle used to be and I wasn't being told how good it is. Which felt a bit odd, I don't know if there's something there. Up here's really lovely but I was being told how much more exciting it was during the war or how much more active it was back then. The guy jumping in the sea sounded really cool but I get the impression he doesn't do it anymore. No one does it anymore, the regatta might not happen anymore but it probably does <doesn't>.

6.30 – all up here and all the way down - doubling back is a slight infuriation - you don't mention the alms houses at the top, you don't mention the black bridge I saw because of signs in the landscape so maybe you can do something to tie those in or don't go that far up. But it's also very nice along there I'd never have walked up there on my own because you'd go to the beach. So that was good.

8.28 – I sat down there and listened to the ones I hadn't heard and that was nice and looked at the pictures and was able to listen to them properly rather than listen to the contradiction between them and the environment I was in. Or trying not to be in 2 places at once. I was allowed to just listen to the story <see BM1's pre-app questionnaire.. says he hsas dyspraxia and finds listening to speech radio etc.. while walking too difficult)> I found it useful the listen at home thing and I went through all the instructions and the credits and stuff because I sort of wanted to find out whether the people who wrote these songs were real and who they are.

9.43 – it does sway to the melancholic a bit too heavily for Hayle's benefit.. it's very sunny. It was a lovely day to go around Hayle and it felt ….

There was definitely - I didn't like the songs but I'm a very picky music fan so those sorts of songs are always going to be a bit of a bug bear because they sound like they've been written for a purpose and they also have….. which is fair enough - I'm sure there's lots of people who like them but they're fine but it just made me think of young people listening to it and going, that's really not cool and just turning it off.   And you just lose them at that point. It depends who it's for, if it's for young people. I don't think they add anything to it for me – the songs. The ambient music and the sound effects are enough of a musical interlude. The old Italian song was cool. That felt tied into a story while the other are narrating a story you've already been told but in song. ……

12.16 – I enjoyed this as an experience considering I don't like these experiences because you're not being told what to do so it was frustrating when I went off and had to navigate back to the map - at some point there's an arrow.

12.51 – little path – needs something there.. less adventurous people might not do it… I generally wanted to have more information about each person, I guess you can do that in the book? Or museum? Feels like something should be in an app thing - it's what apps are for isn't it?

a little biography of a person.

My interest in that person. Potential a way of finding out more about each person. 3G more about the person.

<rude?> M's voice.. strange accent.

…melancholy.. not initially but after an hour and a half.. cello and piano .. yea, I know, it's sad, it's fine. There should be a way of levelling that out. A bit too melancholy for me. Something that should be celebrating people's lives it feels like it's commemorating them. …. Obviously seagulls crying lend themselves to melancholy as well. The ambient noises - takes a while to identify whether they're real world or not. I spent quite a lot of time walking across the beach looking over my head for the bird, which is nice - entertaining and disorientating. (1.18). melancholy thing is laid on a bit thick. I wouldn't want it to be happy either! Happy music is awful….

I couldn't imagine what I want to hear.

Music for airports, Brian Eno-esque. Cello is such a melancholic instrument…. Cello makes you feel like crying. ….Everytime you get hit by a cello you need to sit down and not go anywhere else.

2.37 – walking on your own, OK, weird with another person, both have headphones on, that's odd. I tried doing one of Janet Cardiff's walks with someone else and it was odd.

3.20 – a couple of bits   JC – trying to interact with the real world. Disorientating - weird blurring of lines bringing it in.

Waking with headphones.. concentrating on the (4.12) stories so I can't really be where I am but that's possibly my dyspraxia thing as well, having to really concentrate on what I'm hearing to be able to hear it properly.

A lot of people said hello to me and sort of acknowledged them back but sort of felt I was trying to listen - that made me feel rude after a while. Especially promenading. There was a guy and I walked past him twice and I was still listening to things and felt like I couldn't properly say hello to him. ….. I liked the idea that you could go on the beach and spend hours and then come back to it or not.

I much preferred hearing these stories in this format here rather than hearing them in a museum, dry dead spaces…

<you mean in the landscape?>

Yea, it's a nicer way of coming across them.

They sound like those things you get in museums and you get a listening post and you probably only do two of them before you're bored and move on and look at the other things in the museum. It was really nice just being able to listen to a load to not feel stuck in a cold room where there's nothing else happening.

<Did you like being able to turn it off?>

Yea, I do like that, and it sort of.. perhaps the problematic format is that I've been asked to download the app and give feedback not just hang out in Hayle for a day….. (would have gone into a couple of charity shops for a look)

What is it.. 2 hour walk or spend more time in Hayle?

2.16.. probably have more questions about people I'm interested in.

I like the guy who told me about the bricks.

Something I could use today.

3.31 – my presumption is you've only given me an extract of what you've recorded. I wonder what else they said is what I'm saying.

3.43 – it feels like there's somewhere where there's an extended interview with each person.

4.01 – the bricks were a complete revelation to me - I'd never have looked at them. Once you look at them and touch them you go, oh they're really odd. I'd never heard about this thing before and wanted to know more about it.

4.40 – I like the re-occurring winnie Minnie story, you get more as you go along, it makes me want more of the others. An app should let you access more if you want to go to. Grff Rhys, different version. Not same content in a different medium. Way of accessing different layers. …..

6.41 – my overall experience was positive. …. Good looking thing.. instructions – runs out. Photo missing. Background music high level. Fading sudden.

So we've just come out by the parade by the pooly bit -someone told me a story about a bomb landing in a field. I immediately want to know where the bomb landed and want some more information and it feels like the app should be able to tell me that rather than me going to a museum or reading a book or going on a website, I should be able to pause a story or listen to the whole story and then go to the home page of the app and be able to find out more about that field.

0.47 – relates to being able to find out more about the person.

It's quite intense I found and I found the wayfinding slightly more involved than I thought it was going to be somehow,– I did drift off quite often and I had to find my way back to the dot where I was supposed to be. That was OK but it required me to really focus in a way -

I was very aware of having to regulate how fast I was going to how close the next dot was so that I could keep walking. So I'd think, that one just started on that and I'm here and if I walk slowly although I had really no idea how long each segment was so it didn't always work. It was particularly on the long stretch by the edge of the pool, Copperhouse Pool. I didn't go back actually, I resisted, I went along, very slowly and sometimes stopping so I.. if I'd walked along continuously I would have missed half of them as it was there were 3 that didn't activate for me no matter how much I went round and round in circles. So is there a sequence in which there and back is supposed to work like. I went around the pool instead of back. It didn't fit with my sense of what felt right. … I was determined not to go back to see the other side of the pool. I did, I missed a couple of dots because I somehow couldn't make them happen. ….

It's very sweet being there on the side you're supposed to be on - it's lovely, very tropical and little spots where you can peel out into the deeper bits in the garden and that was nice enough but I was just feeling I wanted to take in the other side and went over that sweet little tide bridge all covered with sea weed. What was interesting about choosing to do that actually was that I then took the headphones off because I knew that I wasn't going to encounter any audio and I felt kind of lonely. I was really like - oh.. I realised how absorbed I'd been in this thing.

<you felt lonely without the headphones?>

I felt like I'd had a companion with me and my companion had left me and I was just left there with my own head and I was like – oh. I miss that. So it was interesting that contrast. I wouldn't have necessary felt like that if I'd had the voice with me all the time - I wouldn't have anything to compare it to. I kind of appreciated that.

4.38 – I think I was trying to be good, like I was trying to notice the things I was being told to notice and take things in and so that was sometimes frustrating because it would say - see this house across the estuary - I can't see it, I can't see where that house is. And I'd get kind of stuck and then I'd kind of go back in and it was fine. …I saw structures but not the one that looked like the one in the picture. Maybe it's changed.

5.26 – and some of the more contemporary ones, like the woman talking about the dredging and the SAS they were fine but they were so different that it was jarring as well, like I thought, oh, alright - whereas the other voices are sort of more intimate or something. They're not talking at you, they're just remembering, right? … when people are remembering things they speak in a slightly different way. I think…..<tone and everything> yep, they are going inwards to give you the memory where as the SAS guy he was just telling you some stuff and that felt different, I felt less intimate somehow. Still interesting.

6.19 – It did feel like a project, like - it didn't feel like a ramble - it felt like OK.. walking walking here's that one, you know, that's happening now. Do you want to know the bits I got off course, is that interesting? It was when I was down just when you hit the dunes before you get to the dune car park it's sort of encourages you to go down this bit by Riverside Cottage so I did that but then I was out in the dunes and I couldn't quite figure out how I was supposed to get back. It was lovely out there. Maybe so much more this time than that last time they were so many people out there was just amazing and you really got this sense of like - OK, these are the people of Hayle. They were all 'round me, in the dunes, sitting on the benches, walking their dogs, talking to each other it was a very peopled landscape but when the winter one that we did there was nobody out - it was horrible and freezing. So that was really quite amazing about doing it today. That sense of some kind of continuity - the kinds of things that people spoke about doing – bathing and having fun and being with their families that was all happening around me. So that was quite nice.

