

**PLAYING WITH REALITY:  
A TECHNOCULTURAL ETHNOGRAPHY OF  
PERVASIVE GAMING**

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# Abstract

Pervasive games are an experimental game design practice that engages with technology development and everyday space. These experiences range from technology experiments to avant-garde performances to explorative urban play. This PhD is an ethnographic exploration of two questions. First, how did the technocultural situation of pervasive games shape their history and future? Secondly, how does this technocultural situation shape and affect the enactment (the design, play and performance) and the core experience?

This thesis is comprised of ethnographic research carried out at pervasive gaming festivals, analysis of games and interviews with designers, artists and technologists working in the field. It reflects a historical situation in an emerging and dynamic field of practice. The work develops a set of methods that use the concepts of liminality, materiality and practice to inform an assemblage of data gathering and analysis techniques that are specifically intended to engage with new technocultural forms. This is intended to deliver an understanding of these forms in a wider cultural relationship as well as give insight into how they are experienced. It uncovers a framework of tensions that explain the underlying nature of the play experience and design of pervasive games.

The research uncovers overlooked aspects of the practice of pervasive gaming. Firstly the ways in which the social and cultural background of the players and designers moulds the form, content and meta-narrative of these games. Secondly that the overlooked, and often unexpected or invisible, materiality of these games shapes the ways in which they have developed. The often unconsidered physical materials of the games take on rich and vital meanings through design and play. The relationship between designer and the mesh of object agencies have led the practice in unexpected directions and charted a trajectory away from technology experiment and into experience design exploration. It is in this wider context of the design of experiences that the practice will have the longest-term impact.

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# Foreword

## From Roku's Reward to Robo Racers

In 2006 Hewlett-Packard created a vision video called *Roku's Reward*<sup>1</sup> to show the possibilities of mixing computer games with ubiquitous computing technology. In this two-minute film we see a (completely fabricated) location-based game using augmented reality, played across a recognisable San Francisco, with real, synchronous players and live, physically present actors, using a device that appears to be something similar to (what is now referred to as) smartphone technology (unavailable at the time). The game seamlessly mixes a medieval fantasy, computer game-inspired, onscreen world with the seemingly mundane physical reality around the player. The challenges, structures and imagery of the game are heavily based in computer gaming. The technology is straight out of the mobile and ubiquitous computing research agendas of the time. This imaginary game seamlessly interweaves the virtual and the actual, technology and the physical.

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1. At the time Hewlett-Packard was one of the key industrial investors in ubiquitous computing research. One of the first pervasive games, *Pirates!*, was played at HP's research facility in Bristol, at a conference on handheld computing in 1999.

Vision videos are means for research institutions, largely corporate, to politically anticipate and affect future technology development (Kinsley, 2010). They can represent strategic aims, influence research direction, and cross institutional boundaries. As such, *Roku's Reward* is a rich site for analysis and comes at a critical point. This video, produced in 2006, encapsulates the ideologies of what many involved in the development of ubiquitous computing and gaming, in the year 2000, thought pervasive gaming might evolve to be. That it would take computer gaming relatively unchanged into the physical world. This was the vision for pervasive games at the outset. But by 2006 it was already six years too late and considered an anachronism. The researchers and designers involved had already identified the problems with seamless experiences, the unpredictability of technical solutions in the physical world, the deep complexity of reality, the tyranny of screens and the confusing fuzziness between the virtual, the actual, the physical and the imaginary.

In 2011 I ran a game called *Robo Racers*, at *Igfest*; the Bristol-based street gaming festival. In a street closed off for the festival, the game had six people in three pairs, dressed in oversized, restrictive, cardboard robot costumes; one a robot maze-runner and the other their robot trainer. One of the pair, the trainer can see the other, the racer, on screen, via a top-down, cheap, low resolution, Wi-Fi-networked digital camera. The trainers need to direct the racers through a cardboard maze overlaid on the screen. The pairs can only communicate via walkie-talkies. The object of the game for the trainer to coach the runner through



the maze that only the trainer can see. The designer - myself - would be the referee and judge and call out any wall crossing or foul play and determine the penalties. Whilst creating the game I spent a couple of days pounding up and down stairs in the cramped building that the festival organisers were based out of. I rushed out to a mail depot to pick up a late arriving camera, climbed scaffolding to cable tie and duct tape the camera at the right height and ended up covering my whole head in face paint.

This game is more typical of the sort of experience that could now be labelled as a pervasive game, though the term itself has lost the unifying concept in the face of the explosion of different experiences that stemmed from the early ideas. However, the reality of *Robo Racers* couldn't be much further from the fictional construction of *Roku's Reward*. The technological involvement is low and based on commodified equipment, the experience lo-fi and not "professional", it sits in a space between game, performance and street art. A real, lived space with performers, human bodies and the interweaving relationships brought by all the players and their surroundings. The joys are in participating and performing, not winning.

It is not a product, such as digital gaming has become, it is a 'playing'. A playing through people, technology, performance and design. The result of my experiences, my involvement with this community, and a design process that used this background to create the right kind of experience for the event.

The design of *Robo Racers* was inspired, in part, by ethnographic research conducted on the messy milieu that I found when I observed the full practice of pervasive gaming first hand. Although I had played the games, with the gamers and taken part in this world, it was through a set of empirical methods and attitudes that I stepped out of the role of player and into that of ethnographer. I crossed that threshold first when I visited *Come Out & Play*; a festival of pervasive games in New York, that took place in 2010.

## **1. Come Out & Play**

This thesis is about the messy, imaginary, epic and at times maddeningly ineffable form of gaming known by many as pervasive games. The name of this festival, *Come Out & Play* elegantly sums up some of the underlying ideas for pervasive gaming and foreshadows other findings. It is a call to action, a request to come ‘outside’ and ‘play’. By this, it is suggesting that other playing, other games, are happening indoors. It is a phrase from childhood, evoking a child-like sense of wonder at new forms, as well as a childhood attitude to play.

The term ‘pervasive games’ is used in a wide variety of ways, by a wide variety of people, to describe many different types of experience. Many names are used to describe them, either as umbrella terms, or to differentiate nuances; urban games, street games, big games, ubicomp games, smart street sports, the list goes on. Some are played on devices or phones, some have no technical elements whatsoever. Some are played in streets, some inside. Many are clearly games, but

some also challenge being categorised as that. With the variation in naming and the wide variety of experiences that can be marshalled under the banner of all these names, it becomes difficult to see if there is a common thread. If pervasive games escape definition then it is better to get a feel for them, rather than try to nail them down. A descriptive approach is the only route to a deeper understanding, rather than relying on an *a priori* definition.

This research is a technocultural ethnography of the practices of pervasive gaming. Ethnography being that descriptive method required for a deeper understanding of practices and culture. In this case a descriptive understanding of technoculture - the situation where technology and culture must at least be considered together, if not to be fundamentally co-constitutive. Rather than trying to rigorously include or exclude phenomena or examples this approach seeks loci of practices, in this case festivals of experimental gaming that had self-identified with the term pervasive gaming.

*Come Out & Play* was my first true experience of observing as an ethnographer; one where I spent a concerted amount of time in the field, with both a theoretical and methodological orientation. Reviewing the notes, video and events of even my first day, only really a short evening, I can clearly see that the core issues and challenges I would face were visible even then. Also apparent were many of the findings that would return through repeated time in the field (watching, playing and making games). I describe three key observations in this foreword.

The first of these is that there was a confusion of forms that were being labelled pervasive games. The festivals I observed had started to badge themselves differently, and show less concern for technology, and more concern for experimental game design.

Secondly, boundaries and space were an important consideration. Where the games were played, both on a macro- as well as micro-geographical scale. Questions about whether and how the games and players did, or did not, interact with the world around them through games that ostensibly were about playing in, and with, the “real” world.

Thirdly, there was the inseparability between technology and culture. The experiences I was observing, and taking part in, were built up of layers of symbolic and functional/processual meaning, that could be considered from technical or cultural angles.

Also that these experiences are unarguably embodied, physical, visceral. How do we read the networks that emerge from these real mixes of messy reality and understand the aesthetic experiences that come from that mashup of technical elements and the imaginary.

Through these brief illustrations of my ethnographic experience, I set up some of the core concerns and problematics of this thesis. These effectively boil down to concerns about material and the tangible versus the intangible, the physical versus the virtual, the imaginary versus the real, inside versus outside, technology versus culture.

## **1.1 About the festival**

*Come Out & Play* is an annual, weekend-long festival that hosted what they called, at the time, pervasive games, big games or street games. It was the first of its kind and was established by some of the US-based progenitors of this wide ranging type of experience. Started in New York in 2006 it now runs there and in San Francisco. It has run, localised, in a variety of neighbourhoods in New York; Chelsea, the Lower East Side, Brooklyn and also toured to Amsterdam for one year.

Their current term for the type of experience they promote is “City-Wide Games” and their mission is:

*Come Out & Play* is an annual festival of street games that turns New York City & San Francisco into a giant playground. We provide a forum for new types of public games and play by bringing together players eager to interact with the world around them and designers producing innovative new games and experiences.

Oh yeah, and we have city-size fun.

(Come Out & Play, 2014)

Some examples of the games played in 2010 were:

*Geo Melee* - A GPS enabled Real-Time Strategy (RTS) game for 10 players, that makes the players run around to collect materials and build virtual attack towers.

*Pathfindr* - 30-50 players are involved in an iPhone game that is based on treasure hunt mechanics, GPS with challenges at checkpoints.

*The One* - A no-tech chase game where 40 players take the roles of cross-dimensional doppelgangers, vying for control of their families of clones. Played up and down the busiest street in Park Slope; using cafes and bars as safe zones for collaboration.

*Necropolis Family Tree* - Asynchronously, across the whole weekend, 30-50 players construct elaborate clans of ancestors using the gravestones of the nearby cemetery. On the final day there is a showdown where they confront each other and compete via their weirdly constructed family trees.

*Counter Squirt* - Using the structures and premise of Counterstrike, an online First Person Shooter (FPS) game, players roam the streets around the Lyceum with water pistols. 40 players take part in what is essentially a water pistol fight. Get wet, get knocked out.

*Shabbat-put* - What if the kingdom of Israel has been invited to the first Olympic games, that were held on a Saturday? 30 players recreate olympic sports using Jewish sabbath rules. Can the teams figure out ways to work around the religious proscriptions and win at each event?

*Mary Mack 5000* - A high tech version of clapping games; like Guitar Hero crossed with pat-a-cake clapping games. It takes as long to strap the two players into their elaborate gloves and body sensors as it does to play the game.

Other similar festivals have both emerged and vanished since *Come Out & Play* started in 2006. *Igfest* in Bristol, *Hide & Seek* in London, and *You Are Go* happening once in Berlin. These have so far largely been located in large urban centres that are known for their creative output and draw on the different styles each creative community has. New York, its indie game design scene. Bristol and Berlin both have a vibrant, downbeat media arts offering. London has a rich community of experimental theatre practitioners looking to expand their repertoire.

With such a diverse range of experiences, let alone the wide variation in locales, communities and contexts, it appears difficult to draw a common thread. There were many competing influences to be considered, and although these global communities were connected, via reciprocal visits and the internet, is it the case that there is common design story or any generalisations that can be made? Who were making and playing games at *Come Out & Play*? And why?

## **1.2 Boundary conditions**

The year I went, 2010, *Come Out & Play* took place in the Brooklyn Lyceum, a recently renovated, 100 year old bath house which is now a venue for the arts, experimental theatre and community events. It is located on 5th Avenue, a major, busy road in Brooklyn. The north-south running 5th Avenue is the border

between the gentrified and leafy neighbourhood of Park Slope, and the rough, post-industrial Gowanus. To the east side of the avenue narrow, car clogged and tree lined roads lead up the hill to family apartments in three story blocks, white walled cafes and busy organic stores. To the west, it is all wide streets with semi-abandoned warehouses slowly being reclaimed by media and design companies. Games took place in and across both Park Slope and Gowanus, local parks, as well as inside the Brooklyn Lyceum, though seldom mixing any of these spaces.

Without knowing what was going on that weekend the Lyceum could have been hosting any other community event. When I arrived on the Friday afternoon that kicked the festival off there was a sense of confusion, haste and excitement. Tables were being set up and banners hung; the site itself was being temporarily appropriated by this group through signage and props. Volunteers (organisers were not paid) helping out were coming and going quickly. The temporary feeling of the event was typical of any other similar experimental gaming festivals that I had been to, quickly installed, with a minimum of easily moveable, and reusable, decoration. Low key and not professional. If anything *Come Out & Play* was somewhat plainer than others I would go to. There was no attempt at an overarching theme or genre, it provided an unstyled background for the weekend, the participants and the games.

I entered the cool, dark insides of the building itself from the harsh, hot sun of the New York summer. Although originally starting life as a bathhouse, the Lyceum had been converted to largely be used as a theatre space. It had two floors, each



effectively a large performance space, and games played in either provided an easily viewable spectacle for those that wanted to watch, or had missed out on spaces to take part. It was a mix of old 19th century features and recent, workable renovations. Any tattiness was covered up by black paint and event posters on the walls. The space itself didn't take you to another world immediately. This wasn't intrinsically another, more playful space, nor had it been turned into one.

The way the building was inhabited by the festival evolved over the weekend; the way I related to it changed and I could observe that in others. It became more comfortable, but the energy levels dropped. Excitement gave way to familiarity, expectation to comfort, as the space became more lived in by the participants. Weary players crowded onto benches together, people would walk purposefully through the lobby, knowing where they wanted to go, chatting groups would disappear off to cafes or to get a cold drink. As the weekend progressed the social and playful feeling evolved through the experiences of the games themselves.

Watching the festival space across the weekend I could see games played in either of the two established performance spaces in the venue, starting and stopping within the confines of the building. Their boundaries established as much by the walls as the restrictions imposed by the games. There were also many games that would leave the premises for play and then come back. Groups would meet in the venue and then leave for their play space outside in the "real" world. In doing this

it was like a hub, with many tentacles of temporary play zones established outside across Park Slope, Gowanus, the nearby parks and the cemetery. Each would emerge and create its own rarefied space for play, with its own boundaries.

What was in and out of the games was very important. These boundaries were different for each game, for each playing. They were unique, but defined the way they interpenetrated with the everyday world, or transgressed everyday relationships. The ways in which these boundaries are crossed define what the games were and how they function. These beginnings and endings are then very important, as 'going ins' and 'coming outs' for the individual spaces of the games as well as the seemingly simple comings and goings of the spaces of the festival. It is through these multifarious borders, entry points and thresholds that the games and the festival established themselves.

### **1.3 Technocultural messiness**

The first game I observed and recorded was one called *O.M.M.R.P.G.* (Offline Multi-Mirror Reflector Positioning Game), which was being played as people arrived on the opening night. In this particular game there were two teams playing with a total of sixteen people. Each team has a player with a laser pointer, the shooter. Four players, the reflectors, with small, hand-held mirrors. The remaining players, with coloured gloves on their hands, play as blockers. The aim of the game is to reflect the laser from the pointer onto a coloured square,

mounted on what looks like a sheet music stand, at right angles across the playing space from the laser player. This must be achieved via the mirrors. Each team's blockers then attempt to get in the way of the mirrors and laser pointer.

But it is very difficult to actually tell what is going on. It is a fast and physical game. It looks and feels somewhat like basketball, without any ball, nets or court markings. The players leap around, their shoes squeak. It obviously looks and feels like a team sport. There are determined grunts from the effort, shouts of encouragement and direction. There was even a commentator to make it feel more sport-like. These are obviously people playing a game, but the props seem like they are on a different scale to the action. Occasionally there are tiny spots of laser light, projected from pen-size laser pointers, reflected back onto the visible wall. Hand held mirrors, the size of make-up mirrors are used to reflect the light. Without knowing what was happening it would be extremely difficult to understand, let alone follow. The action is subtle and the results difficult to ascertain. As people streamed into the venue they watch the game for a little, but then tend to drift off to do something else.

Luckily I was already familiar with this game, having played it before, so recognised it immediately. If that hadn't been the case I don't believe I would have been able to follow the action. Where I had played it, the community had renamed it *Korean Laser Ball*, because this was more appropriate for its feel and style of gameplay. The original game being a play on words with MMORPG (Massively Multi-Player Online Role-Playing Game), a genre of online computer games.

The frantic running, dodging, jumping and blocking is at odds with the considered physics of reflecting a laser off a small mirror and back to a small circle on a wall. A world of cerebral games clashes with a world of physical sport. Much of the 'meaning' of the game then emerges from this physical and functional juxtaposition, rather than from any symbolic element, such as the name. It comes from the processes that emerge from rules of the game and the physical enactment.

The original rules and description - now lost, and replaced by revisions and re-versioning on the internet - described it as a strategic game of body positioning with strapped on mirrors. Now, it is a sport pretending to be a game, or a game pretending to be a sport; with the name that references another digital game genre. A game created in Korea, found on the internet, and then recreated in another venue. It is a sly wink, a set of layered relationships that join the digital world to the physical. It sits in a world which is not digital games recreated in the physical world, but instead digital games played with the physical world. Without knowing the milieu of digital games, experimental design and technology development that *O.M.M.R.P.G.* sits within it becomes either inscrutable or banal.

As a game, *O.M.M.R.P.G.* has evolved beyond its original intentions via replayings and re-interpretations facilitated by the internet. The continued circles of enactments, inscriptions, transmissions and appropriations fold up and transect any distinction between what is technological and what is cultural. And as an

example of the type of game experience I observed over many years interacting with this community, it is not unique. This is one of the core features of this form of avant-garde game design and experimental practices of play.

There is a relationship between the physical and symbolic in these games. There is both material and symbolic semiosis that occurs in complex ways as they interrelate and play off each other. Through this understanding it appears as a complex post-digital phenomena; where it is neither purely digital nor purely physical. Instead, it is an interweaving of both. In the space of the game objects, people and social constructs take on a multivocal meaning.

#### **1.4 Physicality and embodiedness**

Apart from this mixed intertextuality are there other ways to appreciate the play? One is always left with the question “What did the players feel whilst playing?” If they consciously know its background and context, does that affect their play? How does it feel to physically play these games, what pleasures are derived in the moment?

Later, that evening, during the opening night party of *Come Out & Play* two other, very different games were played. *Kaboom!* and *Humanoid Asteroid*. Both of these games were recreations of classic, ‘retro’ games on a grand scale, using people and props to put players inside the action of the eponymous games. Each made

use of the large physical space that the Lyceum performance area provided. *Kaboom!* used the two-story vertical drop of the back wall. *Humanoid Asteroid*, most of the horizontal space in the auditorium itself.

In chapter 5 I discuss *Kaboom!* in more detail. Here I describe *Humanoid Asteroid*. It recreated the classic Atari game of *Asteroids*, that was originally released as an arcade machine in 1979, was ported to many different gaming platforms and both inspired other games as well as spawning clones (Hunter, 2014). At the time, the white, vector graphics were distinct and memorable, the sound was engaging and the gameplay was both simple, yet deeply replayable. Making it an iconic game.

In *Humanoid Asteroid*, the physical recreation, a team of two players take part using a two-meter long wooden trolley on caster wheels, that represents the triangular spaceship from the original game. One player pushes, the other fires a fixed foam-disc gun. Sixteen 'non-playing' people are used to create the eponymous asteroids of the game. Each is dressed in a custom-made suit with wearable neon tubes, mimicking the bare, white wireframe graphics of the game. At the start of the game they are grouped into four groups of four. When hit by the foam gun the groups break in half, then half again, finally switching off their neon suits altogether and slinking from the play space. Other people start and stop the tension-forming, repetitive music. The instantly recognisable sound

effects are triggered manually from a computer off to one side. A score is kept manually and projected via another computer. This is a large scale undertaking for what might look like a simple experience.

The play itself looks frustrating and difficult. The trolley is tough to manoeuvre and heavy, being made of wood with someone sitting in it. The gun inaccurate and jams repeatedly. Play has to constantly stop to rebuild the things that break, for example reconnecting neon tubes or refill the foam disc gun.

However, it is such a compelling experience that even when running for about two hours they still cannot give everyone who wants to play a turn. There is a queue of disappointed people at the end. But even for those not playing, it is a magnificent sight. An enjoyable spectacle watching the neon-bedecked human and non-human props waltzing about in a manner convincingly reminiscent of *Asteroids*, breaking apart in time to the crunchy laser sounds and the insistent game soundtrack.

To achieve this spectacle there is a wide variety of material components. The all important wearable neon tubing that cover the black jumpsuits of the human asteroids. Then there are the sixteen people acting as the asteroids. As well as people manning computers, controlling the queue and commentating throughout. Multiple computers are used for sound and scoring, each vastly more powerful than the 8-bit purpose built arcade machines that originally ran *Asteroids*. A wooden trolley, a NERF foam disc gun, projectors, speakers. This is a big machine of heterogeneous parts, people and things, that comes together for

this experience. It is a melange of the physical and digital coming together. It is not easy to recreate and requires the coordinated action of all the human components for it to stay stable and work. It is a very manual process and each playing is unique. Completely unlike digital games that have a complex, and inflexible, socio-technical infrastructure for replicability.

There is certainly technology involved in *Humanoid Asteroid*, but they were technologies that are based around commodified and ready to hand materials. All of the parts were available to buy and some might already be owned by the designers. Apart from a few customisations, such as the spaceship/trolley and the construction of the neon bodysuits, everything simply assembles at the point of performance and play.

It is clear that technology plays a fundamental role in this experience, but like *O.M.M.R.P.G.* above, the technical elements have a non-standard role in the experience. Not the seamlessness of the immersive, but instead obvious and fetishistic. The intangible realm of digital games is made tangible, reproduced physically. Players can tap into their nostalgia through an embodied experience. They are well and truly in the centre of the game, the centre of this huge machine; mixing their imagination with a heavily physical, embodied experience. It is not an immersion in another reality, but a mixing, or a juxtaposition of fiction, fact, the imagination and the actual.



## 2. Stickball

It would seem that with this plethora of possible experiences, structures and contexts, almost anything could be included under the banner of pervasive games.

Without technical objects as a differentiator almost any game in the physical world seems like it might be able to be considered a 'pervasive game.'

Whilst I was trying to follow and video the action of *SMERSH* (a spy-themed treasure hunt and tag-like game), in the residential streets of Brooklyn I came across a group of people playing Stickball. It was not a part of *Come Out & Play*, and was largely being played by men over the age of 60.

*Stickball* is a simplistic approximation of Baseball played, generally, in the cities of Northeastern United States. All it needs is a stick and a ball (Wikipedia, 2015).

I started talking to one of the players and asked what was happening. I was told that this was an annual game of stickball, played by the same people who had played together as children, living on this very street. Almost every year, for more than 50 years, they had come back to play; although nearly all don't live in this street, and many don't even live in Brooklyn anymore. Now a game from the fifties was being played across three generations of these families; a social event for lifelong friends.

Roughly every minute the game had to be stopped for traffic, as a car would slowly drive past the players. The silver-haired man talking to me described that when he was a kid the street was empty during the day, and they seldom had to stop playing for cars. Now the opposite was true, waiting for cars was the main activity with the occasional pitch and hit.

This game is being played in the street, interacting with the everyday reality of traffic and people. Yet it originates in such a radically different culture. The participants of *Come Out & Play* and this annual *Stick Ball* game couldn't appear, sound or act much more differently.

The stickball players were older, mostly in their fifties and sixties. They were dressed in either button up shirts, or t-shirts and track pants. All of them that I could hear spoke with a distinctive Brooklyn accent, many looked overweight. The men were playing, but the women were around; on the sidelines, sitting or standing on the ubiquitous entry steps leading up to the apartment buildings. They were (ex-)locals, recreating the play of the everyday past.

The players at *Come Out & Play* had all been in their twenties or early thirties, generally slim, mostly male with a few women. Mostly in shorts or jeans, a lot of them wearing t-shirts with humorous or tech-related images on them. In any group, at any time, a smartphone would be out in someone's hands, and someone else was probably taking a picture with a digital SLR.

On the surface, to the casual observer, this game of stickball might seem similar to a game such as *O.M.M.R.P.G.*; both appear to be improvised, casual sports. But they have vastly different contexts and backstories, and it is these contexts and backstories that create the different meanings that emerge from each form of gameplay. On one hand, it is the extended story of players experience - before, during, after - that is important, but also the extended story of design and development that is vital in understanding the trajectories that pervasive games, as a practice, follow. It is the engagement with the extended community that surrounds this practice, but also an active engagement with a stream of technology development and experience design that particular community embraces. Although these games were being played simultaneously in the same streets of Brooklyn, they were being played in very different social and cultural spaces.

### **3. Design trajectories and frameworks for understanding**

The development of pervasive games has not followed a clear evolutionary path. It has not been driven by the development of a technological capability or a vision of a final product. Rather than a fast flowing, predictable river, it is full of eddies and whirlpools. The experiences that have emerged over the last decade sometimes sit comfortably in categories, but often sit uncomfortably in the zones

between game, performance and art. The game designers cross between the commercial and artistic worlds, mostly carrying out their practice for passion rather than money, but generating other, intangible, capitals in the process.

There is not even a clear agreement on what pervasive games are (or maybe we should say were) and a plethora of names abound to describe nuances or to justify agendas for their design. The communities involved are thinly spread around the world and embedded in other cultural niches. These are certainly “physical” experiences, but that is not their only defining point. Pervasive games are an inherently unstable object to study; in the words of John Law (2004) it is a ‘mess’.

There is a design trajectory that links these experiences together. A pathway followed by technologists and artists, that is visible between examples such as *Roku's Reward* and *Robo Racers*. They are connected by material and conceptual threads. One sits completely in the realm of the technological imaginary, the space of computing visions and gaming ideas. The other sits in the messy reality of torrential rain, cardboard, hoarse voices and bright sunlight interfering with projection screens. There is a genealogy and a common thread, as well as these tensions and oppositions. The ideologies, concepts, rhetorical positions of the early designers, researchers and artists involved in pervasive games influence the design direction of these more recent experiences. On one hand the technological imaginary vision, in both ubiquitous computing and computer games, certainly does drive these games. On the other hand, their possible design paths are also

determined by the specific physical and technological contingencies which provide constraints, but also a space of play. The field of pervasive gaming exists because of, and in between, epic visions and the messy, reality of play in lived space. It is these juxtapositions and tensions that shape the design and development, as well as revealing other, underlying technocultural trends (Balsamo, 2011). Unearthing these tensions sheds light on both these threads of design and development, but also on more general technocultural processes and trends.

The means to do this are provided through a personal assemblage of methods (Law, 2004) that rest on ethnography as a means to qualitatively understand the experience of lived reality. It draws heavily on four years of engagement in the practice of pervasive games, ubiquitous computing development and creative technology design. A 'deep hanging out' (Wogan, 2004) in the culture, combined with a critical investigation of the practices. An engagement where I have, crucially, taken various roles; as an observer, a player and as a designer.

#### **4. In this thesis**

Chapter 1, the introduction, outlines the theoretical basis that grounds my approach to investigation. I create a scope for this research that describes pervasive games as being **an experimental game design practice that engages with technology (development) and (everyday) space**. This is a practice that mixes the technological imaginary and the messiness of everyday reality. I

describe how insights from Media Archaeology help to understand the pressure of the imaginary on new technologies and mediums. Then how Actor-Network Theory (ANT) and a focus on materiality gives insight into how an understanding of 'messy realities' shapes both my own method, but also design and technology practice. The practice of pervasive games is a design practice, and so then I discuss the relationship between technoculture, design, the imaginary and material. Finally, I end by exploring the concept of liminality, which is a central concept in my understanding of pervasive game experiences when it is considered as an experience that is mediated by material-symbolic processes.

In Chapter 2, through a review of previous literature, I discuss how pervasive games are historically and rhetorically constituted. This begins to address not the question of what pervasive games are, but how they came to be. this is done not through trying to define them, but through looking at what people say about them and a view of them as an evolving(-ed) technocultural form. I do this by first discussing the role of ubiquitous computing. Then provide a brief history of pervasive game practice, from 1999, through to 2010. Finally, I examine the key writings in the discourse surrounding pervasive games.

Chapter 3 is a description of my ethnographic methods. In the first instance, my ethnography is influenced by the concept of liminality and the tradition of cultural anthropology. In this chapter I outline the methods that I worked through, and the ones that worked in context. I also discuss the theoretical approaches and sensitivities that enabled me to gather insights.

In Chapter 4 I examine aspects of the social and cultural experience of pervasive gaming festivals. I address the question of why people attend, play and enjoy these experiences. I cover the spontaneous ‘communitas’, the enjoyable feeling of togetherness that is experienced. I also cover why the player’s histories, ‘habitus’ and cultural capitals are an important factor in understanding their reasons for participating and having fun. This leads on to a discussion of both nostalgia in design and play, as well as the way the way that experimentality is received.

Chapters, 5, 6, 7 are expressly concerned with the materiality of pervasive gaming. In Chapter 5 I explore the human-material hybrids that make up pervasive games, the relationships between the human bodies, physical and digital materials. This chapter also covers the ways in which pervasive games are both symbolically as well as functionally referential. In this chapter I introduce the concept of reconfiguration, the way in which games mutate through play.

Chapter 6 is an ethnographic examination of what I have termed ‘enchanted’ materials. This is material with a playful, meaningful and co-constructive agency returned to it. In this chapter I cover cardboard as a prototypical material, false moustaches and their material-symbolic power, and end with a discussion of the material contingencies of ‘the street’; which provide urban spaces with their uniqueness and their flavour.

Chapter 7 is about the less tangible, or visible, stuff of games. In this chapter I discuss three things: festivals, rules and technology. Firstly, I discuss how festivals have shaped the design trajectory of pervasive games, as well as enabled them.

Secondly, the nature of rules in pervasive games, then moving on to the materiality of rules in general. Thirdly, I talk about technology, both as a background to the practice, and in the way that pervasive games presence technical elements such as devices, interfaces and the invisible technical infrastructures.

The eighth and final chapter concludes the thesis by presenting a cultural and material framework for understanding pervasive games. Using the concept of tensions it outlines the experimental design space for the practice. It finishes with the implications and applications of this research approach to related technocultural phenomena.



# Chapter 1

## Key Approaches: Technoculture, Material and Liminality

*Playing with Reality* is a technocultural ethnography of the practices of game design and play in the indistinct category of games known predominantly as pervasive games. Firstly, and most importantly this is an ethnography, a technique for mapping culture, or in this case technoculture. It is a detailed, deep, systematic and qualitative account of a culture through deep engagement in the lived reality of its participants. A critical tracing of the ways in which reality is constructed and the meanings that are embedded in the lived world of a particular set of people and practices at a particular time. Importantly it is a technocultural ethnography, so material - things, non-humans - are considered to be fundamentally inseparable from the study of people.

The results of this ethnography are intended to reflect on, and provide a tool for, a number of interconnected practices and disciplines that pervasive games emerged from, and have also evolved into. This thesis is intended to contribute to the further theorisation, study and design of games, both physical and digital. It is also intended to provide insight into the development, design and use of technology as a part of physical experience design. Obviously in the space of those

technologies applied to games, but also as an aid to theorising other applications. An obvious current space for this reflection is the emergence of mixed and augmented reality. Additionally, both the methods and findings can be applied to other design practices as well as the further study of technoculture.

In this chapter, I introduce the foundational approaches that I have taken to understanding pervasive games; their experience and development. These resolve down to three main threads: Technoculture, material and liminality. In doing this I am addressing the inter-related natures of culture, technology, experience and design.

In my research I went looking for 'technology' and instead found technoculture, the mix of people and material that makes up lived experience and everyday culture. I had originally wanted to determine the role of technology in gameplay experiences but found that the role of technology in pervasive games was very different from what I expected. It was both less present - as high tech devices, but also more pervading - as the background culture and physical materials of games. In the rush to identify new technologies as enablers of experiences, the relationships between people and the more everyday stuff of games can easily be overlooked.

In the research and writing to date very little has been said about these physical materials. For physical games in the so-called “real world” little attention had been paid to the objects, materials and surroundings that really comprise these games. There was a lot of game matter that had been rendered invisible.

Early on I determined that pervasive gameplay had a liminal structure and experience, and my research also constantly felt ‘betwixt and between’ itself. The role of ethnographer sits between academic and participant. The field of study had no stable centre. Pervasive games sat between the epic and the banal; technology development and simple play in the streets; experiment and fun; and old and new modes of play. Pervasive games were always questioning boundaries. The practice of design placed the games I was studying in the space between the technocultural imaginary and the everyday materials such as cardboard and the streets. The ethnography itself became liminal, it was itself ‘betwixt and between’ and found its feet in the spaces in between, in the controversies and the differences.

I found that the term pervasive game, the practices around this concept, and the communities that embodied them had no stable centre. It was a fuzzy and indistinct realm to investigate. As a piece of research, this one doesn’t deal in the abstract, it instead documents a particular group and their practices. It documents a network of people across the globe, who were connected by a common interest and direction. They were not quite a sub-culture, being too defuse and owing allegiance to other tribes, but instead came together for

festivals and events and to further their interest in games. Ethnography as a method is rooted in people, practices and practical reality. As part of this practicality, I engaged in fieldwork primarily in the gaming festivals of *Come Out & Play*, *Igfest*, *Hide & Seek* and *You Are Go* across 2010-2011, as well as the communities that surrounded the British festivals, *Igfest* and *Hide & Seek* between 2009-2011. What attracted me to these festivals was that at some point they all claimed to be pervasive gaming events and they did all have some high tech experiences in their line up. But each did qualify their activity variously with the terms; 'street game', 'urban game' or 'big game' and many games would appear to have little or no technology involved in them. Many cases that I use in this thesis also do not appear to be high tech and my fieldwork is the result of both happy and unhappy accidents. However, all results are used to highlight the role of both people and seemingly low tech materials in the practice of pervasive games.

The aims of this research have been twofold:

- How is the development of pervasive games, the history and future, enabled and constrained by its technocultural situation?
- How does this technocultural situation affect and shape the experience of pervasive games.

In the first instance, I am concerned with how the network, or assemblage, of actors - such as designers, players, festivals and technologies - emerges, changes and stabilise. How is the development of pervasive games, the history and future, enabled and constrained by its technocultural situation? What is it about the people, technology and things that makes them the way they are?

In the second instance, my aims are to understand how the technocultural situation shapes the experience of pervasive games? New situations create new experiences and this is explored through pervasive games as a case study in technocultural development. Crucial to this is an understanding of what part that technology, physical materials, culture and design ambition play in shaping these as aesthetic experiences.

In chapter 8 I bring together the key arguments to discuss the design space that pervasive games exist within. Throughout this research, I have uncovered many dichotomies and tensions. It is through these tensions that the space of pervasive games practice emerges, they exist in this 'betwixt and between' space. It is this experimental space that gives pervasive games their unique aesthetics.

A rich and dirty discourse has emerged around pervasive games that resists attempts to define, or even adequately describe it. This discourse has largely been constructed in the realms of the technological imaginary, through the vision of ubiquitous computing and pervasive play. This has largely manifested through experimental game design and a disproportionate amount of academic and non-academic writing around the subject (McGonigal, 2006, p.87-164). In the first

section, I discuss my use of the term pervasive games and show why I describe my field of study as ‘an experimental game design practice that engages with technology and everyday space.’

In the second section, I outline why Media Archaeology (Parikka, 2012b) brings light to pervasive games as an imaginary media, and in particular to frame pervasive games as an imaginary media unfolding. The mixed discourse/physical nature of Media Archaeology points to a need to understand the material aspects empirically, rather than just rely on the discourse, and the archive for live performances of this type are effectively impossible. Thus it becomes a media archaeology of the present.

These games mix make-believe with the mixed-up nature of the everyday, consciously going about constructing and reconstructing realities. Investigating this is a messy business, and in the third section, I turn to insights from Actor-Network Theory (ANT), especially the work of John Law (1992, 1999, 2007, 2004), to help pick at the physical and virtual threads that weave these networks of meaning.

In the next section, I discuss the concept of materiality and the use of it in my research. The world of design and reality is a material one. Also, for pervasive games, firmly rooted in the physical world, an understanding and appreciation of the role of material and the concept of materiality is important.

In the fifth section, I turn to the relationship between cultural studies and design research; natural bedfellows, but not as closely related as they could be. I ask the question about whether I am doing culturally informed design research, or design focussed cultural studies? Within this I explore the relationships between design research inside and outside the Human-Computer Interaction (HCI) discipline, and the need to turn to an approach that mixes meaning and the material. I lay out many of the findings in this work as tensions, a space, liminal in itself, that shapes the possibilities for expression. This is the design space that individual games emerge from.

I finish with the concept of the 'liminal'. Liminality provides many things. It is firstly a mechanism for describing the experience of gameplay. It is also a sensitising concept for the ethnography. Finally, it also becomes a metaphor to describe the edges, tensions, breaks and divides between the virtual and the real, the imaginary and the actual, material and meaning, game, play, culture, design, technology and practice.

## **1. Ludus Incognito - the hunt for pervasive games**

*I think that's a real challenge, I will shake the hand of someone who can come up with a good way of describing these games and manages to convey something about all of them and come up with a good name. (Hide & Seek designer)*

In our everyday experience names have a great deal of agency. With naming comes a power and an ability to symbolically process phenomena at a conceptual level, to punctualize complex networks of actors and relationships (Callon, 1991).

Especially with the floating signifier that is ‘pervasive games’ naming is an essentially political act. The very act of naming the object of study of this thesis is contestable, let alone trying to define it. So to avoid problems I undertake the following strategies:

- to describe the embodiment of this field of practice, not to define it;
- to be fully aware of the black-boxing of a heterogeneous set of practices, performances and play, and unpack them at every opportunity; and
- rather than treat this as an object of study, to treat this as a dynamic field of practice (Bourdieu, 1977; de Certeau, 2002) producing a variety of materially embodied performances.

