Applying Interactive Narrative Theory to the Authoring of Interactive, Locative Narratives.

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Abstract

This paper investigates the application of existing interactive narrative theory to the creation of interactive, locative narratives. Locative media is introduced by outlining what is currently happening in the field and defining the elements that make the medium unique. Locative narrative is then introduced to the existing interactive narrative theories to see where it applies. Consideration is given to authorship issues, the construction of non-linear narratives and the experience of physical locations and its potential for telling stories. Analysing the findings, offering some further thoughts and outlining possible lines for future research, then conclude the paper.

Keywords

Locative Media, Locative Narrative, Interactive Narrative, Non-Linear, Theory
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Introduction

Locative Media

The emergence of locative media has brought with it many possibilities. It serves its obvious purpose as a navigation tool in cars, planes and boats. It has been applied to photo tagging on mobile phones, so images can appear where they were taken on a Google Map. It has even been applied so you can find out where your friends are, through mobile, social-networking applications. Apart from these social and commercial applications of the technology, locative media is also proving itself to have potential for entertainment, creativity and self-expression too. It is beginning to emerge as a medium in which to create games, record thoughts and feelings about place and to tell stories, the latter being the focus of this investigation.

Interactive Narrative

Research into interactive storytelling has been happening since the 1980s. It has come in different forms, from interactive movies, where you choose where the plot goes, to computer games, which follow a narrative throughout. There are mixed opinions on how interactive narrative should be approached, what works, what doesn’t and where place is in the future. There are many issues concerning the conflict between author and audience control and what the user should be allowed to affect in the narrative. We will look at this in more detail later in the paper.

This Investigation

The aim of this investigation is to find out what existing interactive narrative theory will apply to creating interactive, non-linear, locative narratives. By doing this we will gain an understanding of the factors (if any) that make locative media a good medium for storytelling, what it means for the narrative to be taking place in a physical environment and how the environment can be used in the construction of the narrative. We will also be looking at existing approaches to making interactive narrative and some other proposed approaches.
Methodology

The research for this paper is comprised of a mixture of books, white papers, online articles and resources, interviews and analyses of existing projects. These sources will cover a range of topics including Locative Media, Locative Narrative, Interactive Narrative and Virtual Reality.

First, there will be a literature review, which will demonstrate existing ideas, findings and proposals surrounding the subject area and introduce the authors whose views will contribute to this investigation. It will also touch upon some of the arguments that exist in the field.

The first chapter will look at locative media. It will start off by introducing the theory lying behind the medium. Next, there will be a case study focussing on the work of researchers at Mobile Bristol/Hewlett Packard and their approach to locative media, which they call ‘Mediascapes’. After that there will be a section, which looks at the unique experiences of locative media. The chapter will end on a brief look at how locative media has been used for narrative so far. Locative media is a relatively new creative medium so there is only a small body of existing theory. The research for this section consists of research papers by Mobile Bristol and Hewlett Packard, interviews with researchers at Hewlett Packard and articles by locative artists.

The second chapter will focus on interactive narrative theory and how locative narrative fits into it. Firstly, it will look at the problem of giving audience control over the narrative, next it will look at existing attempts at interactive narrative through interactive movies and computer games and what issues they bring up for locative narratives. There will then be a section about a proposed solution to authoring interactive narratives, before an investigation the uses of both virtual and physical environments in narratives.

The paper will then conclude by summarising everything discussed and some other thoughts and considerations, before outlining other areas to be investigated in the future.
Literature Review

This section will demonstrate relevant work and opinions, previous to this investigation. It will cover all the areas, relative to my topic including locative media, locative narrative, key arguments surrounding interactive narrative as a whole and narrative theory, which is more specifically about space or location.

Wikipedia\(^1\) definition of location-based media: “Location-based media (LBM) delivers multimedia directly to the user of a mobile device dependent upon their location. The media can be delivered to, or triggered within any portable wireless device that is GPS enabled and has the capacity to display audiovisual content”.

Much of the theory surrounding the experience of locative media for this investigation is drawn from Hewlett Packard, who take the possibilities of the technology very seriously (See next chapter). They use the term ‘Mediascapes’ to define applied locative media. Tom Melamed (2007) of Hewlett Packard talks about locative media’s potential, “We think this is a new medium. We think it’s different to web pages, it’s different to podcasts, it’s different to a Walkman” (5m45s).