I was flagging a little bit by the time I got down so I didn't go down and hear the dot by the Esso. I really liked the way like a pacman effect that you gobble up the dots - they're gone and you know that you've done that.

9.34 - The rhythm was a bit challenging to me, I might have been walking too fast … even though I was pacing myself I would have walked past a dot when the one I was listening to ended and

It felt quite different from that last experience and I don't quite know .. I can't quite my finger on why. Is the Winne/ Minnie story longer?

I think I missed parts of it last time.

There's quite a lot about WWII in there I suppose that's just the age of the people you were talking to

10.54 – that first sequence, felt quite detailed, I couldn't .. when you're first in the square I was like – whoa -

11.23 – it is incredibly immersive and I think I will - the landscape feels so dense when you're doing it. When I took my headphones off it sort of flattened. There was a lot of depth because I was engaging with it on so many different levels – when I was listening to the sound and then trying to match that up to what was going on around me and then all of a sudden noticing things which are very contemporary which wouldn't have been referenced but were somehow interesting … things like a skeleton of a steel building across the estuary that looked a lot like the new ASDA but brown - weird little resonances or the church (lelant church). I'm quite tired out now.

<>

12.47 (Hayle) would have felt different - it's that sense, when you're walking in a place you don't know by yourself you have a dialogue going on in your own head, you're noticing things you're thinking..oooh, the Jolly Bodger what happens in there, I wish I had a reason to go in there …you have a little narrative that ticks away and it's familiar but it's also - it doesn't take you out of yourself, its inward but the experience of listening to the voices, it throws you out of yourself into the landscape because you're trying (13.27) you're listening to someone and not listening to yourself, you shut yourself off completely I think. Not completely, there's a certain kind of forgetting of your own self because you're listening to these other people's stories and then, that somehow makes it more possible to connect to the landscape you're seeing because you don't have that little white noise of your own narrative going on.

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14.08 – it didn't have to resonate with my experience I don't think it was even about what they were saying all of the time it was just the sense of someone else 's voice going on in my head so it muffled my voice and it made it possible for me to be … I mean I was also fiddling - I as distracted by fiddling and looking at the dots and figuring out whether I was doing the right thing so it wasn't like a complete out of body experience. … it was a much richer set of experiences that were going on while I was listening than when I just took them off and was walking

14.49 - <headphones on a mission> I did a lot of smiling and most people smiled back I was sort of wary of saying anything (how loud..). There were so many people – every bench had a person on it. The bit by the pool is quite special it's like a suntrap.

15.52 – I'd see people and think.. that could even be the person I'm listening to, there were a lot of older people out, I don't know who they are (talks of Natalia's piece…).

2

0.37 – it is a fairly structure thing to do .. it's OK to give people some tips about it as well .. just to keep people's anxiety levels manageable about trying to do it the way you need it done. I think you can be telling them a little bit more about you'll be walking along, you'll see yourself in relation to these stories - the dots, the dots will disappear when you've listened to the story like just knowing that. It was nice to discover it but I think it might be helpful for people to feel a little bit more taken care of. It's not really set up to be just get out and wander and see what happens.   I guess you could use it that way but you'd probably only get half the dots.

1.48 – immersed? Yes always relative to me going off piste at the end and not feeling immersed so.. I think it's interesting because I don't know if I had just done it straight I would have felt quite that way.

<You felt a kind of different connection because you were hearing the voices and then seeing the people around you, is that what helped get a connection…>

2.18 – I was also getting a connection to landscape by really looking deep into it and trying to see some of the things. Even though it was very sunny I was trying to look at the pictures and compare them to what I was seeing. I felt connected to the landscape, I feel much more connected to the landscape if I hadn't done this (twice).

2.52 – as well as listening and looking at the phone, were you using your senses… aware of walking and moving There were sweet moments talking and how they had changed. Winnie thing really got me this time. Name similarity was unhelpful.

S3 - I did prelim - some significant changes. Generative music wasn't on as much as it had been on the first one. Better. Some of the sound effects, personally I would make them a bit louder …and maybe weave them together a bit more and almost you could underlay them underneath the voices if there's enough bandwidth, I know there's an issue there. So I think that making it more of a tapestry could be quite nice.
1.06 – the bits that really flummoxed me I don't know if just the technology wasn't working was just going up past the old power station - up to that point was fine, and then being on that car park and following it around and trying to find my way, that's where I got lost.
<Your GPS didn't quite locate you properly did it. >
One time when I tried to zoom in to locate myself amongst the chalets it put me on the opposite riverside for some reason. So I came back and realised I was revisiting where I'd already walked past and could see on the map that there was something else, that's when I rang you. But, what I experienced was once I switched the phone off and back on again to try to clear it I seemed not to get the stories, I got a few lines and then it just stopped mid story. Although I know I was going past the points those stories weren't cutting in for some reason.   I found that bit the most frustrating, I wondered why you'd put it in almost – there were long stretches where there were no stories. I got lost again, I missed the footpath off to the side.

S3 - Local knowledge, you know to pop down here, there's a path but a stranger wouldn't know that and could go on or wonder why they're walking past the places they're walking past.
I wonder if it would help having a navigation programme on a mobile - it gives it a pointer arrow to show you which direction you'll want to be. I don't know if that's feasible.
Making it slightly richer – more like a tapestry, instead of getting something and then a period of background sounds and then something else –more embedded. …..
4.21 – it felt quite sad, I wondered why that was, I know Hayle has been through some tough times but it is still here and if all this archaeological evidence exists in the sand then it's been here a long time. Is it a personal thing?

S3 - < Headphones walking odd & dog?>
Not particularly, and you walk past people and they think you're listening to music because it's so common for people to be walking 'round like that. I think having the dog was a bit of a handful - trying to sort her out and keep and eye on this.   And at one point I had an ice cream on the go as well. And I had to pick up after her so it was all a bit - not with my hands… that as early on. I think on that rough track stretch I was a bit aware that I couldn't hear anyone behind me and there was no one else around, I wouldn't like to walk that at certain times of day particularly. Probably it's perfectly fine but when you're in a strange place you sometimes need to have your ears - or I do, I like to keep myself alert to where I am and to what's going on.
1.16 – I liked the process of walking and in fact I would prefer to have more stories coming in.
1.56 – S4 artist academic joins in & said stretch fine for me didn't work for her.
2.04 –S4 artist academic – along Copperhouse pool -

S3 & S4 - 3.22 –- I really liked the new bit through (the towans) it worked fine for me and I really liked that I went through this all new section really going out of the town and having a very long stretch through .. and then coming back I had a real issue with walking back.

6.47 – going back along King George V… it's what people in Hayle do, they promenade along this. I began to feel like exercise..

S3 & S4 Loops, only promenade.. split into 4 walks.

0.43, S4 - the rhythm as quite right, I didn't really stop.
0. – S3 – dog poo – nice ice cream
1.43 have you added more sound, I really liked that.
2.49 –S4 - is there a way in which you can made the fades smoother – when it worked it made the world (kept it immersive)

5.32 – so now there's now 2 characters who speaks to us directly and I started to think, who are you? Could that be a character … Minnie introduces us.

7.16 – S4 - couldn't you be somebody.

L - I want to be invisible…

8.00 - too many modes? SAS

S3- I liked those more contemporary things. Could have even had heard more

S3 – could definitely have had more of those factual things in

9.46 – maybe put more in so <so not so surprising>

S4 –tell her personal story about the dunes - her personal story about the erosion. Dunes….

Walking on the dunes…. Need the grass there to keep it together….

S - Foundries.. what businesses were they

13.09 – who's the app for, local people they would know that (what the foundries are) you want strangers to use it to get to know Hayle better I think sometimes you have to take your knowledgeable head off and put a different one on. (example in Falmouth… everyone knows that)

15.36 – S4 – stranger walking back on my promenade I felt awkward..

16.47 – S4 great stories, Italian and the regatta

19.29 -

Group semi-structured interview transcript: walking artists/ performers/ guests
Some people were interviewed individually after this discussion and the day after.

. 50 - **S5** – it works on Android

1.20 – **S6 –** a wonderful opportunity to be a tourist and be able to have other voices played to me through the environment. I did want to thank you for a remarkable achievement. Technologically I was quite awestruck by it, I've never done an app but I don't have to do 'and press track 2 now and press track 3 now' […] the fact that I could walk and it could locate me and allow me to tap into the story of that site was really wonderful and I've not had that experience before so in that sense it was a really user friendly application actually.'