Within this section, I discuss why I have adopted the term ‘pervasive games’ and outline a working description of them as a field of practice that can then be sensibly explored in an empirical manner. This avoids treating them as a category of games.

I start with the term ‘pervasive game’ primarily because this has gained a degree of stability within the field of practice. It is most definitely an emic term; certainly understandable within the community I became involved in. It is difficult to



describe in the etic sense, from outside the context of the community. In naming it I then purposefully pluralise the term so as to refer to the field of practice, rather than appealing to any ideal game type.

Eva Nieuwdorp (2007) carried out a detailed analysis of the literature between 2000 and 2007 to analyse the discourse around both the term and concept of pervasive games. In 2007 she was pointing to the term becoming a black-box for a complex field (Latour, 1988). “The term pervasive in both the discourse on computing and on gaming seems an elusive concept, to say the least. Due to varying interpretations, correlations, and applications of the term, the meaning of pervasive games remains opaque.” (Nieuwdorp, 2007, p.14). The terms used to describe these games at the time are “ubiquitous games, augmented/mixed reality games, mobile games, alternate reality games, (enhanced) live action role play (E/LARP), affective gaming, virtual reality games, smart toys, location-based or location-aware games, adaptronic games, crossmedia games, and augmented tabletop games” (Nieuwdorp, 2007, p.2). After her analysis, she had herself already settled on the term ‘pervasive game.’ Her list of the ways in which pervasive games are understood is (p.3-4):

- a game that depends primarily on pervasive technology and non-standard input devices;
- an existing game that is augmented by computers, resulting in a blend of the real and virtual worlds;
- a game that pervades the real world in an undefined manner, and thus blends with it;

- a specific setting of the game world within the real world;
- a game that blurs the boundaries between itself and the real world, which can influence the concept of the magic circle;
- a game that is an overlay of the real world or where the world becomes a game board;
- a game with a persistent presence in the real world, and thus available to the players at all times;
- a game where the gameplay interacts with elements of the real world, thus challenging standard gameplay conventions;
- a game where there is mutual interaction among players and elements in the real world;
- a game that blends with everyday experiences;
- pervasive games as a technology; and
- pervasive games culturally.

As she points out, there are two main perspectives within this discourse: 1) a technological one, focusing on computing technology to enable physical play; 2) a cultural one, that focuses on the way the game world relates to the everyday world. Or we could say the first focuses on the material actuality of ubiquitous computing infrastructures and the other on the technocultural imaginary of games. In the next section, I discuss the imaginary, and later technoculture as a concept. In the next chapter, I describe the place of ubiquitous computing in the genealogy of pervasive games.

Previous authors have tried to describe and define what I am terming 'pervasive games'. Jane McGonigal (2006), calling them ubiquitous games, defines them as what happens at the intersection of ubiquitous computing research and experimental game design. Montola and co-authors define (Montola, 2005; Montola *et al.*, 2009) pervasive games as exploring or challenging the boundaries of games in either physical, temporal or social aspects.

Area/code, founded by Kevin Slavin and Frank Lantz, could best be described as an experimental game design company. They created many archetypal pervasive game experiences. Their favoured term is "Big Games" and, rather than try to define, they created a manifesto. The key excerpts of which are below (Area/Code, 2011):

- Big Games are games that spill out over the edges of our screens and devices to blend with the real world in new and surprising ways.
- Big Games are building a future in which socially aware networks, smart objects, location sensing and mobile computing open up new ways for people to play.
- Big Games are made out of people, connections, ideas, situations, and events.
- Big Games have computers inside of them, not the other way around.
- Big Games create a conscious confusion between the real and the imaginary, between ideas and objects, between information and space.
- Big Games transform the physical, social, and media spaces around us into a shared gameworld brought to life by the choices and actions of the players.

- Big Games are human-powered software for cities, life-size collaborative hallucinations, and serious fun.

Although lengthy, this does one of the best jobs of summing up the nature of these games, both politically as well as poetically. Within this, we can see the concern with contemporary (screens, mobile) and near future (smart objects, sensing, socially aware networks) technologies. The relationship is more knowing than within other digital gaming, computers are inside the games rather than games being inside computers. Most of this is engaged with the ‘everyday’ spaces that surround us, the city, social life and media spaces as well as actual, physical reality. These are obviously games intended to merge, mix, confuse or expose the distinctions between these spaces. This is explicitly a manifesto though, a set of ideals for what the games should be. The nature of both their practice and the related community doesn’t necessarily adhere to this manifesto in all aspects of practice.

My way of describing pervasive games simply is that they are **an experimental game design practice that engages with technology (development) and (everyday) space**. These range from technology experiments to avant-garde game design practices. Most of this practice explain itself as combining “real” world play computer gaming culture and often engages with the rhetoric of technical enhancement. Three aspects of this need unpacking, 1) game design practice, 2) technology, 3) everyday space.

My first point is that the best way to conceive of pervasive games is as a space, area, or more appropriately field of practice (Bourdieu, 1977) that is concerned with experimental and challenging game design. In this, it agrees with Montola (2005) and McGonigal (2006) that these are experiments and challenges to the nature of games. They are part of an agenda of technical and design investigation that seeks to explore games in different contexts and situations. However, one cannot necessarily say that this is an essential feature of the games themselves. That is, some games that are considered to be pervasive games (an many I have observed in play) are not necessarily all three of: experimental, involve technology and engage with everyday space. The key linkage is that they do occur in the design practice of those who are a part of a community that is concerned with exploring these wider concepts.

In many senses these are games that explicitly and implicitly engage with technology in one or more of the following three senses: 1) they engage with the nature of games systems and rules as an immaterial technical object or framework, that they explore the technicity of rules (Mackenzie, 2002); 2) they engage with the background technocultural milieu of digital gaming; 3) they engage with the technology of ubiquitous computing. This fits with both McGonigal's (2006) and the area/code manifesto (2011) as well as fitting in with the discourse that has emerged from the ubiquitous computing research community (Nieuwdorp, 2007).

They are also physically spatialised games, and must, therefore, engage with the notion of the everyday, lived and mediated spaces (de Certeau, 2002; Giddings, 2006; Lefebvre, 1991a; Lefebvre, 1991b). In some cases this is done explicitly, and some cases implicitly through the actuality of being played, physically, in everyday spaces. This aligns with the Montola definition of challenging the magic circle as well as area/code's and much of the work that Niewedorp has cited.

Through this description of them we can see that they are not a thing unto themselves, but instead pervasive games are a design space or activity, a research and experimentation agenda for academic and practitioner research. McGonigal (2006) shows the state of play in the first five years of the millennium, as these two things were coming together. But what has happened since? What has come out the other side of the intersection?

Pervasive games as a category are in no way homogenous. It is an emic term, a shibboleth, that is it is recognisable within a particular community, but difficult to explain outside of it. Within this broad church, there are more specific types of experience that can be more easily identified and explained, in themselves. These are all marshalled under the banner of pervasive games for a variety of political reasons. Other authors have also pursued typographies. McGonigal identifies pervasive, ubiquitous and ubicomp games (2006), based on their design intentions. Montola *et al.* (2009) identify a number of different game models, or as they describe them, genres. They also assemble various traditional and recent

practices, such as treasure hunts, Live Action Role Playing (LARP), Assassin, as well as more recent technically led experiments under the banner of pervasive games.

De Souza e Silva and Hjorth (2009) present a three-part typology using historical examples and basing their discussion in the spatial practices of the flaneur, the situationist derive and contemporary parkour. Their types are 'location-based mobile games', 'hybrid-reality games', and 'urban games.' These types are in my opinion broadly accurate but are limited by both a technological and a computer game sensibility. De Souza e Silva and Hjorth are writing specifically about mobile technology and that becomes a baseline definition (or restriction) for the types of experience they are concerned with.

Rather than try to coin new terms, I purposefully use the ones that are in common use, though do try to expand their context a little more through explaining the scope of these types. We could call them genres, echoing the same mixture of audience desire, structure and materiality of production that determines genre in film and media studies, but rather than a strict, mutually exclusive typology, many experiences lie across a number of these types. Importantly, none of these types is specifically dependent on a particular technology, they are about the way in which the players' experience is designed.

These four types are:

- **Location-based** (or locative) **games**
- **Urban games** (or sometimes street games)
- **Alternate reality games** (ARGs)
- **Gamification**

Location-based games might be more appropriately called context-aware games. These are experiences that make use of contextual information, in many cases the player's location, but can be information in or about their physical location. This can range from technically facilitated GPS games, experiences using RFID or QR codes, but also includes such games as treasure hunts because information or objects are specifically located. Physical location might be a common type of information used. However, with the wider sense of context (rather than location) any form of information could be used, such as who you are with, proximity rather than location, or other variables, like the weather. Examples, such as Foursquare, or even low tech versions of traditional treasure hunt games, could equally adequately fall into this category.

Urban games are those that make the player engage with everyday, lived space. They open up the world of possibilities in the topology and furniture of the world around us (whether urban or rural). They use the symbolism, the functionalism and material nature of the world around us. In Jane McGonigal's words, they "activate the affordances of the everyday" (2006). They are variously known as



street games, big games or new/smart sports. A more analytic term for them might be lived-space games. The games played at the festivals *Come Out & Play*, *Igfest* and *Hide & Seek* are largely of this type.

Alternate-reality games (ARGs) are those that explicitly try to mix elements of game or story-world with the everyday world around us. They invite us to merge imagination and the actual, whether this is whilst in the streets, or sitting at a computer looking at a website for a fictitious organisation. These are games that hybridise and fold aspects of our experience. They do mix realities, but not necessarily, and not usually, mediated reality with the actual. More often they mix the fictitious with the perceived. They could possibly be more appropriately called transmedial storytelling, or transmedia games (Jenkins, 2006a; Phillips, 2012). Perhaps the most famous of these are still *The Beast* and *i love bees*, with more recent examples being the *Lost Experience* or *Heroes Evolutions*.

There is a fourth type of experience that overlaps with the above and bears similar likenesses in its current level of experimentation and challenging of game boundaries. Gamification is “the use of game design elements in non-game contexts” (Deterding *et al.*, 2011). Though many examples of gamification are completely isolated to digital experiences, augmenting or changing purely computer-based activity, many also attempt to have an effect beyond that. Seminal examples such as *ChoreWars* or *EpicWin* do in effect engage with everyday lived-space by applying game mechanics to track ordinary tasks, even if they do so from the confines of a device or screen.

This leads to the question of what is not a pervasive game? What sorts of experiences are not these games if they cover the realms of where we are, what we think, and how we engage with the world. My first response is that as a researcher I am not concerned with what is or isn't specifically a "pervasive game" but instead with the practice and community surrounding them. Some games, or even their individual enactments, may be more or less archetypal of this practice. To be a bit more accommodating, I would flip around all the definitions I've discussed above and say, that to not be a pervasive game is to be a game that is: already a proven model and therefore not experimental; is inside a screen, box or computer; that doesn't challenge the edges of reality and imagination, game and performance, virtual and actual; and does not in any way challenge or transform the physical, social and cultural spaces around us.

This indeterminacy and ambiguity is intended to be both one of the core properties of pervasive games and also creates the allure for both players and researchers alike. Along with the avant-garde nature of the design, this makes them a fascinating and useful research topic as they explore the edges of what is possible in new creative forms as they mix together game structures, emerging technologies and play outside of boxes.

Empirical evidence and insights from the overall practice of pervasive games, both the play and the design, can tell us more about the relationships between the physical and the virtual. It can tell us more about the culturally contextual nature

of games and help push the boundaries of game design. It can also highlight the cultural aspects of technology use and inform technical development so that it proceeds in more useful, usable and aesthetically powerful directions.

## **2. Imaginary games**

Imaginary media mediate impossible desires.(Kluitenberg *et al.*, 2007, p.48)

So there is no stable centre to pervasive games. They purposefully approach the edges of practice, possibility and play. They fall into multiple overlapping types. What is it then that holds them together? The power of imagination. Pervasive games are both a quintessential medium of the imagination as well as an imaginary media as Media Archaeology describes it.

Jussi Parikka places the research into imaginary media centrally in the sphere of Media Archaeology, a study of media history largely influenced by Foucault and Kittler. In the theme of imaginary media are studies of the “archives of the impossible” (Parikka, 2012b, p.44). These studies set about to examine conceptual media outside the possibilities of the actual world, look at untimely and unviable media - things that were before, after or out of time, and closely document variantologies of media left out of traditional history. Parikka summarises the area of imaginary media research as (2012b, p.61-62):

(1) media imagined, non-existent, but worthy of exploration in terms of how it can reinvigorate current media cultural design and debates; a kind of reservoir of weird ideas that might provide blueprints for future media design;

(2) the dreamworlds surrounding media and technology, and the ways they get invested with weird desires and social constructions.

(3) imaginary media as shorthand for what can be addressed as the non-human side of technical media; the fact that technical media are media of non-solid, non-phenomenological worlds (electromagnetic fields, high-level mathematics, speeds beyond human comprehension), and because of this ephemeral nature they are often described in the language of the fabulous, the spectacular.

Whereas other discussions of imaginary media and the technological imaginary use Lacan as a basis for defining the differences between the 'actual' and the 'real' (Lister *et al.*, 2008, p.66-67) Parikka moves on from that and recognises the material effects of these "non-solid" mediums. His version of imaginary media archaeology is about celebrating the weirdness, impossibilities and non-linear histories. Kluitenberg also sees the role of imaginary media beyond that of being 'only' imaginary and having a role in the way technological assemblages are embedded in the wider technocultural unconscious.

Parikka's is a fairly neutral view on the relationship between the imaginary and the real. After all media archaeology is as much concerned with examining dead and unsuccessful technologies as emerging ones. Anne Balsamo (2011) also discusses this relationship between the technocultural imaginary and technology innovation and presents a very positive take on it. She says that without this imaginary there would be no new ideas, that it is what drives new developments. She charts a strong relationship between the technocultural imaginary and the material contingencies of actual objects in the physical world. Showing that there

is a strong link and a positive and productive relationship between the two. In both Parrika and Balsamo there is a tension between a media studies approach and a design approach. Both also find this space between the imaginary and the actual to be a productively grey and messy place, which is worthwhile exploring.

Although this is not a study of an archive, it is an archaeology of the present, an ethnography of an imaginary media unfolding. The last two sections may have addressed some of the slippery nature of pervasive games but doesn't help us describe them in a practical manner. For that we need to leave the discourse behind for now and turn to reality.

### **3. Messy realities**

As Ian Bogost said in a keynote at the DiGRA 2009 conference, digital games and games studies are a “mess” (Bogost, 2009). That the boundaries between experience, game concepts, code, hardware, platforms, advertising, pop-culture are so fuzzy as to be non-existent, and that these things all sit in a flat ontology. Nothing in studying games is privileged, especially their essential nature as games. And if digital games are a mess, then pervasive games are an even fuzzier mess of technology, people and practice.

Bogost was using the work of John Law, the Science and Technologies Studies scholar, and using the term ‘mess’ in a very specific way. As Law says (2004, p.2)

What happens when social science tries to describe things that are complex, diffuse and messy. The answer, I will argue, is that it tends to make a mess of it. This is because simple clear descriptions don't work if what they are describing is not itself very coherent. The very attempt to be clear simply increases the mess.

Law uses the idea of the 'mess' to refer to both the confusing, complex and contingent actual world around us and the nature of social science results that tell us something about this actual world. He then suggests a shift away from traditional social science methodologies and ontologies and proposes a new method, a post-method, for studying the social world. One that is concerned with ontological methodology (Law, 2004, p.154). The heart of the approach being the ways in which realities are constructed, or revealed, by both researcher and the social world being researched.

In *After Method: Mess in Social Science Research* (2004), Law summarises the findings and approaches of STS authors, especially the work of Bruno Latour and Steve Woolgar (1986). Their work shows how a variety of sciences are sociotechnically constructed; enacted, through the interactions between scientific instruments, the results they produce and the interactions between scientists - both in person and via academic papers.

Reality is secreted (Latour and Woolgar, 1986, p.243).

Everyday technocultural reality is no different. It too is secreted in the everyday interactions between both people and the artificial. That is, in one way, reality is laid down, extruded, but also in another sense there is a process of concealing and

hiding reality is in operation. This is far from a purely social-constructivist approach, as Law says, “To say that something has been ‘constructed’ along the way is not to deny that it is real.” (2004, p.39)

What Law is pointing to is that there are multiple, overlapping, worlds, or viewpoints, that are enacted via various embodied practices. These multiple, individual, realities are constantly being negotiated at all levels, in a process that Anne-Marie Mol (1999) refers to as ontological politics. So the task of ANT-based, social science research is not to uncover ‘truths’ about the world, but to uncover the differences between these realities, or more appropriately investigating the method assemblages of the actors in the network. Or as Latour (2007) would say “deploying controversies”.

Method assemblage is the process of enacting or crafting bundles of ramifying relations that condense presence and (therefore also) generate absence by shaping mediating and separating these.  
(Law, 2004)

This method assemblage is also reflexive. The researcher using Law’s ANT as an approach is aware of their own method assemblage being crafted in the study of other’s method assemblage. The use of this method assemblage has extensive ramifications for the research process and results. I will return to this ramification in chapter 3, where I will discuss my own methods’ journey and assemblage.

One of the important aspects to point out now is the focus on what Law calls “goods” as an alternative to “truth”; the relational value that comes from the research. Rather than focus on the product of research being “truth”, this approach turns to the process of producing “goods” (2004, p.152-153). This suits a design research context where the results are highly situated, deeply contextual and intended for future design or intervention.

In a discussion on digital material research methodologies, Pink et al. (2016) point out that the notion of mess is useful for reinforcing the fact that we don’t walk into neatly ordered worlds in ethnographic research. It is not useful as a conclusion though. Confirming mess and complicated situations has no value and ethnographic accounts need to, and can, go beyond this. Her response is that social researchers need to get into the mess. They need to engage with it from within and be deeply involved with the environments, processes, things and experiences.

As ANT authors are quick to point out, reality though is not entirely socially constructed. Even if it is secreted socially, it is also highly contingent on our physical actuality; the material that surrounds us.

#### **4. Materiality**

The concept of Materiality has come via French structuralism and post-structuralism, where a primacy was placed on the material means of language (phonemes and marks) for carrying the fleeting meaning. It has developed beyond



structuralism and there are many different versions or approaches to the concept. The approach to materiality presented here is intended to encompass both the vulgar use of the term, but also the use of transcending the dualism of subject and object (Miller, 2005). Material culture, technology and society are at the very least co-constituted, if not inseparable.

In his anthropological work, *Outline of a Theory of Practice*, Bourdieu (1977) analyses the typical Kabyle house and shows how objects can implicitly condition human actors, and then become the primary means by which people are socialised. The categories of things, the placement of objects, the spatial oppositions in the home was homologous with the social order. Through the material stuff of daily existence habitual and structured ways of being emerge.

Materiality certainly has connotations of the physical, but this very physicality can make it seem secondary to other concerns. As Daniel Miller (2010) discusses how the studies of material culture take a low status in cultural anthropology. But “stuff” as he calls it is ever present, but we are blinded to its presence.

So my first theory of things starts with exactly the opposite property of stuff than that we would expect. It is not that things are tangible stuff that we can stub our toe against. [...] They work by being invisible and unremarked upon, a state usually achieved by being familiar and taken for granted. (Miller, 2010, p.50)

My materialism here is a radical materialism, as expressed by MacKenzie (2002) and versions of ANT (Latour, 2007; Law, 2007; Law, 2004). Taking his ideas from Gilbert Simondon (Simondon and Hart, 2001) and Judith Butler (1993)

MacKenzie describes what he calls a radical materialism, an argument against hylomorphism, or theories of form and matter. He argues against any form of generalisation in analysing technology, that all situations are singular and unique. Dematerialisation, as a discursive practice is then a political process of ignoring differences and reducing things to homogenous norms.

This form of radical materialism helps read pervasive gaming well, where the individual contingencies, such as the street layout, the people playing a game, the weather at the time, the country, language, props, etc, all have a much larger effect on the game than they would appear to in the analysis of other games, digital or not. In this sense, a material approach is at odds with a ludological one, where the game is primarily read as a system, or text, absent from its context, its playing (Crogan, 2004; Frasca, 1999); that it can be read as merely a set of rules and symbols.

This materialism also draws heavily on the material-semiotic approach of ANT. This takes into account the networks of meaning and agency that surround any specific situation (Akrich and Latour, 1992). ANT goes beyond even postmodern interpretations of what semiotics might be to describe it as the meaning that can be generated even without signs, and through machine interactions (Lenoir, 1994). The following quote from Akrich and Latour defines what it is that they mean by material-semiotics. (1992, p.259)

[Material] Semiotics: The study of how meaning is built, but the word “meaning” is taken in its original nontextual and nonlinguistic interpretation; how one privileged trajectory is built, out of an

indefinite number of possibilities; in that sense, semiotics is the study of order building or path building and may be applied to settings, machines, bodies, and programming language as well as texts; ... the key aspect of the semiotics of machines is its ability to move from signs to things and back.

There are two main interpretations to take out of the concept of material-semiotics. First is that meaning is generated through functional interaction as well as symbolic interaction. That is through material and physical interactions. There is a hermeneutics of action, sensuality and feedback. In the earlier STS it appears as if meaning generated by functional interaction might have been predominant but, especially since Donna Haraway, surfaces are now paid significantly more attention (Lenoir, 1994).

The second reading of material-semiotics is that there is no such thing as immaterial texts. Nor are there signs without embodiment. Which means that semiotics or material-semiotics cannot occur without both symbolic interaction and material interaction. All relations between human and non-human actors are both functionally physical as well as mediated via signs.

This is especially interesting for games and playful activity, in that the interaction is clearly functional as well as symbolic and thus the meaning arises out of the gameplay itself as well as any symbolic communication. This applies to gaming phenomena of all shapes and sizes, from playground games to computer games,

from make-believe to massively multiplayer online role-playing games (MMORPGs). Meaning is generated physically, not just through abstract reading of signs and immaterial texts.

Materiality is not a new addition to the field of Game Studies, as Apperly and Jayemanne point out (2012) through identifying three major academic trends. Ethnographic approaches have been concerned with the complex contexts that games are set within and respect the games and play are not a homogenous set of objects or experiences. Platform and Software Studies seeks to examine the very material ways in which the assemblage of hardware, code and culture interact in complex ways to create experiences. A focus on play as labour surfaces the political economy of play and the complex ways in which bodies are used by a hegemonic, global game machine. Apperly and Jayemanne do not take a strict theoretic approach to materiality, but instead describe it as a “stubbornness” of reality that resists formalist interpretations (2012, p.7).

Although materiality is a common thread through this work, in chapters 5 through 7 I discuss materials more specifically. Paying close attention to materiality and embodiment in chapter 5, physical materials in chapter 6, and invisible materials in chapter 7.

## **5. The context of (techno)cultural studies and (experience) design research**

Designing is an important process of cultural reproduction. [...] Culture is both a resource for, and an outcome of, the designing process.

(Balsamo, 2011, p.11)

This section discusses the overlaps between cultural studies and design research. To break this down I address the concepts of technoculture, experience design, design research and the relationship between cultural studies and design separately to show their overlaps and commonality.

In applying the term technoculture I use the approach of both Seth Giddings and Anne Balsamo.

In its general application technoculture refers to cultural phenomena in which technologies or technological forces are a significant aspect.

(Giddings, 2006, p.17)

However, both authors go beyond this and are quick to point out that there is no clear distinction between the concepts of technology and culture and that these two are inseparable, a unity. As Latour (1990) says, "Technology is society made durable" but also a converse is also true, that culture and society are technology made sustainable. For my research the corollary is also a key part of the definition of technoculture. That it also refers to any technological phenomena in which cultural forces are a significant aspect.

Both Balsamo and Giddings are heavily influenced by recent trends in Science and Technology Studies (STS) that break down notions of simple social constructivism and depend on the material agency of non-human actors in the process interrelating knowledge and reality. They are also both clearly influenced by the work of Raymond Williams on culture and technology.

So rather than simply a cultural study of the practice and people who perform pervasive games, this research empirically investigates the whole messy assemblage of people and things. It is especially concerned with the spaces where people and technology collide and become mixed up. Whether these be the shiny technical artefacts we would recognise as technology, such as smartphones, but also the more ephemeral technologies such as game rules and the background technical milieu that both contains and is contained within the cultural matrix around us. When thinking about the design of these ephemeral systems of people and things we start thinking about experience design as a way to articulate the design process rather than referring to the design of things.

As Nathan Shedroff says in his book *Experience Design* (2001), that whilst everything can be considered an experience there are some that stand out, that are important or special. That these experiences are worth more detailed discussion. In particular that there are elements of superior experiences that are able to be reproduced and replicated via design processes; that experiences are

designable. And, because of the fact that anything can be an experience, any form of design can almost be considered to be a component of experience design as a discipline.

Experience design as a discipline is also so new that its very definition is in flux. Many see it only as a field for digital media, while others view it in broad-brush terms that encompass traditional, established, and other such diverse disciplines as theatre, graphic design, storytelling, exhibit design, theme-park design, online design, game design, interior design, architecture, and so forth. (Shedroff, 2001, p.2)

Within this work, both the research and the thesis, I am approaching the field and design of pervasive games in a wider context than simply game design. The wide range of performance, objects, spaces and activities, as well as play, situates these as a cultural phenomena, or a design practice, outside of just the design of games. Also, the insights from research into this field of practice shed light on other fields as well, from digital games to ubiquitous computing as well as more generally to design and design research.

Both design and design research contain a pluralism of forms (Buchanan, 2007, p.56). Simply it can be put that design research is either or both, research into design or research through design. Nigel Cross describes it (2007, p.48) as either a study of designerly ways of knowing, a study of practices and processes or a study of the form and configuration of artefacts. Or as he says, people, processes, products. Design research is also the mode of using design as a part of research; a form of research through practice. In this case using design disciplines as the form

of practice (Frens, 2007). In this manner, it is more akin to Action Research, and as such the results of the research are “situation-specific” in that they are both determined by the ways in which the skills of the designer are used on the projects and the knowledge is dependent on the context it is produced within.

Brenda Laurel refers to design research (2004) as the practice of conducting qualitative research in order to gain rich insights into peoples’ experiences of a designed ‘object or experience’, whether that be software, object or experience. This is the stage in a design process where designers carry out research for a project. design research then enables design evaluators and researchers to move beyond hunches and provide clear insights based on practical, timely data gathering. It is intended to clear up the ‘fuzzy front end’ of projects, provide iterative validation through development and contribute to evaluation and measurement at the end. Much of this research is often in the form of rapid ethnography (Squires and Byrne, 2002), human observation methods from anthropological research that are used in a manner to gain knowledge about the cultural context the design will exist within.

In “discovery research”, a part of the design process, Susan Squires draws particular attention to culture.

The goal of discovery research is to uncover and understand the cultural system that frames human action to provide a direction for creating new products and services. (Squires and Byrne, 2002)



In this Squires clearly relates culture to design, and that an understanding of the cultural context is vital for commercial design. As Anne Balsamo said, culture is both the material for, and the result of, design. She goes on to say “culture is an under-utilised resource in the process of technocultural innovation” (2011, p.37). She maps a direct relationship between culture and design. That culture is reproduced and intentionally created through the creative practices of professional and amateur designers. Culture, in this sense, is produced through the act of designing, as well as being the context within which design is performed. This creates a situation, where in my opinion, one cannot be studied without the other. Studying culture is largely studying the designed world and vice versa. This matches well with what an ANT informed approach also points to, that practice must be studied as an overall assemblage, the designers as well as the players, products and performance.

As well as design research, cultural studies is another tradition that examines the designed world. As Raymond Williams points out “Culture is one of the two or three most complicated words in the English Language” (1988, p.87).<sup>2</sup> Although a common term, and seemingly unifying element across many different fields, it is employed with subtle differences between each. It is the central study of both the fields of cultural studies and Anthropology. Both Williams and Terry Eagleton (2000), (a student of Williams’), write at great length on the very concept of culture and chart its varying uses. Williams (1988, p.91) points out that “in

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2. With “game” and “design” probably being the other two.

archaeology and in cultural anthropology the reference to culture, or a culture, is primarily to material production, while in history and cultural studies the reference is primarily to signifying or symbolic systems.” Edward Tylor (1958, p.1), an 18th century founder of Anthropology puts it thus, "Culture, or civilisation, taken in its broad, ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society." Clifford Geertz (1973, p.89) describes culture as “an historically transmitted pattern of meanings embodied in symbols, a system of inherited conceptions expressed in symbolic forms.” Eagleton (2000, p.33) says “culture can be loosely summarised as the complex of values, customs, beliefs and practices which constitute the way of life of a specific group.” He goes on to say (p.33) that “culture is just everything that is not genetically transmissible.”

An interesting point that they are all making is on the relationship between culture as a signifying, or symbolic, process and it being transmittable and reproducible. In our contemporary world these concepts become intrinsically tied together through technological processes; rendering the semiotic clearly material, and material clearly semiotic. This certainly reinforces approaches such as ANT, but also relates back to the fundamental connectedness of technoculture as discussed previously. Because of these connections, the idea of culture is interwoven with that of design.

Jonathan Culler (1999) offers both a narrow and broad hypothesis for what cultural studies is. The narrow, that it investigates how people make popular culture from mass culture. The broad, that cultural studies is the practice of cultural theory, the application of what is in effect literary theory, to cultural phenomena to make it “theoretically interesting”. To say that it would make it theoretically interesting is to say that it was not before, and that would be the key concern of cultural studies, to put a sharp focus on the everyday and the banal (Seigworth, 2000). Or as Moran says “One of the key aims of cultural studies has been to develop an inter-disciplinary project that will address these practices of everyday life.” (Moran, 2005, p.9). It is a reading of the banality.

It is their engagement and interactions with the everyday and lived reality that makes pervasive games interesting from both a cultural studies point of view as well as making them interesting to cultural studies. In chapter 4 I look at how the pervasive games communities make their own popular culture out of mass culture and throughout this thesis use theory to make the seemingly banal “interesting”.

So from one point of view, this PhD is design research. It is intentionally situated as the research of the field of practice of pervasive games, and looking at both the design of, as well as the design processes around, pervasive games. Also, it is intended to be a cultural study, and a resource for understanding the cultural context that this field of practice sits within, so as to inform designers, artists, technologists and theorists and help them with their practice.

This study of pervasive games is concerned with what John Law (2004) would call the method assemblage that comprises the practice. It looks at the ways that design, technologies, performances and play make sense of each other. There is no way that one can ontologically separate the game structures from the material that makes them, from the people who make them, from the people who play them and the culture they inhabit. Thus either design or cultural research within this context is the study of all of these things, the study of design, on design, by design, for design. Within this approach research of design blends into cultural research, the two are inseparable in their methods, grounding, desires and ultimately the results. And finally, I would hope that insights from this thesis can help other designers with their own practice.

## **6. Betwixt and between - liminal experience**

In practice what is present is always treated allegorically. It is read to see what it can tell us indirectly about absence. [...] So allegory is denied but it is ubiquitous. Even more important, it is also generative. It messes with the boundaries between manifest absence, visible realities that can be acknowledged, and Otherness, those realities that are also being enacted but rendered invisible. [...] By the same token it extends realities – or it crafts and plays with different and alternative versions of reality. So it is a mode of discovery – perhaps it is the mode of discovery. It is a set of tools for making and knowing new realities. (Law, 2004, p.97-98)

Liminality is a core, but multivalent theme throughout this work. It is a slippery concept and is used metaphorically as well as analytically; useful in as many ways for the feeling that it engenders as a core, stable definition. As Law (2004, p.156) points out we need stories for method, and for subdividing the universal into imagined worlds for analysis.

Liminality is, in this case, the allegory for this thesis and pervasive games as a whole. It is used as a sensitising concept to approach the ethnography with. It is used as an analytic tool to describe the structure of experience. It is the process of change in everyday space that emerges when the virtual and the actual, the imagined and the real hybridise.

The term “liminal” is taken directly from the Latin ‘limen’ for ‘a threshold.’ The idea of liminal states was first used in psychology and through that picked up by Arnold van Gennep (1961) and applied to primitive ritual processes. When one is in a liminal state one is on the very edge of two very different existential planes. There is a clear relationship between the psychological state and the social, physical and temporal state of liminality. Van Gennep identified that pre-industrial rituals proceed through three clear stages; 1) separation, 2) liminal, 3) reintegration. In a ritual, or liminal experience, the participant is removed from their everyday context, social order and identity. Their liminal experience involves the practical enactment of myth cycles and magical situations; where the

real world is strongly entangled with the imaginary and fictitious. And the final part of the ritual returns the participant to the everyday world in a changed state, a new state, a new position in the social order.

In the second half of the 20th century, this ritual process and the concept of liminality was expanded upon and popularised by Victor Turner (1995), an anthropologist who had done extensive fieldwork in West Africa. He noted that pre-industrial rituals were vital practices for dealing with, what he called 'social dramas'; that rituals were performances to cope with changes in the very rigid social order of these tribes. The important aspect of the ritual is that it is what Turner calls 'anti-structure', which for him is not entirely the opposite of structure, but proceeds via a different logic. Participants are 'betwixt and between'. Rituals follow rules and formula but not those of the everyday. The participants cease to be part of structured society, they are outside of it. As part of that, they revert to unstructured, homogenous 'communitas'<sup>3</sup> rather than its opposite, structured, heterogenous 'societas'. As Turner puts it, it is "The realm of pure possibility" (1970, p.97).

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3. I discuss the concept and application of 'communitas' in more detail in chapter 4.

In his later career, Turner took this framework and applied it in other contexts, using it to read different contemporary and historical situations, from the Franciscan monks, to American Indians, from music festivals to, most famously, the theatrical tradition. Along with Richard Schechner, Turner and liminality are the foundation stones of the discipline of performance studies.

In *From Ritual To Theatre: The Human Seriousness of Play*, Turner (1982) makes clear that there is a distinction between ritual and ritual-like activity. Which he specifically does to differentiate between similar types of activity that occur in pre-industrial and industrial societies. There are activities in modern, global, industrialised society that appear to be very similar to pre-industrial ritual. Religious events, music festivals, theatre, play and games all fit into this category. They tend to follow the same anti-structure that ritual follows but there are some key characteristic differences. Rather than liminal experiences, he terms them 'liminoid'. Apart from the clear differences in content, location and participants, Turner identifies two significant differences. The first is that all these activities don't necessarily result in social state change. They may, but most often things go back to normal, no matter what happened during the liminoid experience. The second difference that all this hinges on is the aspect of choice. For pre-industrial societies the rituals are necessary, there is no choice in the matter, the individuals and society must go through them, they have no choice. And on most counts they are not nice experiences for either the participants and/or the social group around them. In one example of a circumcision/manhood ritual, adolescents are

excluded from the tribe and must resort to stealing food to survive. If they are caught they are beaten. They are outside society, and outside the laws and so can and must steal successfully to survive. They have no choice in this, and those they steal from also have no choice. It is not a pleasant experience for either side.

In the remainder of this thesis I use the terms liminal and liminality to refer to the general process and state, following the way that Turner employs these concepts. The term liminoid is used to specifically point out the aspects of choice and lack of state change, and to differentiate between pre-industrial rituals and modern contemporary society.

The story of liminality doesn't end with Turner. In the work of Arpad Szakolczai (2009) and Bjørn Thomassen (2009) liminality is developed beyond its origin in anthropology and ritual studies. For both of them it is a key term for social thought and social philosophy. Thomassen suggests that liminality may be as central a concept to social sciences as 'structure' or 'practice' (2014, p.1). Thinking with liminality conceptualises moments where the relationship between structure and agency are fluid and not easily resolved. In saying this they reflect the ways in which Turner discusses the logic of liminality as 'anti-structure'.

In liminality, the very distinction between structure and agency ceases to make sense; and yet, in the hyper-reality of liminality, structuration and meaning-formation take form. (Thomassen, 2014, p.1)



Thomassen continues by saying that the qualities of liminality are perplexing (2014, p.1), but it is essentially the ways in which people experience and react to change, to ruptures in normality. Liminality is thus both personal and social. In it, human experiences of freedom and anxiety are condensed, paradoxically into liminal moments. On one hand, liminality provides unlimited freedom and sparks creativity. On the other hand, it evokes the unsettling situation where nothing matters, in which norms are broken and authority mocked. Everything can be taken apart. Whether in moments of choice (liminoid) or necessity (true liminal) this can either produce feelings of boundless possibility. Or anxiety, fear and nihilism.

Szakolczai sees it concerned with the very idea of 'form', 'formation' and 'transformation'. Thomassen agrees (2014, p.7)

Liminality opens the door to a world of contingency where events and meanings – indeed 'reality' itself – can be moulded and carried in different directions.

Just as Turner saw pre-industrial rituals as being the processes by which tribes negotiated what he called "social crises" Szakolczai and Thomassen see liminality and the liminal process generally as providing moments of creativity, or breakthrough, to resolve any crisis. That it is the route through which contradictory and seemingly irresolvable contingencies are solved. Or more properly, again taking inspiration from Turner, how paradoxical contingencies are performed. Both process and performance being central to Turner's thinking.

So liminal states can contain contrary and paradoxical meanings. The operation of these states and the products can be in radical opposition to the character of the everyday, and operate outside of those constraints. It is the resolution of these contradictions and paradoxes that is core to the process of liminality. Because of this liminal processes - times and spaces - can produce highly unexpected results.

Both Szakolczai and Thomassen generalise Turner's observations on the spatial and temporal scales of liminality and they see it as a way to understand transition on any scale. In a social sense from personal, through group to societal. In a spatial sense between thresholds and crossings all the way through areas and zones to entire countries and regions.