In a white paper published by Josephine Reid, Kirsten Cater, Constance Fleuriot and Richard Hull (2005a) they state, “Games, interactive media, soundscapes and experiences created by artists and designers can together add different virtual dimensions that augment the ambience of physical places” (p.6).

Janet J. Murray (1999) on the immersion of audiences in new narratives: “Part of the early work in any medium is the exploration of the border between the representational world and the actual world. It is commonplace in the twentieth century to point to elaborate simulations of reality (electronic or otherwise) as a new and dangerous thing, a distancing of human beings from direct experience” (p.103).

Josephine Reid (2007) explains why the experience is unique, “The huge difference compared to something you absorb through a PC or something like that, is that you’re actually in a physical environment. Some of the key things that work really well is the authenticity of where you are, the fact that the medium can relate stories and can relate media about the actual situation that you’re in” (0m50s)

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\(^1\) Available at http://en.wikipedia.org/wiki/Location-based_media
Jeremy Hight (2005) uses an analogy to describe the idea of narrative objects being left around the landscape for others to discover:

“Narrative archaeology is a way of describing this new form of writing, art, discourse, information dispersion and above all, narrative… The new paradigm of narrative utilizing locative technologies is one akin to archaeology, but of narrative and place” (p.1)

A paper published by Clodagh Miskelly, Kirsten Kater, Constance Fleuroit, Morris Williams and Lucy Wood (2005), refers to a workshop they carried out using locative media to record people’s stories about spaces in Bristol; “In addressing story of community or place, we are considering story in the broad sense, not as a synonym for narrative which can be thought of as an organising method for story… The story of the local area or community can be thought of not just as a text but a resource, from which many narratives, descriptions, recollections etc. can be drawn” (p.6).

This is more of a documentary approach to narrative. Reid et al. (2005a) describe an authored approach to locative narrative in Mobile Bristol project, ‘Riot 1831’, a mediascape, which took place in Bristol’s Queen’s Square:

“The experience lets the user hear the rioters’ voices as they plunder the surrounding buildings, the flames as buildings burn, the merchants as they flee for their lives and the Dragoon Guards as they sabre-charge through the crowds cutting the rioters down, i.e. it was designed as if you were there at the time ‘eavesdropping’ on conversations that were happening” (p.49).

Despite this narrative being interactive, it remains linear. Creating an authored, interactive, locative narrative presents many problems as Reid explains, “It’s actually still one of the most challenging areas. Most writers, and all of us, will think of a linear plot, so the method by which you write non-linear pieces still hasn’t really been mastered” (15m30s). Reid advises new techniques that alter the way an author works; “The other key for writing in this medium, is to actually write in the situation itself. So, we know the style of storytelling… really doesn’t work well if you’re doing it back at home, or away from the place” (21m06s).

There is an existing body of interactive narrative theory that might offer us some insight into how we should approach locative narratives. Chris Crawford (2004) discusses the current extent of this research; “Interactive storytelling lies on the frontiers of research; accordingly, no common vocabulary or even any consistent frame of reference exists. Every researcher, including me,
approaches the problem fresh and concocts whatever schemes and terminology seem right” (p.308)

This is Mark Stephen Meadows’ (2002) definition of Interactive Narrative:

“Interactive narrative is, in many ways, about the process of narration and its implied perspectives...interactivity fractures the perspectives of the individual author, places new perspectives in the hands of the readers, and accommodates a relationship between reading and writing” (p.62).

While Meadows sees this as an advantage, Crawford (2004) sees this as a problem, “If the story is to be truly interactive, the player must be able to change the story, but if the player changes the story, the artist cannot control its development, and the player will likely ruin the story” (p.81)

His solution to this is to abstract the narrative; “In interactive storytelling, plot is replaced with a web of possibilities that communicate the same message” (p.85). He later goes on to say; “the initial assumption should be that the user is always right, so the software must focus on how to respond should the user’s wishes deviate from what was anticipated” (p.209).

Meadows has another way of explaining a similar idea. He calls it an expressive narrative, which is based around space:

“Expressive...relies less on the series of events and behaves more like architecture: The visitor is allowed to roam freely, explore, investigate, and make changes in the environment. The specifics of a narrative plot are far less defined and, as a result, the breadth of interaction is much wider” (p.63).