1.59 – **S6** – 'I suspect I listened and didn't look so I didn't do the photographs, I really listened to the narratives and the voices, I really loved the voices there, […] someone was saying that when we go home we can do it and still do it and I can open up all the other features of the application so the app is really rich and layered and on this walk and only […] doing it once I walked, I saw my route map and I listened and I didn't look at photos […] That might suggest it's a walk you do more than once so you continue to walk with these narratives […]'

2.49 –**S7 –** 'the continuous sort of drone reminded me of like a hint of shanty or a hint of something of the sea, a sound of the sea that was persistent throughout. I thought the persistence of that sound carried me through, made me feel safe. There was something really nice about the fact that that was continuous so when there wasn't any speaking at all the sound was still with me so I was still part of it and it was part of me. And I really found that fact that the voices came to me rather than me having to search for the voices was fantastic, sometimes when you go on walks and (3.24) you're trying to search for voices you can sort of give up whereas this was very different, the voices came to me but there was something quite ghostly about that, something quite haunting about it,

3.39 the fact that they just arrived in a space where you were then all of a sudden, because of the technology, they were there with you.

3.50 – the most memorable thing for me in terms of the narrative was the sort of contemporary heritage of the fisherman that couldn't wait to go out and see his basking sharks. There was something really nice about that in the mix with the history that was very .. that resonated.

4.10 – **S8** – 'because of working with technology I was struck by the beginning of the afternoon and the end of the afternoon for me which was you were introducing us to Hayle as Lucy who lives in Hayle telling us stuff about the development of Hayle and what's going on now and then I had to, kind of, suddenly switch over to the mediated voices via the headphones and so it took me quite a while to settle down into that because I was actually enamoured by being shown by a person who lives and breathes and knows the stories of Hayle. So I had this kind of dilemma all the way through about the lived experience and the live voice and the mediated voice. I'm sure that's something you're dealing with but certainly that was something that was a question

mark for me by the end of the afternoon, what is the potency of the live voice as opposed to the mediated voices that you introduce us to.

5.16 – **S9** – The weather – and how it might influence the experience. Despite the mist, it was a bright day in Hayle and I was thinking about what I'm remembering from the stories, a lot of the cheerful and funny moments and whether that would be different if it was a gloomier colder day … I'm interested to re-experience it in different weather.

5.56 – **S5** - I wanted to raise a practical point about health & safety ..I know from making these things myself. When you make it, your rehearse it, you build in all the things you need to do to be safe and I nearly got run over a few times because I had my head down, I wasn't looking at the map - you know the head down listening thing? And then I'd look out and the headphones and then there'd be a beep behind me and all this bloody stuff that feels like it's pedestrianized but it isn't like the side of the water - King George V walk and there wasn't anything in there about being safe <yes.. people cried.. at the beginning> so I skipped the beginning.. I listened to your voice but skipped to get going. I'm aware of how completely soaked [sucked?] into it you get. A bit like your comments about listening and not the looking and I would reiterate **S8's** comments about about at what point is the cut off of the narrative and if your whole pre-narrative, which is explicitly political - the little walk you did with us about ASDA and then we've got these kind of sepia voices –it felt quite sepia, I really enjoyed that but I kind of try and resist the romance or romanticism explicit in those sepia voices even though my own audio walk which is so bloody similar in that thing, I've fallen into that in some ways. But just that -where's that voice going 'oh they built that and that went wrong ' …. Some of the stuff that is now and could still be vital in the listener's ear. Could you go back and find those voices .. if there was a voice from the café maybe and then you could go and find let's say Mary who worked in the café and she could tell you what she thought. If you could find the live voices that linked bits of it maybe that would bridge that gap from the sepia into the now in some way. I loved it.

8.26 – **S10** – ' the not looking was a problem, I was so absorbed in the sound I wasn't present, I could have been walking on a treadmill or in a hallway … I had to take the headphones out to remind myself that I was in Hayle, on the beach, here because I couldn't hear the ambient sound .. I was hearing. That for me is my own hang-up about my sort of animosity towards audio walks generally - they mediate my experience too much and I find them difficult - that is my one thing what are you - how do you make that looking as important as that hearing.

9.09 **S11** - I liked the use of music, both the ambient music but also the actual recorded music – instrumental-absolutely gorgeous. I found the transitions between the interviews and the actual ambient stuff seamless, it didn't feel jarring at all it was nice smooth transition. Me and **S12**, we walked the opposite route to everyone else. We did it on purpose and it didn't affect it at all, it was actually quite nice going through Minnie's story in reverse, starting at the end of it and knowing where it's going to end up ..and that didn't jar at all in terms of geo synchronous nature. <what about missing the points, did you have to go backwards sometimes?> No I think we only missed a couple we turned it into a circular walk. We didn't feel we were missing out at all. It felt like a complete experience still. I also liked the variety of different voices, that reminiscing quality that **male artist academic** 2 was talking about also the the more…. Scientific perspective - interesting statistics about the sewage and the erosion of the dunes. I thought those sections were really really interesting variety there.

10.20 - **S13** - it was such a human...[Minnie bit] I know nothing about Cornwall..other than the instruction that came with the menu choices .. it's a deprived area - I had no concept of that but through this very human narrative … I just sensed that… there was a window on a very human aspect of this place…. kind of separated it from a geographical perspective of walking around it. Sometimes I feel quite absent I sensed my own person-ness in doing this and also the other people who spoke and it made me more inclined to engage with other people that we randomly met, like the children who were catching crabs on the side of the quay - they were great and I think if I hadn't had this kind of immersive sense of being part of a performance it felt they were actually choreographed into it and I would never have engaged with them and said, 'oh what's in the bucket' because they felt like they were part of the experience. It was very successfully human scale and great, thank you.

12.03 – **S14** – because I like maps I liked the fact that there was the figure and the figure went off and on the map and I could find my way 'round really well and the detail of the map was good and I liked it alongside the

much more emotional feelings of listening to the people talking about the now and the past so liked that combination. … because of not having all the equipment I actually really enjoyed doing it in pairs

13.06 – **S13**, that was the most difficult thing because at the start you said, shall we plug in together and I was like… I'll do it on my own and actually I'm really glad I overcame the stupid introvert obsession that I had to do that and actually sharing the experience was a really really valuable thing in the sense that when I laughed at whatever was on the soundtrack that someone else to humour <?> was … reinforcing that we could share that 'where is the seagull sound coming from? There are no seagulls..' That kind of shared experience is valuable.

13.46 – **S15** - it introduced a whole ethics of walking.. I was walking with **S9** and not walking over each other and whether you walked side by side, or in front, behind, what the other person was seeing as you were hearing , sharing , laughing together at times. That was a very particular element in it.

14.08 – **S13** – negotiating terrain together.. how we found our way over the dunes when we were plugged into each other and we'd gone off on the wrong route and we were trying to climb up - you know, that was really fun. I know that **S6** and various people have written about the idea of negotiating shared terrain together when you walk together but sharing an audio walk together is … you are literally attached to each other. It reminded me of when I walk my dog on a lead you have that…

14.39 – **S7** - there wasn't any silence but there were moments of quiet, I'd have a break from it and I'd look around and I'd hear the odd 'ha ha ha' laughing or people laughing together and at first I'm thinking, am I missing something but they are listening to the performance and there was something of those shared moments that you were wished you were having with someone else as well, but there is something really nice about the solitude of it and I did at some point think, I would like to come back and experience this again with no one else around me except me and the audio walk. That for me would be a very different experience I think.

15.19 – **S13**, - I was actually struck by doing it in a group, that we had that sense that you impose narrative on what you see and what you're hearing and there's quite a lot of instances because we were doing it as a group where, there'd be something on the soundtrack in the description (<sense check if needed exact quote> …scan what you were doing and make you people watching part of the story.. almost as though you were acting something out because you could catch the slightest things. **S14** and I actually took quite a few pictures of you - voyeuristically - kind of.. it was really beautiful you wrre sitting on a bollard looking very picturesque enjoying the narrative so that was quite interesting observing other people, people having that experience.. observing the observer.

16.14 – **S16** – One thing is about doing it on my own and the other is about the material. The different orders of material - so when I started doing it after the introduction I felt a bit like, a number of people said, voices of local history and I find it quite hard to engage with some of them as it felt quite sort of bitty and I didn't really know why I was, so some of them I heard and some of them I didn't hear. It was only when we got a more sustained narrative that I started to remember things and weave them in and get a sort of sense of a whole and that was really important to me. But I do have a question there, I don't know what I think about it, about going from your authentic voices of people you'd interviewed to an enacted voice and whether that transition has to be made and whether it needs to be clear or not, I don't know. And then there were other orders of voice that would occasionally be there like the SAS which I liked but then, not consistent so that was another question. So, not quite sure how these things are organised sometimes but I did like them all being there.. but then the other thing I wanted to say was about doing it on my own. It's just feeding back on my experience really I don't know what you'll make of it but .. I was quite conscious quite quickly that I was walking in places where I don't feel 100% comfortable walking on my own because there weren't lots of people around and there was one point as I .. where my imagination started to kick in rather too much and 'I have a little pain in my chest, what if I had a heart attack here and my phone is running out of battery and what if it runs out of battery here and I collapse here and nobody knows where I am and I can't call anybody. And then I started to hear the sound which was in fact someone doing DIY .. 'there are motorbikes around and they're going to come along the path and I'm going to be hit, shall I hide - a paranoid thing going on. 'Take earphones out' I got lost as well at that point as well so there was a real point of neurotic fantasising … I got passed that but you know it can happen - this is all I'm saying.