Szakolczai (2009, 2013) also develops liminality as the link between process, event and experience. Tracing a line from Plato, through Dilthey and into Van Gennep and Turner, Szakolczai discusses the ways in which liminality and experience are related, even that liminality is the way to truly understand experience. That any step or change is an abandonment of the old state, through a process of change, to a new and different state. Experience is a rite of passage, a move from one state to another, necessarily discarding the last; i.e. in maturation rites, to be born as an adult one must die as a child. Liminality and the process surrounding it are the way that transitory situations and transformative events are structured.

Liminality doesn't explain everything though. Liminality simply is (Thomassen, 2014). At its broadest liminality refers to any betwixt and between situation or object, any in-between moment or place, a state of suspense, a state of freedom.

Liminality does not and cannot "explain". In liminality there is no certainty concerning the outcome. Liminality is a world of contingency where events and ideas, and "reality" itself, can be carried in different directions. (Thomassen, 2009, p.5)

Liminality doesn't explain how things are but instead provides a lens to look at the way that things become. It is a structure to look for and a starting point for analysis. It is not an explanatory framework by itself, nor one that describes why things work or are the way they are. The liminal space is one to unpack and examine.

Liminality is a synthetic approach, that brings together a range of separately analysable mechanisms and unifies them in a holistic principle. The concept of the liminal ties together this thesis and links the chapters concerned with people and things. It is a way of describing the space of possibilities that pervasive games exist within, the design space that they emerge from as well as the space of gameplay itself.

## **7. Messy intersections between the technocultural imaginary and everyday lived reality**

Pervasive games, as a practice, as a technocultural phenomena, and as an experience exist in the betwixt spaces between the epic imaginary and the banal everyday of lived space. On the one hand, they exist in the world of *Roku's Reward*; a vision video showcasing non-existent technology. They exist to challenge the nature of what games are (Montola, 2005; Montola *et al.*, 2009). They exist to activate the affordances of the everyday - turning us into superheroes (McGonigal, 2006; McGonigal, 2011). They exist to do nothing less than hybridise space in novel ways (de Souza e Silva and Hjorth, 2009; Benford and Giannachi, 2011). On the other hand, they are often simple games; games expressly designed to interact with, or add layers to, the everyday and the quotidian.

Pervasive games have no essential qualities. They are effectively what people say they are. Their creation is through a network of associations; involving people, computer games, non-digital games, everyday objects, festivals, ideas, technologies, institutions and the background cultural milieu. Pervasive games don't exist per se. They are imaginary in more ways than one.

However, describing them as an experimental game design practice that engages with technology (development) and (everyday) space takes a perspective that looks at them in a non-essential manner. Firstly, that they are a practice that exists within a wider, global context. Secondly, that the practitioners do, consciously or unconsciously, engage with technology, whether that be the spatial

technologies of ubiquitous computing or the technologies of digital gaming. Thirdly, that by designing and placing them in urban situations they are also engaging with urban context.

This experimental game design practice was an unfolding of an imaginary media, or technology. Observing it is akin to a live media archaeology. Watching this imaginary media work out its material reality and mutate into other things.

Rather than looking for the stable centre then, this thesis is concerned with the edges and borders of what are pervasive games. Where are the edges of the design space that they work within? This supports the two research aims:

- How is the development of pervasive games, the history and future, enabled and constrained by its technocultural situation?
- How does this technocultural situation affect and shape the experience of pervasive games?

In chapter 8 I conclude by coming back to this as a set of tensions that describe this space. That the edges become a way to understand what they are, and why they feel the way they feel.

In the next chapter, I examine the literature and history behind pervasive gaming. In doing this I point out the role of ubiquitous computing research agendas in framing the beginnings. Then I outline a brief history whilst dismissing any teleological approach. I then discuss the rhetoric and positions of many of the

authors who have mapped out the field. Finally, I outline some of the tensions this background literature creates for the design space of pervasive games, and the way it points to the necessity for critical and empirical research in the field.

## Chapter 2

### Genealogies of Pervasive Gaming

The field of pervasive gaming exists between epic visions of technically augmented games and the messy quotidian of play in physical reality. The development of these games has involved a discourse which overlaps with the associated discourses around computer games and ubiquitous computing. This chapter describes in more detail the epic visions - the technological imaginary and the academic writing that, in part, shape the practices of pervasive gaming. The aim being, to critically examine the, largely academic, research to show that particular attention to the conceptual and rhetorical positions behind pervasive gaming is necessary to understand how they shape ongoing practice. However, the discourse by itself doesn't shape the design of these experiences and is only one form of contingency. This chapter leads to the main critical position, that more attention needs to be paid to the other, embodied, technical, social and cultural contingencies through empirical research. The remainder of this thesis is intended to do just that. To understand how these material contingencies play out and examine the ways in which they shape the design and experience of pervasive games.

Pervasive gaming as a field is, perhaps most importantly, historically contingent on the development of ubiquitous computing and in the first section of this chapter I discuss how and why that is. I provide a sketch of that research area and the way the agendas and visions shape it. In the second section, I will describe a brief history of pervasive games and associated consumer technology developments. In the third section, I critically examine the discourse specific to pervasive games, focussing on its strong relationship to digital games and their academic study. Within the fourth section, I extract underlying themes that reflect what this discourse has been most concerned with.

## **1. Why is ubiquitous computing important?**

I find ubiquitous computing so attractive [...] because of the majesty of the ideas and the lyricism of the language.

(Sterling, 2006)

The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it.

(Weiser, 1991, p.66)

The same mix of the epic vision, the grandiose ideas and the insertions into the everyday is apparent in both ubiquitous computing (often shortened to ubicomp) and pervasive games. This is no simple accident, pervasive games sprang from ubiquitous computing and has clearly taken and developed not just the



technologies, but also its visions and agendas. In section 4 I will examine how these agendas are transformed through the literature of pervasive gaming, but first, in this section I will look at their origins within ubiquitous computing.

There are two important aspects to the underlying reading of these ubicomp visions, in the first as Adam Greenfield, who renames ubiquitous computing “everyware” says “The project of everyware is nothing less than the colonisation of the everyday” (2006, p.33) and in the rest of his book describes the majestic vision of how ubicomp acts from human scale to city scale, how it inserts itself into areas not previously technically mediated and will subsume traditional computing paradigms (2006, p.177). His take on ubicomp is typical of both this lyricism and majesty that Bruce Sterling finds attractive, the visions, goals and problems are huge, heroic and exciting. But the situations, scenarios and contexts of ubicomp are firmly in the quotidian. As in Weiser’s (1991) seminal scenario, his design protagonist is concerned with waking up, morning coffee and an everyday commute. Also although most of these ubicomp scenarios seem like science fiction, or visions of the far future, most research and development has been done with proximate, and often commoditised, technologies. Much of the research work is concerned with technical implementation, using close to hand technologies and materials, situated in the everyday and in what would otherwise seem like banal contexts. However, I would argue that there is a massively

productive, and no doubt necessary, tension within this dichotomy. One that is mirrored in the development of pervasive gaming and which I will return to throughout this thesis.

In this section, I will explore important elements of the ubicomp discourse and the core technologies. In the first instance, I wish to discuss some the key statements and attitudes of ubicomp researchers in such way as to highlight the origin of important rhetorical positions in the field of pervasive gaming. I also wish to talk about the key technologies of ubiquitous computing to show how their material and historically contingent nature form a basis for both the development of ubicomp, but also pervasive gaming. But first ubicomp needs a little explaining.

## **1.1 What is ubiquitous computing?**

Given the variety of the ways of understanding ubicomp, it seems reasonable to ask: how does one summarise the background to a research project when it makes up an entire agenda, or research ethos, in a different discipline?

(Kinsley, 2010, p.22)

Mark Weiser the progenitor of ubiquitous computing created a sub-discipline of research within computer science through a process of building a shared vision, a set of general philosophies, and as Rich Gold says nearly creating a cult (2007, p.66). Weiser (1993, p.75) defines this research direction as this:

Ubiquitous computing enhances computer use by making many computers available throughout the physical environment, while making them effectively invisible to the user.

Twenty years on from the beginnings of ubiquitous computing things are much more complex. At the beginning of his book *Everyware*, Adam Greenfield (2006, p.11) gets it right in saying that “there are many ubiquitous computings”. And as Sam Kinsley (2010, p.11) points out, the meaning associated with the simple signifier ‘ubicomputing’, has outgrown its initial definition by Mark Weiser. Recently Anne Galloway lists the plethora of terms that could be considered synonymous with uicomputing research or involved in the research agendas.

Ubiquitous Computing, Pervasive Computing, Mobile Computing, smartphones, Wearable Computing, Calm Technology, Spimes, Internet Protocol v6, Invisible Computing, Seamless Computing, Wi-Fi, Ambient Intelligence, Augmented Reality, Mixed Reality, Radio-Frequency Identification, Intelligent Environments, Internet-Of-Things, Physical Computing, Networked Objects, Smart Dust, Things That Think, Global Positioning System, Tangible Media, Mixed-Reality Games, Thinglinks, Body Area Networks, Blogjects, Context-Aware Computing, Cell ID, Spychips, *Everyware*, Participatory Panopticon, Smart Homes, Ambient Findability, Geospatial Web, Sensing Technologies, Physical Metaverse, *Locative Media*. (2008, p.110)

Even though there is a rich and diverse discourse, there are some general commonalities in the terms used to describe uicomputing, which appear to involve joining the four terms ‘ambient’, ‘pervasive’, ‘ubiquitous’, and ‘urban’ with either of ‘computing’, ‘intelligence’ or ‘media’ (Kinsley, 2010, p.31-32). One of the most

useful ways of thinking about this within the context of pervasive games is the way of discussing ubicomp generally as a 'post-desktop computing paradigm' (Galloway, 2008; Weiser, 1991). The logical analogy being, instead of moving people away from desk working into a post-desktop environment, it is moving players away from PCs and gaming machines, into a post-computer, post-screen world.

The key research questions, or aims, of ubicomp are still the same as the ones that Weiser sketched out two decades ago. These are context-awareness; ambient intelligence; and recording, tracking and monitoring (Rogers, 2006). These are by no means clearly distinct categories and overlap heavily in practical application. Context awareness focuses on detecting, identifying and locating people's actions and environment and then providing relevant computational behaviour. Within this is location and proximity sensing, as well as activity and behaviour awareness. Context awareness outside of very constrained conditions is hard because it requires sophisticated models of human behaviour and intentionality, and people often behave unpredictably. Ambient, or ubiquitous, intelligence is concerned with embedding computation capabilities and decision making in the environment. This can range from simple sensors, such as water saving in toilets or lighting control, through to much more complex systems that attempt to sense like humans. Like many hard AI problems, ambient intelligence is very intractable. Monitoring is achieved both through the commonality and range of

sensing devices, but also through the large-scale collection of data from these sensors and devices. This data collection and use raises inevitable privacy and ethical issues.

Kinsley's (2010) interviews with senior researchers in the field of ubicomp, agenda-setters and vision-formers, show that they characterise ubicomp in five ways. For some, it is a proliferation of systems and devices, where we carry around many ubiquitous objects. For others, it is a move away from devices and a shift to thinking about computing as a capacity in the environment. A third way is a focus on human activities and how computing can support them, rather than a focus on the material format of the computer. In relationship to this, some discuss ubicomp through the concepts of 'disappearance' or 'invisibility' of technology, that it shrinks out of sight of users. The final mode of thinking is that it is a new phase or 'paradigm' for computer science research. These positions are not mutually exclusive and Kinsley's interviews show the researchers may characterise ubicomp in different ways for different political, economic and practical reasons.

Kinsley shows that the ways of thinking about ubicomp and the visions created in this process have a strong agency in the construction and progress of the research discipline and technologies that emerge through it. The key research areas and questions within ubicomp also have an implied attitude to the world and a set of underlying political assumptions. In section 3 of this chapter I will pay closer attention to the key rhetorical positions, building on the above characterisations

and research aims of ubicomp. These visions by themselves do not determine the progress of technical development, there are also material contingencies that shape the practices of ubicomp and, through that, the wide field of pervasive gaming.

## **1.2 The materiality of ubicomp, pervasive and mobile computing technologies.**

Within this subsection, I discuss the material nature of ubiquitous computing and bring attention to the specific material technologies that characterise it. The material aspects of both digital games and ubiquitous computing are often ignored and little attention has been given to the meta-stable collection of technologies that underpin the ubicomp research agenda. The very nature of these technologies influence the development of ubiquitous computing, and through that also materially impact pervasive gaming.

As stated above, within ubicomp there is a clear tension between these visions of a seamless and invisible set of technologies and the very nature of their embodied, and material existence. For example, the material nature of Wi-Fi is not the idealised concentric circles of radio power decreasing in an inverse square law from their point of origin, with a smooth spread of connectivity. Instead, the physical world constantly changes and warps the electromagnetic field to create hot spots and dead zones (see figure 1, for a Wi-Fi visualisation project). The (usual) connection limit on a Wi-Fi router seems like a lot when dealing with experiences for a few users, but when confronted with a world saturated with

internet-hungry smartphones, means that designers have to deal with random passersby connecting, unsuspectingly, to their technical infrastructure. These create a set of problems that cannot always be predicted in the lab, and cannot be avoided in the real world and may result in experiences that can feel radically different from what is expected.

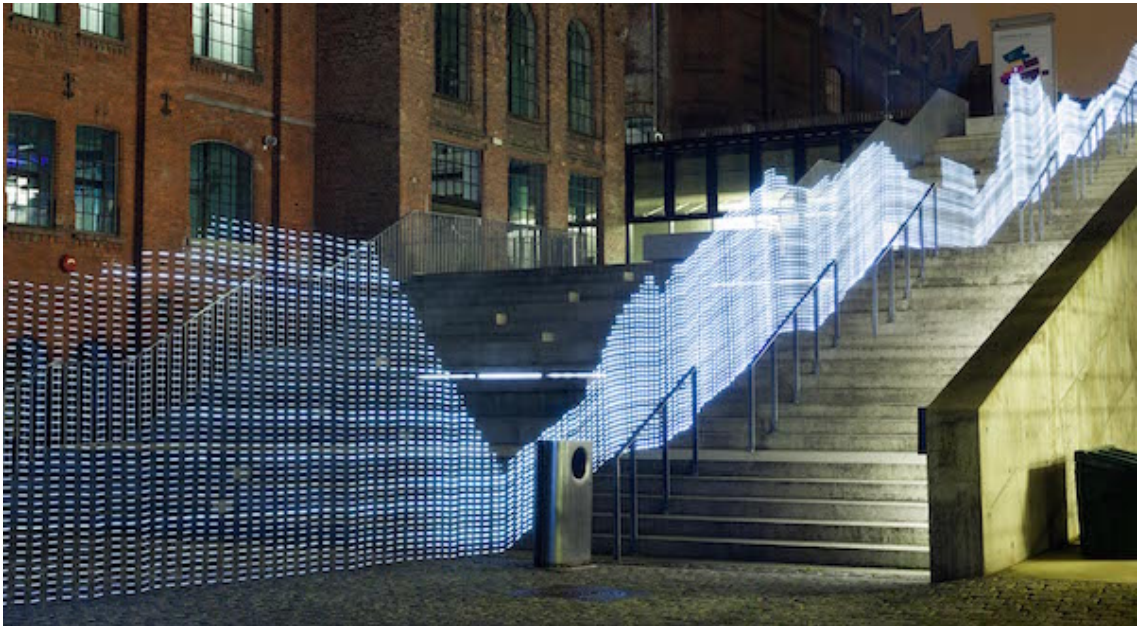


Figure 1: Immaterials: Light painting Wi-Fi  
(Arnall *et al.*, 2011)<sup>4</sup>

Although much of ubicomp seems to be concerned with the invisible and immaterial, there is little attention to these issues. The most mature and considered response from within the ubicomp discipline is around the meta-

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4. Immaterials (Arnall *et al.*, 2011) is a measuring rod for visualising the immaterial Wi-Fi networks in cities. based on the idea of a surveyor creating maps, the trio's work creates an abstracted cross section of the invisible networks and landscapes that are an integral part to how today's cities function. The 4m tall rod has 80 LEDs running the entire length that pulse and raise based on the strength of a selected Wi-Fi network. Through long exposure photography and three weeks in the grünerløkka area of Oslo, Norway.

strategy of “seamful design” (Chalmers and Galani, 2004; Chalmers *et al.*, 2005; Matthew Chalmers *et al.*, 2003). Chalmers and collaborators discuss exactly the types of problems presented above and the necessary system design response. Rather than trying to create invisible, seamless experiences, the “beautiful seams” can and should be made apparent. That information should be presented cautiously rather than fighting uncertainty with ever more intricate engineering solutions. Experiences should be responsive to the heterogeneous nature of technical infrastructure and its interaction with the physical world. This response is a design one, an embodied, observational, contextual one; moulding the experiences and interactions to the material of ubicomp, rather than attempting the opposite. It is, importantly, a craft sensibility to the underlying material properties of ubicomp technologies and their interactions with the everyday world around them.

Ubiquitous computing is often also identified with a set of common technologies: Handheld or wearables, mobile devices, wireless networking (Wi-Fi), mobile network data, Global Positioning System (GPS), Bluetooth, digital cameras, Radio Frequency Identification tags (RFID), barcodes (Universal Product Codes), QR codes and more recently Near Field Communication (NFC). And although all these technologies are largely dependent on seemingly invisible technologies - radio waves and the miniaturisation of computation - there is an underlying materiality due to their interoperation and interactions with the wider, physical world.



In *Divining a Digital Future* Dourish and Bell (2011) discuss how ubicomp technologies and their effective functioning are reliant on complex, and often hidden, infrastructures. They split this into two recursively related elements. First the infrastructure of experience, and second the experience of infrastructure. In the first instance they talk about how space is experienced through the cultural practices of everyday life. Secondly, they discuss the ways in which infrastructures are experienced through manipulation and interaction. I will return to the concept of infrastructure in chapter 7.

Another important aspect of all of these technologies is that they are very near term. That the ubicomp research discipline, and through that pervasive gaming practices, have not invented new technologies from scratch. They tend to use commodified technology, ones that are either in the consumer domain or very near to being deployed into it. In many ways this is again a craft response, using available material, rather than creating new materials. The main thrust of the research has been to design and develop systems and experiences using readily available technology. Many agendas involved industrial research attempting to find additional uses for newly commodified technology, or ones that had had a drastic reduction in cost. For example the inclusion of GPS on some early PDAs and smartphones was due to the fact that it could be included at little extra manufacturing cost (Kindberg, 2012).

### **1.3 Ubicomp messiness**

Dourish and Bell (2011) say, “ubicomp is really about messiness”, echoing the ontological messiness of Law (as discussed in Chapter 1), but also referring to the physical messiness of incompatible infrastructures and the nests of cables in computing labs. Their messiness also refers to the myriad of interpretations of ubicomp. A study of pervasive gaming, partly a child of ubicomp discourse and technologies, must be sensitive to, and address, this multiplicity of meaning and the infrastructural messiness.

## **2. A history of pervasive discontinuities**

History becomes “effective” to the degree that it introduces discontinuity into our very being (Foucault, 1984, p.88)

This section is not a long history of pervasive games, or an authoritative lineage; i.e. where they came from, who might have invented them or why they came about. Instead this intends to show some of the wide variety of historical contingencies that led to the discontinuous development of the technocultural field of practice that is pervasive gaming.

### **2.1 Gaming and media precursors**

One of the more complete histories has been written by Montola *et al.* (2009), where they trace the gaming and media influences and precursors. They point to campus culture; through stunts, pranking, hacking and physical gaming such as Killer. Performing and performance arts, such as Augusto Boal’s Theatre of the

Oppressed (2000), Happenings, Fluxus and Situationism. The growth of computer gaming as a cultural form and the commonality of computer gaming in everyday life leads to a gamer culture. Role-Playing Games (RPG) and the growth of Live-Action Role-Playing (LARP). And especially the treatment of these subjects through popular literature, such as Cronenberg's *eXistenZ* (1999) and Fincher's *The Game* (1997). These influences are by no means separable, and themselves cross over; cross-pollinating. They suggest that pervasive games might be part of a larger cultural shift questioning the concepts of "the real" and "fiction." Through this history Montola *et al.* wish to move away from the technological contingencies of early pervasive gaming and push for the importance of the cultural context<sup>5</sup>. Following on from McGonigal's (2006) simple description of pervasive gaming being the coming together of experimental game design and ubiquitous computing, Montola *et al.* have described the paths of the experimental game design that lead to the emergence of the field of pervasive gaming. One of my key points however, through all of this chapter, is that the technological contingencies as well as the visions and rhetorics associated with their development have played a significantly larger part than previous writers have given credit to.

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5. In fact I would argue that they are attempting to make the culture and game aspects pre-eminent. They don't address the technology very seriously. In a 300 page book they only devote 11 pages to technology.

## 2.2 The year 2000

In 2000 the first documented pervasive game *Pirates!* was played at the Handheld and Ubiquitous Computing conference, sponsored by HP Labs, in Bristol UK (Björk *et al.*, 2001; Falk *et al.*, 2001). Implemented through handheld Personal Digital Assistants (PDAs) and connected together over a wireless network, researchers gathered at the conference navigated a fantasy, virtual, pirate-themed world, overlaid on the physical conference hall. Various sensor-augmented objects corresponded to islands in the shared online space. As they walked between them they would sail between the islands and as they approached each other the proximity sensors on the PDAs sensed they were nearing and they could interact in the virtual space.

The year 2000 was also the beginning of massive growth for the sales of PDAs. They had been on the market since the release of the Psion in 1986, and the first touchscreen being the failed Apple Newton in 1987. Touchscreens and PDA sales took off about the time of the release of the Palm Pilot in 1996 (Wikipedia, 2012c). Across 2000 and 2001 the first smartphones were introduced. In 2000 the touchscreen Ericsson R380 smartphone was released, at the end of 2000 the Nokia 9210 Communicator was released and in early 2001 the Palm Inc introduced the Kyocera 6035 (Wikipedia, 2012c). These early smartphones didn't challenge the dominance of the PDA market until 2006, with the PDA market still

growing through the 90s and early 2000s (Intel, 2007; Intel, 2005). As the 2000s progressed, the differences between what was a PDA and what was a smartphone started to diminish, and sales of pure PDAs dropped dramatically.

In 1999 *The Nokia Game* was released in the Netherlands. This is credited as being the first Alternate Reality Game (ARG) as it involved everyday interventions such as phone calls, text messages and clues in marketing material (Montola *et al.*, 2009, p.38). In early 2001 *The Beast*, an ARG to promote Steven Spielberg's movie *A.I.* was created. Sean Stewart, then at Microsoft's Game Studio used the marketing money that was intended to create a spin-off computer game to build a fictitious online alternate world packed with characters, clues, challenges and payoffs for those who followed them. *The Beast* is seen as being one of the more successful games and set the form and tone for future ARGs (Abba, 2009). Electronic Arts also tried to launch *Majestic*, the first commercial and standalone ARG, soon after in 2001. *Majestic* failed spectacularly, partly because of its timing (the game was about conspiracies and terrorism and it launched shortly before 9/11), and probably also due to it not being linked (commercially and diegetically) to another storyworld.

### **2.3 The year 2006**

In 2006 there was still a degree of diffusion around the naming of these games, but work being done in Scandinavia appeared to have stabilised around calling these experiments in gaming and ubiquitous computing, pervasive games. 2006

was the middle point of the Integrated Project of Pervasive Games (IPerG), an EU funded collaboration of universities and industrial research from Finland, Sweden, Germany and the UK that ran from 2004 - 2008 (IPerG, 2008). The vast majority of the games created and funded by the IPerG project played out across 2006 and 2007. Hewlett Packard's Mscape, multimedia, locative authoring platform was also made available in early 2007 (Stenton *et al.*, 2007).

The trend to take these games out of the lab also began with designers mixing high, low and no-tech games in a non-academic festival of games in New York City.

In 2006 the Come Out & Play Festival turned New York City into a playground for a weekend, then did the same for the city of Amsterdam in 2007. We returned home to NYC in 2008. And 2009. And 2010. Over the years, thousands of players have gathered to play dozens of city-wide games. Players raced through the night in a city-wide game of zombie tag. Friends faced off in life-sized Pong using only their ears to "hear" the ball. (Papier-mache) pigeons were pummelled with wiffleball bats. Bicyclists armed with spray chalk and stencils competed to claim and build bike lanes. Strangers worked together to build and race blindly through labyrinths as part of an ancient lost sport. Payphones produced points, and Tompkins Square Park became a putt-putt course. And it's all just the beginning. (Come Out & Play, 2010a).

ARGs also took a commercial turn in 2006 with new marketing and cross-media storytelling experiments emerging. Both *The Lost Experience* (Wikipedia, 2012d) and *Heroes Evolutions* (Wikipedia, 2011) were started, both linked to high profile TV series of the time. These two extensions of the show's story worlds into the

World Wide Web shared similarities with earlier ARGs, but were arguably simpler, less difficult and aimed at a more general audience. They were intended to extend and deepen audience engagement with the TV series. *Lonelygirl15*, a stand-alone experiment in cross-media storytelling, not supported by a larger mainstream media property, also started its run in 2006 (Wikipedia, 2012b).

On the 9th January 2007, Apple announced the launch of their iPhone (Wikipedia, 2012a). This product dramatically changed the slow-growing smartphone market, and over the next few years would quickly put many of the technologies associated with ubiquitous computing - such as GPS, Wi-Fi, digital cameras - in consumer hands (Mintel, 2011).

## **2.4 Histories of the present**

History continues unabated and discontinuous. When I started writing this in 2013, as much time had passed since the early 2007 launch of the iPhone as had passed between 2000 and 2006. Adult smartphone usage had reached 53% in the UK (Mintel, 2013), mobile data traffic was rising<sup>6</sup> and mobile connectivity was already becoming ubiquitous. The era of the app and app store had arrived. In April 2015 adult smartphone usage had reached 75% in the UK (Mintel, 2013). The technical infrastructure planned by the agendas of ubiquitous computing research is growing. Predictions and visions have, as they usually do, not come

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6. About 20 million Gb per month in 2012. Which is a 122% increase on 2011 (Mintel, 2013). In 2014 this had grown to approximately 74 million Gb per month (Cisco, 2015).

true. Certainly not in the way that those that are trying to engineer the future envisage. But threads that I have highlighted here are unravelling into the wider world, having further reaching effects than just the field of study that I am concerned with here.

The major innovations in gaming that have occurred over the last few years have not been ubicomp based or physical, they are instead concerned with social networks, freemium models, micro-transactions, virtual goods and snack-sized gaming on mobile platforms (Marketline, 2011). Mobile gaming has become a major media consumption activity (Marketline, 2013). The gameplay of mobile games is still screen based, and easily recognisable from the year 2000. The changes that have been wrought by mobile gaming have to do with the way these games now fit further into the nooks and crannies of people's lives via bite-sized chunks. Most of it does not take account of the sensory capacity that contemporary mobile devices contain, nor do they challenge the paradigms of single player, geographically contextless, computer-mediated gaming.

Since *Come Out & Play* established itself in 2006, there was a growth and then a decline in experimental, physical game festivals of a similar nature, such as *Igfest* (2008 - 2012) and *Hide & Seek* (2007 - 2012) in the UK. They spawned many smaller copies and clones, all claiming inspiration from these three originators. The games in these festivals have all tended to plot a trajectory away from obvious high technology and revel in low-tech solutions and physical play.



### **3. The discourse of pervasive games**

The discourse around pervasive games has often tried to paint a picture of either a unified underlying conceptual basis or a core set of values that the design of these games might ascribe to. These points of view have tended to suit the rhetorical positions of the designers and academics involved.

These are in no way mutually exclusive and I discuss them, though not individually, in the following six subsections. These subsections problematise various aspects of the discourse around pervasive games, which lead to interesting opportunities for research and practice.

#### **3.1 This might be a game; colonisations everywhere**

*When I was at a Hide & Seek run sandpit I talked to a player who had just finished a game run by a small theatre company. With his fellow players, he had just come out of an elevator and been escorted to a picturesque finale on the balcony of the Royal Festival Hall, overlooking the Thames and the London skyline at night. Just about the first thing he said to me was “Did I just win the game? I didn’t see how I could have lost?” (field note)*

“This Is Not A Game” as a term was coined as part of *The Beast*, an Alternate Reality Game (ARG) created as part of the marketing campaign for Steven Spielberg’s movie *A.I.* It emerged as a design goal, central aesthetic or rule for the writers/designers and the sentence was purposefully leaked out into the game itself. Almost as a sign of game content appearing, the “This Is Not A Game” message would also appear. For an ARG, a gameplayed in the everyday world, it is intended to be a plea for realism and immersion, a further reminder to suspend

disbelief. It is paradoxical, in that for the claim to be taken seriously the reader must in some way suspect that what they are experiencing is a game for it to truly make sense.

“This Is Not A Game” has become a key leitmotif, or slogan, for much of Jane McGonigal’s work. Her PhD thesis, *This Might Be A Game* (2006), is one of the earliest, and most sustained pieces of analysis of the field of pervasive gaming. At the time she was writing the terminology had not quite stabilised, and she refers to the games in question as falling between being called both ubicomp games and pervasive games. These two camps largely determined by the research fora in which the results are presented. Her thesis specifically “examines the intersection between ubiquitous computing and experimental game design, circa 2001AD.” (2006, p.1)

In her thesis, McGonigal (2006) uses the work of Rich Gold, an artist working with the early ubiquitous computing research at Xerox PARC. He wrote a short article, *This Is Not A Pipe* (Gold, 1993), which used Magritte’s painting of a pipe to discuss how developments in ubicomp call into question our relationship with the design and use of objects.

“This Is Not A Game” now becomes more than just a request to blur the line between the reality and fiction, but can be read in many different ways. It becomes an ontological and phenomenological challenge. In the sense that Gold uses it as a challenge to the understanding of materialities of objects and the transformational nature of the implementation of ubiquitous computing within

the everyday world. McGonigal is interested in the ways in which Gold exposes the way that the everyday can be transformed by ubiquitous computing, but fails to follow through on the fundamental question when applied to games themselves. If “this is not a game”, then what is the fundamental way in which experiences that start as games are transformed by the application of ubicomp rhetorics or their intersection with the realities of the material world.

The title of McGonigal’s thesis is also a cheeky reworking of her slogan. Through saying that these things might be games she is alluding to her own, personal judgement of some of these “games”. She does this through creating a three-part, critical, taxonomy for the case studies she describes. The first are what she calls ubicomp games, the games developed as part of ubiquitous and pervasive computing projects. The second are pervasive games, large-scale games with a spectacular element. The third are what she calls ubiquitous games. These final ones are those that activate the affordances and possibilities of the realities around the players. The title of the thesis even points to the fact that she may not feel that some of her case studies merit the term game, that some of the ubicomp and pervasive games do not have the necessary gameplay.

Her critique of ubicomp games is that they are largely motivated by research agendas and that they are often single playings, with small numbers of participants, little game design thinking, and the documentation focused solely on technology development. She describes this class of game as scientific research colonising play, games become a medium for furthering hardware and software

development. Her critique of, what she calls, pervasive games is that largely the game or play elements are subservient to the spectacular, or possibly even an activist nature of the event. That these games are intended for more than just the players' enjoyment, they are more accurately performances, even going as far as to liken them to non-interactive cutscenes in games (McGonigal, 2006, p.193). These games are disruptive experiments with the possibilities of what games can be if set loose from boards, boxes and screens and radically inserted into the everyday. Her third type of game are the ubiquitous games, those that according to her take the philosophy of ubicomp, rather than just the technology. Her vision for this type of game is that they activate, and augment, the natural affordances of the everyday and add gameplay to the quotidian. They create epic experiences in the everyday. And in her work, all game experiences are by definition epic experiences (McGonigal, 2011).

This final characterisation of games reflects the rhetorical direction of McGonigal's thesis. She dedicates it specifically to "the ubiquitous gamers" (2006), and her critique (though not unfounded) is certainly directed at the ubicomp and pervasive games, and the ubiquitous games are universally celebrated. The space in the work is also unbalanced, in that 70 and 72 pages are devoted to ubicomp and pervasive games respectively, whereas 221 pages are devoted to the discussion of the ubiquitous games.

McGonigal's work does point out three key issues. First that the field of pervasive gaming has come about through the colonisation of experimental gaming by ubicomp research agendas, and even when the technological capacity and investment disappears the discourse around ubiquity still remains. Secondly, that many of the games cited within the canon of pervasive games may or may not be games in the strictest definition of the term<sup>7</sup>. Thirdly, that both ubicomp and pervasive gaming are also colonising the everyday, which in her opinion is a positive change, but this interaction should be approached in a more critical manner.

### **3.2 The everyday**

If virtual reality technologies may be understood as visual, and spatial, technologies, these wireless and ubiquitous technologies firmly add the dimensions of sound, and time, to our everyday experiences.

(Galloway, 2004)

One of the interesting ideas that is developed in McGonigal's thesis (2006) is that of 'activating the everyday'; that is changing the affordances through the reframing of an experience with gameful and playful systems, as well as augmenting the possibilities of objects through embedded technology. In this, she draws very much on Weiser (1991, 1993), Gold (1993), Winnicott (1991), and the Donald Norman (1998) version of 'Affordances'.

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7. The common games studies foundation of what a game is: rules, goals, objectives, processes, artificial conflict, negotiated outcomes. (Juul, 2005b)

The main issue here is that this activation of the everyday is treated in a non-problematic manner. That the everyday does, in fact, need to be activated through games, and that these approaches are an intrinsically more positive way to engage with it. Additionally, McGonigal's work and other's in the field discuss the everyday, but don't engage with the body of literature, especially in cultural studies, theorising the complexities in this area.

Within cultural research the main person used for problematising this is Michel de Certeau through his *The Practice of Everyday Life* (2002). He discusses spatial practices and the nature of everyday life through his concepts of strategies and tactics. Strategies being the fields of power and agency that institutions create upon the world and tactics are the fleeting ways in which individuals negotiate these strategies. He shows that rather than a passive activity spatial practices can be a vibrant, proactive and creative set of actions tactically responding to these grand strategic situations. De Certeau even goes as far as to describe this as already being a game. Pervasive Gaming in this context can either be seen to create new strategies for tactical exploitation or asks players to take different - playful, tactical - stances within existing strategies. This creates a critical opening up of de Certeau's spatial practices in that they are largely concerned with the 'use' of space in mainstream, ostensibly serious activities. What is the difference in people's experience of lived space when these activities are playful and mediated by game structures; when they truly are a game?

A central, and possibly artificial, tension in this discussion of digital games and the everyday is the idea that these two are somehow separate frames or lenses. These two experiences are in some form of intrinsic opposition, reality and make-believe, the serious and the frivolous. And in many ways, pervasive games are designed to challenge exactly this. A core theoretical construct of this separation is the idea of the ‘magic circle’, the physical and metaphorical separation of play and games from the everyday.

### **3.3 Challenging the magic circle**

Influenced heavily by the literature in game studies, Montola, Stenros and Waern (2009) present one of the most widely used descriptions (or definitions<sup>8</sup>) of pervasive games. They describe the nature of pervasive gaming using Salen and Zimmerman’s (2003) concept of the Magic Circle. This idea, heavily influenced by Johan Huizinga (1992) is that play and games occur in a separate ‘space’, set aside from the ‘real’ world. Playful activities occur in a space that has spatial, temporal and social borders. Montola *et al.* create a framework from this idea of a very geometric closed space and describe pervasive gaming as games and playful activities that “extend” any and all of these three boundaries. When they say extend though they mean two things. In one sense they do mean to physically scale either the social, spatial, or temporal properties of the game and through this transform the nature of what it means to be a game. For example to have

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8. Marcus Montola originally published this in a paper called *Exploring the Edge of the Magic Circle: Defining Pervasive Games* (2005)

significantly more players, large play spaces or longer play time. However, in most cases they mean this “extension” to mean a blurring of blurring of edges. So that who is playing is a question, where the game takes place, or when you are in or out of game is a central part of the gameplay experience. Ultimately they plot all the case studies they write about onto these three dimensions and use this dimensional analogy very heavily, mixing up the issues of scale and uncertainty of each of these three dimensions.

The magic circle approach doesn’t work very well as a way to describe the so called ‘space of gameplay’. Games don’t have an artificial separation from the real world and are heavily situated in the everyday, with much blurring and extension of the magic circle already occurring (Pargman and Jakobsson, 2008) and culturally, games have never been truly separate experiences (Consalvo, 2009; Malaby, 2009; Taylor, 2009a). Zimmerman (2012) has also recently dismissed his rigid construction of the magic circle as being merely a metaphor to help designers, and not to be taken as definitional for games.

The key aspect of this approach to pervasive games is that it intrinsically intends all pervasive games to be games that challenge the very nature of what it is to be a game<sup>9</sup>. That the core aesthetic of gameplay would be a challenge to the player of

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9. Stenros and Montola’s academic work as a whole is to study games and play experiences that challenge what it is to play or to game. Much of their research is concerned with the edge cases of games. This makes the statement of “pervasive games to be games that challenge the very nature of what it is to be a game” fairly circular in their research agenda. They set pervasive games up as exactly the thing they wish to study.



whether they are playing a game or not or a constant questioning of whether they are in or out of gameplay mode. This seems to be invoking the spirit of Goffman and his frame analysis.