This idea of using space for constructing a narrative can be applied to the practice of authoring narrative for Locative Media. Later in his book, Meadows talks more about his idea of narrative as architecture, “Many buildings, such as churches, courthouses and office buildings, clearly indicate an approach up the stairs of the building, prior to entry. This is designed to tell the person that he is entering a place that is important. They frame the beginning, middle and end by utilizing scale and material” (p.170).

Marie-Laure Ryan (2001) describes how the author of a book builds up the reader’s mental image of a place, “To create a global and lasting geography, the text must turn in its favour the linearity of its medium. Unable to provide a panoramic glance, the text sends its readers on a
narrative trail through the textual world, guiding them from viewpoint to viewpoint and letting them discover one by one the salient features of the landscape” (p.123).

Kate Armstrong (2003), who also believes that audience participation in the construction of a narrative is a good thing, shares a similar view with Armstrong, though in reference to locative media; “Using physical space as an element in the experience of fiction increases the active agency of the reader by further opening the unfinished narrative space. The readers may interpolate themselves intellectually, augmenting the manner in which they participate in the construction of a narrative” (p.2).

Crawford doesn’t believe that you can utilise the environment as a tool for constructing narrative. He argues, “The environmental approach is a dead end; it doesn’t solve the problem of interactive storytelling. You can set up a gigantic stage, equip it with a cavalcade of fascinating props, create spectacular scenery and magnificent sound effects, and still have nothing. Actors make the stage come alive.” (p.144). He also makes it very clear several times in his book, what he perceives to be the most important element of a story; “Stories are about people. This is such a simple, basic truth that it’s often lost in the high-falutin’ analysis of narrative theory. Sometimes the references to people is indirect or symbolic…” (p.15).

In this literature review we have seen some of the theory that surrounds locative media and locative narrative and some arguments surrounding interactive narrative theory, some of which specifically refer to interactive narratives in space. The next chapter will define locative media, the development of the new medium, its unique qualities and its potential for narrative.
Section 1: Locative media

In the spirit of the movements into ubiquitous/pervasive computing, locative media expands the digital world beyond the confines of desktop hardware. Locative media provides its users with an augmented experience, layering digital objects and information over existing physical locations. As well as its commercial implications, the application of locative technologies has been adopted as a medium for creative expression. Drew Hemment (2004) states, “Today it is digital and satellite mapping technologies that have caught the attention of a new generation of artists and DIY technologists, who are exploring the use of portable, networked, location-aware computing devices for user-led mapping, social networking and artistic interventions in which geographical space becomes a canvas” (p.1)

People have taken a variety of creative approaches towards locative media in a variety of different art projects. A group who saw the creative potential of locative media were ‘Mobile Bristol’, who carried out extensive research into the medium.

Case Study: Mediascapes

Mobile Bristol was a government-funded programme set up in 2002 by Hewlett Packard, but also included the University of Bristol and Appliance Studio. It was set up to investigate “how mobile devices and pervasive information technology can be used to enhance the ways in which residents and visitors experience and interact with their physical environment and with each other in urban and public spaces”.

They developed a toolkit to create what they call “Mediascapes”, which use locative media to create “mobile, location-based experiences that incorporate digital media with the sights, sounds, and textures of the world around you. A mediascape blends digital images, video, audio and interactions with the physical landscape”

The toolkit was designed to allow creatives without prior knowledge of ubiquitous computing or computer programming, in an attempt to encourage people to use Mediascapes as a new medium for expression. Mobile Bristol then worked with a range of artists and community groups

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2 This case study was informed by a range of interviews with and papers by researchers at Mobile Bristol including Hewlett Packard and the University of Bristol, as well as websites created by them. For a full list of these sources, see the Bibliography.

3 Available at http://www.hpl.hp.com/Mediascapes/
on projects using the toolkit. This helped them to build up an understanding of how Mediascapes should be authored, how Mediascapes are experienced and unearthing the potential of the medium.

Although Mobile Bristol ran out of money in 2004, work continued at Hewlett Packard with many of the same researchers. There they did a re-write of the authoring toolkit, based on everything they had learned at Mobile Bristol.