19.06 – **S15** – the whole thing asks you to be hyper sensitised so that's what will kick in.. if you make that invitation you're going to get that response
<valid, women being in the middle of nowhere with headphones on>

19.20 – **S17** – I liked that we could get lost that it wasn't so detailed and prescriptive in giving us directions that it took is out of being responsible for wayfinding for ourselves. The app was really working smoothly because I have experienced some of appfurnaces other apps and they don't work like that in London. Either they've improved or you've done a fantastic job programming it but it didn't .. it was always letting me know I was off the track - if I got into the dunes too far but I liked actually trying to navigate back so .. of me personally, other people might feel differently but that's just my experience I don't like a map telling me where to go and not feeling like I have some freedom to explore. There were a few moments when it just wasn't clear and that's I don't think is a criticism of it, for me.

20.29 - **S7** - you sort of get to know the voices because they return, particularly the song with the bald headed lady & no teeth and anything will do.. that voice that kept returning but you could tell the voices that were the locals and the voices that were actors, only because I know M's voice. At one point I thought P was in there but I wasn't sure …. But on the walk I couldn't help but think .. wonder whether the people you'd recorded Lucy had done the walk before we had. Or had heard it before we had. And I wondered what relationship that was between our experience of it and their recording it. So they've recorded it and we've experienced it but what's their experience of this, not necessary as an app or technology but their place within the landscape now. I think that's really important at some level, I don't know how you address that.

21.44 - **S5** - I'm thinking about how polished we are as people who listen to walking apps and walk around and talk about it with lots of confidence and skill and how other people aren't thinking on walking in the same way as us and the bit at the top of the .. as you hit the dunes on the edge of the park, car park end - **S16** had her freak out there? By the cricket field.. the map is completely flat on the screen and the audio, I can see the dots, left a bit, right a bit but between left and right there's a 30 ft drop and a dune, litter and dogs, and it says private and that's when I thought   - you know, I'm pretty confident walker with my app and actually AHRC funded, but if I was my mum or my dad who I hope would want to do it or people that work here or over there I kind of want to make the experience confident even if the text and what was being provoked was less, was more problematic. So somehow about actually making the walking experience really confident for people who have any anxiety about going in any of those places whether they're from Hayle or outside or tourists or whatever

23.42 – **S14** – I was thinking about how I enjoyed the navigation and the map and understood it. Thinking now, listening to **S5** I think that's why I know how to map read so I was able to figure out the map because of my previous experience. So if someone is going around the walk and doesn't know how to use maps that area could be confusing.

Email from S7 - What was really positive this year was the relationship between walking and the local people / region; Lucy's app focused on this and I felt connected to the Hayle landscape because of those voices, because of the history. The contrast between the morning and the afternoon was very affective too, it really made me think and question.
S18 – I think that the piece is really tangible on so many different levels - the reading of the map, I thought it was fine because you're asking people to orientate themselves here, to the quay. So, part of that is part of it is a symbolic? Experience whether people choose to do it or not that's their own thing, right? But to connect to the quay it's the wayfinding thing right here - through the narrative throughout the whole piece, the map, the narrative, Hayle, right - that is the key of the whole piece so I loved that very much. If you can get lost that's part of the beauty of it - that's an individual thing, in your device, at least …..you can enlarge it so there's different experiences. When I lost the GPS dots were disappearing on the map (turned off the cellular thing as American) but when we went to the home part the dots remained so that's just a different thing and that they functioned like that. The breaks in the narrative - that was really, too sharp a break, I recognised the voice.. on second thoughts her voice is so theatrical.. surf group, he was still chatty.. scripted stuff was too much of a break for me. And maybe some of the sound levels you might want to go in and sort out.
You don't have to be glued to it like this.. I would stay away from the Tina Segall thing that some of them were talking about, 'oh the crabs were there or having a person be there and act for you. I don't think that's beneficial. And then the other thing that for me it's tangible so it can be grasped by other people and then

there's other ways that you could think about like how would you want - an educational thing? How would you do that, would you do it differently? It's up to you, The consumer is always going to see it differently. But raw, and so tangible. It's one of the easiest mapping things that I've ever seen. And I am the one that always gets lost! But because I orientated myself with the thing we were talking about it was easy. It was really awesome.

4.20 – S19 - you could tell you'd recorded the oral histories first. You don't want it too corny do you but actually it was particularly powerful when you're stood on the steps and you're stood on the same step that the story's been told about that kind of has a power that people talking generally around about here sort of it a bit happened - that's really interesting but somehow there is an extra power when you think that in this very spot these people stood and this was happening.

5.21 – S18 – that was the chalets – really powerful

S19 – that was an interesting place and maybe it would get too corny. It was a general history of the place while you walked, the moments when the talk really hit with the walk were I think particularly strong.

6.02 – S19 - particularly, was it you? That commentary about the steps - the waste stuff from the foundry was that you voiced that over, I can't remember.. talking about the materiality of what you were stood on and then that very human story of her on the higher step him on the lower step so it was -a bit uncanny if that's the kind of mood you're looking for. There was that moment of, right here, this was going on and you've also got that distance from it as well - talking about ICI and power station all that stuff that's not here anymore so you've also got that slightly weird feeling of my god, this was a really industrial landscape in a way that .. if you've lived here you're sensing that more than I am, coming as a tourist - that really is a bit weird thinking of it as a really industrial landscape because that's not what you're sensing. ..so kind of twee and peaceful.

S19– when the voices sort of faded in and out was that because I was walking in and out of zones or was that quite deliberate so you had a couple of sentences and then they faded out and someone else came in
2.03 – I quite liked the voices fading in and out - it was a bit like the past was there and it was gone - it didn't give you that false sense of I'm really knowing this it was still that thing that you couldn't quite grasp, just given a glimpse of

S20
I really enjoyed the experience because it's something completely different from what I do. I had this kind of overlapping of the voice in my head and the people I met on the way. I tried to give a face to the voice I had in my head. Probably one of the first stories an old man talking about his stories and suddenly I saw sitting along ,[by] the river. I smiled at him because I thought he was the one telling me the story. I think it's quite interesting these things - we need all the time to have a reference. Another thing, I tried not to follow the map too much and this is something you can work on it because it's not easy to follow the map when you're walking and in a way you want to get lost to be guided by the voice so probably so you can work a little bit more with the music because, just walking, I realised that the music just went on I realised I was getting lost from the route. At the beginning I went to another place and there was all the time this music and then I tried to reach the stories. You could work on this, some kind of signs <within the music I think she means> Also along the estuary when we came back - <going backwards and forwards along the same route – ish> . We can follow the pictures after. … and more about the walk in the morning - the landscape, the geography – bus.. better to walk a lot to understand where we are.

3.47 – in my pocket not switched off..

S16 email feedback
I really enjoyed the Hayle app […] I was really impressed by its seamlessness and usability, even for me. I did need a little help at the beginning, but not at all once it had started. (Apart from needing to walk the other way round, that is).

Asking re: connection to landscape 6 months after the experience

1. **S16**: I certainly think more warmly of Hayle because of using the app. I walked alone and the combination of solitude and the companionship of the voices made for a very intense, sensory experience of the place. I do not much remember the visual material on the app – it was the recorded sound that had the most impact and I remember the 'seam' between real interview material and fiction, which puzzled me slightly at the time. It takes place around the time I bumped into Lucy and learned I was going in the wrong direction, where the stone steps go up.

I don't think I can actually remember very much of the history, although I do vaguely remember the fictional story based on it. It was more that the experience was intensified by the collaging of material and the fact that this provided a reason to explore alone, in a place I did not know, although I had been there once before. It worked, once started, without my having to think about it, and I appreciated that, too. All very clear, so one could engage with the experience and let the technology do its thing.

2. **S21** - it's an interesting question – especially as I have a deep and personal connection to that particular landscape built up over 30 years!
But actually yes – the app took me on new routes through the place that gave me new perspectives on what I thought I knew, and the stories/snippets resonate (and are specifically located) even on reflecting from a 6 month distance.