Montola *et al.* (2009) use the work of Gary Allen Fine (2003) and his reworking of Goffman's frame analysis (Goffman and Berger, 1974). But they fail to work this into their models and definitions. Fine presents a three-layer model for the way that players of *Dungeons and Dragons* negotiate the various frames of the game. The first level is where the players frame interactions as taking part within the shared diegetic world of the fantasy role play. The second is the level where the players engage with the rules and mechanics of the game, consulting books and rolling dice; figuring out the models for the world their characters inhabit. The third frame is intended for what goes on outside the game. For example, what they just had for dinner, what was on TV last night, how their job is going. Fine's research showed that players easily and comfortably slip between these frames and that there is a clear understanding of what they are thinking and saying at any moment. It is hard to challenge this framing, or to break the barriers between frames. Players know when they are interacting in and out of game, or story, and fluidly slip between these frames; re-mixing their own realities, and negotiating the thresholds.

### **3.4 Mixing realities. Virtuality, actuality, hybridity**

[...] perpetual allusion to the materials and the principle of the theatre found in almost all alchemical books should be understood as the expression of an identity [...] existing between the world in which the characters, images, and in a general way all that constitutes the virtual reality of the theatre develops, and the purely fictitious and illusory world in which the symbols of alchemy are evolved (Artaud, 1958, p.35)

The very term 'virtual reality' (VR) has a long history, dating back to this first reference by Artaud, written in 1938. Between then and the first technical experiments in the late 70's science fiction authors, notably Stanislaw Lem, explored through story the ideas and implications of virtual reality. These showed both the promises and the dangers still envisioned today. In the 1980s Jaron Lanier popularised the term virtual reality, and helped create the common technical objects that are associated with VR - head mounted-displays and gloves (Rheingold, 1992).

During the 1990s there was significant excitement around the technology of VR and it's possibilities. VR was touted as a new medium, a new expressive space and place that would take over from mediums, and ultimately reality (Laurel, 1991; Murray, 1998). Media depictions of VR through the 90s, such as *The Matrix* or *Star Trek: The Next Generation*, also envisaged it as a totalising, and dominating medium. But since the late 90s little development has happened. Lister *et al.* (2008) entitle a book chapter on VR, "Whatever happened to VR?" Cataloguing the ways in which VR didn't deliver on the visions of the 80s and 90s, and using it as a way

to discuss the relationship between technologies and mediums. VR continued to survive in military labs and is now experiencing a resurgence via technologies such as the Oculus Rift.

The concept of mixed-reality is derived from virtual reality. The mixed reality continuum was introduced by Milgram and Kishino (1994) as a way to map out emergent fields of research within computer graphics. This built on the work that had occurred in virtual reality, and the assumed dichotomy between this virtuality and physical reality. In between these two poles of realities, there could be various forms of experience that could mix physical reality with computer graphics - mixed reality. At one end of the spectrum, would be 'augmented reality' which would computationally overlay graphics on physical experiences, such as Sony's *EyePet*, or Google's *Glass*. At the other end was augmented virtuality, that would include real-time aspects of the physical world in virtual spaces; aspects of this can be seen in Linden Lab's *Second Life*, where live video or audio can be viewed, or the contemporary BBC TV broadcasts of the *Swingometer* showing a presenter walking over live computer graphics. (See figure 2)

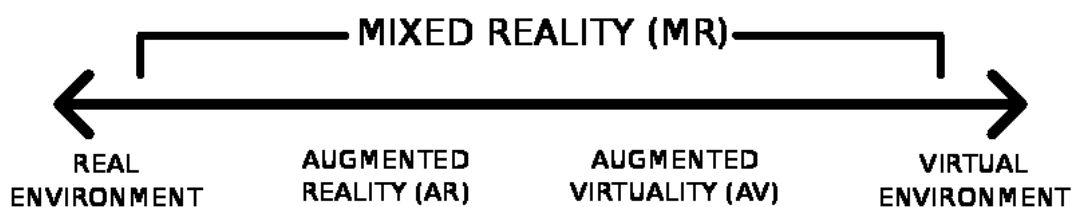


Figure 2: The mixed reality spectrum,  
(Milgram *et al.*, 1994)

This artificial continuum, and the opposition it creates, has implicitly dominated the development of mixed-reality and location-based experiences, whether games or not. As others have pointed out (de Souza e Silva, 2006b; Galloway, 2008) this is a more complex set of relationships, where neither virtuality or reality is necessarily a stable concept, and the constructs of the two fluidly interpenetrate. Virtuality is at once part of reality, rather than it's immaterial opposition, and there is a long history of the immaterial, the reified, the virtual. "Reality" on the other hand is constructed from many material and immaterial contingencies not just it's simple physical facticity. Adrianna de Souza e Silva talks about these as hybrid spaces (de Souza e Silva and Sutko, 2008; de Souza e Silva, 2006a; de Souza e Silva, 2006b) where the boundaries are blurred and that these hybrid reality spaces question the very notion of what we consider the virtual, digital or real to be. As Latour (2012) points out, through discussing the everyday content of a newspaper, these mashups of the physical, the imagined and the socially-constructed are part of our experience of the world around us. These hybrid realities are things that we negotiate on a daily basis.

The Mixed Reality Laboratory at Nottingham University has carried out much of the practical exploration of the concept of mixed-reality (Benford and Giannachi, 2011). Their interdisciplinary work has also been aware and critically engaged

with the practicalities of what they call “mixed-reality performance” (2011, p.1-2). Their productive collaborations with artists, especially Blast Theory<sup>10</sup>, have produced many of the seminal experiences in mixed-reality and pervasive games. Ultimately the issue in mixed-reality is the lack of problematization of the notion of reality. And when we talk about this we are really talking about our experience of the physical world and the ways in which our perceptions are shaped by our modes of interaction. Prior to pervasive gaming there were other practices that had already attempted to change our modes of thinking about urban space.

### **3.5 The spectre of situationism**

THE SITUATIONISTS, explorers specialising in play and recreation, understand that the appearance of cities is of importance only as regards the psychological effects that it can produce, which should be taken into account along with all of the other factors. [...]

The investigation of technology and its exploitation for recreational ends on a higher plane is one of the most pressing tasks required to facilitate creation of a unitary urbanism on the scale demanded by the society of the future. (Nieuwenhuys, 1957)

The spatial practices of Benjamin’s flaneur and Situationism’s derive are heavily referenced within the literature around pervasive gaming (for a selection see McGonigal, 2006; Flanagan, 2009; de Souza e Silva and Hjorth, 2009; Hjorth, 2011; Montola *et al.*, 2009). Various forms of location and place-based gaming are

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10. The creative works that resulted from their collaboration include: *Desert Rain* (1999), *Can You Seen Me Now* (2001), *Uncle Roy All Around You* (2003), *Day of the Figurines* (2006), *Rider Spoke* (2007), *Flypad* (2009), *Ulrike and Eamon Compliant* (2009), *A Machine To See With* (2010), *I'd Hide You* (2012).

compared to, inspired by or analysed in the context of the flaneur and the derive. On the surface, these do appear very similar. The experiential nature of both can be compared to pervasive gaming; the new modes of experiencing urban space, the changing of perspectives, the playful engagement with space. The games have tended to copy the physical actions and use the same experiential nature of other urban activities without being situated in the political agenda that inspired the original practices. They do not operate in the same historical and conceptual context.

The underlying politics of Situationism lie in its philosophical grounding in Marxism and the work of Henri Lefebvre (1991b) Michel de Certeau (2002) and Guy Debord (McDonough *et al.*, 2010). Unsurprisingly then the language of the work is radically resistive, in fact revolutionary. The activities inspired by this are intended to overturn the hegemonic, capitalist cultural space and create a new world order, a “New Babylon”. Play is used not for its own sake, but instead as a means to achieve revolution, a heavily transgressive opposition to work and consumption. Play is adopted, not because it is intrinsically good, but instead because it is opposed to the hegemonic concepts of work and seriousness. Play in this sense is transgressive, damaging and actually bad for the status quo. The city as playground is the city as battleground.

The story of pervasive games is tied up in their relationship to digital gaming, and through that, their mode of play as entertainment. Especially entertainment in a consumerist sense. Although many pervasive game designers, and much of the

academic literature is influenced by resistive practices, and consciously invokes Situationism, it is still heavily dominated by a discussion of play that according to Brian Sutton-Smith's seven rhetorics (1998), would be dominated by the rhetorics of escapism and personal development. Play is seen as being intrinsically good, a positive quality, an essential part of human life and experience.

There is a space between play as resistive practice and play as intrinsically good. There is a tension in this and it is not as simple as either or. This is the space that these games exist in, neither being entirely revolutionary, but neither entirely escapist. This requires a reworking of the underlying theory behind the ways in which space is experienced so that it is not entirely based on the idea of resistive practices.

### **3.6 Descriptive commonalities**

To summarise and synthesise the above discussion. The common ways pervasive games are characterised are as follows:

- the way they are discussed as experiment - either or both technical experiment or avant-garde practice;
- the way they are seen as transforming gameplay through scale - players, temporality or spatially;
- the way they challenge the context of the game - through game frames and the very definition of games with their gameplay;

- that they are intrinsically physical, and the inherent positive value of physicality;
- that they are hybridisations of physical, online, fictional and factual spaces;
- that they colonise the everyday social world, everyday public space and everyday life - and this activity is inherently good; and
- that games and play are intrinsically good, and that the transformational power of games is necessarily positive.

Within the context of the rest of this thesis, all of these as statements are treated as being problematic. That is, that they are constructs within the field of practice, but not to be taken at face value. To be interrogated and unpacked at every opportunity within the following empirical analysis.

#### **4. Empiricism and reality**

The use of concepts of discontinuity, rupture, threshold, limit, series, and transformation present all historical analysis not only with questions of procedure, but with theoretical problems. It is these problems that will be studied here (the questions of procedure will be examined in later empirical studies – if the opportunity, the desire, and the courage to undertake them do not desert me). (Foucault, 1974, p.24)

The purpose of this chapter has been to show that attempting to analyse pervasive games as an object, a discrete category or a clear technocultural form is difficult. The field is physical, embodied and historical; it is messy, constantly moving and



multiply contingent. The point being, to treat the core concept as being unstable and socially constructed, a meta-stable field of practice, and to question even its constituent discourse and material historicity. Additionally to approach this from a specific angle and be clear about the nature of the results and also the ways in which they are intended to be used.

Within this chapter, I have examined the history and rhetoric behind pervasive gaming. I have examined the inside of this discourse, exposing a little of the power, the visions, agendas and histories that constitute it. This has raised underlying tensions about pervasive games. These tensions are experimental spaces for production and practice rather than polar opposites. It is out of these productive tensions that the field of practice of pervasive games has emerged.

Tensions identified in this chapter are:

- **Games vs. Performance**
- **Game vs The Everyday**
- **Technology mediation vs. Physical experiences**
- **Hybrid reality**
- **Resistance vs. Play**

The first two tensions revolve around the idea that pervasive games challenge the very concept of what a game is, or how it is culturally situated, they say “this might not be a game.” In the first instance, **Games vs. Performance**, these experiences would appear to explicitly be games, but it emerges that the frame of the game itself is often challenged, turning the games into either subtle or even

obvious, theatre; bringing in notions of performance, spectacle and spectatorship. In the second instance, **Games vs. The Everyday**, there is a tension in the idea that a game might be separable from the everyday. But the gameplay and game spaces of pervasive games take place in seemingly everyday and ordinary spaces.

**Technology mediation vs. Physical experiences.** The history of pervasive games is one of exploring the possibilities and connections between technology and physical experiences. The ubiquitous computing agendas that form a background are predicated on putting computing power into the physical environment, “away from desktops”. However, the technical experiences bring with them the idea of mediation, an interface, or intervening layer between the user and reality, whilst at the same time also involving a physical experience. There is a tension (but not opposition) between this mediation and directly embodied, physical experiences. This leads to the next tension.

**Hybrid Reality.** Pervasive games exist within, but also question the relationship between the virtual, real, fictive and the actual. The simple continuum of mixed reality that Milgram (1994) refers to doesn’t capture the complexity of the inter-relationships between the spaces that constitute a mobile or locative experience, mixing digital with physical interactions whilst existing within a ludic and fictive structure. As de Souza (2006a) points out pervasive games and related experiences fundamentally challenge these categories of the virtual, real, fictive and actual. This challenge leads to the final tension.

**Resistance vs. Play.** If pervasive games in one sense are challenging, or exploring, our concepts of space, then they are doing so in our lived space. There is a strong tradition of seeing spatial practices as resistive (de Certeau, 2002; Lefebvre, 1991a; Lefebvre, 1991b) and even play in this light (Debord and Knabb, 1983). However, much of the behaviour of digital play is consumer-oriented, not resistive. Simply there for fun (given even the problematic nature of the term fun). Is pervasive gameplay resistive, or just good fun?

Each designer, each experience, each game, negotiates these tensions differently. There is no right or wrong about this, merely a practice that explores this space, using it productively and challenging definitions around the borders of the five tensions mentioned above. Because of this “Playing with Reality” is an apt way to describe what is happening in these avant-garde design experiments. Through these, games designers are approaching and working with core problems in cultural and spatial research. They are playing with our notions of what reality is; how we experience space and life, through play, in the physical and everyday world. Foucault’s quote at the beginning of this section points to empirical field research. It explicitly asks to not take the discourse, and even material construction of the world, at face value. It says to be wary of the discourse and to pay closer attention to the material and practice of the subject as it is constructed. Methodologically this requires a detailed ethnographic approach. The next chapter will discuss ethnographic methods and approaches and outlines my experience of being in the field.

## Chapter 3

### Outline of a Liminal Ethnography

First you read and then you do a little bit of it and you tack back and forth between reading and doing and that it is how you get it.

(Geertz in Panourgía, 2002)

This chapter presents the methods and approaches adapted and used to empirically investigate the field of pervasive games. It highlights the nature of the data that each method delivered, the insights that theory brought, and the important practical aspects of each with respect to this project. Geertz's quote above is very apt in relation to my own experience of fieldwork. There was an iterative use of methodology, theory and interactions with the field. An early exposure to the field and an agnostic approach to theory become vital to this iterative approach.

The first method was a combination of video ethnography and interviews, the second being what could be considered as a more traditional participant observation, and the third being my steps into designing pervasive games. The methodological influences I discuss are the work of Pierre Bourdieu, the Anthropology of Experience and Actor-Network Theory. All of these have helped to deliver results, and the elements of this messy assemblage have ended up complimenting each other very well.

The map that is ethnography is certainly not the same as the territory of culture it tries to represent (Korzybski, 1933). There are many different maps that can be created and many different ethnographies. The researcher's role as knowing subject in this process is important. This reflexive stance is the knowing creation of maps and the awareness that the map is a personal creation with respect to the territory that is representing.

We say the map is different from the territory. But what is the territory? Operationally, somebody went out with a retina or a measuring stick and made representations which were then put on paper. What is on the paper map is a representation of what was in the retinal representation of the man who made the map; and as you push the question back, what you find is an infinite regress, an infinite series of maps. The territory never gets in at all. [...] Always, the process of representation will filter it out so that the mental world is only maps of maps, ad infinitum.  
(Bateson, 2000, p.460)

As Bateson describes, we can never really get to the territory, we are always ultimately in the world of maps and representations. Even when encountering culture in an everyday manner, not just as a researcher but as an everyday participant, we are also behaving as ethnographers (Garfinkel, 1967). We are always dealing with our own representations. As Clifford Geertz (1973) says, 'culture' is the stories we tell ourselves about ourselves. Ultimately, ethnographies are stories about cultures, not direct representations.

John Law talks of the hinterland as a map-less, technocultural, mess of the everyday. He uses it both as a metaphor, but also as a metaphysics of the “out-there-ness” of reality (Law, 2004, p.160). The hinterland being:

a bundle of indefinitely extending and more or less routinised and costly literary and material relations that include statements about reality and the realities themselves; a hinterland includes inscription devices, and enacts a topography of reality possibilities, impossibilities, and probabilities. A concrete metaphor for absence and presence.

According to Law, social science studies these messy territories with messy methods and his approach to cartography doesn't intend to make maps of the territory. Instead, it charts the differences between the variety of maps - commonly held mental models - and the territory - the hinterland. An ANT ethnography (at least Law's) deals specifically with this map/territory distinction. According to Law, it points to the differences and the gaps, rather than trying to reach an ever more accurate representation of the land. It is concerned with the ways in which people manage with, and through, these distinctions and tensions. These contrasts of mental models to the on the ground reality are the core of design ethnography (Suchman, 1987).

This ethnography is:

- Iterative and involves mixed methods that triangulate and reinforce results;
- It considers all the actors, not only following them and observing but also taking on the roles of the human actors (i.e. players and designers);
- Examines the physical and non-physical materials, treating these as important actors;
- Sensitive to language and where that departs from practice;
- Intended to consider the social and the technocultural context;
- Looks to experiences that are the stand out moments;
- Looks at the points where things break down and reconstructions take place; and
- Concerned with design and designers as an important aspect - in that these experiences are the result of creative processes.

This chapter is not a literature review of methodology or a carefully considered set of accepted methods. Instead, it is a reflection on my journey, the construction of a method assemblage through repeated exposure to the field and to theory (Panourgía, 2002). A non-linear approach to doing ethnographies (Cragg and Cook, 2007) that considers theory and is critically appreciative of methodology.

In the first, I outline the scope of my fieldwork. The sites, places, dates and relationships.

In the second I talk about my iterative exposure to theory and the impacts that had, on both, building a framework to understand pervasive games, and constructing an approach. I will discuss how each of these positions helped me understand facets of the fieldwork and have sedimented into a workable method assemblage for me.

In the final section I talk about the practical aspects of my methods, the actual practice of ethnographic data collection. I will start the story with my original ambitions and document a journey that starts on the outside and spirals to the centre of the territory.

## **1. The ethnographic sites**

Being an ethnography, this research is by definition a study of a particular group of people at a particular time. As discussed in chapter 1 the definition of pervasive games can be unclear. Because of both that and the extended networks involved in all their permutations, it is hard to draw a clear border around the people who were involved. Rather than being a differentiable sub-culture, the participants belong to a web of tribes (Maffesoli, 1995) such as gamers, web designers, artists or theatrical directors, coming together physically to create and play games. Defining various physical 'sites' as loci of activity helped to create a



boundary for the study, albeit an indistinct one, that treating them as an abstract concept would not. This also reinforced the focus on pervasive gaming as an embodied practice.

A large portion of my data collection activity has been focused on what have been called urban or street game festivals<sup>11</sup>. The reason for this is that I believe they are the sites where the genealogies of pervasive gaming are playing out into a much wider field of practice. As discussed in chapter 1, it is fully debatable as to what is truly a pervasive game, or whether this category is itself useful or distracting.

I carried out ethnographic fieldwork at *Come Out & Play*<sup>12</sup> in 2010, *Hide & Seek*<sup>13</sup> in 2010, *Igfest*<sup>14</sup> across 2010 and 2011 and *You Are Go*<sup>15</sup> in 2011. Across these four festivals I generated ethnographic field notes, interviews, video and photographic data.

As well as attending these specific festivals I also participated in multiple *Iglabs*<sup>16</sup> and *Sandpits*<sup>17</sup> across 2009 and 2010. The scale and focus of these events changed, significantly, from friendly playtests through to elaborate productions.

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11. In many cases these festivals either did, or still do, also label themselves as ‘pervasive gaming’ festival.

12. *Come Out & Play* is a New York based festival run by a group of local game designers interested in what they call Big Games. It is primarily supported and run by Gigantic Mechanic, a game design/consultancy company in Brooklyn. <http://www.comeoutandplay.org/>

13. *Hide & Seek* was the London based festival run by the new media/games company of the same name.

14. *Igfest* was the Bristol based festival run by Slingshot Games.

15. *You Are Go* was a Berlin based festival.

16. *Iglabs* were the playtest events that Slingshot Games ran.

17. *Sandpits* were the playtest events that Hide & Seek ran.

In August of 2011 I carried out a month-long residency with the arts group Blast Theory<sup>18</sup> in their Brighton studio. In that time I carried out formal interviews with the members about their work, had informal discussions, observed them in their practice and importantly participated in testing the localisation of *A Machine To See With* in Brighton. This allowed me to closely observe both a group of experienced artists who are seminal in the field of pervasive games, as well as the localisation of a significantly technological experience.

In May 2011 I also designed, produced and ran a street game called *Robo Racers* at *Igfest*. This game was successful, both in the sense of being a fun, award-winning game, but also in that it provided me with a live insight into the production process of street games. The success of this, based on my research, can be contrasted with a disastrous GPS location-based game that I produced for *Igfest* 2008.

Finally, I was also a resident of the Pervasive Media Studio<sup>19</sup> from 2008 to 2013, which was the physical and emotional centre of pervasive gaming in Bristol. The embedded nature of this residency and the access to the local, national and global

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18. "Blast Theory is an arts group using interactive media, creating new forms of performance and interactive art that mixes audiences across the internet, live performance and digital broadcasting. The group's work explores the social and political aspects of technology. Drawing on popular culture and games, the work often blurs the boundaries between the real and the fictional." (Theory, 2015c)

19. "The Pervasive Media Studio hosts a brilliant community of artists, creative companies, technologists and academics exploring experience design and creative technology. It is a collaboration with University of West of England and University of Bristol, managed by Watershed." (Pervasive Media Studio, 2016)

networks that it provided me has been invaluable in carrying out this research. The Pervasive Media Studio hosted artists, designers or technologists working in physical experience design. As an academic resident, working on this research, I took a different role from the other residents. I was able to both observe, take part in, and question the practice of those involved in pervasive game design. Issues of access are not trivial in ethnographic projects and the Pervasive Media Studio network provided by the residency gave me a degree of access that would have been difficult to obtain otherwise. This level of access helped me move from simply being a participant observer, watching from the outside, to being an observant participant, part of the inside.

Smartphone location-based games are also another parallel descendent of the early ubicomp experiments discussed in Chapter 2. These are the direct descendent of technical trials and seminal games such as *BotFighters*. There are many commercially available in the app stores for iOS and Android. I have evaluated and extensively played some of these as part of the project (such as *Merchant Kingdoms*, *Underworld: SweetDeal* and *Shadow Cities*). These have been purposefully left out of this ethnography for two reasons. First, because they play more or less as other mobile digital games, with some extra location-based gameplay; if these are location-based, they are certainly not location-specific. Second, they are often internet-enabled, massively-multiplayer games, making an ethnography, following the methods I have used, outside the scope of this research.

Because of the sites of my fieldwork, the majority of the games I have encountered could be typified as what I called ‘urban games’ in chapter 1, and to a lesser extent ‘location-based games’. As I said in that section, the experiences can lie across different types, and some did involve the others. Although I have encountered various forms of alternate-reality games (ARG) and gamification through my wider research, the games and experiences at the experimental gaming festivals I attended would not generally be typified as these. The cross-media, or trans-media nature of ARGs would appear to have translated less well into what were mainly physical experiences. On some occasions there were examples of game-like theatre experiences where performances took on some game-like elements.

Within the rest of this thesis I will use the terms ‘pervasive games’, ‘urban games’ and ‘street games’ with a specific sense derived from my primary research. These three terms overlap

Pervasive games as a term is intended to refer to the practice as a whole, as defined in chapter 1 as; an experimental game design practice that engages with technology (development) and (everyday) space. It has, as I pointed out, no stable centre and is, therefore, difficult to encounter a “typical” examples, or to make any form of generalisations about.

Unless I need to clarify with specific examples or more description I will refer to the majority of experiences that are part of my fieldwork as ‘street games’. It is a community-derived term. Although many examples did not take place in the

street, all the festivals did identify as 'street game festivals'. Many street games might arguably not be considered as pervasive games. However, in the context of this research, I treat these practices as being (problematically) aligned, and show that useful findings can be drawn from the practices of street gaming (whether or not they can be considered pervasive games). Wherever possible I triangulate or contextualise through other research.

I use the term 'urban game' to refer to the type of game discussed in chapter 1. These are games that open up and use the possibilities of lived, urban space. Not all street games are urban games, though many are. Not all street games engage with urban space, although they may be played in a street. Many games I have observed have been played indoors or in detached zones.

## **2. Approaches and sensitivities**

Wacquant (2002), in a harsh critique of urban ethnography, discusses the point that method needs theory so that it does not end up as "raw empiricism". It can get too close to its subject so that it only repeats the points of view of the participants, rather than linking it to a broader material and symbolic system of meaning and significance. Thus reducing sociological analysis simply to commonly held notions. Wacquant says there is no such thing as an ethnography that is not guided by theory, that theory is needed to understand the construction of the object of study, "rather than to pretend to discover theory 'grounded' in the

field.” (2002, p.1523). Theory is a lens that helps one see things that would not normally have been seen, a periscope to see around corners, or maybe a compass to get me out of valleys.

In this section I highlight the importance of theory. Rather than a strict methodology, this is a set of sensitivities and approaches (Crabtree *et al.*, 2012). These sensitivities helped me navigate the territory, carry out the mapping, but do not by themselves give me a clear path. They gave me a way of looking clearly at the landscape, feeling the contours and fording the rivers that get in the way. This was not a simple, straightforward journey. Course correction and finding the sense of where one is going is more important than sticking to the original heading (Crag and Cook, 2007). As in the quote from Clifford Geertz, at the beginning of this chapter, you go back and forth between reading, thinking and doing.

In the following subsections, I discuss the three main influences, the major parts of the “back and forth” between reading and the field. At the end, I did find many of my own personal insights in my final ANT led position but I learnt these not through (some of the admittedly impenetrable) ANT texts, but through a reading and application of earlier socio-cultural theory. It was only through putting into practice the very theory that ANT was reacting against that helped me to fully understand the position that ANT occupies. So in a rough chronological order of my theoretical approaches, the first is the sociology of Pierre Bourdieu; the second

with Symbolic Anthropology through the Anthropology of Experience and Thick Description; and the final section turns to the most valuable aspects of Actor-Network Theory in relation to this project.

## **2.1 Bourdieu**

In *Distinction*, Bourdieu's (1986) seminal work on taste, he discusses that the participants reported that social class had no effect on their tastes. Yet the sociological work pointed to a heavy correlation between class and aesthetic taste. Because of this, he suggests that searching for motivations expressed purely by the actors themselves is often misleading and may obscure the nature of the reasons (1996). Bourdieu's work points to there needing to be an external schema applied to the analysis of the data, one that is not purely derived from the reports of the participants. That their actions, reasons and motivations go beyond their own, reportable, rational understandings (Crang and Cook, 2007, p.148).

Bourdieu is useful sociologically as a way of explaining why certain groups are defined by particular aesthetic tastes. Why would very similar activities and experiences have quite different aesthetics depending on their social context? Rather than absolute aesthetic experiences, the reception of them is shaped by an audience's background. This helped to direct my attention to the ways in which various social and cultural aspects of the participants changed their experiences. The majority of Bourdieu's projects are large-scale mixed-methods studies. They cannily mix quantitative with qualitative data. I didn't have the luxury of large

scale sociological surveys, so even though using a Bourdieusian analysis, my findings proved more isolated and qualitative. Even given this, the Bourdieusian framework lends explanatory power to interpreting my own smaller scale encounters with the field.

At the heart of Bourdieu's work is the concept of 'practice'. As Postill (2010) points out there is no unified practice theory, but a set of practice approaches originally outlined by Bourdieu and others such as Foucault, Giddens and de Certeau. The theories of practice of these authors are an attempt to reconcile the two sides of social theory and account for human action, charting a synthesis of individual agency and societal structuration. "They wished to liberate agency – the human ability to act upon and change the world – from the constrictions of structuralist and systemic models while avoiding the trap of methodological individualism." (Postill, 2010, p.7) What Bourdieu described as the clash between the objective-subjective, agency-structure, and the micro-macro (Reay, 2004, p.432).

Bourdieu developed the notion of 'habitus' as the key concept in his theory of practice. It is intended to capture the permanent, but not entirely constraining, dispositions of society. Habitus is the internalisation of the social order on the body, but a structure that still allows for agency. Actions are based on strategies employed to negotiate the internalised social structures.



The body is an important nexus for practice theory, as Posthill elegantly sums it up “practice theory is a body of work about the work of the body” (Postill, 2010, p.11). As Bourdieu says (1998, p.81) habitus is:

A socialised body. A structured body, a body which has incorporated the immanent structures of a world or of a particular sector of that world - a field - and which structures the perception of that world as well as action in that world.

In the next chapter I will pick up on the use of habitus and Bourdieu’s related concepts. However, the underlying concept of practice has been useful in two ways. Firstly, the practice approach moves the ethnographic attention away from the games themselves, to the processes of play. The games are a locus of social action. Secondly, it begs the questions about the relationships between social structuration and individual agency in any of the design and play situations. In a form of experimental, or avant-garde game design, what really are the constraints?

Bourdieu gave me a lens to analyze the field at this high level and compare the social make-up of these festivals across the various sites. This theory does deliver insight into the cultural aesthetics; the reasons why people make and play these games, what it is they enjoy about them and who might be playing. It also sheds light on the interaction between social forces and individual actions. However, it is a sociological approach, not one that examines experiences in their own right. For both the meaning and the detail I had to turn to two further theoretical influences.

## 2.2 The Anthropology of Experience

Symbolic anthropology provides two contributions. These come from what is known as the Anthropology of Experience (Turner and Bruner, 1986) and Thick Description (Geertz, 1973). They both explicitly addressed the notions of experience, that is what is experienced, and 'an Experience' as a stand out temporal moment. They connect together experience, narrative, reflexivity, non-textuality and enactment. These provided me with a connection between experience, culture and social interaction.

In Turner's essay on anthropology and experience (1986) he states that aesthetics don't spring from platonic ideals, but instead from social experience<sup>20</sup>. Experiences that stand out have a structure, and in reference to his work on the ritual process (1995) he describes how cultural expression, such as theatre, doesn't spring from imitation or representation, but instead from redressive, social rituals.

The anthropology of experience turns our attention to experience and its expressions as indigenous meaning. The advantage of beginning the study of culture through expressions is that the basic units of analysis are established by the people we study rather than by the anthropologist as alien observer. By focusing on narratives or dramas or carnival or any other expressions, we leave the definition of the unit of investigation up to the people, rather than imposing categories

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20. Whereas Bourdieu states that social background shapes experience through habitus, Turner says that cultural forms themselves emerge from social experiences and social activities.

derived from our own ever-shifting theoretical frames. Expressions are the peoples' articulations, formulations, and representations of their own experience. (Bruner, 1986, p.9)

Building on what Bruner says here, Roger Abraham's points to the difference between ordinary and extraordinary experiences, and the power that extraordinary experiences have for explaining culture (Abrahams, 1986). What this means is that the Anthropology of Experience is an interpretation of the ethnographies of stand-out-experiences, as a route into understanding the way those social groups talk to themselves about their culture. This can be seen in Geertz's classic Balinese cockfight (Geertz, 1972), or Turner's discussion of rituals (Turner, 1970; Turner, 1974).

Clifford Geertz (1973) argues for a deeper contextual meaning to what otherwise might be seen as simplistic activities. His thick description approach builds up the cultural, social and physical context, whilst realising the researcher's reflexive, narrative and interpretative position in relation to this construction. As in the previous section, the meaning exists within the context of pervasive games rather than in some essential quality. So reading them in context or rather reading the context, via a thick description approach, gave me a technique to think through the tastes, symbolism and ultimately experience.

Games can be analysed as expressions of culture, but to do this we need to look at why people make and play them. We need to look to the stories about these games. Why do these games come about? Not just analyse the games themselves.

The Anthropology of Experience also helps determine the things I looked at, the sites of study. It points to the places of significant activity, where something is going on. It helps in an understanding of why festivals are important to pervasive games.

### **2.3 Actor-Network Theory**

Whether ANT is a theory or a method is debatable, but it certainly has a number of theoretical sensitivities that change the relationship to the field. Every ANT approach is a little different, and the three key aspects I take from ANT are: **Punctualization** - especially when contrasted to the concept of breakdown; **Object Agency** - the uneven distribution of power across heterogeneous networks of human and non-human actors; and **Metastability**, the way networks are constantly recreating themselves rather than being concrete.

Punctualization is the case where a network can be 'blackboxed' and treated as a single actor. (Cressman, 2009; Law, 1992). It has clear and simple inputs and outputs. This can be the case for such things as social institutions, organisations, machines, organisms or even games. Sometimes though these punctualized networks break down, and at that point, the insides of the network become highly visible. It is when things stop working that you notice the intricacies of the moving parts and the nature of the underlying networks. Situations of breakdown are very informative and deliver valuable ethnographic results.

The second sensitivity is object agency. In ANT the network is a network of power and agency relationships between actors.

An actor in ANT is a semiotic definition – an actant – that is something that acts or to which activity is granted by another...an actant can literally be anything provided it is granted to be the source of action.  
(Latour, 1996, p.373)

It is this that leads to the oft quoted statement from Latour “Objects too have agency” (Latour, 2007, p.63). Whereas objects get a lot of the attention the agency can belong to a whole range of material and immaterial non-human actors. Through Latour’s sociology of connections, objects are part of the social web of relations. Non-human actors can be used to trace social relations, but sometimes these connections can be difficult to trace due to the fact that material relationships are often overlooked.

Whereas Latour’s material agency has masses of rumbling objects physically restraining us and leaving people with bloody noses (Akrich and Latour, 1992), Law’s version in *After Method* (2004, p.131-134) is somewhat more lyrical. He uses the term ‘enchantment’ to refer to the “part human, part natural” hybrids that occur in Australian Aboriginal metaphysics. That it is Euro-American modernism that has given us a human/natural split, has disenchanted objects and the world around us. In chapter 6 I discuss this ‘enchantment’ in detail using examples.

Latour lists five situations or strategies that can be used to more clearly see the agency of objects in the social web (Latour, 2007, p.80-82): 1), to study innovations, workshops, laboratories, places where socio-technical controversies

are negotiated. These sites are rich in plans, sketches and trials where the social life of objects is easier to see. 2) to use distance, in time, space or culture. In this sense, it is to deploy an aware naiveté in examining objects such that they are rendered unusual and have their everyday sense removed. 3) is to look for breakdowns, when things go wrong and don't work in expected manners. 4) is through archives and 5) is through using the fiction of counterfactual histories. These last two techniques are very similar to the Media Archaeology methods (Parikka, 2012b) but it is the first three that are most relevant here. These three points have helped to sharpen my sensitivities to the field.

Latour's first point supports my intention to study the designers and the play of the game as an act of design, an innovation, a trial. Not simply to understand the games as experiences with no relation to the context of their creation. In the second instance, my use of video and the distance both time and the act of reviewing the video data moved me from the emotive and phenomenal world to one where an analysis of the material and physical interactions is sometimes easier than in the moment. Latour's third point parallels the breakdown of punctualized networks. It is not just where understanding breaks down that brings ethnographic insight, but also the very real breakdowns of technology, experiences and games.

The third sensitivity I take from ANT is that of change. That all networks are inherently unstable and continue to adapt and change. As Latour says "there is no group only group formation" (Latour, 2007, p.27). No beginnings, no ends, no

clear stable point to examine. From a pervasive game point of view, there is a clear translation that occurs when the games begin and end, there is a controversy, in the ANT terms, of changing from a non-game to a game state. The possibilities of the game can be understood maybe better using a term from Simondon and MacKenzie, 'metastability' (Mackenzie, 2002, p.102-108).

Metastability refers to the provisional equilibrium established when a system rich in potential differences resolves inherent incompatibilities by restructuring itself topologically and temporally.

(Mackenzie, 2002, p.103)

MacKenzie points out that Simondon's favourite example of physical metastability is a supersaturated solution that begins to crystallise. Rather than constant, amorphous change, networks and systems seek temporary equilibrium until affected by outside forces. Looking at, and for, the changes and how they are negotiated is worthwhile because this tells us about the nature of the equilibrium.

All three of these ANT sensitising concepts are concerned with an 'opening up' of taken for granted situations and phenomena. Punctualization seeks to open the black boxes and analyse what is inside. Object agency as a concept takes this further by not taking the power of non-human agency for granted. Change and metastability point to analysing phenomena as becoming rather than being, but importantly, this becoming is not a continuous undifferentiated flow, but instead

has points of seeming stability. ANT as a sensitising approach points the ethnographic attention in the direction of looking at the ways in which things come together, fall apart or hide themselves away.

## **2.4 Theory and “the field”**

The concept of ‘the field’ in ethnography is a nearly mythic construction. Perhaps in traditional anthropology there was an ‘out there’ where observation took place and an ‘in here’ where analysis would happen. But, in an ethnography of contemporary phenomenon, we are often - as I found myself - always in the field and therefore always having to perform analysis alongside fieldwork. However, even if we can’t split ethnographic research into distinct fieldwork and analysis phases, then we can create a structure that can be used to inform ethnographic research. A moving from the outside in. An attention to the broad sweep, and then to detail.

In this iterative method, theory is not a structure to fit results into. Instead, theory is a lens, or filter, to see things that would otherwise be unseen. Different theories give different sensitivities and deliver different results. Rather than a tool or structure to be used in a separate analysis phase, theory as sensitivity is used directly in the field.



### **3. Methods**

The story of my methods is a journey from the outside in, from observation through to engagement. Feeling the way through the methods was as much part of the iterative approach as the relationship between theory, analysis and fieldwork. In retrospect this journey now makes sense to me, the steps clear, the path is contiguous with the distance of time. Each method used provided for a different viewpoint and provided different data. There was no correct method, but instead value in a mixed-methods approach.

According to Eric Laurier (2016) this move in, from the outside to the inside, is a hallmark of ethnographic practice. Changes in documentation and relationship to the field and object of research are a common occurrence amongst ethnographers. He goes on to describe how this move from the outside in is like changing your grip. A turn of phrase that resonates with the evolution and modifications I made to my methods. Nothing was abandoned, but instead my handling of them, my grip on the methods, was changed to suit the necessities of the situations.