Mediascapes were re-launched 1st May 2007, now branded as Mscapes. The launch included the new toolkit alongside a ‘Youtube’ style website where ‘Mscapers’ can upload, download and rate, Mediascapes. This is the next step in the development of the medium, which aims to get it out to and used by the general public.

Mediascapes have potential in a variety of areas, such as games, walks, historical information, narrative. HP designed the Mscape toolkit to be open to the application of any idea that someone creating a mediascape might think of. The idea is that the medium is formed around emerging patterns in the approaches taken to creating Mediascapes. In the future, the tools can then be adapted according to those patterns, as Tom Melamed (2007) describes; “In time as more people upload Mediascapes and as more things happen, then you can start to think about building specific tools for specific things” (10m49s).

The next section will outline some of the key factors that make the locative media medium unique.

The Experience of Locative Media

Locative media’s unique quality is its ability to alter the ambience of a physical location. The aspect that accomplishes this the most is the use of sound. Reid (2007) explains; “Audio is probably the better medium for this because for those kind of things where you’re wanting people’s eyes to be up and out and looking at the environment, the screen gets in the way. If you have written for a particular setting or beautiful landscape, or say, you’ve got a story about a statue, you want people’s eyes to be on the statue” (5m50s).
She then refers to an instance that occurred during a project they carried out in April 2004 called ‘Riot 1832\textsuperscript{4}, where a boy’s shock came from an audio experience of a canon exploding:

\begin{quote}
While you’re in that time, you really feel it. That’s to do with a couple of things. The headphones themselves can really take people within themselves, so if the audio is working really well and you’ve got into the story, then that suspends you for that moment in time. The use of a lead-in or surprise or audio, can certainly simulate any form of emotion… either take you back on track, calm you down after something harrowing, or in that case, he’s in the riot and suddenly he feels the cannon and thought he was blown up… That kind of emotion is similar to thrill rides or fairgrounds\textsuperscript{(10m55s)}.
\end{quote}

HP recommends that authors of Mediascapes get to know the setting inside out before starting the build. Building up a profile of all aspects of the space will help the finished experience to result in what HP refer to as a ‘magic moment’, where the audio will correspond by chance with an event that happens before them in the physical environment. Reid (2007); “Things that really make it magical for people about this medium is coincidence. So, we often find people to try to write their Mediascapes in terms of their knowledge of the environment, and the likelihood of a coincidence”\textsuperscript{(2m55s)}.

In another paper by Josephine Ried, Richard Hull, Kirsten Cater and Constance Fleuroit (2005b), entitled ‘Magic Moments in Situated Mediascapes’, they identify other instances where the mediascape experience becomes magical. They describe ‘synaesthetic confusion’, where people become confused as to which sounds are coming from the headphones and which are coming from the real world. Another observation they made was that people tended to stick to paths set out in the physical landscape, having an impact on the order in which they experience the sounds that comprise the mediascape.

Next, we will look at some examples of different narrative approaches to locative media.

\textsuperscript{4} Riot 1831 was a Mediascape, which re-created a riot that happened in Queen’s Square Bristol. As a user walked round the square they experience, though audio, the atmosphere of that riot. Available at http://www.mobilebristol.com/QueenSq.html
Approaches to locative narratives

The use of narrative in locative media has generally been one of a “narrative archaeology” approach. There are many projects like ‘Geograffiti’, ‘A New Sense of Place’ by Mobile Bristol, ‘[Murmur]’, ‘34 North 118 West’, which apply stories, thoughts and memories to specific locations, which can then be experienced again by revisiting that location with a locative media enabled device. These projects are about attaching data that is emotionally or socially relevant to that specific location. The data is mostly historical or factual.

‘Riot 1831’ by Mobile Bristol, was an audio reconstruction of a riot, which occurred in Queen’s Square in Bristol. People could navigate the square and hear the different sounds of the riot, relevant to their location. Though based on a historical event this had a written script and actors playing out the roles.

It offered interactivity within a narrative. Despite this, narrative was still linear and the interactivity remained as a means of choosing what part of the narrative you experience, not impacting on the narrative itself. To achieve a completely interactive, non-linear, locative narrative would first require an understanding of interactive narrative theory; though this is theory is not yet fully developed. Despite this, we can start to look at where these theories might apply to locative narrative theory.