3. **S19** - not so much 'more connected'… as differently connected…. connected to a landscape that is historical as well as present; connected to a landscape that is storied and narrated and animated…. connected to a landscape that is layered with meaning.

4. **S10** - I will say that your app certainly introduced me to the landscape and stories of Hayle in an embodied way, and though I don't remember the details of the histories and stories, I have distinct memories of walking through the space and discussing it in relation to its subjective histories. Also, I have referred mentally and vocally to your process as an example of and inspiration for heritage based explorations.

5. **S5** - Having not been to Hayle previously, my initial connection was therefore almost immediately filtered through Hayle Churks. I carry the historical narratives from the audio overlaid on my visual memory when I think of the places - especially (for some reason) walking up and down the Copperhouse Pool. I'm not sure what version of landscape this is though. There is certainly a disparity between the vibrancy of the narratives and the post-industrial reality of Hayle now. This slippage is what created a poiesis for me. However, there was a tendency to over-romanticise (maybe my problem!), and some more contemporary accounts might seek create a more explicit politic; if indeed this is something you are interested in. In terms of connectedness there was definitely a grounding or rooting (in history) going on. Other aspects of our trip which enabled connectness with Hayle was the direct contact with residents and businesses (our meals out, for example). I am always cautious/anxious about the hermetically sealed academic object landing somewhere to investigate (as with our walks on the beach, etc) without really engaging in a meaningful dialogue.

6. **S14** - I hadn't visited Hayle before so my experience is based on walking into Hayle several times on my own and with others as well as returning in the dark on one of the evenings when we walked up to the electricity station? because of its buzzing. I feel a sense of connectedness to members of Footworks since many of us walked together in mid Wales. I also felt the same meeting once more in Hayle - real or imagined sense of a community of walkers. I like the sense of being on my own and being on my own in a group as well as very definitely walking together and conversing. Your app made for a different connectedness I took photographs of others listening and I was walking and sharing the app on one device. I was receptive to the things I was hearing as I walked about and I also liked seeing the little pointer/figure moving on the map and in one instance when I think it was **S22** and I walked away up a sand dune we were able to reorientate ourselves back to your route.

7. **S7** - Yes, I think about Hayle a lot, because of the app, because of the walk, because of the experience. I have nostalgia for the place and I can still hear the voices on the recording. Local folk. That's what I keep returning to, local people and a sense of their place.

Appendix G: newspaper cuttings – WHS, app publishing and award

Newspaper cuttings about the published app *Hayle Churks*

App guides user through history

By Chlöe Smith
csmith@c-dm.co.uk

A FREE mobile phone app which gives users a view of the history of Hayle has been published on iTunes.

The Hayle Churks app was created by doctoral research student Lucy Frears and recreates the story of Hayle by automatically playing recorded memories and displaying photographs as users walk through the town.

Ms Frears, who studies at Falmouth University, received a grant to support the app's creation from the Heritage Lottery Fund through its All Our Stories project.

"The app is an abstract experience that involves walking through people's memories from different decades," she said. "The walker uses the information they have – their location, the story, archive pictures and historical facts on the map – to try to piece together the clues.

"The app reveals and locates experiences from Hayle's past and present which may nudge us to think about the future of the town and our own legacy.

"At a time when town councils are being given planning powers, it's important to be reminded about the past
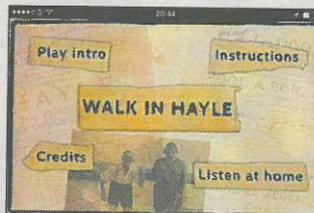
Lucy Frears, a doctoral research student at Falmouth University, has created the Hayle Churks app with support from the Heritage Lottery Fund's All Our Stories project.

significance of land that can, in Hayle's case, look derelict but is historically important."

The app uses many memories recorded by the Hayle Oral History Project as well as pictures from international, national and local archives, and especially Hayle Community Archive's scanned images from personal collections.

As well as sound effects recorded by Ms Frears, ranging from birds in Paradise Park to sounds on the beach and underwater recording experiments, there are songs from a range of artists including Falmouth-based musician Thirty Pounds Of Bone and Hayle-born folk singer Joff Ryan.

The app route can be split into short, manageable

sections or walked in one go for approximately two hours, starting from the Hayle Heritage Centre gate in Foundry Square.

There is also a manual feature on the published app so that media can be heard and played from any location.

"The Hayle Churks app could be described as a love letter to Hayle but it's not just sentimental nostalgia or a PR exercise," said Ms Frears.

"As well as happy stories and funny stories, the app reveals terrible consequences of personal and public decisions, mistakes and wrongdoing that perhaps we can learn from. It's certainly not simply promoting a 'good old days' point of view about the past."

The app is currently only available to iPhone users but clips and photos are uploaded regularly to the Hayle Churks historypin website.

Ms Frears is seeking more information about the Cornish Copper Company to add to the app and can be contacted at hayle.history@btconnect.com

COMMENT

Have your say – comment at:
www.cornishman.co.uk

Yesteryear
Send stories about the past to cornishman@c-dm.co.uk

App brings history to life in Hayle

By Josh Barrie
jbarrie@c-dm.co.uk

USING ever-more-modern technology to explore the past is a favourite practice of archivists and historians.

Through using its expanding toolkit we are able to see, hear and experience days gone by more easily and readily – as mediums develop to create a more interactive way of learning.

Lucy Frears, a PhD student at Falmouth University and co-ordinator at Hayle Community Archive, has harnessed this.

She has created an app – a digital function used on a computerised device, in this case an iPhone – that allows the public to engage in the town's heritage in a new and exciting way.

Hayle Churks is a collection of stories in soundbite form recalling the area during the war and thereafter, which automatically play as the user walks around.

Each tale captures that specific location, while photos of what it looked like at the time of the story give a further insight into then and now.

"It brings recorded memories out of the archive and lets the landscape breathe life into them," said Ms Frears.

"They can listen to people who were in Hayle at the time and imagine it when it was very busy during and just after the war – it reflects the place."

Ms Frears said it is a more "accessible" way of discovering more.

"For me it's putting the stories back into Hayle, so as they walk around they can see and hear the place as it was before," said the archivist.

"They can remember or learn of the people there – there are sad, happy and scandalous tales."

She added Hayle was very different then; a busier, thriving port.

"Hayle has links with the rest of the world," said Ms Frears.

"It was full of industry and work. It's very different now.

"I'm hoping it will highlight this and show that what we do has a lasting effect."

The audio clips were recorded and compiled as part of the Hayle Oral History Project from 2009 to 2011 and was funded by the Heritage Lottery Fund, while photos, maps and other images shown are sourced from national and international collections.

The app is free and will be published on iTunes from January 2014.

A book is also available.

There is much more information online at hayletaleshome.blogspot.co.uk

An old picture showing Hayle Foundry.

An aerial shot of Hayle Quays with destroyers, including HMS Bristol, in 1921.

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local farmers who grow fantastic produce year-round for us. Cauliflower, potatoes and in warmer months strawberries and a full range of herbs are just a few to mention.

We now offer select-your-own produce boxes, with £5, £10 or £20 options available. You tell us what you want, and we'll put in as much as we can. Typical savings on supermarket equivalents are 10 -20%. Or just ask for a selection box. We can also fully prepare your vegetables for you, ideal for a large family roast or a party.Try it and see for yourself!

**Call 01736 757992 (24hr)**

'Appy New Year'

The 'Hayle Churks' mobile phone app is published on iTunes and completely FREE. Created by Lucy

Frears to play memories and show archive pictures automatically while walking around a Hayle route, there is also a manual feature on the published app, so that media can be heard and played from any location in Cornwall, Britain or the world.

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The app is an abstract experience that involves walking through people's memories from different decades. The walker uses the information they have: their location, the story, archive pictures and historical facts on the map to try to piece together the clues. The app reveals and locates experiences

from Hayle's past and present which may nudge us to think about the future of the town and our own legacy.For more information look for 'Hayle Churks' on iTunes and historypin, 'Hayle History' on Facebook or hayle.history@btconnect.com.

One HEART

On Sunday February 9 at Hayle Methodist Church at 7pm there will be an evening of worship, testimony and praise. The band will be playing a selection of songs by Mark Grove and John Hammond, and sharing experiences they have had since finding a Christian faith.

FREE ADMISSION.

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The *Hayle Churks* app wins a Collection's Trust national award 2014

Local Business

Send all your Penwith business news to:
newsdesk@cornishman.co.uk

National title for Jordan, see page 32

Couples' new big day venue

THE Guildhall in St Ives will host its first open evening to showcase the place as a potential wedding venue.

Those looking to tie the knot will be able to see the first floor rooms as they would look dressed ready for a ceremony.

Couples will be given the chance to speak with professionals working in the wedding sector, including a talk by local civil celebrant Helen Read.

Live music and entertainment, will also be part of the event.