In section 1 of this chapter, I discussed the primary sites of my fieldwork. I did start with an existing relationship to some of the communities and practice that I was investigating. This was initially through the residency at the Pervasive Media Studio, which helped me establish friendships and professional relationships. It was through these that I could obtain the level of immersion that I did. I had also experimented with creating GPS games and experiences - a more practice-based

approach - before embarking on an ethnographic style of research. Because of these two factors I wasn't going out into the "field." Instead, I was taking a more observant role to the field that I was already partly in. Some authors (Brewer, 2000; Gold, 1958; Laurier, 2016) refer to this as being an observant participant as opposed to participant observation. This reflects this switch of ethnographer's status from outsider observing by attempting to participate, to an existing participant stepping outside to observe. Depending on where I was, and my depth of relationship with the groups I engaged with I was often 'betwixt and between' the roles of participant (player and designer) and observer (ethnographer and academic). My move from the outside in was both methodological as well as personal.

My first method was video ethnography. Taking the role of observer, and through the recording process obtaining distance. Reviewing the video data allowed me to find insights that being engaged in the moment would not allow me to see. The second method could be considered to be participant observation, but in this case, play as participating. Finally, I took the role of a designer and, via this in-depth engagement with pervasive games, I obtained a deeper and different level of understanding. Each of these methods by themselves provides only a piece of the picture, and the data from each complement the others.

Although, to a certain extent, these methods did overlap and have periods of complementary use, there was a general move from the use of video through to the idea of deploying design as ethnography. By the time I reached the end of my

fieldwork I was substantially less reliant on the video record. After my initial experiments in video as a primary method, I started to change the way I used it as a documentation tool, so that it would support my field notes. Rather than parallel use, these methods changed in response to their use in the field, and the complementary observations they produced.

### **3.1 Video ethnography**

My original aim was to have a single, straightforward method. The intention was to video people playing games and then have them comment on their own experience. To have the research participants reflect on their own feelings during the game; to annotate the video record with an aspect of their experiential feeling. This way the analysis would be of both the behaviour, as well as their experience. Using this approach would get to the heart of the lived experience of these games, to address the phenomenal aspects that the video by itself would not be able to. This drew on video methods used in ethnography and game studies (Giddings, 2006; Giddings and Kennedy, 2008; Crang and Cook, 2007; Jørgensen, 2007; Knoblauch *et al.*, 2008; Laurier, 2010)

The majority of the trialling of this video ethnography method occurred during *Come Out & Play* and *Hide & Seek* in 2010. I collected video data from four complete games at *Come Out & Play* and partial footage of twenty more games across my research.

In and around the 2010 festivals, I carried out 13 semi-structured interviews. These were with players of games I had documented and/or played in. Some of the interviews occurred during the festivals, some via Skype in the weeks following. These interviews were intended to get more information on the sociocultural context and more importantly to gain data that would address the specific experience of the game they played.

In the first instance, I was looking for first-time, or relatively new, players so that they would not describe their experiences in a normative manner. At *Come Out & Play* I managed to get the players that I was looking for but at *Hide & Seek* I only seemed to be able to attract players who were relatively experienced. Although this might be coincidental it also does reflect my observations on the social constitution of those two particular events; which reflects on the marketing, location and possibly the types of games at both.<sup>21</sup>

Collecting video data from these games was difficult due to the highly mobile nature of play. The opening night highlighted some of the issues. The games *Kaboom!* and *Humanoid Asteroid* were situated inside a theatre space, so it was relatively easy to film players playing. The two big problems here were the low lighting, and the camera angle. Seeing players faces is important to capture their expression, but this was not possible, because in *Kaboom!* the players faced away from the audience (and me) and in *Humanoid Asteroid* there was considerable

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21. I discuss this further in Chapter 4.

movement and intervening people. Across the following days it became progressively harder as I followed games that were played outside or involved technical elements. This presented two problems. First was that these games involved running through busy, city streets, so participants would simply run off, and trying to chase them with a camera in hand would mean I wouldn't get any footage. Also trying to frame the action was difficult. In *The One*, for example, I found that a lot of relevant action and social interaction was occurring simultaneously across both sides of a busy street filled with pedestrians. So it was impossible to capture all this important interaction on camera at once. In *Gentrification the Game* though, I found the pace to be slow enough to be able to record it in its entirety (through one player group). That game lasting two hours in the middle of a hot, sunny, New York summer day.

Capturing useful video data was difficult in itself, the next problem was to be able to show this to participants and have them discuss their moment-by-moment experiences. This proved to be a more difficult task than anticipated via the literature. The video work I had read about had all taken place in fixed locations, with non-ambulatory activities; more like a psychology lab than a street festival. The two main issues were around access and the combination of equipment and location.

Access is an important issue for ethnography (Crang and Cook, 2007; Hammersley and Atkinson, 2007), and it manifests in different ways in different projects. There was acceptance of my role of researcher, but practically and

ethically up front buy-in is important; so I could record the right person or people, and then be able to discuss afterwards. Participants needed to stay for an interview afterwards, which was an issue, for example, with *Gentrification* when the players had just been running around for two hours in the hot sun. This required me to establish a relationship with a player or group of players before a game, then follow along and have a good enough rapport to keep them for a discussion afterwards. Doing this also limited my exposure to the festival as a whole, as I could only effectively focus on fully documenting a single game a day. Though as I found, most people there were more than happy to be recorded, talked to and be the subject of research.<sup>22</sup>

The nature of the video record and the equipment also made this impractical. Reviewing the video from a game on a small camcorder screen was difficult in the extreme, coupled with trying to do this in noisy locations on very hot days meant that viewing and interview recording was never going to be very successful. However, even if there was the physical set up to have larger screens and private space there was still the most important point; watching amateur footage of yourself playing a game is not nearly as exciting as playing that game, or being kept from playing another. On the first night I became sensitive to this. So I changed my strategy completely to more simple interviews and discussions

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22. This was in no small part due to their socio-cultural make-up and their reasons for playing. Which I will also address in chapter 4.

of the experience rather than a play by play review of game footage. The festivals themselves were highly fluid events, and players' experience of them is very unstructured and unplanned.

The interview process never gave me the detailed moment-by-moment, experiential data. The interviews themselves, once analysed though, did give a much better understanding of who these people were, where they had come from and why they might be here. The discussions added a social and cultural context, rather than delivering insight on the aesthetic nature of the games.<sup>23</sup>

I discovered the most successful use of video whilst following the players of *Gentrification*. I started recording as a passive observer but was intrigued by various comments the players made as they played, and so I asked questions as I went along. This gave me some of the most insightful remarks I got throughout all my ethnography. This was the closest to getting the moment-by-moment experiential data but the results from this showed a very strong self-awareness.

I captured over six hours of edited video data from 24 games (On 9 tapes, see figure 3).<sup>24</sup> This full record informed my thinking and provided a rich record to refer back to later. I returned to some games and segments repeatedly, either observing the details of interactions or transcribing verbal exchanges. Also the

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23. Again, see more in chapter 4 on the nature of who plays and why.

24. I used a variety of cameras for recording. Most was shot on a DV camera, but some was also shot on camera phones and smaller point and click cameras. There was nearly nine hours of raw footage from the DV camera alone. On the smaller cameras I was more tactical in the video I shot; which tended to be vignettes.

clash of my video and observational techniques with the sites, people and situations gave me pause to consider the festivals themselves as a whole. The logistical issues made me focus on more than the games and, through that change of focus, to see the festivals more clearly in relationship to the games and players.



Figure 3: The 9 x 60 minute tapes used for collecting video data

Most importantly though, I realised that it gave me a very particular position in relationship to the practices I was recording. The act of holding a video camera changed the way I looked at the activities I was studying, I might even go as far as to say it changed both what I was studying and the way I was studying it. Quite contrary to the idea of video being an adjunct or another form of field notes (Crabtree *et al.*, 2012), I believe this actively changed my results. This was very



different from my experiences of participant observation. It was not simply what the camera captured, the field of view of the lens or the lighting; but instead my attitude (in the sense of both position and opinion). It gave me a sense of being on the outside, being more analytic, being sensitive to different phenomena. Overall more distant. In subsequent fieldwork I usually carried a camera, but I took successively less video, sometimes using the camera without filming as a way to change my orientation to the practice. Sometimes putting it away and taking on a more traditionally engaged, participant role<sup>25</sup>, sometimes using the camera to record important snippets. I am convinced that video ethnography not only necessitates a concern for the materials and data that is recorded, but truly changes the method assemblage that the researcher is deploying, actively changing the reality of the field and the story being told about the world.<sup>26</sup>

### **3.2 Play as observant participation**

The experience of *Come Out & Play*, in 2010, helped my ethnographic practice and thinking. The methods I had trialled were impractical given the physical conditions, and so I turned to participant observation as an approach (Crang and Cook, 2007; Hammersley and Atkinson, 2007).

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25. At this point I am not concerned as to whether this attitude and position is a personal, psychological or social operation, or most likely all three. Simply that for me this role change did take place and I subsequently used it (or was used by it).

26. The nature of the technics being used in the method assemblage changes reality. Not in the way that it goes out there and changes actual reality, but changes the realities we construct.

There is no single version of participant observation and as both a term and method it deserves to be problematised. Each use of observation as a method is dependent on the researcher themselves and their reflexive position - the objectives of the research, what is being observed and the types of access that the researcher has to the spaces and social groups being observed. These starting conditions result in a range of observational stances. Raymond Gold (1958) describes four clear modes of observational research: Complete Observer, Observer as Participant, Participant as Observer and Complete Participant. Brewer (2000) refers to the distinction between a participant observer and observant participant. The participant observer takes up the role of participant in order to observe. The observant participant is already a participant and takes up the role of observer. Eric Laurier (2016) points out that many human geographers use this reversal in a similar manner, to highlight that observation in these cases is reliant on participation. Laurier and Gold also discuss that non-participant observation, or observation as a partial participant can be valid modes to take, depending on the situation. Either not being a participant, or using a method that changes your existing participative stance are valuable for the types of insights they can bring.

I wanted to get closer, more involved, to feel what was going on, not just to see it. The time after that spent reflecting on practical method and theory lead me to a series of discoveries about the act of data collection, the nature of a reflexive involvement with the field and the very practical activity of gathering

ethnographic materials. As Aarseth says (2003) the most important quality that should be taken on board in any “aesthetic study of games” is that of play, for the very simple reason that the researcher has to play to be able to study a game.

The first thing that struck me was how different the nature of the ‘data’ was. Although there was still a visual element to what I was doing I was also attending to the physical and multi-sensory aspects of being a player. This was something that I had consciously ignored during the video and observation phase of my research, but now consciously engaged in. As I have said before, it is almost banal to state that pervasive games are physical, however, taking part in an embodied experience such as this is a vital part of understanding the physical and active aesthetics. Feeling the exhaustion after running around, and the ways that narrows one’s perspective. Experiencing the identity play that comes with dressing up and taking on other roles. Being in the middle of the emergent and fluid sociality of gameplay. There are a whole range of phenomenal aspects of pervasive games that need to be directly perceived and added to the observational record.

Sarah Pink (2009) proposes an approach to ethnography that she terms ‘sensory ethnography’ which takes a critical approach to intellectualised studies of culture. She builds on the idea that ethnography is an experiential practice and discusses how observation should not be ocularcentric. As Pink says sensory ethnography “does not privilege any one type of data or research method. Rather, it is open to multiple ways of knowing and to the exploration of and reflection on new routes

to knowledge” (2009, p8). All senses must be explored for what each can bring, or is most relevant in the cultural situation. Following from this, an ethnographic study of physical gameplay must engage with the multi-sensory milieu of that gameplay.

The record of this phenomenal data was also very different. No longer did I have hours of video, instead I had my own notes, feelings and memories. But rather than a limitation, this is what I gained. Not that I hadn't played some of these game before, or had not been taking part in the community, but that coming at it with an ethnographic attitude, and having the theory to reflect upon gave me a very different approach to understanding the field. Rather than relying on others to provide a second-hand account of the experience, I could analytically approach my own experience. I could now think through the phenomenal aspects of experiences I had already been categorising. What I had sought in my original method was accessible, albeit not in the rigorously unimpeachable manner I had hoped it would be. Instead, in a more interpretative approach (Rabinow and Sullivan, 1987; Geertz, 1973). I then felt like I started to fully engage with the community, what Wogan called 'deep hanging out' (2004), and through that also understand the relationships between the experience of gameplay and the experience of the wider context. Through this, my gaze was also turned away from just the games to see how the festivals, events and communities were a significantly larger part of the overall experience that I had anticipated. So not

only did it change the nature of my data and involvement but necessitated a change of scope. The use of these different methods again reconfigured both me and my engagement with the field.

Every single participant observation is different as it engages with different forms of practice, but 'playing' creates an interesting re-configuration of the relationship between researcher and field. One of the recognised phenomena of play is its depth of engagement and involvement (Calleja, 2007; Huizinga, 1949; Juul, 2005a; Sutton-Smith, 1998), time passes quickly, one feels 'immersed'. In short, the player is not observing or self-aware, but distinctly in the moment. Every moment is pregnant with possibility and the complexity of feelings. It makes observation difficult whilst participating. How does one untangle that? Although this gives a rich access to the feeling of play this creates methodological challenges for the player/researcher who must deal with the split between observation and play, analysis and feeling. The physical use of the camera to change the mode of my engagement (discussed above) was one way of changing my relationship to the field, the other was through my use of field notes.

It took me a long time to truly understand the relationship of field notes to the field, myself and the final product. Discussing with other ethnographers or consulting books did not help me fully understand what I was meant to do and how I was meant to use them. Good sources that detailed the process (Such as Emerson *et al.*, 1995) still didn't manage to address the totality of how ethnography and field notes fitted together. It all seemed either too casual and

unexplained; or too formulaic and impractical. It was only through an iterative exposure to the being in the field and then analysing my data that the relationship emerged.

Field notes are not simply a documentation of the activities in the field, they are more than that. Just as I had observed how the camera changed my relationship to the field, the field notes also reconfigured me, and my object of study. It was the act of engaging in it as a reflective practice rather than as a purely documentary practice that delivered this reconfiguration and allowed me to tweak my process. In figure 4 I provide some examples. The top left shows an observation. The top right, a reflection, or memo, coming from a number of observations. The bottom left shows an observation with a memo on it. The bottom right is where I am trying to make sense of the codes and reflections and through this process provide myself with further questions; things to look for and areas to pay attention to.

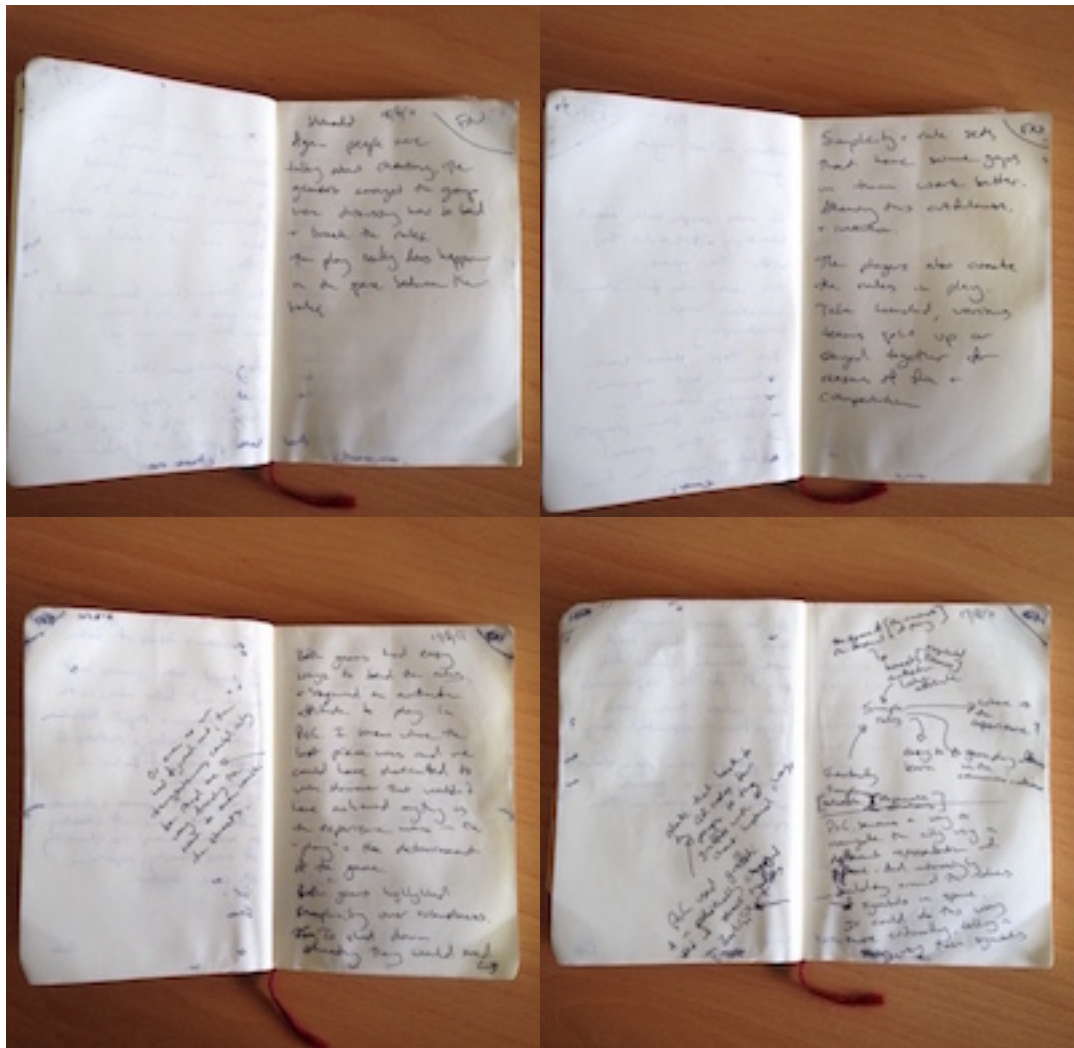


Figure 4: Field note examples.

Although the practice of pervasive gaming does appear to be playful and sometimes even purposefully frivolous, the players and designers have a stake in it, an investment, they care about it. Ben Highmore discusses how culture and cultural studies are passionate (Highmore, 2009), those that engage in culture “care” about their little part of it. Caring feels like an important way to roll together the issues around access. A respect for the concerns of the community, as

well taking care of it. Understanding these passions and concerns through this 'deep hanging out' (Wogan, 2004) led me to deeper insights than simple participant observation.

This immersion within the community, becoming part of it, led to my next step. Using my research to create games and simultaneously using games to gather research data.

### **3.3 Design as ethnographic research**

As my methods emerged it became clear that part of this process was testing out my findings through actively engaging in pervasive game design. Engaging in that practice, being that actor, was central to this method because design as both an object of research as well as a practice is central to this work. I moved from observer, through player, to designer. Design practice became a way to close the loop and test my observations and insights.

Prior to starting this PhD I designed and built a GPS based game using HP Labs Mediascapes platform (Stenton *et al.*, 2007). This was a failure for both technical and gameplay reasons. Following my early ethnographic data collection, I entered a game, called *Robo Racers*, in the 2011 *Igfest*.

In a gleaming silvery future robots compete in races through mazes of invisible force walls. Guided by their robotrainers these metal athletes battle to be the fastest maze runner built. Can you and your robotrainer be the best robo-team ever or will you get stuck in an infinite loop?



Do you want to be a robot or a trainer? Dressed as a robot you are guided by your intrepid trainer through a virtual maze of forcewalls. One false step and you are sent back to the beginning. Trainers must help their robot move through a maze that only they can see, communicating with their metal friend via walkie-talkie. One false move and you are both back to the beginning. - Description for *Igfest*

At this festival it picked up two community voted awards. The first prize for most novel game, and the second prize for best use of spectacle. This shows that the intervening ethnographic fieldwork and analysis had a demonstrable impact on my pervasive game design practice. I consciously used simple to deploy insights to create a game that used the right aspects of role-play, spectacle, materials and technologies that would make it an enjoyable and appropriate game for the setting. It allowed me to put my research into practice, but it also closed the loop on participating in another role in the field of pervasive games. It made me a designer and, through that, gave me far deeper insights into the highly material and embodied process of the design and running of pervasive games. This process also gave me a clearer understanding of the importance of the relationship between the designers and players when they play.



Figure 5: The author running *Robo Racers*  
([CC-BY-2.0 Kevan Davis](#))

The residency with Blast Theory and the engagement with the localisation and testing of *A Machine To See With*, also delivered findings based around iteratively testing observations in the field. In this situation I took more of a position where I could observe the design process unfolding, rather than leading it myself; a player with behind the scenes knowledge. This allowed me to analyse whilst the process was unfolding and closely observe experienced practitioners in action. By observing this I could test my assumptions and the early components of an analytical framework.

Engaging in these two processes allowed me to experience the embodied nature of the process of design. It put me in the positions of both creating the kinds of experience I had been playing in as well as working with the technocultural contingencies, the expected and unexpected materials, that designers must work with to shape the experiences they create. It also gave me the opportunity to interact with players and understand the ways they interact with situations that are on the edge of predictability; to see how other designers, and myself, must react to and integrate the unexpected in such a way as to create a contiguous experience. To work with these factors designers must have, and I gained, a 'feel' that is not simply rational understanding, but an embodied awareness.

On a methodological level, it felt as if this work was being tested, or validated, at this stage; that a full lifecycle of research was being carried out. As Crang and Cook say (2007), unlike science where you are looking for replicability as a prerequisite for some kind of truth, instead ethnographic research should show theoretical adequacy in terms of the ways in which it relates to other theoretical and empirical work. Research should "speak to a unique group of people at a specific moment in time" (Crang and Cook, 2007, p.146).

Research as design practice delivers the results back into the community through a method they understand, it becomes research for the community, not on it (Corbin and Strauss, 2008). Rather than just producing academic papers there is a lasting contribution through putting research into practice.

The most valuable aspect to emerge from this stage of the research was a very clear sense of the embodied nature of the design and running of pervasive games. It goes without saying that the games involve bodies in space and physical movement, but this phase brought home the embodied relationships between design and play.

There is a web of embodiment and contingency that goes beyond what occurs in the game space. Whilst designing *Robo Racers* I brought in understandings about the physicality and multi-sensory nature of the games I had played and consciously analysed. I didn't base it on a rational understanding of game systems, but instead a feeling for what would work in the urban space the players would inhabit. Also whilst creating and testing the game I was engaged in a lot of physical activity. The game design process was very embodied and tangible, forming an experience through a multi-sensory process. As described in the foreword I spent many hours running up and down stairs to keep repositioning the Wi-Fi camera on the second story. When it came to the final game in the street I climbed, what felt, precariously up nearby scaffolding to properly position the camera in the street. A not insignificant amount of the budget was spent on spray paint to carefully craft the robot suits. Then when it came to run the game I took on a robot identity, shaving and painting my head silver and dressing up (see figure 5). One of the days of play it rained terribly and we had to fetch all the game materials in and watch the slow decay of the damp seep

through cardboard and costumes. I shouted myself hoarse calling out instructions and marshalling players in two separate parts of the street. Then, at the end of each game, we danced like robots because this felt right.

What I had noticed is that there is an overlooked physical and sensory nature to the making process that goes beyond just the play testing and playing. The built up, unconscious skill and expertise and the previous experiences give designers an embodied, tacit understanding of what works. The long journeys, sometimes international, that designers undertake. The errands and organisation that has to take place when they get to where a game is being run. The reconnoitring and exploring that takes place, especially in larger, city-scale games. The crafting and making of objects to be used in the game. The reality that this is an amateur endeavour for almost all designers. Then there is the physical act of being present to marshall and coordinate a game, often involving on-the-fly tweaks and reconfigurations to make things work as the game is played. There is an embodied physicality that extends, through the designers, far beyond the physical game spaces and players. Exploring this design practice requires a multi-sensory and embodied approach, what Sarah Pink would refer to as a sensory ethnography (as discussed above, Pink 2009). It is by building a situated knowledge that one can get through to the heart of the practice of pervasive game design.

The downside was that, because everything occurred at such an accelerated pace, there was no way, as an individual, to document or record all of my experiences of *Robo Racers*. I ended up with no video or photos and very little in the way of field notes. The time spent designing was compressed, and involved running errands, making cardboard robots and working in a full-time job.<sup>27</sup> When it came to the game itself, I was involved in running it the whole time and so did not have the opportunity to document as I went along. Due to the high level of amateur documentation that occurs at these events I was able to piece together Flickr photos, the occasional piece of video that others had shot, conversations with players afterwards and a few hastily scrawled field notes.

Although more data on the gameplay of *Robo Racers* would have helped to evaluate whether the game had succeeded, this was not the primary result. The main findings centred on the actual experience of the embodied and material nature of pervasive game design. A phenomenological experience of the web of physical relationships that allows pervasive games to emerge.

### **3.4 Mixed and iterative methods**

Via these methods, I moved from the outside in. I gained different perspectives from the use of video, observation, play and design; from taking on the roles of different human actors. Although I had been engaged with the community from before the start of my research, the video work allowed me to take a step back

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27. Even with volunteers and professional makers to help, it was not a gentle, relaxed experience.

and helped me focus on aspects of the practice that went beyond the games and enactments themselves. The reflective use of field notes and on the fly analysis allowed me to better understand the play experience, and separate affective from cultural influences. Finally, the move into design provided two things. On the one hand, a better feel for the embodied knowledges required by designers to create these games. On the other hand, an understanding of the material and materiality of the elements that go together to create these experiences.

The observational/video mode provided me with data that I could analyse later concerning the overall structure and experience, the video of full games helped me understand the importance of the beginnings and endings. Capturing breakdowns shed new light on the ways in which the frames and realities are negotiated. Later I could return to look at a record of the physical material used to create games. But it failed to answer questions about the experience of game-modified everyday space.

Playing put me in a position to feel the affective nature of the games and ask myself questions about the experiences.

All of my engagements with design (not just *Robo Racers*) made me test my insights, but it also gave me more field note data to contrast with the academic literature and encounters with designers. It exposed the seam of tacit knowledge that runs through the community.

Doing all of this completed a loop of the ultimate goal of ethnographic data collection, the 'deep hanging out' that can deliver detailed, deep insights (Wogan, 2004).

As I said at the beginning of this chapter, there are multiple maps of each cultural territory. Understanding and working with this multiplicity is central to the reflexive nature of ethnography, and also central to why this is a liminal work. As I said in the introduction, the 'betwixt and between' applied as much to my research activity as it did to the nature of the experiences I was studying. I stood on the threshold between the roles of academic and participant. I was at once a player, a designer, had friends in the community, had previous experience, and spent time in the same non-game social circles. Also, I had the need to be a researcher, take an academic stance and step back to document, structure, reflect and theorise. This 'deep hanging out' (Wogan, 2004) creates a liminal character to the research activity. The ethnographer is operating in two spaces, two camps, each bleeding into the other. The academic necessities coloured my pervasive gaming experiences and my previous history of game design experiments and Pervasive Media Studio residency meant that I was not approaching this research with naiveté.

These messy, mixed methods delivered results and allowed me to triangulate my findings and fill in missing pieces of the puzzle. By themselves, each of them would not have delivered the picture of the technocultural contingencies and experiences. Changing my grip as Laurier described (2016) and paying attention



to the embodied and multi-sensory nature of the phenomena I was experiencing (Pink, 2009) helped me to select appropriate methods to investigate the practice of pervasive gaming. For deep design ethnography, it is vital that the researcher takes on all roles of observer, user, designer.

#### **4. An ethnographic assemblage**

So essential to anthropology is a commitment to betrayal. A promise to betray the philosophical understandings we strive for in gaining our intellectual purchase, as we return to the vulgarity of our relativism and our empathy with the world. Philosophy is useful, but necessarily obfuscating and abstract when brought down as tablets of stone to people whose philosophy emerges essentially as a practice.

(Miller, 2005, p.45)

Practical ethnography becomes messy, as many authors point out how one must “dispense with method” (Crabtree *et al.*, 2009; Crabtree *et al.*, 2012), just “follow the actors” above all else (Latour, 2007), or as Daniel Miller says above, that the philosophy gets in the way of our natural empathy with the world. Sometimes things just don’t fit in with our analytical framework, or with a tidy structure for results. However, simply confirming this mess is of no use (Pink, *et al.*, 2016) and contemporary developments in both cultural studies and anthropology provide the tools with which to create an analytic framework to make sense of the ‘mess’ and ‘stuff’ we find around us.

This ethnography has drawn on both the methodological influences in this chapter, as well as the theoretical ones outlined in the introduction. It is technocultural, in that it treats technology and cultural phenomena as inseparable and equally important. It is material, in that it puts specific focus on the raw physical stuff that literally makes up experiences. It takes pervasive gaming practice as a design activity where the imaginary is brought into being from material contingencies. And finally it is liminal and messy, assuming fuzziness at boundaries, but looking for those boundaries, looking for those controversies, looking for the breakdowns. It is at once messy, material, imaginary and liminal. It is an iterative assemblage, as well as an iterative encounter with the ethnographic field. To re-iterate, this ethnography is:

- Iterative and involves mixed methods that triangulate and reinforce results;
- It considers all the actors, not only following them and observing but also taking on the roles of the human actors (i.e. players and designers);
- Examines the physical and non-physical materials, treating these as important actors;
- Sensitive to language and where that departs from practice;
- Intended to consider the social and the technocultural context;
- Looks to experiences that are the stand out moments;

- Looks at the points where things break down and reconstructions take place; and
- Concerned with design and designers as an important aspect - in that these experiences are the result of creative processes.

In the next four chapters, I write about the results of this fieldwork and analysis. In chapters 5, 6 and 7 I take a close look at the actual materials of the games, human and non-human, physical and non-physical. Chapter 5 starts this by looking at the way pervasive games are hybrid machines constructed of humans and non-humans, that are mutable and flexible, changing and reconfiguring during gameplay. Then how these machines are both symbolically but also functionally intertextual. Chapter 6 deals with some of the explicit materials of pervasive games, choosing examples that relate to the key theoretical considerations. Firstly cardboard, and its material connotations. Then false moustaches, and their material-liminal effects. Finally, urban space as both a constraint, but also a flavour for pervasive game design and gameplay. In chapter 7 I make visible the more invisible materials and look at their very material effects on pervasive game development and design. I discuss festivals, rules and technologies, treating these as material elements with respect to the games themselves and the design process.

But first, in the next chapter, I discuss results drawn from the more social and cultural aspects of my research. I look at the ways in which the players' and designers' background drive them to immerse themselves in gaming culture, to be

'in' games. In this case literally as well as figuratively. I also discuss the social aesthetics of *communitas*, the pleasurable feeling of togetherness and the sociality that occurs during gameplay itself.

## Chapter 4

### The Social Pleasures of Street Games

Pervasive games have been described as both being social and also challenging the social paradigm of gameplay (Montola, 2005; Montola *et al.*, 2009; Stenros *et al.*, 2011; McGonigal, 2006; Dansey, 2013). Almost all of the games I have observed have involved large numbers of players. The social interaction within the games has been central to their concept and enjoyment. The social experience surrounding street games and festivals, not explicitly part of gameplay, is also an important aspect in understanding their attraction. Because of this central importance, I start with an analysis of the sociality of pervasive gameplay.

In this chapter, I address the main question of why the players at street gaming festivals want to play these games? Why were they there? What are the stories they tell about the things they do and why it is important to them? What is it that people enjoy about pervasive games? Through answering these questions I show that players backgrounds contribute heavily to their enjoyment and appreciation of pervasive games as a technocultural form.

In the first section, I introduce and discuss the game *Gentrification*, which I had a deep involvement with during *Come Out & Play*. Through the example of team formation I explore Victor Turner's (1995) concept of 'communitas' as a way to explain the basic pleasures of sociality and the liminal attitude that pervades the ludic space.

Through an analysis of players actions and in-game discussion I found that there was also a great deal of friction amongst what Bourdieu terms 'habitus' (1986; Grenfell, 2008). This emerged through various references during and after the game to the concept of the 'hipster', a stereotype that contains much ill feeling, and communicates alienation. It kept recurring through my involvement, as a foil, a counter-community for parallel analysis.

Bourdieu's social theory has been a major aid in understanding the relationship between social action and aesthetic appreciation. In the third section, I discuss how players at street gaming festivals had a strong engagement in the milieu of gaming and popular culture that goes along with digital gaming. That they have high levels of what Bourdieu terms "cultural capital" (1977, 1993; Grenfell, 2008) with respect to games and especially digital games. Exercising this cultural capital is an intrinsically enjoyable and valuable experience.

Players in pervasive games find it difficult to describe what they are doing; that it is not just a "game", they feel like they are doing something different. However, when this "gameness" is challenged they do not enjoy it. In the fourth section, I

discuss how players have both a clear understanding of the nature of the games they are playing, as well as a nuanced set of ways in which that relates to the wider socio-cultural community.

Play experiences were often described with specific references to childhood, or using language that evoked childhood play. In the penultimate section, I discuss the sense of nostalgia that pervades the gaming festivals I observed.

Finally, summarising this chapter, I make the point that players and designers truly want to be 'in' games. That their histories and the cultural conditions give them the desire to immerse themselves, in this case in a very literal sense, 'in' games. They would seem to desire to physically be part of the games, part of the machinery. Replicating in actual form, their social and cultural immersion. Through this observation I discuss the underlying tensions, comment on my use of this in practice and look into the implications for design.

## **1. Spontaneous Communitas**

The majority of games I observed whilst carrying out fieldwork have been group games, often large group games. I have experienced some examples of single player location-based games, but certainly, during the festivals I attended, the games were intended for large groups. Part of this is driven by the philosophy of

“big games” (Area/Code, 2011), part of this is driven by the necessity to provide large-scale experiences for many people who might be attending a festival.<sup>28</sup>

Either way, a key aspect has been groups of people playing together.

During *Come Out & Play* in 2010, I spent two hours recording the play experience of one team in *Gentrification: The Game*. Although at the time I had intended to focus on the gameplay experience, observing this game ended up providing more insights into the social and cultural conditions of street games and the festivals.

*Gentrification* took place, with purposeful irony, in the centre of Park Slope - a gentrified suburb of Brooklyn - on one of the busiest, main shopping streets. *Gentrification* is a street game, loosely based on *Monopoly*. In it, small teams of players take on the roles of property developers or concerned locals. They must travel up and down a real street claiming real-world property via (digital) photos and building in-game community centres or coffee franchises. The emerging, virtual, neighbourhood was visualised via a mobile website and also on a chalk game board, physically drawn on the sidewalk. But the underlying photographic mechanic is low tech; in that a player returns to base and shows one of the designers the picture they have taken. Interspersed between rounds of property claiming and building there were physical challenges, such as creating a protest march or handing out flowers to passersby.

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28. See Chapter 7 for further discussion of this relationship.



Gentrification is played in rounds. In each round, your team scrambles to perform a variety of tasks. You start the round by consulting the web app, strategising, and deciding who needs to do what. Some of you head out into the neighbourhood to choose and photograph properties to collect. Meanwhile, some of you stick around at City Hall, to plan conversions and negotiate with other teams. And, at the same time, the bravest of you perform one of several wild and creative “tactics”, from the Slick Advertising Campaign (performed via sidewalk chalk) to the nefarious Protest (complete with real placards.) Finally, you all meet back up along with the other teams, to find out how successful you were, hear about changes to the neighbourhood, and listen to the occasional lawsuit or impassioned speech. (Description from designers)

In this case I did not play the game myself. I followed one team of six players through the whole game, videoing as much as I could. Recording the milling around at the beginning, the ad hoc formation of the teams (most people had only come in groups of 2-4) as well as holding a group interview at the end of play. Interestingly, none of the people I followed knew each other beforehand.

The players were: A medical scientist studying for a PhD; one was studying for a Geography PhD around public play; one was studying for a masters degree in interaction design (focusing on games); two others had jobs in technology companies; and one was a local, Brooklyn, resident. Prior to playing only two of the members of this group knew each other, and then it appeared only as acquaintances.

Gentrification had about fifty players. There were four designers there to run it, along with two volunteer helpers. Apart from those involved in the game, at the start there were many more people either watching, or trying to figure out whether they wanted to or were going to play in this game. There were probably about seventy people milling about on a broad sidewalk space by a park (the J. J. Byrne playground), without any knowledge of what exactly was about to happen.

As the designers started the game, they called for teams of about six people to form. Some people had come in small groups, but most of these had to merge with another to form the requisite six. Many players were still left on their own and had to negotiate membership quickly. Within the space of about three minutes the roughly fifty players had formed up into teams, created names for themselves and were going through the sign up process with one designer who had a hastily set up desk and laptop.

Two things initially emerged from watching *Gentrification* closely. First was that groups formed fast, even amongst strangers. The second was that all the players were very engaged with the game and all groups stayed together and played as teams. As the game progressed, across two hours, the group I observed started acting with more and more confidence. To begin with, they approached everything as a single group, completing all tasks together. Towards the end, they had delegated tasks to sub-groups and were splitting up to be able to complete things more quickly. Various people were tasked with roles that they either felt

more comfortable or capable in, such as planning/strategising, writing speeches, or running to the many city blocks at the edges of the physical game space. Sadly, even though they worked very well together, they didn't win.

In the group I observed, there developed a camaraderie and a definite team spirit. At the end, when I was carrying out a group interview with four of the players the nature of this social experience came up. They had all felt the same team spirit, the feeling of togetherness, the ease of splitting up tasks and taking on temporary roles. I have also experienced the same social satisfaction, the same aesthetic joy in sociality. This has been confirmed through discussions and interviews at *Come Out & Play* and other festivals and events. In addition, that although people feel very close during play, that when the game finishes, that feeling disappears quickly and you return to the everyday social relationships and normal levels of reserve.