Summary

Locative media allows us to experience media, which is specific to our location. As well as having implications for commercial use, it also has the potential to be a medium for creativity. Mobile Bristol recognised this and have carried out much research into it. They have developed a toolkit to encourage people who don’t have programming knowledge to start using locative media. Their research now continues at Hewlett Packard. Locative media offers an experience unique from any other medium, by enhancing the emotional impact of a place with digital media. People attach narratives, which are relevant to that place. These narratives are mostly historical and

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5 Available at http://www.gpster.net/geograffiti.html
6 Available at web.mit.edu/comm-forum/mit4/papers/miskelly.pdf
7 Available at http://www.mobilebristol.com
8 Available at http://murmurtoronto.ca
9 Available at http://www.34n118w.net
although allowing people to interactively choose how they experience the narrative, cannot actually have an impact on its outcome.

The next chapter will explore some of the main theoretical areas of interactive narrative and see how locative narrative fits within this theory.
Section 2: Applying interactive narrative theory to locative narratives

Research into interactive storytelling began in 1985. The relationship between narrative and computers was first investigated in the early 90s at MIT. Since then there have been a range of books and papers published on the subject. As Crawford (2004) mentions, this research is mostly academic. Interactive narrative is not at a stage where it can be sold in shops, but “what matters is to create and develop ideas for what commercial operations call the ‘feasibility stage’” (p.308).

In this case, this is also applicable to locative narrative. We must understand how interactive narrative theory must work in order to successfully author locative ones. However, this does not mean we shouldn’t use this theory to better our understanding of locative narrative in the process.

In this chapter we will apply a selection of the most popular, suggested approaches of interactive narrative, to locative narrative. The aim is to see if they will work, whether they work for interactive narrative or not, as it is safe to assume that the majority of the theory was not written with locative media in mind.

Author vs. Audience

Giving an audience/reader/user control over a narrative presents us with a problem as Janet J. Murray (1999) describes;

“The formulaic nature of storytelling makes it particularly appropriate for the computer, which is made for modelling and reproducing patterns of all sorts. But no one would want to hear a story that was a mere mechanical shuffling of patterns. How do we tell the computer which to use and how to use them? How can the author retain control over the story yet still offer interactors the freedom of action, the sense of agency, that makes electronic engagement so pleasurable?” (p.187).

Interactivity must be applied carefully. The author must remain able to “communicate a particular meaning and structure an engaging experience”, as stated by Elle Tallyn (2000) describes. She goes on to say, “A narrative must by definition, communicate a linked set of events, and for the narrative to be successful it must be engaging. This concept of narrative cannot simply be altered in order to accommodate interactive paradigms, since that would result in the loss of purpose of
the narrative communication. Instead the interactivity must be implemented in such a way as [to] maintain narrative communication in its traditional form” (p.21).

There are some uncertainties in this case, with the non-linearity of locative narratives. During the research into the experience of Mediascapes at Mobile Bristol, as described by Reid et al. (2005a), “The benefit of restricting user choice and freedom is that the application becomes more predictable and easier to learn. The benefit of opening up user control is that it gives greater interactivity and sense of engagement for users as well as the novelty and true exploration of the opportunities for the new medium” (p.20)

They received mixed feedback on being given the ability to control the order in which they experienced the media, as Reid (2007) recalls; “Our feedback so far is that for some people that’s liberating and others feel really uncomfortable and say they’d much rather be told where to go” (18m47s).

Some people accept these problems as a sign that stories should not be interactive on principle. Crawford (2004) refers to arguments made against interactive narratives saying things such as, “If the viewers can change characters’ actions with the wave of their hands, why should they care about the story” (p.50), or “Is there anything compelling in our cultural history that suggests people want to participate in received stories?...No” (p.50). Crawford responds, “To dismiss interactive storytelling on the grounds that it hasn’t been done before is to reject the entire basis of the human intellectual adventure…There are theoretically sound reasons for the apparent conflict between interactivity and plot” (p.50).

Interactive Video

Crawford (2004); “Some have pursued the notion that interactive storytelling is just like the movies, only the player gets to make all the dramatically interesting decisions…The inevitable result is what I call an interactivised movie: a product that is for all intents and purposes a movie, but has some interactivity tacked on” (p.48).