Sarah Kevern, St Ives Town council clerical assistant, said: "The main objective for the evening is to provide local businesses with a platform to show the public exactly what they can offer as a wedding supplier and for the Guildhall to promote itself as a new and unique wedding venue within the local community.

"The evening will be very different to a lavish wedding fair. It will be more of an informal drop-in for potential clients and will feature local suppliers and businesses – it should provide couples with a relaxed atmosphere where they can happily discuss their special day."

Town mayor, Linda Taylor, will open the event, which takes place between 4pm and 8pm on August 19.

Admission is free and drinks and canapés will be given to guests.

Any businesses interested in attending should contact 01736 797840 for further information.

Donations on the door will go directly towards the funding of a new launch and recovery vehicle for the new lifeboat in St Ives.

Hayle history app creator collects national award

By Jake Wills

Lucy Frears accepts a Collections Trust award for the Hayle Churks app.

A MOBILE phone app which allows users to delve into the history of Hayle has won a national award.

The Hayle Churks app, created as part of the Hayle Oral History Project, received a Collections Trust award in the best for budget category, receiving a £500 prize.

The free app, which enables users to see photos and memories of Hayle on their mobile device as they walk through the town, was called a "really commendable project" by competition judges.

Lucy Frears, who created the app, attended the ceremony in London.

She said: "It means such a lot to me, I'm extremely pleased. I don't think I could have smiled more when it was announced.

"The app draws from a collection of Hayle memories, many recorded by the Hayle Oral History Project, so a big thank you needs to go out to those that were interviewed as well as volunteer interviewers, local archives and of course

Heritage Lottery Fund (HLF) who helped fund the app in partnership with Falmouth University."

A short film to explain what the app does for conference presentations, online and for Hayle Heritage Centre will be funded by the prize money.

Lucy has urged people in Cornwall to nominate fellow projects based in the region.

She added: "There are so many interesting projects in Cornwall that could have won this award.

"Through innovative creative interpretations of collections, new audiences are drawn to and get access to memories, objects, documents and art works. I hope to see more of these projects being recognised and funded in the future."

Hayle Churks was up against projects costing up to £500,000 and competitors from national collections, museums and archives. Funding from HLF's All Our Stories grant along with an ESF research grant was used to create the app with the help of AppFurnace.

News cutting: WHS is not delisted, for the moment

Surgery, have long held an ambition to co-exist in a purpose-built health centre.

And Dr Matthew Boulter, from the Alverton Practice, confirmed that a bid had gone in for such a centre.

"We've no idea what other bids have gone in but are eagerly awaiting (to hear) the outcome which we expect to be in September," he said.

At the same time, the St Clare site has been proposed by several healthcare campaigners including St Ives MP Andrew George and West Cornwall HealthWatch, as being a good place for a centre to house services previously run at Poltair Community Hospital, which has been confirmed for closure.

Appetite

Local ward Cornwall councillor Jim McKenna believes that this is still an option.

"I have asked the Cornwall Commissioning Group (CCG) and other organisations to see if some of the services from Poltair Hospital could be transferred to the St Clare site if funding is available," he said.

"The response has been that it could be a possibility.

"It is common knowledge that three GP surgeries want to use the site for a super practice.

"I have received assurances that should their scheme go ahead and should NHS funding be available, then they would be willing, as an additional scheme, to look at the possibility of the provision of extra services."

Dr Boulter confirmed that there was a "definite appetite" to take on such services as the various health clinics previously run at Poltair.

"If we did get up there (St Clare), we would have a much bigger site with a lot more scope to accommodate those sorts of services," he said.

Mr McKenna added that he would continue to lobby to

Huge store 'is not putting town heritage status at risk'

The new Asda supermarket development on South Quay, Hayle.

www.cornishman.co.uk/buyaphoto – Picture by Greg Martin

By Chlöe Smith
csmith@cornishman.co.uk
@closmith09

THE construction of a supermarket on Hayle Harbour has not affected the town's coveted World Heritage Site status, the world's top cultural organisation has decided.

The United Nations Educational Scientific and Cultural Organisation (Unesco) World Heritage committee had been considering if the development at South Quay posed a risk to the Cornwall and West Devon Mining Landscape World Heritage Site (CMWHS).

Last year the World Heritage Committee called on the Government to halt regeneration

plans on the harbour, warning that the proposed Asda supermarket should be more in line with the site's historic character.

When the Government failed to intervene, the committee recommended the site be moved to the World Heritage 'in danger' list, prompting fears the South Quay scheme could have a negative impact on Cornwall's overall standing as a place of unique historical importance.

However at the annual Unesco meeting last month, the organisation stated it could not identify any tangible negative impacts on the fabric of the quays and related harbour infrastructure.

The Department for Culture,

Media and Sport (DCMS), as the UK Government department with responsibility for World Heritage sites, and Cornwall Council both argued that the supermarket scheme did not warrant 'in danger' status and said there were viable benefits to the regeneration work including the reintroduction of sluicing and repairs to the quay wall.

Nonsensical

Julian German, chairman of the CMWHS partnership, said objections raised by the heritage agencies had been "carefully considered" but said there was no damage to the Outstanding Universal Value (OUV) of the quay.

He said: "The development

affects some views across a limited part of the harbour. The supermarket will not be visible from all parts of Hayle, and while extremely important, Hayle itself is only one component of a World Heritage Site totalling 20,000 hectares (49,400 acres) across ten landscape areas. Nine component areas are not affected by the Hayle Harbour development.

"We are therefore in agreement with the World Heritage Committee's conclusion not to place the whole World Heritage Site on the list of World Heritage in danger."

The Unesco report acknowledged that the CMWHS was well managed.

Hayle mayor, Graham Coad, welcomed the news and said he

believed the committee would be happy with the reconstruction of Hayle Harbour.

He said: "(The construction) is tailored to Hayle and its heritage, and was the subject of extensive consultations and public meetings.

"It was always nonsensical that the whole of two counties' Heritage Site designation could be at risk because one small corner had changed. When you consider that the supermarket development was the only scheme that also provided financing to preserve and restore the historic harbour walls, waterways, and sluicing systems, it is clear that the historic value of Hayle has been preserved by the development."

Appendix H: *Deep map* app reference tool (ready to print).

The guide has been compiled not only from the experience of making work but by testing and reading about others' work and so is indebted to many others. There are recommendations for further reading and projects to test on location as well as to listen to online at the end of the guide.

This reference tool is authored by Lucy Frears. If you use it, please cite it as you would any other publication. The reference tool is freely available for use in practice, research and education but if you cut, paste, and incorporate it or parts of it into your own proposals, lessons/lectures, research or consultancy reports, please be sure to include a link and citation of this resource. If you would like to add to this resource or have feedback, please contact the author as this is encouraged and welcome in order to keep it current and useful.

[Lucy Frears 2016 PhD Thesis Unlocking Landscapes Using Locative Media. UAL/ Falmouth].

email: lucy.frears@falmouth.ac.uk

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[Lucy Frears 2016 PhD Thesis Unlocking Landscapes Using Locative Media. UAL/ Falmouth].

email: lucy.frears@falmouth.ac.uk

Reference tool for making *deep map* apps
by Lucy Frears

This reference tool guides the reader through the thought, planning and decisions faced by artists, practitioners, producers and commissioners of deep map apps – GPS-triggered smartphone apps that connect the user to the location.

A good locative media app mixes the media (audio stories and sounds for example) with the location, the everyday environment to make something different and more interesting than when just media or just the place are experienced without the other (S.P. Stenton 2016).

This reference tool is authored by Lucy Frears.

If you use it please cite it as you would any other publication. The reference tool is freely available for use in practice, research and education but if you cut, paste, and incorporate it or parts of it into your own proposals, lessons/lectures, research or consultancy reports, please be sure to include a link and citation of this resource.

Fieldwork

Know the area	Walk the site.
	Go in all weathers and all seasons and observe changes.
	Attend local events, meetings, pubs and cafes to broaden the type of people you meet. Pick up leaflets. Be open to chat. Pick up gossip.
Recording people on site	Interview local people and experts while walking around the site. Ask them to lead you to a place of special significance and describe it. You can suggest what kind of significance (a place they like, a place they don't like for example) or see what they come up with (the work of Misha Myers and Natalia Eernstman offer good examples of this).
	Encourage interviewees to use the present tense and to describe what they see around them.
	Make sure you have a 'pop screen' to protect your microphone from wind and during speech from words containing 'ps', etc....
	Use headphones to hear what is being recorded. Be aware that headphone volume is different from the volume or level the interview is recorded at. Some recorders can be set to an automatic recording level while others need to be adjusted. Record too loud and the distorted sound will be unusable. Recordings that are too quiet can often be saved.