This feeling of pleasure in sociality, the same equality and freedom of social relationships and interaction is what Victor Turner termed 'communitas' (Turner, 1974; Turner, 1995). Communitas is that feeling of togetherness that occurs during liminal and liminoid activities. The feeling of oneness during music festivals, hen nights or civil war. It's that drunken "I love you man" sentiment. It is also the sense of oneness that helps convince someone to join in looting when everyone else is doing it.

[It is a] “Moment in and out of time,” and in and out of secular social structure, which reveals, however fleetingly, some recognition (in symbol if not always in language) of a generalised social bond that has ceased to be and has simultaneously yet to be fragmented into a multiplicity of structural ties. (Turner, 1995)

For Turner, the feeling of *communitas* is what people experience as part of rituals. Rituals being processes used in pre-modern societies to reshape social structure. According to him, there are two models for human relations. The everyday, structured, hierarchical, differentiated social systems with status, identity, evaluation and politics. But also the social characteristics which emerge in liminal space, with barely rudimentary structure, participants undifferentiated, identities broken down and a communion of equal individuals. Turner adopts the term *communitas* rather than *community* to differentiate this new ritual state. Beyond the structures of society are not just the Hobbesian war of all against all, but also spontaneous *communitas*, before roles and regulation crops up. It is also very similar to Hakim Bey’s *Temporary Autonomous Zones* (1991), or what as Turner is quick to point out, “hippie happenings”. The connection between people’s feelings of togetherness and the ritual’s purpose in recasting social structure is thus very important. This is not saying that because of the feeling of *communitas* and the liminal space that players inhabit, that these experiences are equivalent to the rituals of pre-industrial societies. They are liminoid activities, in that players have a clear of choice to take part or not (Turner, 1983).<sup>29</sup>

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29. As discussed in chapter 1, liminoid experiences are like liminal, but with two key differences. Firstly

This description of *communitas* fits the descriptions of pervasive gamers' experience of sociality in gameplay. That when in a game they can do things they would not normally do socially, form tight bonds, feel a distinct closeness to others. Yet, this fades when the game structures are removed and the players return to everyday life. Turner points out that "spontaneous *communitas* is richly charged with affects", that there is "something magical about it" and that "subjectively there is a feeling of endless power" (1995, p.195, #16259). That it is contrasted with the objective difficulties of everyday life, and that *communitas* is temporary freedom from difficult decisions.

This *communitas* is a feeling of social immersion and deep social engagement that goes beyond just the structure of the rules. Gordon Calleja (2007, 2011) takes the concept of immersion, heavily used in digital games, and develops a framework of 'Incorporation' that breaks it down into the following aspects: Kinaesthetic, Spatial, Shared, Narrative, Affective and Ludic. He discusses the nature of social engagement in online games as part of this but discusses only digital gaming, and only in the context of Massively Multiplayer Online games (MMOs). He talks about the sense of involvement that comes from co-operation and co-habitation. The sense of sociality and the pleasures derived from it in the context of pervasive games does contain the sense of co-operation. Rather than the mediated world of MMOs, the face-to-face physicality brings a richer sociality and a very different enjoyment. The social sense of being in a liminal space with the other players

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they do not change the social structures, and secondly they are undertaken by choice.

brings a sharing that goes beyond just inhabiting the physical world together or the pleasure of presence. The world that the players are inhabiting is a special subset that only they now belong to. And as the nature of *communitas* is fleeting it brings with it the sense of a special, time-limited space. It is a very physical, tangible and pleasurable sense of social equality.

This section described how the in-game sociality of pervasive games is a key part of their aesthetics. Turner's concept of *communitas* provides an explanatory framework that describes the social pleasures and confirms the overall liminal structure of pervasive gameplay. Throughout his analysis of liminality and *communitas* Turner makes a point of discussing ideologies (especially Turner, 1995, Ch4) in relationship to *communitas*, that world-view is as important to generating *communitas* and ritual-like states, as the activities themselves. Thus there is a relationship between liminality, *communitas* and pervasive gameplayers' background and world-views. The feeling of *communitas* is an aid to understanding the in-game social pleasures.

## **2. Hipsters, Habitus and the socio-cultural community**

Within the contexts of the game itself the players experience a feeling of togetherness, a sociality that is confined to the group. Additionally, most of the participants of street gaming festivals, to a greater or lesser extent, also belong to a larger socio-cultural group within which the pervasive games practice resides. This is not necessarily a sub-culture in its own right but exists on the borders of

other cultural groups. In addition to that, the people involved had commonalities that run deeper than just playing digital games. This cultural background allows them to enjoy the cultural and spatial juxtapositions that pervasive games establish. Though this aesthetic appreciation can at times be an enjoyment of the discomfort these juxtapositions raise. In the next two sections I discuss the relationship between player's socio-cultural backgrounds and their enjoyment of pervasive gameplay.

Within this section I use the concept of 'habitus' (Bourdieu, 1986; Grenfell, 2008) to provide an analytic framework that enables an understanding of enjoyment in street game festivals. Habitus is the way in which the individual sees the world socially. It is both subjective, in that it is determined by the social individual, but also objective in that social action can be predicted by an individual's habitus. Habitus provides an explanation as to why certain people enjoy the micro and macro sociality that occurs in and around pervasive games, and others feel excluded.

To start with I return to the example of *Gentrification* described above. This game was played in busy streets, in amongst everyday life and people going about their everyday activities. The players are performing abnormal activities, for example handing out flowers, singing, marching, making speeches.

Because of this, they were repeatedly asked what it is they were doing. This is a common occurrence in my observations of pervasive gameplay and this appears to be a very difficult question for players to answer. The *Gentrification* players I

observed seem uncomfortable describing it simply as “a game” and created diverse and complex explanations. One exchange by two of the players, with a passer-by, went as such, with the two players talking over each other, finally agreeing to “It’s a hipster game.”

*Female player: They’re doing adult game in JJ Byrne park with different rules*

*Male player: It’s a Scavenger hunt and we have to go around*

*F: We’re pretending to be corrupt developers*

*M: It’s like a Monopoly game, but real life Monopoly*

*F: We’re pretending to be mean people who are gentrifying the neighbourhood. I don’t even understand the rules. It’s like a stupid kid game with grown-ups.*

*M: It’s a hipster game.*

*F: A hipster game.*

Curiously, at the time of my field trip to New York, and especially around the game Gentrification, the notion of the ‘hipster’, and hipster subculture, kept recurring. The contemporary hipster is a figure of derision or abuse, directed at others (Tolstad, 2006; Greif, 2010). Cultural and subcultural identification often revolves around identification and ‘othering’ (Dervin, 2011), and both the figure and culture of the hipster seemed to come up as a constantly recurring motif and provide a foil for understanding the culture surrounding *Come Out & Play*.

One player was a local resident with a thick Brooklyn accent who had lived in the area all her life. She had brought her teenage son to play, as he liked acting and games. He was playing another game, so, not knowing what to expect, she joined in a game herself. When I asked how playing this game made her feel, she described how all the other players were much younger and very different from herself and finally “It makes me feel like Williamsburg on a Saturday night.”



Williamsburg, an area of New York, is seen as the international locus for 'hipsters' (Glazek, 2010) and Williamsburg, like the game, made her feel highly uncomfortable. Alienated whilst in her own neighbourhood, the players of *Gentrification* unwittingly colonising the local space.

Even *Gentrification's* designers talked about how it was a hipster game (Bigge, 2010). "We're interested in hipsters. That's it in a nutshell." This constant reference to an 'other' type or category surfaces some key concerns in pervasive gameplay. Concerns that have become very apparent in *Gentrification*, but also sit beneath the surface of other pervasive games as well. Highlighted by the seemingly non-typical player we can see that there is quite a distinct socio-cultural background for most of the players. A background that enables them to appreciate the game better, and to feel more at home in the gameplay. They know the rules of the wider social game, as well as the rules of the game being played.

Defining the contemporary hipster is no easy feat for a subculture that prides itself on individuality and internet accelerated trends. The term itself is highly contested and in fact, for hipsters, being called a 'hipster' is an insult (Tolstad, 2006). The term Hipster first appeared as a reference to black subcultural figures in the 1940s and then white subcultural figures in the 1950s (Tolstad, 2006). Greif (2010, p.10) describes current hipsters emerging between 1999 and 2003 coming out of a post-punk, post-grunge neo-bohemia that is driven by a late-capitalist milieu of the experience economy. The hipster emerged out of a thwarted tradition of DIY, alternative youth subcultures that have been integrated,

humiliated or destroyed. He says this leads to hipsters being anti-political and consumerist, ultimately deploying mockery and irony to communicate apathy and disgust around local and global issues. Paralleling Mailer's 'white negro hipster' which fetishised 1950s blackness, the 21st century hipster "fetishises the violence, instinctiveness and rebelliousness of lower-middle-class suburbia and low-class country whites." Greif's keywords that define this set of looks and interests are: "Trucker hats; undershirts called wifebeaters worn as outerwear; the aesthetic of basement rec-room pornography; flash-lit polaroids; fake wood paneling; Pabst Blue Ribbon; porno or pedophile moustaches; aviator glasses; Americana T-shirts for church socials, et cetera; tube socks; the late albums of Johnny Cash; and tattoos" (2010, p.9). A final approach to definition is that the hipster culture appreciates and uses an aesthetic based on tensions, ironies and radical alterations between knowingness and naïveté, adulthood and childhood, pretentious complexity and foolishness.<sup>30</sup>

Bourdieu's concept of habitus (Grenfell, 2008) helps to create an explanatory framework for this; why certain people play, and appreciate, pervasive games. And importantly, why many not would choose to play, or maybe only appreciate them on a surface level. Habitus is an unconscious set of predispositions, tendencies and inclinations, not so much rule-bound, but playing within

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30. Greif (2010) and Tolstad (2006) discuss the symbolism, trends and styles of 'hipster' culture in the first decade of the 20th century. This has no doubt changed and morphed as the second decade progresses. The concept of the 'hipster' is certainly a floating signifier and the subcultures and trends associated with it move and change under the term.

regularities (Bourdieu, 1990). It is the dispositions, attitudes, and expectations of a social group, that is acquired through everyday activity and social relationships. Critically, habitus is embodied, historical and has agency (Reay, 2004). As I've discussed the players and designers have either, or both, a background in gaming culture or a desire to explore it.

Much of Bourdieu's work is concerned with taste and style. He points out, tastes and style are not purely aesthetic, but socially and politically determined (Bourdieu, 1986). People make choices about all aesthetic experiences based on their socio-cultural background. This relation between aesthetics, class, education and cultural capital illuminates the nature of pervasive gameplayers, and understandably makes these players' experience different from that of those engaged in similar activities, but without the background or specific contexts of a festival such as *Come Out & Play*. Taste and preference are tied to habitus, to the socio-cultural conditions that players come from.

The Brooklyn resident above was not of the same habitus as the rest of the players. She claimed that she did not know the rules of the game at one point, and just as Bourdieu often describes habitus as knowing, or feeling, the rules of the social game, she did not feel like she fit in either. In her own neighbourhood, she felt like she was in a different, alienating one. And whilst she seemed quite confident in taking part during the game, she left immediately at the end, whilst the other players came with me to discuss the game.

Earlier in this chapter I discussed the concept of spontaneous *communitas* as an aspect of the experience of pervasive games. This was how any why players could create socially functional teams quickly, and experience a feeling of enjoyment about that sociality. When games were finished though, the existing social structures reasserted themselves and returned to the same norms. Through the example of *Gentrification*, and other games I have experienced, it would seem apparent that having a similar *habitus* is conducive to quicker formation of groups and therefore *communitas*.

Although many of the initial references to hipsters are tongue in cheek they do betray a set of concerns that *Gentrification* both purposefully and unconsciously surfaces. This particular game, and pervasive games in general, tend to work on these boundaries of existing in a space and existing in a group of people. That there is one set of behaviours that is overlaid in tension to the expected behaviours of the regular inhabitants of the space.

In this section, using an example from *Gentrification*, I have highlighted the importance of the player's *habitus*. The experience of a local resident, not of the same *habitus* as the rest of the players, shows the disparity between communities. Through the use of, and references to, the concept of the 'hipster' the sense of alienation and 'othering' that is already present is made apparent. Both with respect to the local resident's relationship to the game, as well as the player's relationship to the local community they were playing in.

The underlying point here, is that there is a cultural background to all forms of pervasive gaming. In the gaming festivals I observed this was primarily informed by digital gaming. Either this was due to the designers coming from a digital gaming background, or in the situations where it was artists or theatre practitioners, it was a tendency to want to explore the cultural dominance of digital gaming (what is sometimes referred to as the ludification of culture, see Raessens, 2006). The existence of this gaming culture, either as a background milieu or as a space to explore, is an important predicate for the practice of pervasive gaming.

### **3. Cool Gameplay Capitals**

According to Bourdieu (2011), the social world is accumulated history. Capital, a concept of Bourdieu's I will be using in this section, is the accumulated labour of individuals that can then be used as reified social energy. It is collected social possibility. Bourdieu outlines four types of capital: economic, social, cultural and symbolic. Economic capital equates closely to extended wealth. Social capital is an accumulation of social connections; a measure of the effectiveness of a social network. Cultural capital is based on learning and knowledge. Symbolic capital is based on prestige or honour. All these forms of capital may be used to generate more capital of other forms in certain social situations. Bourdieu goes further to split cultural capital into three forms: objectified, institutionalised and, importantly for this analysis, embodied. Objectified cultural capital is things that

are owned that materially represent cultural capability. Institutionalised cultural capital comes in the form of formal, usually academic, qualifications. Most cultural capital, however, comes in its fundamental state, embodied, where it is the practical knowledges and 'know-hows' that enable more adept functioning in the social world. This can be seen as skills, aptitudes and attitudes that can be practised to generate social or economic capital within particular contexts.

Pervasive games contain a material symbolism that talks strongly about the technocultural context surrounding both the players and designers. It speaks of an intense involvement in an eco-system that exists around games, game design and game pop-culture. The players I encountered tended to have a strong digital and non-digital games background, giving them a high degree of cultural capital in these areas. Part of the reason they want to play, and part of the enjoyment comes from using this cultural capital. This gives them the skills and knowledges to enjoy the cultural references of the games, the social interactions and to quickly pick up rules, and enjoy the simple gameplay.

Two findings emerged through interviews, discussion and observation at the gaming festival *Come Out & Play*. The first finding was around players' educational level. Everyone I interviewed formally had a university degree; indicating generally having a high amount of both embodied and institutionalised cultural capital. There was a surprisingly high level of post-graduate education amongst players at this festival, and also a high level of either academic or professional involvement. A large number of players were game related

academics or worked in game design. The second finding was the history of computer gameplay amongst the majority of players. Certainly most denied being categorised as a “gamer”; a category which has become a mythical stereotype (Taylor, 2003, 2009a). Even though denying that label, they mostly had a strong engagement with various forms of digital and non-digital gaming. For example, one interviewee vigorously denied playing games often, or being a “gamer”, yet admitted to playing board games weekly and having a *Civilization III* habit<sup>31</sup>.

The first point helps us understand a little of who these people are, but the second is more important with respect to understanding why the players enjoy the games as they do. Almost universally, the players grew up playing video games and to a lesser extent tabletop, board and roleplaying games. There is an embodied capital in their access to the stories, symbolism, gameplay and shared experience of video games. Most of the players at these festivals range from the mid 20s to the late 30s, and the games they would have grown up with are from the late 80s to the early 90s. These eras of childhood gaming seem to hold a particular fondness for the players that goes beyond simple memories of childhood.

At *You Are Go*, in Berlin I had just finished the game *Feromon* and was walking back to the main venue with the rest of the players. One side of me was a pair of game designers from New York whom I could hear discussing plans, or how they should have played differently. On the other side of me were a pair of

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31. *Civilization III* is the most complex version of this series of turn-based strategy games, and requires an attention to the details and intricacies of the game in order to play.

German girls, teenagers, discussing something excitedly in German. I asked them what they were talking about. They told me they were “strategising”, and when I asked further about their interests they told me they liked board games. On the face of it these might seem like very different groups, I would expect the game designers to be talking strategy, but teenage girls? They have the same behaviours and attitudes, they both have the same gameplaying habitus and cultural capitals.

The language used and the cultures drawn upon favour people who have a connection to that culture’s capitals. Cultural capital in this field is important to even understand play, let alone enjoy. An understanding of common terms I heard, such as ‘power-ups’, ‘goals’, ‘victory conditions’ or being able to actively engage in invitations to ‘strategise’; would be important to be able to play along with the other players. The casual use and simplicity of terms such as these can belie the depth of meaning, attitudes and behaviours that they summarise and the capitals that go along with them.

In her ethnography of Williamsburg ‘hipsters’ Ingrid Tolstad describes how that subculture creates and manages the intangible quality of ‘cool’ (Tolstad, 2006), and equates it to Bourdieu’s concept of cultural capital. The ability to amass a ‘cool’ capital results from the hipster’s middle-class habitus, level of education - usually university - and a high level of disposable income - from jobs in the media and creative industries. As Tolstad says, ‘cool’ has value, but it is very contextually dependent and is constantly redefined by the members of the subculture. Thus making it difficult for people outside the subculture to appear ‘cool’ or



understand what makes someone or something 'cool'. Within this sub-culture and at its margins this capital of cool can be traded for social and economic capitals, as well as for creating identity and enforcing social groupings.

For players and designers of festivals such as *Come Out & Play* there is a value in these events of being able to deploy these non-traditional embodied capitals. It is not just that they grew up gaming, as many from their generation did. Most of the players I encountered had a strong engagement with some form of gaming, for example, the *Civilization* series, Retro-gaming, *Minecraft*, or German board games. They each had their own deep, honest, authentic connection to distinct forms of embodied cultural capital that have practical and translatable value within the community.

In one way, cultural capital is a way of explaining the mass of relationships between individuals, media, technology and experiences. Cultural capital is, in a simple way, a measure of the ability of an individual to manipulate or use all their relationships to media and technology through their past experiences. Embodied cultural capital is that practical aspect of those knowledges, the skill element, the embodied capabilities. In the realm of games, the embodied capitals are the skills of playing and designing.

Most players had high levels of very specific forms of cultural capital that had value within the community, but little outside. Although maybe not as distinct a concept as 'cool' for hipsters this capital functionally fills a similar space to the

way Tolstad describes the way a capital of 'cool' functions for 'hipsters' (Tolstad, 2006). A 'cool' gameplay capital that contributed to the enjoyment of the pervasive games played.

The games at *Come Out & Play* ran the gamut from playful punning, such as *CounterSquirt* - a water pistol game with victory mechanics from the computer game *CounterStrike* - to loving attempts at live-action recreations of classic arcade games, such as a game of *Humanoid Asteroid*, with 16 neon-tube wearing individuals acting as chaotic, bouncing, break-apart asteroids. These games are packed full of both visual symbolism, but also functional symbolism through their borrowed rules, interactions and backstories. The players "get" street, urban and pervasive games through their gaming histories, and in the same way that Bourdieu often describes habitus, they have a feel for the game. This differentiates them from those who might casually encounter these games.

These players have a set of tastes that comes from interpreting the aesthetics that emerge from manipulating 'cool' gameplay capital, and retro-referentiality. They create, and are the ones that can only truly appreciate, street games that are based on a deep level of referencing and reverence of games in general, and especially those from their collective childhood. They tend to also mix childhood with adulthood, games from their collective childhood are referenced, reused and remixed. As one interviewee put it they are "children's games with something extra," but that 'extra' thing could vary from being suitably challenging or

complex, to involving more adult concepts and sensibilities. That extra piece often being the use of cultural capitals, either cleverly by the designers, or requiring them from the players.

The sites of my ethnography were by no means all identical, and there are both interesting commonalities as well as differences. Players in street gaming festivals tended to work in digital media, web design, game design and generally the more creative end of the ICT industry. There are however subtle, regional differences in the make up of the main street gaming festivals. These reflect the social networks of the organisers and designers as well as the industry focus of the cities where they happen. For example, *Come Out & Play* in New York had a higher concentration of game designers and developers due to the larger 'indie game' design community in and around the city which the organisers were also heavily involved in. *Hide & Seek* in London was skewed towards the digital media industry, with many theatre practitioners. This would also appear to match up with the background of the organisers and the high concentration of digital media in London. *You Are Go* in Berlin seems to have drawn in many artists, again due to the organiser's background and the large population of artists, especially in media art, in that city.

But even though there is local variation across the many different cities and countries there is a commonality in both the players and designers of street games. Broadly speaking they all tend to be involved in what might be called the

experience economy (Pine and Gilmore, 1998), the commercial endeavours that stage memorable experiences for their customers<sup>32</sup>; more specifically those that are based on the creative application of digital technologies.

So, in Bourdieusian terms, the field of practice that surrounds pervasive games - whether that be festivals, playtests or evening events - are markets for the deployment, transmission, negotiation and generation of cultural capital. Players and designers deploy their own 'cool gameplay' capitals in these markets and through this process generate further capitals that are useful at once within this field, but also because of the relationship to the broader experience economies, are useful to other economic fields outside of the site of pervasive gaming practice. The embodied cultural capitals are transformed from those concerned more with gaming and physical space, into cultural capitals that are useful in the experience economy. The implicit knowledges about facilitating groups, managing crowds, understanding the aesthetics of physical events, knowing where and how technology can improve experiences, etc. Maybe this does not obviously generate large amounts of economic capital, but the experimentation that occurs in the practice is valuable because of its ability to be applied in other fields.

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32. These could be games companies, theatre groups, user experience designers, web designers to name but a few.

However, having said that pervasive gaming is a market, it is also games being played. Although there is a background value to the capital negotiations it doesn't outweigh the pleasures of the gameplay itself. Players come to these events to play games not just to take part in experiments, even if that is a background concern. They still first and foremost wish to play games, enjoy themselves and have fun, a point I will address further in the next section.

#### **4. "Did I just play a game?"**

Throughout this chapter the dominant narrative has been about games, the playing of games and the historical nature of player's and designer's skills at playing games. Games of one description or another are clearly being designed and played. But what happens if the experiences are not games as such? What happens if the experiments in game design take players off into different styles of interaction?

In this section, I argue that the players wanted to play 'games' or an experience that feels 'game-like'. Not purely technical experiments, or some form of experimental theatre. I use examples of games where the experience has broken down as a way of describing the borders, or limits of what a game experience might be, and what is not.

*So for me, I think it's definitely the interaction with other people, be that other players or just again passers-by, sort of just having this weird little thing in their day.*

*(Hide & Seek player talking about the Victoria & Albert Museum sandpit)*

Early in my data gathering, I was at the end of a game with the intention of encountering the players and briefly discussing their experiences with them. This game was at one of the *Hide & Seek* sandpits, a weeknight experimental forum for pervasive games. I had talked to the designers, an experimental theatre company, beforehand to work out where the game would end so I could talk with some of the players. At the end, the first thing that one of the players said to me was “Did I just play a game?” with a rhetorical tone, and “I didn’t see how I could have lost?” with a little incredulity. In his opinion, it was less of a game and was more of a professional experience with some game elements. It didn’t feel like a game. And with that, he felt somehow cheated.

The dominant reason that participants attend street game festivals is to play games. Whilst this may seem a somewhat obvious statement, it is important to understand within the context of pervasive games being situated as either (or both) design and technical experiments (as discussed in Chapters 1 & 2). Players want to enjoy being part of an experiment - they want to play experimental games, as discussed in the previous section. They do not want to be experimented upon, or only be part of an experiment. It might seem a truism, but it is more important to players that a game is ‘fun’ (leaving in all the indeterminacy of that word), than if it is part of a bigger experiment.<sup>33</sup>

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33. This ‘use’ of players opens up the route to talk about gameplay as hidden labour. Returning to the research agendas of the designers, players are used as playbour for designers. (Kücklich, 2005)

*I've been to a couple of dance performances that have been on the street, they've run along the street and done stuff and you run after them, [...] but there's still a fundamental difference of who is actually doing what.*

*(Hide & Seek player)*

I will discuss an example of the pushback to experiment through examining a game that broke down. In the game I am discussing the players were expected to take on a particular role and through the game experience the designers' characterisation of that role. The game was a mix of treasure hunt and physical challenges. The players were given clues that would help them find checkpoints, then at each checkpoint would have to take part in a physical role-play challenge that would unlock the next checkpoint. Each of these challenges was an attempt at some form of experiential homology. Through the experience, the players would thus understand the character and the role they were meant to have.

This game broke in two distinct ways; each of which destroyed the liminal state, the attitude of play and the collaboration between designers and players. It made the players feel uncomfortable and challenged them in the wrong way. It broke down into an obvious experiment. As one player described it;

*It really rubbed me the wrong way [...] and then the aspect of involving people who didn't choose to be part of the whole scenario. When you come here everyone has wanted, has chosen to come, they want to play a game, want to interact with each other rather than go out and interact with people who didn't want to come to this, and force them to play a game that they didn't want to play.*

*(Hide & Seek player)*

The first break down was the technology. The game was meant to be reliant on Bluetooth technology. A volunteer actor at each location had a device for bluetoothing instructions to the player's phones. It did not work, none of the instructions could be received. This had been anticipated by the designers, and they had a backup solution of using envelopes and paper. The players instantly felt that the technical solution was not needed when there was a working low-tech mechanic. That it was an added complication that, when it repeatedly didn't work, was tiresome. All the players felt that if paper would work, then why not use that and only that?

Whilst the game may well have been an experimentation with technology, the players felt like they were being experimented on, rather than enjoying an experiment. Forced into a mechanism that was tacked on to the game not for their benefit, but for the designers.

The second breakdown, and more disruptive to the game were the challenges themselves. The designers of the game had created tasks that were meant to symbolically represent various things that the players should experience to feel the characterisation. One example was to beg for money from passersby. Whilst in some way this did create the embarrassment that the designers thought the role should feel, all of the players felt very uncomfortable, and most of the players refused to take part in this activity. The designers continued insistence that the players had to do this to progress was felt then to have created a division between the players and the designers, and the experience broke down as a game.



*If you're sitting on the street you don't want some weird person coming hassling you. (Hide & Seek player)*

Whilst it appears that this level of embarrassment might have been intended by the designers, to put the players in an intense sense of discomfort, it also did not match with players expectations. In this setting the players certainly felt like they were playing a game, not taking part in an artistic recreation of the character's feelings or a personal performance of the character's embarrassment. That was not what they were at this festival for.

This may have been in some part a way to make the players participate with the audience, to create an obvious spectacle. This would appear in a very limited way to be similar to other aspects of pervasive games design, in that the boundary between the audience and the players are blurred or extended.

Benford *et al.* (2006b) discuss how the relationships between player, audience and bystander are ambiguous in the mixed-reality game *Uncle Roy All Around You*. They point to how the experience is expressly designed to create ambiguity in situations by purposefully changing these relationships. This works in two ways, either to imply that performers are bystanders, or bystanders are performers. This allows for moments where bystanders magically become part of the experience, or that encounters with non-performers can be interpreted as intentional.

The game I am discussing did not play with the possibilities of ambiguity in the gameplay. Both the players and the audience became painfully aware of the nature of playing this game. Unlike *Uncle Roy All Around You*, which used this ambiguity successfully, the game I observed made it difficult to enrol the non-playing public into the network of the game. The bystanders were entirely unwilling actors. The players too, generally decided that they did not want to be part of this activity. The players, even though they seemingly wanted to play in a public environment, did not want to have that play exposed, or challenged, in such an obvious fashion. This wasn't play disguised as everyday action and everyday action interpreted as play, these were embarrassing and uncomfortable tasks. In *Uncle Roy All Around You* the ambiguity in the game was from the point of view of the players. In the game I observed, the activity, the notional ambiguity, was forced on an unsuspecting audience.

It is much discussed that one of the features of pervasive gaming is that they blur or extend the boundaries of the game, to involve or interact with the public or an unsuspecting audience (McGonigal, 2006; Montola, 2005; Montola *et al.*, 2009). In my observations though, this occurs with significantly less frequency, and the beautiful accidents, although sometimes designed in, happen less frequently than cited (McGonigal, 2003, 2005, 2006). Some games do explicitly play with this distinction, but the majority of games are clearly games, especially for the players.

In these situations the players feel like they need that to enjoy the experiences, because when the game nature is punctured, when the meaning emerging from the network changes, the enjoyment stops.

As a different designer in a separate interview points out, the game structure gives license to “be silly” in public, but within particular structures and limits.

*Some people don't and do get self-conscious, especially when they have to do something silly like approaching a stranger or they have to wear silly goggles. So I guess it isn't everyone's cup of tea, but most people do enjoy it and I think most people enjoy having the framework of a game to use almost as an excuse to be a bit silly in public and it can be quite liberating. You can run around and throw coloured objects around and you might feel very stupid doing it if it was just that. But it's, you know, I'm playing a game this is part of a game and there are rules and things so it's okay...*

*(Hide & Seek designer)*

This finding is backed up Neil Dansey's empirical observations of pervasive gaming (2009, 2013). He also notes that these 'ambiguous' pervasive games are very rare, therefore carrying out empirical research on these ambiguous moments is difficult. He critiques the Montola definition (Montola, 2005) that bases a definition of pervasive games on their ambiguousness as games and goes on to discuss the ambiguity that he found. He states that the rules are fluidly interpreted by players but it isn't questioned that the players are in a game. So his conclusion is that to make games that feel like they pervade everyday life, then rather than blur the boundaries of the game, the rules are blurred in such a way

as to allow different readings by players in particular contexts. They can weave the results into their own everyday experience; the particular situations and contexts shape the structures of the games. Not the other way around.

It should also be noted that in *Uncle Roy All Around You*, one of the ‘games’ most cited as creating ambiguous player/non-player relationships, was situated as an artwork first and foremost, not a game. It was always located in a gallery context, even if played outdoors, it was not in a gaming festival. The ways in which the participants, or audience, contextualised their relationship to it was different. In many ways it was already not a ‘game’.

This section started with the observation that players tend to have a hard time describing what they are doing when playing pervasive games. Evidence shows that it is very hard for players to say it is “just a game”. Even when it is recognised that there is a rich network of meaning and relationships outside the game that makes it not “just a game” the players still want to be playing a game. If it breaks down as a game, it causes discomfort. Players want to be playing games, not be forced to do something else.

## **5. Nostalgia**

In chapter 2 I pointed out that pervasive gaming as a practice is founded on technology development. The impetus for it can be traced to academic, and industrial technology research agendas. In section 3 of this chapter I described how the designers and players use the practice of pervasive gaming to transform

game related cultural capital into capitals that are useful in the experience economy. Through this perspective there would appear to be a future-facing, anticipatory angle for the practice.

Contrary to expectations, in the field I encountered a strong trend of nostalgia in describing experiences and relationships to pervasive gameplay. When I interviewed or discussed experiences with players, they tended to refer to childhood experiences and the context of childhood or childlike play to describe what it was they were feeling and experiencing. I also observed many symbolic references to the past in the festivals I attended. Much of the play experience, and the wider practice, were situated within the rhetoric of 'good old-fashioned' play.

For example:

*[...] when people who have never played these type of games before, give this a go they usually find that this is something that they actually enjoy, this is something that they enjoyed as kids, there's no reason why they can't enjoy it now.*

*(Hide & Seek player)*

*This experience to me is closest to playing Man Hunt or Cops and Robbers when you were a little kid as a 7, 8 year old running in the streets of your neighbourhood with your closest friends and just being physical but still adhering to a certain set of rules*

*(Come Out & Play player referring to Kaboom!)*

In all interviews<sup>34</sup> players discussed their play and experience of street games, in terms that either directly or indirectly referenced childhood, child-like play or play during their own childhood. Many of the designers also discussed their

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34. Players at *Hide & Seek* and *Come Out & Play*

practice in light of their childhood experiences of computer, board and role-playing games. I had assumed that players would be engaging with these adult games, in adult spaces, in an adult mode<sup>35</sup>. But instead, there was a clear nostalgia for the experience of childhood play and players saw a direct link between their histories of childhood play and childhood computer gaming and what they were currently engaged in. The play experiences in the past were seen as being especially valuable, and their adult lives had a paucity of these experiences. Pervasive gameplay was seen as a way to reconnect with these valuable childhood experiences through physical play.

Many of the games were described by players as being like childhood games, or playground games, with “something more”. It has been noted that most pervasive games, especially location-based games, are based on the game structures of either tag, or treasure hunts (Montola *et al.*, 2009; Stenros *et al.*, 2011). The something more being the aspect or elements that made them a little more complex, structured or a provide a narrative overlay. For example, *Can You See Me Now* (Anastasi *et al.*, 2002; Benford *et al.*, 2006a; Blast Theory, 2015b) is a game of tag played across the real and virtual worlds. *Perplex City*, a commercial ARG, was essentially a treasure hunt with a transmedia alternate reality storyline that contained the clues to the ultimate cash prize. Even *Killer*, the campus game of assassination, can be seen as simply tag with a murderous narrative.

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35. There was a distinct lack of children in all of the festivals I observed. Families that did attend looked excluded and alienated.

A number of points arise from this. Firstly, relating it back to the previous two sections, we can see that pervasive games use, or allow the use of, game-related cultural capitals. A large amount of cultural capital, and player habitus, is developed through childhood. Bourdieu would say most (or the most socially valuable) cultural capital arises through formal education (Bourdieu, 1986) but in this situation game-related capitals, skills, knowledges and capabilities would have been formed outside of formal education. No matter they type of capital, they are accumulated and reified labour, in this case the labour being gameplay (Bourdieu, 2011). The use of these capitals as either a player or a designer would evoke memories of these previous experiences, and relate the current experience to that of the past. Players describing these experiences would naturally fall back on descriptions that evoke the memory formation of the embodied cultural capitals.

Building on this, many interviewees had pointed out that their gaming had reduced as they became adults. They reported that their experience of sport, computing gaming or playful physical activity had drastically reduced or stopped. So, in this respect, they had little in the way of adult experience with which to reference their enjoyment or sense of fun. So it is childhood memories that are then drawn on.

This would also seem to reflect on the general cultural perspective that games and play are still activities being framed as 'childish' and related to childhood. The earliest theorists in the field of play and game studies discussed this relationship (Huizinga, 1949; Sutton-Smith, 1998; Caillois, 2001). They noted that society tends to relate the notion of play to childlike behaviours and childhood activities.

This leaves the question still only partially answered. Is it that the people involved in this future facing, experimental, avant-garde practice of play have not yet developed a language to describe forms of adult play, so are falling back on traditional terms to describe their experiences? Or is it that the form of gaming is implicitly concerned with 'good old-fashioned fun' and child-like play practices?

In addition to players individually reflecting this form of personal nostalgia, another form of nostalgia was also present through the festivals themselves. It was also institutionally reflected. The names of the two biggest festivals I attended, *Come Out & Play* and *Hide & Seek*, would reflect this. One would seem to use the language of a childlike invitation to play, the other the name of a traditional childhood game. Both evoking this sense of childhood nostalgia in their names.

It was not just the festival names, which, in a different context, could also be seen as a sly, or tongue-in-cheek subversion of the concept of childhood play. There was also a high level of nostalgic symbolism present throughout the festivals



themselves. So rather than feeling like subverting either the nostalgia or the assumption that play was a childlike activity, they apparently celebrate it. They become festivals celebrating play, rather than strictly experimental gaming.

The year I attended *Come Out & Play* it was located in the Brooklyn Lyceum, a 100-year-old bathhouse that had been recently renovated (Figure 6). Other locations in use were the Old Stone House, a small cottage dating back to the American Civil War, and the Green-Wood Cemetery, a historic Brooklyn graveyard with many famous figures.



Figure 6: Brooklyn Lyceum

*Hide & Seek* in London in 2010 was located in the National Theatre in London. The place was decorated with bunting and checked cloth. There were wooden booths and a vintage style newspaper with the programme. The whole thing had elements of the look and feel of a traditional English festival. (See Figures 7 and 8)



Figure 7: Bunting at *Hide & Seek* 2010



Figure 8: Suitcase and decorations at *Hide & Seek* 2010

One *Igfest* was specifically programmed with the look of a village fete, and all games played had some traditional element to them, such as a maypole, hay bales and bunting (see figure 9).



Figure 9: Bike Maypole at *Igfest* 2011

Certainly at *Come Out & Play* the games themselves were often nostalgic representations or recreations. Such as *Humanoid Asteroid* discussed in the foreword (Figure 10).



Figure 10: *Humanoid Asteroid* at *Come Out & Play* 2010

Apart from the ways in which the players reflected on their activities, the very festivals, locations, and games themselves were very much rooted in a nostalgic past, one where physical play and digital games were shown both connected and in a rosy light.

A central theme here is the contrast of old-fashioned, childhood, childlike fun in contrast to digital gaming. That the physical play is related to childhood play, that there is a nostalgia, a reminiscent fondness in comparison to digital gameplay. Although a lot of the games, mechanics, signification and context is informed by digital gameplay, there is a sense that in some way pervasive games are better because of their physicality.

This runs contrary to, or has developed in contradiction to, early developments in pervasive gaming that were very much dominated by the agendas of technology development (McGonigal, 2006). This also runs contrary to the notion of technologically supported mixed reality on the real/virtual spectrum (Milgram *et al.*, 1994) and would point to the game design practice tending to preferentially favour the real, as the old-fashioned, in opposition to the 'virtual' as the new. Parallels being implicitly drawn between the real, the physical and the traditional versus the virtual, the digital and the new. The real and traditional being somehow more important.