Interactive movies are based around non-linear structures, which Crawford (2004) refers to. The first he refers to is the ‘branching tree’ narrative (See Figure 1 on next page). When most people first hear of an interactive narrative, they probably think of this structure.
The narrative path splits in two where the user makes a choice. This route then splits in two, then the next path, etc, etc. “If you walk through the doubling process you get a thousand after just 10 steps” (p.124). This creates an immense workload, which restricts the number of decisions the user will be able to make. “…real stories have a wide array of decisions” (p.125).

A solution to controlling the workload is to use a ‘foldback’ structure (See Figure 2), which lets people branch out down different paths in the narrative, but are then brought back to the same story afterward. This only gives the user an illusion of interacting with the plot.

Locative media allows people to roam freely round a physical environment and is not restricted to merely walking forward. Though these structures provide points where the user can make various decisions, the path is always moving in one direction. If we were to overlay these diagrams on top of a physical environment, we would end up in a scenario where the user could choose a direction to go, but essentially would only be walking in one direction. As Reid (2007) states, “Essentially it’s best used as a non-linear medium. So, one of the opportunities for it compared to a standard audio tour is that you can actually visit things in any order and not be told which way to walk” (18m27s).

Crawford later offers a way in which narratives structures can work; “In general, then, branching stories don’t work, even with foldback. If you twist the branching tree system around enough, however, so that the lower-level branchpoints can feed back to the upper-level branchpoints, you
can transform it from a tree into a network” (p.129). This gives us more of the freedom we would expect to find in a locative narrative.

He continues; “If you then set up appropriately differentiating contexts, you can have your players move through the network of dramatic possibilities, revisiting each point with a different context each time” (p.129). Interpreted in terms of locative narrative, this begins to provide us with a system on which we can build an exciting, spatially interactive experience. By dynamically varying the narrative that occurs at various physical locations, the location can act for what it is: a location and not just a stage of a story to be passed through.

Now we are focused on creating narratives based around space, we will move on to the next section, which looks at the theory of narratives in computer games and how that might be applied to locative narratives.

The Problem with Narrative in Computer Games

There have been many attempts to incorporate story into computer games. When we were talking about author vs. narrative, Tallyn (2000) spoke about how “narrative cannot simply be altered in order to accommodate interactive paradigms” (p.21). On the other end of the scale, we heard Crawford (2004) refer to an interactive movie as an “interactivised movie: a product that is for all intents and purposes a movie, but has some interactivity tacked on” (p.48).

Crawford (2004) is talks a lot about the way narrative is used within computer games: “Game designers put all their money on action, violence, and cosmetic extravagance. They see story as an embellishment they can tack onto their basic design, but certainly not a fundamental component of their products” (p.135)

The common approach to storifying games is what Crawford (2004) calls “interleaved story/game. You played some interactive game, saw some non-interactive story, and then went back to the game. Somehow the alternation between noninteractive story and interactive game was supposes to blur the two together and create a ‘kinda-sorta’ interactive story” (p.132).

Games designers are attempting to make the story element more interactive by increasing the amount of everything in the game. They call this the ‘environmental approach’. The idea is that by making the maps/levels bigger, adding more buildings and other areas to explore, adding more
items to interact with, adding more people. Crawford (2004) responds to this approach like this; “A good acting company can make Shakespeare come alive on a plain wooden stage; an army of cardboard figures in a magnificent 3D environment is still a pile of cardboard” (P.144).

This view doesn’t take into consideration the fact that people have a much stronger emotional connection with real-life environments than with virtual environments. We have seen through the ‘narrative archaeology’ approach to locative media described earlier, that stories can become much more powerful when attached to a place. Reid (2007): “As human beings we have a natural affinity with a place” (1m37s). However, the connections we make with places are always based around people and Crawford (2004) always says, “Stories are about people” (p.15).

**Storyworlds**

Crawford’s (2004) solution to interactive storytelling is to forget the notion that as an author, you have to construct a narrative from start to finish. Instead, he claims that the role of an interactive storyteller is to provide a world “composed of closely balanced decisions that can go either way” (p.63). Instead of stories, he talks about “storyworlds”.