2. There's Not An App For That (2015) by Simon Robinson, Gary Marsden and Matt Jones. They describe the 'face on' approach to app design rather than 'heads down'	
3. Janet Cardiff: The Walk Book (2005) by artist Janet Cardiff and Mirjam Schaub.	
4. Site-Specific Performance by Mike Pearson (2010) who has also worked with MP3 walks as remote performance.	
5. The project Ambient Literature at the Pervasive Media Studio (2016 -18) (run by Tom Abba and Jon Dovey) is researching and making locative media narratives with smartphones.	
6. Remembering Oral History Performance (2005) edited by Della Pollock.	
7. Websites of many artists mentioned above for examples of work and explanations on what they do – e.g. Janet Cardiff and George Bures Miller, Teri Rueb, circumstance, Blast Theory and Platform. The app-making toolkit websites such as Calvium/AppFurnace and layar include examples of work and tap into the deep knowledge of their creators. Look for articles/ talks/ chapters by Jo Reid from Calvium.	
8. Work is best tried in situ to understand the effect – the fusion of the everyday and the app content. Look out for work to try, usually on arts and culture networks, and follow the artists mentioned to find out when and where their new work can be experienced. Commissioners include: Artsadmin, Artangel, Heritage Lottery Fund, National Trust, Arts Council.	

Recording environmental sound	Record wild tracks – sound on walks, in different weather, seasons, times, to capture different birds plus natural and human activity.
	Recording the site using binaural sound will recreate the sound in a 360 sphere around the listener wearing headphones, creating a 'hyper-real' immersive effect. Other recording techniques will create texture and will also be interesting aurally.

Planning: Questions to ask

What do the funders want?	Funders might have a very clear idea of what they want and are paying for. Discuss and listen.
What skills are needed?	Some people involved in making the app will be able to take on numerous roles but many need specific skills, which will affect the project timeline and budget. These include:
	A period as artist in residence or someone as a community liaison. A closer knowledge of site and community will aid app content (by identifying people to record, for example) and how the app is received and used. A friendly sociable and observant person that uses social media is a good choice.
	Research of content – interviewees, images, history using archives, local networks etc.
	Sound recording and editing skills are needed to record interviews record atmospheric sound and to edit and mix recordings. Sound editing software is needed.
	Commissioning or making original music and or soundscapes.

	Coding – without coding skills a programmer needs to be found or an app-making toolkit such as AppFurnace by Calvium used, but discuss what you plan to make in case further coding and therefore budget is needed.
	Graphic design – used for phone interface (what is seen on the screen) and the style of the app. The design needs to be consistent across the app and promotional material. App-making toolkits such as AppFurnace have some graphic design integrated into the system to assist the maker.
	Marketing and promotion including press releases and design of promotional material (such as posters, banners, postcards, stickers) and its distribution plus effective use of traditional and social media.
	Assistance with publishing apps – app-making toolkit companies such as Calvium provide the liaison and licence needed by, for example, Apple. Discuss the publishing cost and the amount of app changes possible after publishing before starting.
	Writing funding applications such as arts, heritage, community and research grants, budget management and writing reports for funders, steering groups and stakeholders.
	Proofreading and information check: make sure all people who helped with the app are mentioned on a credits page with names correctly spelt. All speakers need to have signed a copyright agreement.

Further reading for practical tips	1. The Pervasive Media Cookbook http:// pervasivemediacookbook.com/ offers invaluable advice for locative work. The Pervasive Media Studio/ Watershed website has info on upcoming artist's talks and older documented ones: http://www.watershed.co.uk/studio/
	Other site-specific performance methods are useful to learn from, such as those by Louise Ann Wilson, Pearson/Brookes, Wildworks and immersive theatre, for example by Punchdrunk.
Artists work to review (most available online)	Janet Cardiff and George Bures Miller, Graeme Miller, Teri Rueb, Duncan Speakman/ circumstance, Blast Theory, Platform, Mike Pearson, Jeremy Hight, Jen Southern, Sam Thulin, Alex Butterworth, Lavinia Greenlaw, Geraint Francon, Proboscis, artists and academics in the Walking Artists Network and many more.
Further research	
Uncontrollable interruption of the app experience	If you know there will be building work or there is a busy road, try to write in some sections that can work with those sounds.
	A landscape with some noticeable features will make it easier to pin stories. Whether or not there are landmarks, don't ignore features that others will notice: the nuclear power plant in the distance, the rubbish heap, the empty building, that infrequently used path. If visible landmarks are lacking, use what you have and recreate the landscape as it was, through rich description of sound and image or create a story about it for example.

	Record sounds in different weather and conditions. The sound of rain or buzzing bees, when played back in different weather, draws the ears and eyes back to the environment and feels odd. Likewise hearing rain on a pavement while walking along it on a sunny day, or walking through a crowded market place and hearing it empty can increase observation in the present location.
	You can ask the user to choose to do something (or not) during the app experience such as sit somewhere or to perform an action. Some participants enjoy feeling part of a shared but secret experience, especially if others are participating in the experience at the same time (look up Duncan Speakman/ circumstance's work for examples) and the behaviour helps identify them.
	A location that is spooky, odd or isolated or rarely granted access to will disrupt immersion as people will be unnerved/ intrigued.
	Mention aspects of the environment that can be sensed – felt, seen, heard, smelt. The participant will search for them and remember them.
	Mention objects that may or may not be in the environment when played, prompting the listener to look around.
	Mention visible landmarks and reveal unknown ones.

	Publicity needs to be clear about what the app does: what participants do and experience, what they need (headphones, app downloaded over Wi-Fi before coming to the site etc), the walk's distance and length of time required, and whether it can be done in smaller chunks.
Check connectivity	Is there Wi-Fi and/or good mobile network connectivity? If not, the app needs to be downloaded before coming to site and interactivity will be more challenging or even impossible.
Who is the app for?	Research the target audience. It is hard to intrigue and entertain all age groups at once.
	Who has access to a smartphone in this area? Don't presume.
What type of experience is it?	Be clear about what type of experience is being made: a historical walk? An artistic experience? A mixture of both? A game? An interactive experience?
How will the app be experienced?	Is there going to be a marked route on a map? Some participants like to work through and 'tick off' the content as they come across it. Others like to move where they want to 'drift' around the site without a map or set direction. Can you please them all?
	People could come with adults, children, dogs, in wheelchairs, alone – or it could be downloaded and listened to from a distant location. Will the app suit all of these? Find a way of making that clear to potential users or design alternative/ shorter routes or modes for them.

How do I make it accessible?	Make the app work on all platforms – iOS (Apple), Android etc…
	Try to make the walk route physically accessible for everyone.
	Try to secure funding for smartphones or tablets with GPS and headphones so that those who don't own them can still participate.
	Have an 'armchair' mode to use at home as well as a live version that only works with GPS on site. Armchair mode supports those with mobility issues, who live elsewhere and those who want to review pictures and stories again at home.
How long should the app be?	The app length is dependent on site (small or large area) and amount and type of content (memory used); what device it will be played on, which media is used, how media is recorded and so on. Apps (at the moment) have a memory size limit. If an app-making toolkit is being used, discuss how 'large' your app can be to publish on Android, iPhone etc…
What media to include?	Will it be sound only, or sound and still image such as photos and paintings, and/or film? All use different amounts of memory and so affect the app size and how possible it is to download over a phone network on location or via Wi-Fi before the experience. Stereo sound uses less memory than binaural sound. Film uses a lot of memory, photos less. Using film needs careful consideration as it involves standing and looking down at a small smartphone screen rather than engaging with the place.

Suggestions on how to draw attention to the location.	If connection to the location is needed, then deep engagement or immersion in stories needs to be disrupted periodically. Here are some suggestions:
	Make it possible for the participant to keep walking while listening to a story until its end (this is done in coding). A participant will feel warmer, more comfortable and less conspicuous if able to keep walking at her own pace. Some people will always stop to listen.
	If a tablet with GPS is used be aware that the larger the device the more disruptive, visible' and heavy it will be.
	Weather will affect enjoyment and speed at which the walk is done. Plan the launch of the app during the best weather conditions.
	Participants will take a few minutes to settle in. Ensure that all the important information isn't packed into that initial few minutes as they will miss some of it. To start by standing and listening might help as will a replay 'introduction' button.

	Use recordings from the site (such as seabirds, or passing trains) in the app so that recorded sound mixes seamlessly with everyday sound.
	Keep the app as hands off as possible and try to use physical gestures to control the content if needed (such as shaking the phone) rather than requiring participants to have their heads down tapping and swiping. Keeping faces up is a better way to connect users to the location (see number 2 in the further reading section below).
	Use archive photos or paintings to help users imagine the place as it once was.
	Lots of text on the screen is unnecessary and hard for many people to read (many of whom do not wear reading glasses when going out for a walk). The sun reflects off smartphone screens making them hard to view so audio is always better.
	Unknown stories about a place are intriguing.
	Feeling anxious about personal safety disrupts immersion. Be particularly sensitive to how women or 'outsiders' may feel walking around wearing headphones that diminish environmental sound, especially in an isolated or unfamiliar place.
	Consider how much an expensive gadget, such as a smartphone, should be on view in certain environments to avoid worrying about or being mugged.