Pervasive gaming, pervasive media and other mobile and ubicomp supported technological experiences would all appear to naturally work with historical experiences. The notion of spatialised memory or geo-located history is a natural

fit for pervasive experiences and this can be seen as one of the design directions that can be explored through this medium (Fleuriot and Dovey, 2012). There are many examples of games that deal with historical themes or memory, such as *Escape from the Tower* (Stenton *et al.*, 2007), *REXplorer* (Ballagas *et al.*, 2008), *Jewish Time Jump: New York* (Gottlieb, 2013), *Reliving the Revolution* (Schrier, 2005), or *Rider Spoke* (Rowland *et al.*, 2009),

From a number of angles it would appear that pervasive gaming, though being originally driven by anticipatory technology agendas, has in practice become concerned with nostalgic play experiences. Cultural capitals generated through childhood gameplay are laden with memories of that time in people's lives, flavouring the types of experience and informing preferences. This would also appear to be correlated by the heavy, seemingly accidental, references to the historical. Coupled with the parallel development of other historical based pervasive media experiences this sets up interesting tensions within this avant-garde game design practice, that makes it, counter-intuitively, focused on the past.

## **6. Being 'in' games**

In the previous sections I have discussed how games, digital or not, and the culture of gaming have emerged as the milieu within which pervasive games are situated. This cultural background to the practice creates an in-game and out-of-game pleasurable sociality. This shared cultural history brings in part, nostalgic

aesthetics that reference games from designers and players childhood. All of this is built around the central concept of playing 'games', and marries the physicality of street games with the players' cultural background of gameplay.

This leads to the over-arching conclusion for this chapter, that players and designers want to be 'in' games. The being 'in' referring to a number of ways in which they wish to be socio-culturally part of street games, as both individual enactments, but also as a wider practice. They wish to feel deeply engaged in social and cultural experiences that make their histories feel relevant and makes them feel socially connected. Players want experiences that allow them to use their embodied capitals in situations where it could be traded for social, or even economic capital.

Spontaneous communitas, an aspect of liminal experiences described by Victor Turner (1995), was observed regularly. This description of communitas fits the descriptions of players experience of sociality in gameplay and expands on the already observed liminal nature of pervasive games. This feeling creates a deep sense of engagement, a feeling of being in a social group.

The players are not demographically identical, but there is a common habitus to players, in that they appear to come from similar employment, education levels and gameplaying background. This common habitus is a component in allowing

the *communitas* to emerge easily. It reduces the friction for the emergence of the *communitas*, and thus the liminal experience. It creates a sense of belonging to the community of the festivals.

These points create a number of tensions that resolve themselves through the practice:

- **Simplicity vs. Depth**
- **Game vs. Experiment**
- **Nostalgia vs. Experimentation**

The history of games that the players all share lends itself to them easily picking up the rules. There is a tension between **simplicity** and **depth**, between being open to playing or requiring extensive knowledges and capitals. One way of explaining this is to continue to use the Bourdieusian framework and to see this gaming experience as embodied cultural capitals. Using these embodied cultural capitals to learn, or master, a game quickly is a pleasurable experience in itself. This creates a pressure from players for the games to be deeper, more meaningful; to be able to engage the player's capital further, which is in tension with the necessity for the games to be easily accessible, quick to learn and play.

Given the strong theme of games and play, it is no surprise that the primary reason that players come to these events is to play games. Many designers have varying reasons for creating games at pervasive gaming events, but the players, even though they wish to be a part of an avant-garde gaming event, do not wish



to simply be part of an experiment. There is a tension in the community and the games themselves as to how experimental they can be at the expense of an enjoyable experience. **Are they game or are they experiment?**

There is also a strong sense of nostalgia for old games, or reminiscence for childhood play. The mix of childhood digital game references with, what could be interpreted as, childhood game structures and styles creates a strong argument for a nostalgic theme in pervasive gameplay. This also creates a tension in the focus of the design. **Are the games evoking nostalgia, or evoking a sense of progress and experimentation?**

So there is a desire to be 'in' games, a part of them; a desire that comes from the shared cultural background. Pervasive games, by whatever description, whether it be extending the spatial element (Montola, 2005), being Big Games (area/Code, 2011), or just having a significant physical component (McGonigal, 2006, p42), takes the concept of games and expands them to a human habitable scale. A space where people can truly occupy games, whilst still inhabiting the cultural space that computer games and childhood gaming come from. In this chapter I have discussed the social evidence for this. In the next chapter, I start to examine the often overlooked material aspects of games that players and designers inhabit. If players want to be part of the game machine, what makes up the other parts?



## Chapter 5

### Reconfiguration and Human-Material Hybrids

In the next three chapters I address the overlooked, and sometimes invisible, materials that make up the missing mass of pervasive games. This is both the physical elements that these games are made with - the cardboard, paint, masks and costumes - and also the more intangible materials - the rules, technologies and infrastructures that support them. In the previous chapter I addressed the sociocultural aesthetics and in the following chapters I look at the ways in which the meaning emerges through the material of gameplay. These three chapters address the physical and embodied nature of “digital” play in the “real” world as well as the seemingly less physical contingencies that have a material effect on design. These chapters are an analysis of the materially inscribed, functional and symbolic relationships of meaning, in the enactment of pervasive games. As such this begin to demonstrate my analysis of how contemporary technoculture functions.

It would seem trivial to say that pervasive games are physical and involve the body. Most of the street games that I observed involved intense physical activity, often a lot of running. But the true physical and material aesthetics of these

games are not purely down to the enjoyment of physical exertion on the part of the players. The whole act of designing, running and playing a game is incredibly close to the body.

In this chapter I mainly focus on the physical recreation of *Kaboom!*. Through this game I draw out three things. First that it is apparent that there are relationships of meaning that mix the physical and the symbolic. There is a material semiosis in operation that usually relies on indexical referencing that is either, or both, functional and semiotic. In other words, it either looks or is named referentially or that it mimics a process or constraint drawn from someplace else. These relationships of meaning are also necessarily mutating and changing in response to play. Which is my second point, that gameplay brings a drift from their initial forms and intentions, via the material and human agencies that comprise the assemblage of the game. Thirdly that these networks of interaction and meaning are hybridised human/non-human machines for creating experiences. In this hybridisation the interactions between human/human and human/non-human are very exposed and explicitly performed, creating an aesthetic that is very dependent on the physical materials and human presence that comprise the games.

The first part of this chapter discusses the ways in which meaning in *Kaboom!* are related to an external network of relationships, that in the case of pervasive games includes a high degree of referentiality. This gives them a deeper meaning than that that occurs purely during physical gameplay. The second part discusses

how that human and embodied meaning emerges during gameplay and, importantly, changes character in response to various - human and non-human - agencies in the game. The last part of the chapter explores the ways in which human actors are mixed with non-human to produce pervasive games, and how because of this hybridisation and exposure, the materials of pervasive games become an important aesthetic consideration.

Although *Kaboom!* is not a technical game, and was played, inside, in a fixed location, it is a good example to illustrate these points. I further expand these through games involving more technical elements.

## **1. Functional referentiality**

My observations of pervasive and street games show that there is a high level of referentiality. On the surface it is apparent that these games often have a symbolic referencing to other games, whether digital or non-digital. However, there is also a level that goes beyond the symbolic to functionally reference these other games, through the application of rules, mechanics, interactions and processes. In saying functional as a way of referring to these relationships I am calling out the ways in which material objects interact with each other and also the human actors. They are not simply physical relationships, but instead physical processes; that is they are carrying out a function. The mixing of the symbolic and the functional from other games, and their adaptation to the underlying materiality being used to facilitate a pervasive game, brings about new

configurations that create a new and diverse set of emergent meanings. These meanings give a depth that goes beyond a simple semiotic analysis or a reading of the game rules by themselves.

*Kaboom!* is a live-action re-staging of a classic Atari game from the early 1980s, mentioned in the foreword and played on the opening night of *Come Out & Play* in 2010. In this section, I discuss the manner in which this game is typical of both the semiotic, but also functionally, referential nature of pervasive games. In the next section, I turn to the ways in which pervasive games morph or reconfigure due to their relations to the material constraints that are present; for example the technologies, the physical situation, the context and human contact.

“Stop the Mad Bomber in this live-action version of the Atari classic!” was the designers’ headline for this game<sup>36</sup> (Come Out & Play, 2010). This is an entirely physical and human run re-staging of the Atari 2600<sup>37</sup>, video game *Kaboom!* (Wikipedia, 2010b). The only computers involved in the staging are there to project a live score and provide sound effects.

By itself, the game is simple and not especially interesting. A player must catch balloons dropped from above in a bucket. The action and activity has little intrinsic meaning.

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36. *Kaboom!* was designed by Pete Vigeant and ESI Design.

37. Originally sold as the Atari VCS (Video Computer System) and later renamed in 1982 as the Atari 2600.

However, the game can only really be understood through the fact it is a re-staging of a seminal video game. *Kaboom!* is typical of the early days of home game consoles; simple, fast, difficult, colourful and addictive, as well as being one of the most popular Atari games<sup>38</sup>. As such it has a place in the minds of those who grew up with the Atari game console. The 2600 also has a special place in game culture because it brought video gaming into the home. Although it wasn't the first home console it was an early, cheap machine that still boasts the longest game console lifespan, from 1977 to 1991 (Wikipedia, 2010a).

Many of the game designers and the players themselves at *Come Out & Play* are not old enough to have been around at the time the game was released. Most of the people at the event, and especially the players of this game, were in their twenties or early thirties. Considering the 2600's ubiquity, they may have encountered it late in its lifecycle, but many people will have only come across the *Kaboom!* and the console as retro icons. Many would not even be explicitly aware of the seminal nature of this game.

So it is not the specificity of this game that is important, it is the channelling of retro gaming in general and the re-staging of a simple game mechanic in the real world. This could be just about any game from its generation to achieve a similar meaning.<sup>39</sup>

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38. It is also one of the first games out of Activision, the world's first 3rd party game developer. Up to that date the console manufacturers had made all their own games.

39. In fact at the same time, in the same room, another retro-gaming recreation was happening. As

The original game of *Kaboom!* is described as:

Gameplay in *Kaboom!* consists of using a paddle controller to catch bombs dropped by the “Mad Bomber” with a set of three buckets. Points are scored for every bomb caught, extra buckets (maximum of three) are awarded at every 1,000 points, and one bucket is lost every time a bomb is missed. As the game progresses, the “Mad Bomber” traverses the top of the screen much more erratically, dropping bombs at increasingly higher speeds, making each of the seven higher levels more difficult. (Wikipedia, 2010b)

The designers of the live-action version of the game describe it like this:

In each round, the Mad Bomber will run back and forth across the balcony dropping bombs (that coincidentally resemble black balloons). Your job is to catch each one in your rolling bucket of water, extinguishing the fuse and saving the day. Each round increases the number and speed of dropped bombs, and you have only three lives to claim the high score. There is also one slight catch - for each life lost, the bucket gets smaller and more difficult to manoeuvre. Do you have what it takes to foil the Mad Bomber and join the exclusive, elite Bucket Brigade? (Come Out & Play, 2010)

These excerpts above help illustrate the cultural position that this version occupies. The physical recreation, though lovingly finding parallel elements is a very different game. Although there is an obvious mapping between them, the physical *Kaboom!* is a much more complex and dynamic game, due to both its

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described earlier, a version of *Asteroids* was taking sixteen people in wearable, neon tubes to stage. *Asteroids* is probably a much more recognizable and popular game.

materiality and referentiality. The mappings created are not simply symbolic representations but are also intended to be a representation of the functional nature of the actors in the computer game.

Although the desire is to recreate, they do not become functional clones. They are materially very different, even though they do indexically represent actors in the computer game (see next page for visual comparison).



Figure 11: Screenshot of *Kaboom!* the computer game  
(Original game copyright Activision)



Figure 12: Photograph of the live-action re-staging of *Kaboom!*  
(Copyright [ESI Design](#))



The game was played in a large auditorium, or theatre space, in a converted Victorian bath house. The space was mostly exposed brick, with very practical and straightforward theatre seating. Along the back wall a large swath of green fabric had been hung, about 4 metres high and 10 metres wide. Two of the designers played bombers, dropping black balloon bombs down on the players, mimicking the bombing in the game. Rather than the onscreen representation of buckets, players now have three real buckets stacked inside each other and balanced on coasters. A physical representation of their onscreen buckets.

In the original *Kaboom!* the players are catching not one bomb at a time, but many. To play the game we're talking about catching hundreds or thousands of ever faster projectiles. The on-screen depictions of this are barely discernible as the things described because the graphics are simple. The only action the player can take is to rotate their paddle to catch the bombs<sup>40</sup>. One control mechanism, no other buttons to push or decisions to make. It is simply, turn the dial faster and catch more bombs. The live action version of *Kaboom!* takes this game and recreates it on a large scale. It takes one of the simplest control mechanisms in video gaming and gives it free, physical reign; it takes this private bedroom pleasure out of the home and into a public setting.

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40. Like many early game consoles the Atari 2600 usually came with paddles as well as joysticks. These were dial based controllers used to control games, like *Kaboom!* and *Pong*, that have only one dimension of movement. Much simpler than a joystick.

It references the seminal retro-nature of the *Kaboom!* and the Atari 2600 platform. It references the backstory and the onscreen symbols. It is a game about a game. Through the rules of the recreation though, it can be seen that it references the control mechanism specifically; the way the game is played. The back and forth nature of interaction that is embodied and processual. It carries in it a set of relationships that mean both what it appears to mean symbolically but also carry a set of functional meanings that are made apparent, or are read, through the action of gameplay.

Material-semiotics, a concept from ANT, is a way of reading situations and phenomena that goes beyond the symbolic. Akrich and Latour (1992) broadly define material-semiotics as the study of how meaning is built in non-textual and nonlinguistic interpretations. That is in physical and material interactions. As they say “The key aspect of the semiotics of machines is its ability to move from signs to things and back” (1992, p.259). This means two things. First is that meaning is generated through the physical and functional as well as the symbolic interaction. The ways in which things interact together, or interact with people. The second reading of material-semiotics is that there is no such thing as immaterial texts, or signs without embodiment. All relations between human and non-human actors are first and foremost embodied through physical interactions and secondarily mediated via signs.

This is especially interesting for games and playful activity, in that the interaction is clearly functional as well as symbolic and thus the meaning arises out of the gameplay itself as well as any symbolic communication. This applies to gaming phenomena of all shapes and sizes, from playground games to computer games, from make-believe to massively multiplayer online role-playing games. Meaning is generated physically, not just through an abstract reading of signs and immaterial texts. This ANT informed reading of referentiality would then show that it can occur in both symbolic and functional manners, and in fact that any true distinction between these is irrelevant. Given the description of *Kaboom!* then there are many material-semiotic relationships between the two games. Many of these relationships are intended to be either, or both, functionally and symbolically indexical. That is there is intended to be a direct mapping.

As a final point, it is interesting in that this process is very recursive, the digital game is based on a fantastical physical situation. The computer game actors are simple material representations of the fantasy of the escaped bomber. The functioning physics and gameplay of the digital game are intended to represent this original, though unusual, physical premise. Thus the physical recreation is two steps removed from the original premise. It is a physical recreation of a simulation of a physical situation. The physicality of the original distilled through a digital intermediary.

## 2. Reconfiguration

The recreation of *Kaboom!* at *Come Out & Play* is a rich set of references to the original Atari game, to the history of retro-gaming, and through its obvious physicality, a reference to the digital nature of the original. It is a game about digital games. As *Kaboom!* begins play, it starts out as being indexically similar to the original digital game. It is intended to be a recreation and to somehow function the same. However, as the game unfolds the players explore the possibilities and freedoms available to them within the material contingencies. As such it changes and mutates as gameplay progresses, through the human and non-human agencies involved, creating a new game with its own unique potentials. This process of change is important in understanding pervasive gameplay.

*I've never played the original Kaboom [...] I can't compare it as much, but you know, there's kind of more, I mean there's more to it, this game is more complicated in different ways, you have more mutations, but then you can also sort of massage the rules a bit more. (Kaboom! player)*

One example of a relationship that developed during the game was the rule, or mechanism, of catching balloons in the bucket. This involved the flexibility of the bucket in the real world, the capabilities of the player and the ever present influence of the video game itself. At the beginning of the game the players respected the video game physics and there was a control over the play that originated with the Atari game; that the player and bucket, more or less, moved in one dimension, left to right. Eventually, players reconfigured the game in line

with the real world physics in such a way that they were inventive and flexible with the use of the bucket. Towards the end, players were running behind pushing it, and lifting it off the ground. The optimal way to play becomes something that has little to do with the original game mechanics. Players could escape from near misses more easily through tilting the buckets or bouncing balloons off their chest, the buckets had a momentum of their own that would need to be accounted for in play as well as the fact they filled up with balloons.

Additionally, the presence of the audience also held a great power to sway behaviour and play. *Wows, oohs*, and shouts from behind the player showed approval and disapproval.

*I mean having people cheer you on, it's a completely different sensation feeling like you're performing [...] it's kind of a great motivator I keep pushing myself. I felt utterly exhausted at the end but I wanted to keep pushing myself because I felt like I wanted to have my name up there for posterity. (Kaboom! player)*

Close calls, last minute saves and borderline cheating were voted on by cheers and boos. The gameplay became determined by the social situation. This led to the players performing as well as playing. They played to the spectators, changing the gameplay from being focused on merely the collection of balloons and points to creating an enjoyable physical performance for viewers.



Figure 13: Player tilting buckets to catch a balloon, with queue of players waiting behind him. (Copyright [ESI Design](#))

The social reconfiguration of the underlying systems in computer games is not as flexible or as fast; the way the rules are technically inscribed enforce a degree of stability (especially if the focus is on a single game). It is typical of other physical games though, such as those played in the playground (Hughes, 2006). The network of meaning translates and develops over time, in this case quickly, in response to the material agencies and the social interaction between designers, audience and player (Law, 1992). The networks of these games are quickly reshaped, break and bend in a metastable manner as they respond to potential breakdowns via very human and immediate means.

It is through play that reconfiguration occurs, that the structures and processes of the game morph in response to the various agencies and possibilities that might occur. The opposite is also true, the reconfiguration is play. It is the exploration of these situations and the exercise of agency in bending the game and finding new possibilities that is, in this case, important to the gameplay and enjoyment of pervasive gaming. Both engaging with the external network of meaning, in the case of *Kaboom!*, its historical referencing of retro gaming, but also with the enjoyment of experiencing the mutability of the mechanisms and processes that facilitate the game when they encounter the novel material contingencies within which they are staged. The system of the game is explored by the players, but not as a rigid set of contingencies, but as a mutable network of relations within a more fluid set of contingencies.

This process of change is central to understanding pervasive gaming. It is easier to interpret the flux rather than read them as some form of fixed product (Law, 2004). As play progresses they are in constant change as players reconfigure the rules, the game objects and the spaces around them. From my observation of other games, and running them myself, I have seen the way in which the various agencies negotiate each distinct playing. Accounting for and reading the mutability and flux of pervasive games is important in understanding their particular aesthetics, cultural impact and importance. This applies in both the sense of understanding individual games, but also in the wider technocultural practice.

It is also important to understand the player's engagement with these changes and the enjoyment that stems from this. The aesthetics of pervasive games thus feel experimental and explorative, which matches the player's expectations of playing in an experimental field (see chapter 4.4). The enjoyment doesn't then come down to the experience of physicality, or a virtuoso performance, as in traditional sport, but instead to a gameplayer's capability to explore possibilities and come up with new strategies and approaches to gameplay.

This reconfiguration of the networks of interaction and meaning occurs in pervasive games with more technical elements in them. The mutability of the rules, infrastructure and play in response to the material, physical and geographical constraints would seem to be central to their success as games, as well as their particular aesthetic.

An example of this is *The Comfort of Strangers* (See figure 14) a game designed and produced by Slingshot Games in 2008 (Sandbox, 2008). This game was explicitly an experiment with swarm mechanics and network dynamics. Inspired by the concept of Smart Mobs (Rheingold, 2003). They were "interested in enabling groups of individuals to use the power of their collective creativity to solve problems, create new experiences and have fun" (Watershed, 2008). In this game, players were split in two teams - lovers or dancers - and were rewarded points by being close to teammates and points lost by being close to the enemy team. Each player had an HP iPaq PDA (Personal Digital Assistant), running HP's mScape locative platform (Stenton *et al.*, 2007). These PDAs were Wi-Fi capable, and the



game used the Wi-Fi signal strength to determine player proximity. At the start of the game the players don't know what team they are on, and the initial gameplay is to figure out your own team and who is in it. Following that, groups of players naturally form as being close to others on your team increases your score. These larger groups then 'hunt down' smaller groups to reduce their score.



Figure 14: *The Comfort of Strangers* (Copyright Slingshot Games)

In the game the PDAs are not actually networked together in any way. Although they are using Wi-Fi, they are using it purely to determine proximity, not connectivity. Score and technical interaction occur only on each device via a

simple rule-set. The emergent play and behaviours are a result of the ways in which players react to the rules and game feedback in response to the physical space they play in and the actions of the other players.

In my playings of this game, each time it was different. Different locations and different players created slightly different mutations of the behaviours in the game, creating different emergent dynamics. In some games, a huge team formed on one side, in others only smaller groups formed and there was more give and take in the points scoring.

The material reality of the spaces that *The Comfort of Strangers* was played within provides a set of physical contingencies that shape the game. The physical space provided a game space that players could run about in. The shape of buildings and open space giving rise to changing dynamics in gameplay. The invisible indeterminacy of Wi-Fi as a proximity detection technology and the speed of device update also added a layer of uncertainty and mutation that meant the “real” world wasn’t an absolute for point scoring and gameplay. Buildings, overhangs, tunnels, all created Wi-Fi blackspots, so that running around a corner and bumping into another player might not give an instantaneous point addition or deduction.

Initially, players expected the physical space to provide absolute cues to gameplay. But as the game progressed the hybrid space of the Wi-Fi and the physical started to become apparent. I found myself, as well as others, hiding in covered areas and

avoiding open spaces. The Wi-Fi obviously worked better in open spaces, as well as the high chance of meeting opposing teams. Towards the ends of some games large open spaces then became areas for confrontations between larger groups.

This initial expectation would appear to come from the social and cultural contingencies that shape the game. There are a set of underlying assumptions by players about how a game should work. Their history tells them what to expect and how to behave. A history of playing digital games puts in place an expectation that pervasive games are initially as definite and immutable as digital games are. However, in play, players find that the games are more mutable and have much less actual definition. The strictures of the games are more down to the players expectations than any actual structure of the game.

A similar discussion occurs around the case of the much-cited *PacManhattan* (McGonigal, 2006, p.225-239; Montola *et al.*, 2009; Lantz, 2007). This was a live-action restaging of PacMan in the streets around Washington Square in New York created by graduate students at the Tisch Arts School Interactive Telecommunications Program (ITP)<sup>41</sup>. The designers tried to use GPS to track all the players Wi-Fi and use Wi-Fi for connectivity but found that neither worked well or was cost-effective in the New York urban environment (*PacManhattan* designers cited in McGonigal, 2006, p.230). So they used mobile phones as a way to self-report locations and a complex arrangement where each street player had

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41. One of them being Pete Vigeant, who would later create *Kaboom!* (mentioned earlier).

one person tracking their location in a central control centre. As McGonigal has also pointed out, all participants in the playing were members of the ITP course, and she describes *PacManhattan* as much less a playing of a game than a performance of gameplay elements. She notes that many of the mechanics were changed or stripped away from it, making it fundamentally a different game, whilst still keeping the symbolic elements and projecting them into a human-scale urban environment (McGonigal, 2006, p.232). Both the actions of the designers, as well as the collusions with the players reconfigured the way the game was played. Moving it from being a scaled-up clone to a version with its own style of gameplay. It is through this reconfiguration during play that the game's referential relationships to the original (see previous section) morph and mutate into new configurations.



Figure 15: PacManhattan player. Dressed as PacMan and on phone to report position. ([CC BY-NC-ND 2.0 Ehud Kenan](#))

Both *PacManhattan* and *The Comfort of Strangers* were played multiple times. In the case of *PacManhattan*, the game would have reconfigured in unique ways with each playing in different locations and with different players. Additionally, in between these different playings the designers were changing and tweaking the game, helping it run more smoothly or improving the overall aesthetic experience. This reconfiguration is not limited to simply the period of gameplay itself.

In this section I have discussed how pervasive games morph and mutate around the agencies of the human and non-human actors. This process of change is ontologically more important for understanding these games, and (I would argue) technocultural experiences in general, than as some form of fixed product (Law, 2004). Accounting for and reading the material and mutability of pervasive games is important in understanding their particular aesthetics, cultural impact and importance.

### **3. Human-material hybrids**

In this section I continue using the example of *Kaboom!* to illustrate the ways in which humans and material interact to create the machinery of pervasive games.

The example of *Kaboom!* highlights the way in which pervasive games expose the network of game elements. The human and material ‘stuff’ of the game are both very much on display. The digital game that it was based on was very

blackboxed<sup>42</sup>. A tightly closed network that relied on industrial scale production of hardware and software, that allowed a small number of people to create games that could be reliably replayed by millions. *Kaboom!*, although maybe extreme, is not unique. In most of the pervasive games I've observed it is as if people want to open up games and get inside, scale them up to human size and be a part of them (c.f. conclusion of chapter 4). Through this, the distinction between player and part becomes blurred as they express different agencies in the system at different times.

In the *Kaboom!* recreation there were five people involved in running the game, two bombers, a balloon runner who would fetch loose balloons and return them to the bombers, an MC announcing and organising the players as well as one person pressing a button on a mac laptop to recreate the sound of the bombs going into the bucket from the original game. For one player at a time, for a handful of players across the night. The ratio of 'designers' to players is very high when compared to the design and creation of other game forms. This ratio is usual within the practice of pervasive games, and all games I have observed require a high level of human involvement, whether they involve digital technology or not. These can be actors, teams of game designers, engineers

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42. "BLACKBOXING: An expression from the sociology of science that refers to the way scientific and technical work is made invisible by its own success. When a machine runs efficiently, when a matter of fact is settled, one need focus only on its inputs and outputs and not its internal complexity. Thus, paradoxically, the more science and technology succeed, the more opaque they become. (Latour, 1999, p.304)

creating custom game artefacts, programmers creating custom game code or the ever-present volunteer festival helpers. In many cases it might not be the extreme ratios that *Kaboom!* or *Humanoid Asteroid* (as discussed in the foreword) had. But still, for many games played maybe once or twice (for example: *The One*, *SMERSH*, *Shabbat-Put*) there might be one or two people running the game for a total audience of players of around 30.<sup>43</sup> In the case of *PacManhattan*, mentioned in the last section, there was one ‘controller’ per player in the street managing the information flow (Lantz, 2007). So more controllers and designers than there were players.

In the well-documented cases of Blast Theory’s work, there are often large numbers of actors and technical staff to facilitate the running of these experiences. For example, *Uncle Roy All Around You* required seven performers and a game “controller” to run it, nominally for one person at a time<sup>44</sup> (Benford *et al.*, 2006b). This is in addition to the large number of people required to develop it in the first place. There is a network of human involvement that extends beyond just

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43. My general survey of the largest number of concurrent players for a single designer of a game would seem to be about 30. Even in technically facilitated single player experiences, such as GPS Location-Based Games there would always seem to be a small total number of players at an event. The more designers/programmers the more polished the technical games might be and therefore leverage a larger number of players at an event. For games with large numbers of concurrent players there are generally many designers, helpers, programmers, etc, managing the game. Even in the case of large scale, commercial, theatrical street games such as *2.8 Hours Later* there are roughly 100 people working to support the experience of 300 concurrent players.

44. Although it was intended for one person to play at a time, one of the ongoing design concerns when restaging the experience was managing throughput and choke points to enable the maximum number of people in the pipeline.

those on the ground, to the Blast Theory artists and their assistants, as well as the researchers at Nottingham University (who created the technology). Technical fixes, changes and improvements were ongoing throughout and between the installations in the three galleries it was installed and run in (Blast Theory, 2015d).

In *Kaboom!* the designers attempted to recreate the unpredictability and speed of the bomber from the original, using two designers as the single 'bomber' from the digital version. The designers would pop up and down separately from behind the dominating green backdrop that had been carefully copied from the Atari game and dropped the balloon/bombs down.

*I did make eye contact with those bombers a few times, those enemies of mine.  
(Kaboom! Player)*

So rather than purely a stand-in for the original, the new bombers become much more. They create a more human element of competition, but also a sense of collaboration in the staging of the game. If people become part of the big game machine, then that machine becomes more human. Human interaction is a fundamental part of these games, and fundamental to their aesthetic.

Even though there are ostensibly functional reasons for the inclusion of so many people in running the game, this creates a new set of aesthetics, especially as in most situations where the extras are designed into the game itself. So human contact and involvement becomes a necessary part of the game, not through an intention to include this, but through the material necessities of the design and play processes. Rather than a black boxed media object, the machinery of the



game opens up both human to human interaction as well as human to technology interaction. This makes the in-play reconfiguration that is discussed in the section above possible.

The aesthetic that emerges is emotionally different, more performative, or at least the performance is directed at different audiences. There is a wide, but game-dependent, network of audiences, from other players, to the designers, to spectators, to in-game documentation. All with different performance and play relationships. The human performances and audiences are the obvious surface, but within the network of elements the performances are mixed between human and material, as well as hybridised. The human is performing to and with the material of the game, as well as hybridised human/material constructs performing to human audiences. All actors are performing their relations through this network.

Through this inherent performance the games become heavily, and necessarily, social and the sociality and social aesthetics that emerge as part of gameplay are therefore also more a fundamental aspect of the experience. This makes a game such as *Kaboom!*, ostensibly a 'single-player' game, an intensively rich social experience. There is an in-game drive towards a social and performative aesthetic that is different to the social and cultural forces discussed in Chapter 4. This social nature of the game goes even beyond even the human elements of the game. It is a social mix of human and material (Latour, 2007).

In a game such as *Kaboom!* the performances and social structures are made obvious. Whilst this could be said to be generalisable for any form of performance, in the everyday sense of the word, or even digital games, the difference with pervasive games is that this set of relations is more open. The relations are displayed and on view, not blackboxed. The mechanisms of the game are openly performed rather than disguised by an obscuring technical infrastructure or an intention to suspend disbelief. Unlike *Kaboom!*, in other games not all of these relationships and performed meanings are necessarily perceived or appreciated by all the actors, or by a public audience. For example, in *PacManhattan* (Lantz, 2007, p.262) there were 4 visible, public players, PacMan and the three ghosts. The other participants were located indoors in a publicly invisible control centre. Lantz describes how the popular coverage focused on the physical, street based spectacle, and the fundamental information flow in the control room was overlooked. However, this element was core to the games working and success. Relations were performed as much in the control room as they were in the street. The players running around New York might have been the spectacle, but the participants/players sitting in front of screens inside were still performing the relationships.

The trajectory of the practice of pervasive gaming has moved away from technology experiments. It has developed into experiences that are often not dependent on a technical infrastructure. The games play in, and with, technology not based on it. The technology becomes a complex set of intermediaries, not

simple mediators. The low-tech, human-material hybrids performing these changing relationships give the games a robustness and durability that allows them to adapt to local conditions, breakdowns and challenges to continuity. This is distinct from technically inscribed games. For, example pure Locative Games which require a large amount of technical effort to overcome geographical peculiarities and rely heavily on the existence and dependability of the technical infrastructure. Rather than being technical games, pervasive games are hybridised human/non-human machines for creating experiences.

#### **4. Hybrid spectacles**

In this chapter I have made the following points. Firstly, that pervasive games are best understood as a network (in the ANT sense) of material-semiotic relationships where it is vital to trace the material and functional relationships as well as the symbolic. Secondly, that these networks of meaning and interaction change and reconfigure, often in unexpected ways, through the act of gameplay. Thirdly, that pervasive games, both the street games I have observed closely, but also other more technical games, involve human actors as parts of the game machine, not simply as players. All of these three points give pervasive games a particular aesthetic and are important for understanding their cultural relevance.

The first point was that the games I have described contain a rich and deep set of meanings that cross over between the symbolic and functional. Ostensibly they might be straightforward games or experiments in technology and experience

design. Through their design however, they usually betray a far more complex and nuanced juxtaposition with the technocultural backdrop of gaming. The physical objects, the premise, the backstories and the mechanics all tie into a richer discourse of game symbolism, rules and processes. By themselves the games might appear simple, but through their references, and the reading of these references the games take on a more resonant cultural meaning. As discussed in the previous chapter, it is player's history and experience of game culture that gives them a deeper appreciation of seemingly simple games that contain complex referential meaning.

Although this is very apparent in the functioning of pervasive game practice, it is also a feature of technocultural experiences in general. In digital gaming this functional referentiality can also easily be seen. Games re-use the same mechanics, and through doing this build up a web of references that, first-off, enables understandable play, but also allows a game to refer to other, previous games. This is not unique to games. In other new mediums and new forms of interaction the same thing occurs. New experiences are first and foremost remixes of previous functional experiences, and it is through reference to those functional interactions that the new experience is read.

Importantly these networks of meaning also change and **reconfigure** in response to gameplay, making this a process of resolving tensions. These changes are due to the physical contingencies and agencies that comprise the game assemblage. This might be the urban environment, a particular player's innovative style, or

the unexpected physical properties of game objects. This enactment of change and reconfiguration is another of the key aesthetic elements of pervasive games. Players enjoy the exploration and mutability of pervasive gameplay. There is an inherent tension in the design and gameplay between intentions and reality; the imagination and material contingencies. Reconfiguration resolves these tensions, mutating the games through play. The games are enacted as unique playings where meaning emerges through gameplay, in which all the actors, both human and non-human are engaged.

Again this is an element that is not just specific to pervasive games but to technocultural phenomena in general. This process of change is ontologically important for understanding technocultural experiences. Rather than as a fixed text, a product, a ludological artefact, or even a set of symbolic relationships, it is the ways in which these relationships morph and mutate through use, play or experience that help us understand these phenomena. It is the accounting for, and the reading of, the mutability of technocultural experiences that is important in understanding them. For example, in digital games, it is the playing of the game that is important. It is the ways in which the game can respond to the player and the player changes in response to the game that are important. It is what is taken out of these situations that form the background set of relationships that is the technocultural milieu.

The mutability described in street and pervasive games is in a large part due to the high level of human involvement in the games. As said in the third section of this chapter, they are human/machine hybrids. Pervasive games, whether they have a low or high level of technical objects in them, have a high level of human involvement. This is not simply the players themselves but instead, the people running or facilitating gameplay. In addition they are heavily material, whether that be the buckets of *Kaboom!* or the mobile device of a GPS game. This tends to create games that are laid open; the components or elements are very much on display. The games are performed, physically, through these embodied relationships and as such necessarily become public performances and through that take on a spectacular nature. Through these performances they become large-scale, networks of human-machine hybrids. Both through design and play this surfaces a tension between **human and game-machine**, between player and material. What is, or needs to be, human? What is, or needs to be, other materials or technologies?

The inseparability of the human-machine relationship is another important factor in any the understanding of any technocultural phenomena. Everyday technological situations are hybrids of human and machine. The World Wide Web is powered by people linking to objects, explicitly creating those technical relationships. Social media is also underpinned by the social relationships that are then technically inscribed. In both of these examples the technical platform

cannot be without the cyborg relationships between human and machine. In other technocultural situations the human and machine may not be as explicitly on display as they so often physically are in pervasive gaming.

In pervasive gaming this open, obvious performance of the human-machine hybrids leads to a public spectacle. Because of this tendency, they are then designed to be spectacular. Designers take this tendency and turn it into an aesthetic corner stone; designing spectacular elements to work with the scale of the experience. This leaves the question of the spectacular nature of other large-scale human-machine hybrids. Is the question of the spectacle and spectacular central to a study of technoculture?

In chapter 8 I will return to this final tension of **human and game-machine** and the concept of **reconfiguration**. In the next chapter I explore the particular character of the materials used in street games, the ways in which they gather meaning and become enchanted.

## Chapter 6

### Enchanted Materials

Rather than games being an idealised concept, they are always emergent from relationships between physical “stuff”; all games require some form of material. Whether that be the pieces, boards and cards of board and parlour games, or the hardware and software that digital games are built around. All designers of these games work with the material contingencies of these assemblages, whether that be polygon count, tokens, or controller layout. The magic of design, the tension that emerges between the imaginary and the material, is what makes these experiences come alive.

At *Igfest*, in 2011, I ran a game called *Robo Racers*. It started with a vision that was quite different from the game that was actually run. The game emerged in the space between my imagination and the material reality of the design and build process. Some aspects didn't work as I had envisioned, and other aspects exceeded my expectations. In the process of sourcing cardboard boxes, climbing scaffolding to place Wi-Fi cameras and pounding up and down the stairs of the *Igfest* headquarters the game became a reality. This occurred via a very embodied, physical process, a reaction to the material constraints of the situation.



Originally it wasn't specifically located. In my head it started out in some form of open, unconstricted space; a plaza maybe. It wasn't connected to the streets, it wasn't specifically a game intended to engage with urban space. However, through its placement in the specific streets used by *Igfest*, St Nicholas Street, it was shaped by the 'street', as a material constraint. St Nicholas Street is a space between a five-story building and a church. The building was covered in scaffolding, which became vital as I needed to, and could, mount a camera on it. The street itself was so narrow that, after testing, the maze concept I had conceived had to be simplified to merely a few virtual barriers. Which worked out to my advantage as the players could only handle simple obstacles and directions because the communication constraints would have made anything more complex too difficult.

The original plan had been to have cardboard box masks for players, a form of disguise, a liminal prop that would mark teams, provide a playful complication to the game, and give players the feeling of separation from their everyday reality. By donning the masks they would become the *Robo Racers* of the game. This morphed through the amazing efforts of the people helping me. The masks became head and torso suits. Suiting up in as these robots was more difficult than simply putting on a mask, but through the process of this players did become more involved. Simply wearing the cardboard suit brought about laughs and playfulness. Cameras instantly came out to document the spectacle. At the end of each playing I had all the teams do robot dances, and there was never any

hesitation. The robot costumes helped the players into a liminoid state, and although not a central mechanic for the game, were a key part of the game's aesthetic.