A storyworld is a simulation of how things happen in real life. The author populates the world with whoever and whatever he wants there to be a possibility of the user witnessing or interacting with, as they participate. Storyworlds and their inhabitants are based on probability and characteristics, defined by the author. For example, in a romance storyworld, there might be a girl character that has a much higher probability of meeting a specific boy than any other boy in the world, so they meet, though this all happens away from your view. Later when visiting a certain area of the storyworld, you might see them because their characteristics make it likely that the location is somewhere they might visit. (See Crawford, 2004, p.56)

The possible detail of storyworlds goes as far as real life, bar the characters being self-aware. They are constructed out of complex systems of algorithms and databases. This allows the user to experience their own unique narratives and could certainly be applied to a locative narrative, considering the hardware and mediums the storyworld is designed for, as we will discuss in the next section.
Locative Media and Virtual Environments

Locative media operates in space and locations within that space. This can be said for computer games that take place in 3D, navigable environments. More specifically, locative media is similar to 1st person games that take place in 3D, navigable environments. The 1st person, as Meadows (2002) describes, is used to “insert the reader into the body of the protagonist, pressing the reader’s face against the mask the protagonist looks through, and forcing the reader to peer out of the eyes of that character into their world” (p.161).

In locative media, we are the protagonists and the world we are in is our own. How similar the experience of locative media is with 3D virtual environments like those in computer games depends on the output hardware we experience the locative media.

If just using audio, we might experience ambient sounds that emphasize the atmosphere of a specific location (See ‘Riot 1831’10). We might also hear sounds that represent objects or voices of characters, however with the lack of a visual element, it would be difficult to establish the context of the sources of those sounds and voices enough to successfully interact with them.

We could visually display the sources of the sounds and voices on the screen of our locative media device (See ‘Aliens’11), on the other hand we discussed earlier how, to take full advantage of the immersion locative media can offer, it’s best to have the user’s eyes looking up and out at the physical environment. Also, you would be dividing the world you’re exploring over two mediums, disjointing the experience.

The application of an augmented reality visor (See ‘ARQuake’12, see Figure 3), which allows you to see digital objects over the backdrop of the physical space in front of you, would allow you to have the full experience of a computer game, in the real world, though this technology is currently at a primitive stage.

The freedom in which locative media allows the user to explore the story space takes advantage of the pleasure we naturally gain from navigating through space. Murray (1999) makes light of

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10 Available at http://www.mobilebristol.com/QueenSq.html
11 Available at http://www.mscapers.com/msin/ABA0000042
12 Available at http://wearables.unisa.edu.au/projects/ARQuake/www/
this saying, “This participatory pleasure is not unlike the enjoyment people find in the organized sport of ‘orienteering’, where players follow a series of geographical clues across a large and complex terrain…Constructing space and moving through it in an exploratory way…is a satisfying activity regardless of whether the space is real or virtual” (p.129)

The idea of following geographical locations is something that Meadows (2002) considers as a tool for guiding the user through a narrative without having to use Crawford’s (2004) “Kill ‘Em IF They Stray” method (p.130). He discusses the idea that architects design buildings to guide people and to communicate meaning, comparing this with structuring options within an interactive narrative. He says, “..the architect’s role –especially when presenting multiple options to a visitor-becomes almost identical to the role of an author of interactive narrative because options need to be presented that allow interactivity and frame the decision-making process” (p.170).

This coincides with advice that Reid et al. (2005a) give to authors of Mediascapes about using physical markers in the environment to guide the user to areas that contain locative media; “Use physical marker to provide orientation information. In some environments it might be possible to use physical markers to help make a link between the physical and digital world easier. The physical markers should act as cues to help people know where to stand and to associate what they can hear with where they are. The benefit of a physical marker is that it can provide a tangible and consistent presentations of the mapping between the physical world and the virtual content” (p.24).

Summary

In this chapter we have explored the conflict between author and audience that comes with the application of interactivity to a narrative; we have looked at the theory surrounding interactive storytelling in different digital mediums and looked at where locative narrative sits within these theories. We took a look at a proposed solution to character interaction in narratives, some of the hardware constraints of locative media in the context of virtual 3D environments and how to use the environment to guide the user through a narrative.
**Conclusion**

Locative media is a medium that offers a unique experience from other mediums. People have a stronger emotional connection with physical space and locations than photographic, cinematic or virtual spaces. The experience of a physical space can be affected by the digital media that is attached to it (especially digital audio), and can alter the meaning or emotional affiliations a person might have with it. It is an immersive medium that can really absorb the user into the experience, excite them, frighten them, and calm them down. It can make them think about the place they are in, in a way they have not previously.