How will people listen to the work?	Which headphones? People can have strong opinions about which headphones they feel comfortable wearing. Whatever the decision make sure that the person mixing the audio listens with the headphones participants will use rather than only studio quality headphones. Headphone choices include:
	Open-ear/open-back headphones allow in some environmental sound, which works well in some sites for a more realistic or immersive app experience. Open-ear headphones can be more comfortable as they allow more air flow and don't entirely cover the ear. The sound of the app content escapes through them and is audible to others nearby. They are large and conspicuous and ownership is low so they need to be provided.
	Closed-cup headphones keep out most environmental sounds so are useful in busy, noisy locations. The audio feels personal and close – inside the head. They are large and conspicuous, not everyone owns them so some need to be provided.
	Noise-cancelling headphones cut out environmental sounds. They are large and conspicuous and ownership is low so they need to be provided.

Page 8

	In-ear or earbud headphones fit snugly into different parts of the ear depending on the model. More inconspicuous, more commonly owned and often more affordable, but sound quality, external sound leakage and comfort differ. If provided they cannot be reused by others so multiple pairs are needed.
How do I future-proof the app?	Plan for future changes, for example: a. in the location - for example building work. Talk to the Town Council and check whether there are any building or other projects that will change views, routes or make excessive noise. b. new phone versions and innovations that will affect interface layout. The size of images can be made to adapt to future models.
Deskwork	
Research the area	Search archives, online and in local heritage centres for films, books, archaeological mapping, newspaper cuttings, songs, memories, local history, for stories, images, facts and mythology about the place. Search out local librarians, historians (arts and heritage), geologists, botanists, geographers, specialist groups, local cultural champions and enthusiasts. Look beyond the obvious: where are the stories of women, children, outsiders and the poor?

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	Record the narrator close to the microphone so that they will sound close to the ear/s when played which creates a friendly one-to-one relationship with the listener.
	The way that the narrator speaks and their script needs to be considered as the listener needs to 'follow' them. They can inform the listener or can relax and immerse the listener by speaking quietly and gently, sounding friendly, as though they know them well already. The type of microphone used, the way of recording and way of speaking can effect whether the narrator is talking to, talking with or talking as the subconscious voice within the participant - see Lucy Frears' PhD thesis for more detail.
Take the walker deep into the story and location	An immersive experience can take the participant deep into a story. These are ideas of how to increase immersion.
	Make the app easy to use. Test on different age groups. The Pervasive Studio Cookbook mantra is 'test early and often'. See number 1 in the further reading section below for the link.
	Make sure that the phone doesn't hibernate and stop the app. This is done in coding.
	Make sure sound files, such as memories or stories, activate a few paces inside the GPS zone rather than on the edge so that they don't 'glitch'. This is done in coding.
	Use sound to lead people rather than words or text on screen, for example a voice speaking in the left ear saying, 'come with me,' to encourage them to walk towards the left.

Leave in some space	Leave space in the work for thought, the background sound loop will play in the gaps.
Recording interviews inside	Record interviews in good quality – with a good microphone.
	After the interview record a wild track (just general sound) from that space. It might be needed during sound editing.
Recording oral histories	Interviewees need to be physically comfortable.
	Keep eye contact with interviewees to reduce anxiety about the microphone in front of them and being recorded.
	Nod encouragement so that the interiewee knows they are doing well. This also keeps the recordings free of unnecessary comments or 'uh-huh' noises.
	Record people of different ages, genders, backgrounds for a more interesting mix of voices, vocabulary and story perspectives.
	Some of the most interesting content, the stories many people want to hear (racy, political, sordid), can be libellous if names are used or people are identified through description. Try to get a version without names to keep the first-hand account. If using the voice is problematic, perhaps sections could be re-recorded using another voice or written into a narrative.
Choose the right narrator if one is being used	Audition narrators by listening to them rather than looking at them. Listen for a natural rather than read delivery – do they sound like they are chatting? In radio broadcasting lower voices are considered more pleasurable to listen to.

Copyright	Make up copyright forms for interviewees and those giving permission to use their images/ work in the app/broadcast. Permission needs to cover use on local radio or television, the Internet and in presentations, academic thesis, by schools etc.
	Check if any costs are associated with using images/footage or other archive material.
Storing data	What is the protocol on storing personal data of interviewees, copyright owners, volunteers? Check recent data law.
Safety	Wearing headphones can make users less aware of environmental noise such as traffic, so choose routes carefully and remind users (in the audio track early on and again a little later) about traffic and the way that headphones might affect them.
	Make sure there is a pause button that can be used when crossing roads, reading a sign or speaking to people who interrupt for safety and to avoid missing content.

Making

Using the magic of locative media	Make use of automatic playing of material by GPS if possible and 360-degree binaural sound that can be used to great effect to surprise, delight or scare the participant.

Music & background sound	A background loop creates an immersive atmosphere, reassures the participant that everything is working and prepares the ears for narrative clips. The Hayle Churks app (available free on iTunes) used both a musical loop and one using layered sound effects at different moments within the experience to keep the experience varied (although only the musical loop can be heard in 'armchair mode').
	The loop needs to pause when interrupted and play from the stopped place in the music rather from the beginning. This is done in coding.
	Gentle fade-ins and fade-outs smooth the transition between loop and narrative. This is done in coding. The stories/ memories need to have some space before and after the speaking starts and stops to accommodate for this which is done during sound editing.
	The loop needs to be long enough not to irritate the listener by repetition when it starts again and again. Both Hayle Churks loops were 15 minutes.
	Music style is a matter of taste and can repel or delight different participants. Test your choice on a mixture of people first and get feedback on how it affects their mood.
	Prominent sounds can be an indication for the listener that the loop has restarted and can disrupt their experience. Makers of Riot! 1831 removed the sound of a dog barking after complaints.

Take me somewhere new	Users enjoy a different experience of place than they would experience otherwise. Find different routes against the usual flow of pedestrians or encourage them to explore new parts of the site.
Creative freedom	Gossip, imagination, myths and new tales could be mixed in with researched facts.
	The app listener tends to think that the general public they come across are part of the story (the old man they can see might be the the old man talking on the audio for example). How can you use this?
	Is there a local occupation, such as the fishing industry, or a local custom that can be traced through the app to give it a structure?
	How can the themes of the app be expressed through the technology? In Linked (2003) by Graeme Miller, efforts to find audio clips and then hear them gave greater impact to the story about the destruction and removal of a community and its replacement by a noisy motorway.
What stories work?	A range of types of story (happy, sad, about personal or public events etc..) should be included as stories affect people differently and a mixture offers a variety of moods.
Can global concerns be linked to this local setting?	Be sensitive to how this area is affected by global challenges such as climate change, sustainability and migration as well as local initiatives such as regeneration. While hearing about the past and present some people will reflect on their and the area's future.

GLOSSARY OF TERMS

Android – the Google-developed Android operating system; open source (code is available), it runs on various phones from multiple companies

Apps – an abbreviation of 'application'; apps such as 'Google maps' are downloaded onto smartphones from the Apple's App Store, the Google Play Store, Amazon App Store and Windows App Store.

'body-mind' (White 2005: 200) - the extension of both the mind and the body to include the other.

CCCo – Cornish Copper Company. It was a business, foundry and rival to Harvey's of Hayle **'field work'** – embodied fieldwork separated into two words by geopoetics poet and philosopher Kenneth White to describe embodied work in the field used to connect the mind, a term he expanded to become the 'body-mind'.

GPS – Global Positioning System or Global Positioning Satellite System

HFT – Harvey's Foundry Trust, a heritage organisation in Hayle

HLF – Heritage Lottery Fund

HOHP – Hayle Oral History Project

iOS – Apple's operating system exclusively used on Apple devices

MP3 – a compressed audio file/audio coding format

OUV – Outstanding Universal Value – a term used by World Heritage Site to describe a quality of a sdesignated site

PDA – Personal Digital Assistant (an early handheld tablet computer)

Pervasive computing - the same meaning as ubicomp, computing everywhere on the periphery but available when needed.

Pervasive media – media everywhere around the user

SPSS - Statistical Package for the Social Sciences, IBM. The software used in qualitative data analysis along with ANOVA.

SSSI – Site of special scientific interest. The Hayle estuary is a SSSI site.

ubicomp - ubiquitous computing, computing 'in the woodwork everywhere' as imagined by Mark Weiser (1996).

WHS – World Heritage Site