There have been a range of projects where people have recorded and attached stories that about a place to the actual location. Although these stories are about a place, they are also about people, whether its one persons memories or feelings toward a place, or the historical events that occurred there. Being in the place while experiencing the story can enhance the story’s emotional impact in a very powerful way. There has not been that much work done around authoring fictional, interactive, locative narrative narratives. This is because there is still a lot of work to be done around the creation of interactive narratives, before locative narratives like this can be a successful.

Allowing users to participate and interact with locative narratives creates problems in defining the balance between an author’s vision and audience’s impact on the narrative. The author must still be able to maintain control over the meaning of the story and the communication of emotions. On the other hand the interactive experience must be engaging for the audience and make them feel like their contributions are valuable. Narrative cannot just be applied to an interactive medium. In the same way interactivity cannot just be thrown into a story. Both story and interactivity must be considered and developed together, as a whole.

Basing a locative narrative around narrative structures such as a ‘branching tree’ structure goes against the freedom that locative media allows. The advantage of locative media is that it is a portable medium, allowing you to roam the environment, making decisions on where you want to go next, where and when you feel like it. Also, you move through these structures from start to finish. A locative narrative is more like network of story locations with no defined route from one to another. Structures also put a limit on the number of interactive decisions the user will make. This should not be so.

Another approach is to use the physical environment as a real-life version of a virtual 3D space. The physical environment could be populated various interactive digital objects and characters,
which, reveal a story to the user. However, this approach still does not allow the user to have an impact on the story in any significant way. The manner in which they experience the narrative is interactive, though the narrative itself is not. To create a true interactive, locative narrative, requires that the user have the ability to impact on the outcome of the story through the decisions they make, and that these decisions can be made at any place, any time and any amount of times throughout the course of the narrative.

For interactive, locative narratives, it is advisable that it be written for the 1st person. This way the outcome of the story becomes based on the user's personality, otherwise we would be making decisions on the behalf of the fictional protagonist, which might not reflect the values that the author envisioned for them. Because stories are about people, they must be the overall focus of the locative narrative. The interactivity should be focussed more on the characters of the story than the environment. This is possible by creating a complex set of rules that control the actions and behaviours of the narrative's characters and their relationships between each other and the environment. The user would then create their own story, by interacting with a world with rules set by the author, who does so according to the meaning they wish to convey. This is an extremely complex task involving much algorithmic programming. It will be a while before this kind of storytelling could become commonplace.

To use the physical environment to it's full potential, a locative author must get to know the space well, and the activities that happen within it. Different locations can be picked to suit the emotional requirement for a part of the narrative. Features in the environment should also be used to guide the user through the space. These features could also be relevant to the required emotional impact of the narrative. Also, we have seen how telling stories about a place and experiencing them actually in the place, can have a strong emotional impact. Instead of just using the physical space as a narrative tool, interactive narrative could be used to provide an experience that will immerse the users even further in the emotions that are connected with the space.

The degree that the experience is augmented depends on the output devices, controlled by the locative media device. Audio has proven to be especially successful at immersing the user in linear, 'narrative archaeology' projects. However, in order to interact with characters in the narrative in a way that the user won't feel the characters are ghosts, requires that they can see the character they are talking to. The small screen on a locative media device is too small and distracts users from the environment around them. The visual element should all be in one place. This can be done with an augmented reality display, though these are at a primitive stage of development at the moment.
Overall, the theory written on interactive narrative applies itself well to the problems that surround authoring interactive, locative narratives. Many of the principles apply, especially in comparison to narrative in 3D virtual environments. The main obstacle that stands in the way of these theories becoming reality is the current stage of the technology. Both the complex, character-based narrative engines and augmented displays will give us the basis for an interactive, locative storytelling medium, which we can build on. Then authors can start to master the medium, developing tricks and techniques to engage and immerse their audiences as writers have done in books and directors have done in film.

Having explored this area, we can now point out other areas of research that could help contribute to creating a successful interactive, locative narrative. An important area to understand would be how different sorts of environments affect people emotionally, so that an author would have some theory to go by when designing their narrative. Another area which would could provide us with further tools to use in the design of a narrative, would be ubiquitous computing and how physical media devices within the narrative space could be introduced to the users experience.
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