*Robo Racers* was a game that worked through, and because of, the materials that it was comprised of. Not because of a game mechanic, or rule set. Urban gaming and street games are the same. It is their materiality that makes them work and differentiates them. Pervasive games as a general category also work with material, even though technical examples work with the invisible technologies of Wi-Fi or GPS. In many examples where a pervasive game is played in different locations it becomes quintessentially different. The material instantiations making it vibrantly unique. It is their material element that is important as a route to analysing or understanding them.

In this chapter, I discuss the physical materials that comprise street games, and through that reflect on pervasive games in general. In the first section, through a micro-ethnographic detail of *Kaboom!*, I discuss John Law's concept of re-enchantment; the ways in which materials can realise their agencies in the design process in a generative manner. Then I turn to observations about three more "materials" in urban games as a way to illustrate how Law's concept of enchantment can be generalised (or perhaps more appropriately 'respected') within a design context. Through cardboard, moustaches and finally the 'street' I reflect on the ways in which these materials shape practice and produce the particular aesthetics that come with urban gaming.

## 1. Re-enchantment

First I return to *Kaboom!*, the game discussed in the last chapter. The key actors in this live-action game are: the two bombers, their balloon bombs, the player and the bucket. A certainly non-exhaustive list of the other actors that need considering are: the game rules, the audience (in all its rich variation), the designers, the queue of waiting players, the venue itself, the spatial arrangement, the *Come Out & Play* festival, and not the least, the video game *Kaboom!* All of these can also be addressed at various levels of granular detail.

A particularly important actor, one that exercised an authority and control over the game that, unexpectedly, wasn't up for negotiation was the balloon bombs. Their agenda firmly dominating the play, they exerted a weird physical agency. Rather than focusing on where the bomber was, the players (and the audience) would need to follow the bombs as they wafted down to the ground. They didn't descend directly as the game would have had them do. They floated and bobbed as balloons do, making them more unpredictable and difficult to catch.

The black balloons are representations of bombs, they signify both the idea of a bomb in general, as well as those in the original game. Black is a colour of evil and destruction and a typical colour used to represent cartoon bombs. The balloons symbolise danger, representing the concept of bombs at hand and are also linked to the bombs of the video game. Balloons are also symbolic of parties and

celebrations, and resonate with the festival nature of the event where it was being staged. They also indexically represent the score, the more caught the higher the score.

The use of balloons is interesting in that the cartoon bomb they are mimicking is meant to be heavy, and the bombs in the video game don't just drop but spray down the screen. Ironically, balloons are incredibly light and float around; at complete odds with the concept they represent, and the game they recreate. The actions of the bomber, the position and timing become almost irrelevant for the player below as the balloon wafts and drifts around. The balloons as the actual material for the bombs bring with them an unpredictability. Giving them a certain agency within the game. They are mediators in that they transform the action of the bombers and don't directly transfer meaning or action to the player. Whereas the player is very reactive, and the bombers' actions are quasi-randomly mediated, the balloons become a key transformational element that structures the nature of the game. As the game progressed, the play responded to the material nature of the balloons and the relationships between the players and the other objects in the game. The application of the rules changed in response to the balloon bombs, whilst still staying within the overall framework of the game as laid down by the designers (as discussed in 5.1). A little bit of design magic occurred through the inclusion of the balloons.

The very use of balloons had a drastic effect on the game, whether they were consciously chosen for these material properties or not (and I suspect they were not). In the terms of John Law (2004) they were re-enchanted. The agency and intentions that might be attributed to the people making, or running, the game is now tied up in the material that comprises the game. As Law says, the standard dualism of purposeful human actors and mute, powerless matter should be removed. The stuff of everyday life can hold sway over us. In this case, Law's terminology of 'enchantment' is attractive because it is a generative approach to material relationships and unlike much of ANT it doesn't hold the negative connotations that agency and power would seem to. Enchantment helps return some magic to the world and experiences; seemingly returning more possibilities for positive experiences.<sup>45</sup>

Law's enchantment is not simply anthropomorphising objects such as the balloon, but instead recognising the messy nature of its material contingencies, the designers' intentions and the balloon's position in an emergent network of possibilities and meaning that comprise a game such as *Kaboom!*. This enchantment comes from the clash between the imaginary and the real, both in the way that the design intentions mix those factors, but also in the way that the players mix them in the act of play.

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45. It would seem to be a minor point for Law, but in this situation it feels like it is a useful translation/transposition of the dry feeling of the ANT concept of material agency.

The balloons are re-encharmed within the context of the game, not intrinsically. However, we can look at a variety of classes of object or material for their enchanted properties in the ways they generally work within games. In this way I will next consider three categories of material and their effects; cardboard, false moustaches and ‘the street’.

## **2. Cardboard and the meaning of prototypical materials**

Pervasive games are an experimental form. The games themselves often one-shot prototypes for playtesting. The designers of pervasive games then work almost exclusively with prototyping materials, both physical and digital. This gives the games a physical and cultural aesthetic that is based on those underlying prototypical materials. Cardboard, a low tech solution, is a surprisingly common element.

At the 2010 *Igfest*, I spent much of my time documenting and observing the games rather than taking part. The game I was watching was very much a “no-tech” game. Across most of the day players built and decorated castles using cardboard boxes. To begin with, it felt competitive, the game was about building the biggest and best cardboard castle. As it was centrally located in the festival space it was a vibrant part of the spectacle. People could be part of this playful creation, or just observe whilst passing by. However, at a pre-determined moment, the game changed. It turned from castle creation to a destructive water fight. Water

balloons were distributed and players manned their castles. It was a fight to see who's castle was constructed well enough to stand the bombardment, as well as protect the team from collateral splashes.

During one game a startling realisation occurred. Most of the games present were made of cardboard. Looking around the street, and reflecting on my other experiences it suddenly occurred to me that cardboard played a large part in many of the games. A review of my video through all the festivals I had attended also showed that cardboard was the most common physical element in the games.

In the first instance, it makes perfect sense that physical materials are crafted from cardboard. It is cheap and universally available. Most designers are self-funded and create games on small budgets or pay for it themselves. Cost effective materials are a concern, especially when they might be damaged, or only used once. Also, at each of the festivals I attended there were a significant number of people who had travelled, often internationally, to produce their games. They would often need materials that were easily available when they arrived. A plan for producing game elements out of a cheap material that they could obtain after a trip would then be key to a successful design.

Cardboard is also easy to work with. It requires no special tools and no special skills. It can be cut with common scissors and craft knives. Because of this it is also possible to make on-the-fly changes, just prior to, or during a game. For a cheap material it is light and strong, hence its ubiquity in packaging, and therefore suitability for crafting.

The properties and cultural connotations of cardboard then has implications for the meaning of the games. I draw on two here.

The first implication is that cardboard has a strong association with childhood crafting. Again for the same reasons above, that it is cheap, easy and available, cardboard is used throughout childhood as a crafting material. Players and designers using cardboard come to it with these historic associations. Thus games with cardboard in them contain symbolic references to childhood play and crafting. In some games, such as the cardboard castle water fight game described above, this is consciously evoked. The games are intended to be adult recreations of child-like activities, with more game-like structure, more rules. However, still firmly and purposefully evocative of childhood. In other games this symbolic element forms an undercurrent to play rather than a direct reference.

The second implication is that cardboard, as a symbolic and physical material, reinforces the prototypical and experimental nature of street games. The partially finished nature of cardboard creations, the rough edges and corrugations



showing, the glue, tape or paint all create an aesthetic of elements that are hand-made, crafted, and experimental. The physical elements of the game point to an unfinished, amateur, maker aesthetic.

The research team behind the locative media authoring platform mScape - a group researchers at HP Labs - produced a game for the 2008 *Igfest*. In the game, aliens were invading and players had to prevent them via a device enabled treasure hunt and puzzle game. As part of this, human actors played the role of the aliens. They each wore cabbage leaves as masks. Although in one manner this made it very surreal, it is also indicative of the use of further low tech materials. In this game - a demonstration of a technical platform - the most obviously public presence was cabbage leaves, not technology.

Cardboard is perhaps an extreme example, and would appear to be prevalent in the low-tech evolution of pervasive games into street and urban games - experiences that have eschewed technology. However, other forms of prototypical material do form the backbone of all pervasive game experiences. The prototyping approach is prevalent in technically rich games as well.

The game *Can You See Me Now?*, by Blast Theory and Nottingham University, although developing over a ten year exhibition period, shows a low fidelity and craft-style approach to assembling game elements. *Can You See Me Now?* was a mobile mixed reality game in which up to twenty online players are chased across a digital map of a city by three performers who were running through its streets (Benford *et al.*, 2006a). It used GPS to locate the physical runners and place them

on a map of the space around the venue the game was exhibited in. The players, either in the venue, or online would play in a 3D virtual environment that represented the space around the venue, attempting to escape the runners. When caught, the digital player would be sent a picture of the real world location they had been caught in.

The early versions of the runner hardware have a prototypical look about them (See figure 16). Later versions develop this equipment into a more “professional” outfit, purposefully borrowing from the look of security forces (See figure 17).



Figure 16: First iteration of *Can You See Me Now?* runner equipment (Anastasi *et al.*, 2002)



Figure 17: Final iteration of *Can You See Me Now?* runner equipment.  
(Copyright Blast Theory)

In addition to the physical look of the runners, the 3D virtual environment that the players navigated in the game was intentionally not photorealistic. It was intended to not look like the real space, even though the space had been mapped, and the buildings modelled as accurately as they could. The textures used, and the player models were left low fidelity, low resolution as an intentional aesthetic decision by the artists (interview with Nick Tandavanitj, 2011).

The use of materials such as cardboard also are part of, and reference, the Human-Computer Interaction tradition of paper-prototyping (Benyon *et al.*, 2005; Rogers *et al.*, 2011). Using cheap and easy materials to produce early-stage design artefacts that are not of the level of finish, or fidelity, as the final product. Paper prototypes are specifically intended to be produced on paper, with no

coding involved. They are used for user testing in the early stages of interactive system design. One of the key points of paper prototyping is to enable the creation of testable artefacts without resorting to programming because of the cost implications of design changes. Paper prototypes are flexible and easy to change, even if not truly interactive in the same way that a digital interface might be. Lo-fi prototypes are a generic class that are not as finished as the final product; early stage designs that are part of the testing process.

Most pervasive gaming practice can be contextualised within this prototyping approach, whether it is the academic and research-driven games of the early 2000s or the low tech, experience-driven experiments that pervasive games festivals are comprised of. As McGonigal (2006, p.87-154) points out, much of the ubiquitous computing driven, HCI experiments are played once and with very few people. Also, from my experience with pervasive gaming festivals, many of the games are only played out once, or at most two or three times. Additionally, much of the background practice was focused around explicit prototyping, or testing events, such as Hide & Seek's *Sandbox*, or Slingshot Game's *Iglabs*.

The prototyping approach and the use of craft materials gives pervasive games a craft, or maker, aesthetic. There has been a recent turn to craft and crafting through 'Maker Culture' - a DIY approach which focuses on uniquely crafted physical objects (Gauntlett, 2011; Cardoso, 2010; Golsteijn *et al.*, 2014; Anderson,

2013; Katterfeldt and Lund, 2014). This can be seen as a possible reaction to the proliferation of digital goods, and the growth in digitisation of previously physical media.

Rafael Cardoso (2010) points out, the art in crafting is where a craftsman produces something with their own hands. Not made by a machine, this is what gives the object an aspect of its beauty. In the case of hand-crafted games, part of the aesthetics comes from the look of hand-crafting, as well as the knowledge that the game is “hand’ crafted. The aesthetics and experience are more personal, the feeling is one of connection with the hand-crafted game, and through that the game’s makers.

In *Making is Connecting* (2011) David Gauntlett expands on the book’s title to create a structure for analysing the act of making in the digital age. In this ‘making’ connects in three ways. Firstly, ‘making’ connects together things to make something new. Secondly, ‘making’ usually involves a social angle, either in a community or through an audience, therefore connecting people. Thirdly, through making and sharing things we increase our engagement in the social and physical world around us. The most important conclusions of the book are that everyday creativity, and its inherent sharing, is crucially both a process (not just

the product) and a political act (2011, p.220-221). Reading 'making' in this way is as much about giving the maker presence, showing their fingerprint, as about the object itself.<sup>46</sup>

Pervasive gaming - through the inherently social nature of the games themselves, the size and nature of the festivals, and the design and crafting activities that go on - fulfils Gauntlett's three types of connections. Also, as I described previously (in chapter 5.3) when discussing the nature of the open networks of human and material that comprise the games, their very nature automatically presences the designers - the game makers - as well as the gameplay itself. The material composition of the games does this naturally.

The prototypical nature of pervasive games is one aspect that defines their experience. The very materials of the games shape this prototypical nature, whether they be cardboard, spray paint and glue; easy to use software development platforms; or commodity hardware such as clunky PDAs or mobile phones. The player and material dynamics that help the game systems reconfigure during play give the games a feel of rapid development, changing during play, not carefully determined, but open to what is effectively in-game prototyping. Also, pervasive games rest within a tradition of development - HCI

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46. The Maker subculture stresses a cut-and-paste approach to standardised hobbyist technologies, and encourages cookbook re-use of designs published on websites and maker-oriented publications. Pervasive Games satisfies this requirement of maker culture as well. Given that many people start out by helping out or restaging existing, working games. And the site ludocity.org gives a detailed set of rules for street games that can be applied "cookbook" style.

research and experimental game design - that use low fidelity prototyping as a means to explore ideas, using materials, processes and approaches that favour low-cost materials, fast turn around and iterative design.

Cardboard, prototypical materials and their fundamentally experimental nature is one of the 'enchanted' aspects of pervasive games. The one-shot nature gives them, a sense of uniqueness, and also a palpable presence in space and time. It is a presence predicated by their fundamental materiality, rather than something that can be mechanically reproduced (as in say the case of digital games).

This property of uniqueness matches up with one of Philip Auslander's (1999) three principles of liveness; authenticity. Auslander's other two being intimacy and proximity. As he says in a recent talk (Auslander, 2011), perhaps the concepts of immediacy, community and involvement are much more appropriate to the notion of liveness, evoking the wider social aspects of engaging with performance, rather than an inherently aesthetic appreciation of it. Recent trends in so-called 'second screen' engagements with television, Twitter or Facebook for instance, would appear to confirm that socially sharing the moment is a key aspect of liveness.

Street gaming, the types of experiences I have observed at festivals, evoke Auslander's principles; the aesthetic and the social. They feel like traditional 'live' events. They evoke a sense of intimacy, proximity and most importantly authenticity. Intimacy and proximity are created through the sense of *communitas* (see chapter 4) and human and material machine relationships

discussed in chapter 5. The experience is very close and personal. The feeling of authenticity comes through the craft and prototypical nature of the materials as discussed above.

In this section, I started by observing that, counter-intuitively, cardboard is the most common material element in pervasive games. The reason being that it is a prototypical material. Expanding on this, the nature of pervasive games as fundamentally prototypical becomes apparent. Their nature as live experiments, explorations and playtests is a core part of their aesthetic.

### **3. False Moustaches and liminal props**

*Nothing quite like a false moustache.  
(Street Game Designer)*

In 2011 I took part in a playtest of what was effectively an SMS facilitated game of tag. It was a test of the underlying SMS distribution system and the messaging based mechanic. But even though it was ostensibly a playtest of the seemingly anodyne elements of a game, the designers made everyone wear a sticky, glue-on, false moustache in order to take part. There was no backstory, no specific game inspired reason for wearing a moustache, just the designers' intuition that everyone needed to wear a moustache to properly engage with the game. Because of this, the experiment became something more than just a tech test. Players deliberated over moustache choice, pulled faces and had pictures taken. On the streets all the players were instantly recognisable. The players, through donning the moustache, entered the liminal space of the game.



This is not unusual, but I have heard many pervasive game designers say that false moustaches make games better. It seems to be an accepted truism. A false moustache is the minimal, low cost, non-invasive way to adopt a disguise. The smallest possible change, but instantly recognisable. A good reason why it is the disguise cliché.

In my observations of pervasive games some form of disguise or identity blurring is incredibly common. Whether this be face-paint, cowboy hats, overalls, costumes, cabbage leaf masks, or (when I created *Robo Racers*) cardboard robot suits. There is often a physical object that symbolically changes the participants' relationship to the world. These are all ways for them to adopt a new persona, as well as often being used functionally, for example to indicate team membership, limit vision or hide facial expressions.

The first part of Turner's (1995) three-part liminal structure is the *separation* phase. A key property of this part is a loss of identity and personal ties. According to Turner, this is due to the functional aspect of rituals to change the everyday social order. This loss of identity can occur through intoxication, a journey, taking on ritual names, and especially through changing hair, clothes, donning a disguise or wearing a mask.

The use of game objects such as a false moustache, and other forms of identity blurring, point to an unconscious appreciation of the liminal state that Turner describes. Game designers use the same processes, a mix of the material, functional, imaginary and symbolic to create game spaces that place players in a

liminal state. However, as I have described in the introduction, this is what Turner would call a *liminoid* state, and that these activities are not pre-industrial ritual, but instead contemporary liminal phenomena.

A false moustache, or any form of disguise, is both a material and symbolic element. Turner discusses the deep symbolic referentiality inherent in the rituals he observed in Africa (Turner, 1970; 1974; 1995; 1996). On reading his accounts it becomes apparent that a rich intertextuality exists between rituals. Objects, meanings, myths all cross individual rites and exist in overlaid manners in both the liminal and everyday space. Turner is heavily driven by a symbolic semiotic reading of ritual materials. He discusses how the symbolic natures of ritual objects take on richer meanings during the liminal state, involving an overlaying of the everyday meanings and uses, with the ritual meanings that draw on linguistic relationships (synonyms, puns, common root words) as well as the magical concepts of similarity and contagion (Rozin and Nemeroff, 2002). The inference in Turner's ritual work is that the fixed nature of physicality is related to the everyday, and the multivalent nature of the symbolic is related to the imaginary world of ritual and myth. This creates ritual worlds that mix physical reality with the imaginary world of myth and ritual belief.

Seligman *et al.* (2008) (not using the liminal structure) describe a parallel approach which they term the 'subjunctive'; ritual situations that marry the world of the everyday with the world of the ritual. Uniting two possibilities into one narrative. "Creating an order as if it were truly the case" (Seligman *et al.*, 2008, p.20), or as they go on to describe.

the subjunctive creates an order that is self-consciously distinct from other possible social worlds. [...] we emphasise the incongruity between the world of enacted ritual and the participants' experience of lived reality, and we thus focus on the work that ritual accomplishes.

Seligman *et al.* draw their term from the *subjunctive* mood of verbs which describes situations that express various states of unreality, such as wish, emotion, judgement, possibility. They describe it as the creation of "as if worlds" (p.25), universes of "could be". They say that this *subjunctive* construction is vital to the functioning of ritual (in many forms), but is not isolated to that practice (p.21).

Successful object use in pervasive games occurs in situations where the objects contain both valid symbolic as well as functional meaning. This is to say that symbolically they make sense within the imaginary space of the game, the story, the rules, the systems of play. But they also make sense materially in this context, they fulfil a valid functional aspect within the game. Returning to the previous point about the material-semiotic as discussed in chapter 5, the games as a system contain this referentiality, through the objects, rules, stories and background that the games reside within. But it is through the objects, the very material of the games that this intertextuality occurs. Designers of pervasive games pay close

attention to the material-semiotic nature of the game objects. They also pay close attention to the ways in which materials work with both the contingencies of physical reality and the constructions of the imaginary background that pervasive games exist within. It is through a careful attention to this subjunctive mix of the everyday, physicality and the game and story spaces of the imaginary that designers successfully create games.

Rather than the commonly accepted concept of mixed reality, the blending of digital worlds with physical ones (Milgram *et al.*, 1994), it is this *subjunctivity* that designers deploy that truly provides the experience of a mixed reality. This subjunctive mixed-reality can occur through technical facilitation, but can also occur through the use of non-digital materials, and the imaginary spaces that the material-symbolic creations of designers can create. The subjunctive experience of mixed-reality that occurs through technically facilitated experiences is not implicit to the technology, but instead a function of the designer's attention to the player's experience.

In this section, through a discussion of false moustaches, I have highlighted two findings concerning pervasive game practice. First is the use of game props for disguise, that prompts a separation from the everyday, a move to the liminal state. Secondly, that pervasive game designers must, and do, pay close attention to the relationship between the symbolic and the functional when designing, making and re-using game materials. Through a close attention to this, they create subjunctive worlds, akin to ritual practices, but not ritual. These

subjunctive game worlds are the spaces that mix reality; the physical and the imaginary. In this section I have examined the objects of liminal play. In the next section, I discuss the spaces of liminal play in pervasive games.

#### **4. Enchanted Streets**

In Chapters 1 and 2, I discussed the use of the term pervasive games as a generic label for the gaming phenomena I am describing. I also discussed how these are often called ‘urban games’, or ‘street games’, and for good reason. The games I have been describing are almost universally played in urban environments and take place in the public space of the streets. The role of the ‘street’ is then fundamentally important in understanding the nature of pervasive games and in part it shapes their liminal character. The ‘street’ also has a particular geographic structure, as well as a set of unique, location dependent material contingencies. Consideration and appreciation of the nature of public space and the streets that pervasive games are set in is important to the overall design practice. Using the work of Quentin Stephens, and the game *The One*, I discuss the geographical contingencies that urban space creates and the way this shapes and makes unique the playings of pervasive games.

*The One* is “a game of assassins across the multiverse” by Catherine Herdlick and Gabe Smedresman. It was played out at *Come Out & Play* 2010 in New York and *You Are Go* 2011 in Berlin.

In a multiverse where up to 10 alternate you exist, you must chase and defeat your alternates, absorb their power, and make them your minions. To do so, you'll share information with other players in your universe and exchange powers with other players in alternate universes. (Come Out & Play, 2010b)

It was a modified, team-based, chase and tag game, where each player started off as an individual and could capture, or be captured by their alternates “from other dimensions”. After capture players would then be working for the leader of their team. They could then go off and capture further players for the team, and collaborate with players on other teams. There was no technology involved. It was a game managed via different colour hats, scarves, arm-bands and sweat-bands, each with their own universe’s symbols.



Figure 18: *The One* - Instruction sheet showing character names and universe symbols (copyright Catherine Herdlick)

I videoed the play in New York and played in the game in Berlin. In New York, it was played along 5th Avenue, a local shopping street in the Park Slope neighbourhood of Brooklyn (See figure 19). Local bars, of which there were plenty were used as safe zones, where players could collaborate and plan in safety. The streets were crowded with people using the shops, cafes and bars. The play space was on the pedestrian sidewalks either side of this busy road and punctuated by streets regularly placed along its length. Pedestrian traffic was heavy on the footpaths. Vehicle traffic was heavy on the roads, which were main routes.

In Berlin, it was played in Mehringplatz, a circular, pedestrianised plaza surrounded by apartments (See figure 20). Most of the play occurred around the inner circle of buildings. The safe spaces were chalked out on the ground in tunnels beneath the apartment blocks that surrounded the Mehringplatz plaza; out in the open, exposed, not inside like in New York. Although there were street-level shops and fast food outlets, the location in general, and especially at the time of play, had only sparse foot traffic. The roads into Mehringplatz are pedestrianised, not through roads.

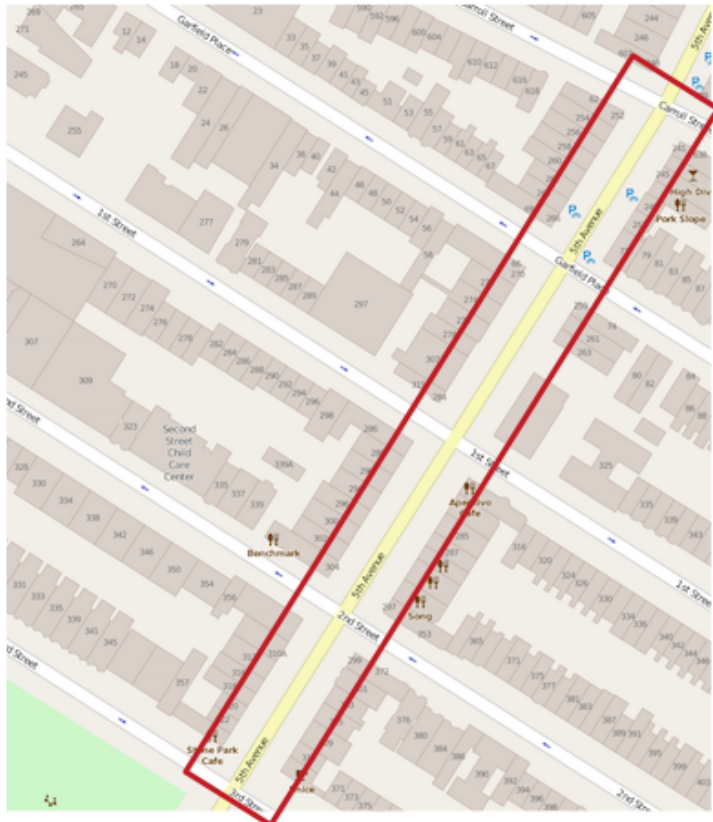


Figure 19: The One - game area in Brooklyn  
([CC-BY-SA 2.0 OpenStreetMap](#))



Figure 20: The One - game area in Berlin  
([CC-BY-SA 2.0 OpenStreetMap](#))



In New York the play followed the routes delineated by the footpaths on each side of the road, broken by perpendicular roads. Traffic and pedestrian crossing lights controlled the action. Players could see up and down the road to a limited extent, but not very far. Players could and would duck into and out of cafes and bars, using the safe spaces to hide, rest, plan or collaborate. Sightings of a player's alternates could be passed on, and individuals could try working together in these safe zones. When on the street they would zip up and down between crossroads, spotting further along 5th Avenue a block in each direction and keeping an eye out for players across the roads. As play progressed, and the teams of alternates became grouped together, they would tend to gather at street corners, where they had maximum visibility.

In Berlin the play was faster and more intense. There was really no place to hide. There was also no natural breaks in the space. It was a contiguous circle, with no natural place for pausing, such as the road crossings in New York. Also, no vehicular traffic to be concerned about. It was obvious that people were stopping in the safe zones, and little actual collaboration could occur because other players could easily spot people waiting there and race around to "camp"<sup>47</sup> these zones. So all the players had to run around continuously. The centre of the plaza was fairly open, but also had some obstructions, such as street furniture and safety

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47. Camp was a term used by the players in discussions afterwards. "Camping" is a word and concept from MMO gaming where a player waits at a spawn point, either to surprise a another player or to lay claim to a monster kill (and importantly, the loot drop).

fences that went along with the construction and maintenance that was going on in the square at the same time. Because of this, it meant that players couldn't easily see what was going on across the circle. Also because players wanted to skulk, and stay out of eye-line from other players they would stay close to the central circle of buildings. Thus the space of play became a tight torus around the buildings. Not a wide circle. Two narrow paths, one on each side of the building with many short inter-connections where the buildings parted, or in the pedestrian tunnels under them.

City streets have a specificity that goes beyond the unique nature of each city. The structure and character of each determines the aesthetics of play that occurs in them. Quentin Stevens says in his book *The Ludic City* "Play in urban public settings has a distinctive phenomenology and sociology" (2007, p.46). Cities are heterogeneous spaces, with a wide range of functions, built out of a heterogeneous mix of people and the historic layers of material from which they are built. Stevens discusses how each city retains their distinctive character based on unique landscape, climate, history and peoples.

Stevens creates a framework for analysing playful activity in urban settings, based on the generalised structures of the city. This is based fundamentally on the relational nature of interpersonal interaction. His overall conclusion is that "fun follows form, fun follows function" (2007, p.198). He shows how playful activity is shaped by the urban environment; different activities, behaviours and attitudes are created by the variety of large and small-scale structures in the city.

The experience of urban space is characterised by multiplicity, ambiguity and contradiction, the unpredictable and the unfamiliar. In these ways, urban public space provides a special realm for play.  
(Stevens, 2007, p.25)

He uses Edward Hall's theory of 'Proxemics' (1973, 1966) to analyse the interactions that occur through the structures of the city. Hall's Proxemics creates a framework for analysing social interactions through distance and orientation. It describes a set of personal reaction ranges that move from the intimate (< 15cm) through to public space (> 5m). Proxemics takes into account a variety of modes of communication apart from verbal, such as haptic, and kinaesthetic as well as the structure of time in interpersonal interaction.

Stevens looks at the following structures: Paths, Intersections, Boundaries, Thresholds and Props using Hall's Proxemics as a guide to understanding people's interactions in these types of urban space.

The play in 'paths' is both constrained and determined by the two-way flow of people traffic in both directions along routes, whether they be roads or pedestrianised areas.

The possibilities which urban paths offer for play are not limited to the fixed physical conditions. Play on paths is always given stimulus by the dynamic element of human activity encountered along them.  
(Stevens, 2007, p.67)

It is the nature of the face to face encounters that the two-way flow engenders that brings about particular forms of playful activity. Additionally, paths are journeys, that contain history and meaning. Travel along these paths evokes memory and meanings that can be subverted and re-contextualised through playful activity.

At intersections people are exposed to the greatest density of other people and the greatest range of sensory phenomena and opportunities for action. Where paths intersect, people are brought up close. It is common to encounter strangers who have different trajectories. Because of restricted visibility, these encounters can happen quite suddenly and unexpectedly. Hence intersections can be experienced as a compression of social time and space. (Stevens, 2007, p.99)

'Intersections' bring opportunities where people can, and are, distracted from their journey. These become natural sites for changes in behaviour, mood, activity. Also in areas with car traffic people will have to wait to cross roads and thus are physically stopped, giving them more opportunity for interpersonal interaction.

'Boundaries' limit visibility, contact, communication and/or movement (Stevens, 2007, p.115).

Boundaries set limits to what people can see, what they can do and where they can go. But in relation to play, [...], boundaries also define many opportunities. Boundaries differentiate space. People make use of boundaries to shape their experience of the city and their play. (p.114)

Boundaries provide physical opportunities to delineate everyday space from playful and liminal ones. A boundary can provide a person with the separation from this activity, so they can spectate, and provide a demarcation that shows when participation is expected.

A 'threshold' is a point on a boundary that can be opened or provide egress. It is a constrained place in a boundary where people can cross from one space to another.

Thresholds present distinctive perceptual, behavioural, social and symbolic affordances which also give rise to a great variety of play.  
(Stevens, 2007, p.152)

A threshold is a restricted space that constrains people's behaviour and perceptions.

Stevens uses the term 'props' to describe the everyday, fixed, urban objects, and the ways in which they can facilitate public play.

There is also a microgeography of built elements that structure human experience and movement within the body's reach and that the body can move around. Such elements may easily be overlooked as a part of the environmental structure because they are small and because people tend to perceive them as being within space rather than shaping space.  
(Stevens, 2007, p.178)

These are things such as public art, play equipment, fencing or street furniture.

*The One* provides a good case with which to apply Steven's analytic schema because of its two playings in two different urban settings. Paths and intersections, boundaries and thresholds provide the underlying structure for *The One*, and show the similarities and differences between the two separate playings of the game.

In both instances there were effectively parallel paths of play. In Brooklyn, it was on either side of the road. In Berlin, either side of a circular, low rise block of buildings. The paths being defined by their restrictions. Both of these parallel paths were joined, in Brooklyn, at street intersections, with pedestrian crossings and traffic lights and in Berlin through tunnels that pierced the buildings. In Berlin, the tunnels and buildings created a freely joined space, rather than creating barriers. In both instances it was at these intersections that the action took place and most of the gameplay was evident. In Brooklyn, the initial play seemed to consist of the players hiding in the bars and cafes that were the safe zones, trading information and waiting. As it progressed the players spent more time on the streets. The groups were larger (so in the game stronger) and would spend time at intersections, because these both provided better line of sight visibility, but were also places where the flow of vehicular traffic was stopped. The busy main street provided a very palpable boundary, one where players were easily visible on the other side, but often inaccessible. But even if players were inaccessible they were still visible. Thus much of the play ended up happening at intersections, where people met, or were waiting to cross roads. In Berlin there

was no traffic, therefore no crossings slowing down play. The intersections worked differently. Rather than places where people were slowed down, they were places where visibility opened up. Intersections were dangerous. So other players were then seen and chase usually ensued. Consequently the play was more frenetic, with people running around the inside and outside paths and easily crossing between them. The boundaries, in this case, became something to hide behind, a way to sneak up on people. Providing the opposite to Brooklyn, no visibility, but easy accessibility.

Hall's Proxemics (1966) play a role in explaining the play in *The One*. As the play occurs in and between the social distance, 1.2m to 3.6m away, to the public distance, greater than 3.6m. Discussion and planning occurred in the close social distance, the area of conversations, between 1.2m and 2.1m. In this area conversation is possible without raising your voice, it is easy to hear each other and the face takes up a large portion of the vision cone, so that facial and body language are easy to read. At distances above 4m, peoples bodies tend to start looking flat, faces are much smaller, as distance increases people's intentions become harder to read. A very relevant point Hall makes is that the far public space 7.6m is both as far as you can be to still read facial expressions, but is also the distance that means you can effectively start running if someone decides to chase you. Beyond 25m it is difficult to ascertain much more than a basic mood from body language or facial expression and the further out the harder this gets - the far public space going out to approximately 100m.

When standing on the sidewalk of 5th avenue, the players on the other side were about 10-15m distant. They each had a clear marker (hat, arm-band, sweat-band, etc) of the team they were on that was visible at that distance. Beyond 25m, with intervening foot traffic, it was very difficult to make out team allegiance. The play in Brooklyn happened over these longer ranges. In Berlin, the maximum initial visibility tended to be based on people sighting each other through the building underpasses, also about 8-12m. Closer than Brooklyn, and without the barrier of the road. At this distance, team allegiance, and the players' intentions, are both visible but also at this distance the players can start to chase without it being a foregone conclusion. At closer ranges than this, under 7m, the player who would spot first would be the person who would most likely catch the other.

Urban spaces are designed with these distances implicit in them (Stevens, 2007; Alexander, 1977; Alexander, 1979). Roads and pedestrian routes are such that they allow people to pass by each other without having to be pushed closer than the social distance (approx. 1m). Plazas and open public space create the possibilities of social theatre through far public spaces (3.7m out to 100m), where people are visible and readable, or public speaking is possible.

Stevens (2007, p.59) points out that there are two distances that are significant for play in public space, 25m, the distance where there is adequate recognition of what is going on in a social setting, and the far social, 3.6m, the distance at which strangers might consensually determine the mode of encounter whilst engaged in everyday activities. In pervasive gameplay on the streets, the transition between



close and far public space is also important, as this is the zone where player intention can be determined, and also the minimum distance where someone can effectively run from someone else, or have the time to take some other action (to choose to interact or not).

Urban spaces are designed with these scales in mind. Urban planning and city evolution determine this. Pervasive games must, by necessity, play in these scales and are constrained by these spaces. The city defines them, the underlying physicality of urban spaces in general, as well as the specificities of each city. Rather than play being free to do whatever it wants, it is constrained by this physical actuality. Pervasive game designers must, and do, work with the constraints of these spaces. Fundamentally it is not about the physical space that play works within, but the ways in which the physical space shapes and constrains the relationships that dynamically emerge between players in those streets. As Stevens (2007) and Alexander (1977, 1979) point out urban space is created around the scales of spatial relationships that Hall's Proxemics (1966) describe. So games played within these spaces naturally use these spatial scales. The city isn't a game board, or a map to play within, it is a set of constraints that describe the relationships that can happen within them. The gameplay is not cartographical it is relational.

Not only do cities shape and constrain due to their built physical spaces, but also influence the aesthetic of games played in them through their specific characters.

One significant difference between the city and other media is that even in an age of industrial mass production, mass media and mass consumption, cities retain their specificity. (Stevens, 2007, p.13)

Cities are unique, with their character linked to their physical locations, structures, histories, climates and social behaviour. The very material of the city and their populations mean that these do not change rapidly. Each place feels unique, indeed individual neighbourhoods and streets have their own distinct characters. It is this urban uniqueness that is a driving force in modern tourism and cultural life (Savage, 1995, p.209). New York is different from Berlin, which is different from London, which is different from Bristol. Each of these cities have geographical specificities, not reproducible in another setting. The physicality, structures and histories of each city influences the games, from the ways in which the space creates different sets of relationships, to the ways in which passersby interact with players - are they amused spectators or trying to strenuously avoid engagement.

The choice of cities and locations for the gaming events I observed might be largely constrained by the places that designers lived, and the socio-cultural communities that can support both the design and play. However, the specific locations, and the designers' reaction to, or interaction with, these specific locations is far from accidental.

In the two different versions of *The One* the game was going to be played in Berlin and Brooklyn. However, the choice of exact location was part of a dialogue between the designers and the organisers. The choice of exact location was part of the design process, and as discussed, influenced the play. The specificities of the cities, and the exact times and locations, were as much a part of the game as the rules. The busy streets of Brooklyn in the late afternoon can be contrasted with the quiet plaza and walkways of Mehringplatz in the early evening. Brooklyn was busy, with slow moving traffic, shops, lights, billboards, cafes and bars in brick buildings. English signage, American accents. A general bustle to play amongst. Player's behaviour masked by the crowd, camouflaged by the general mass of people. Berlin was quiet, nearly empty. Occasional snatches of German overheard. Signage different, low street lighting which was just coming on in the early evening dusk. The players' activity obvious in the streets around the grey low-rise buildings. The two cities are a multi-layered backdrop to the games, each with their own symbolic and geographic character; their own specificity. The city is a cultural text that forms the background to each game. This gives the games an added depth through their unique engagements with the urban space.

Space is also an important aspect of liminal experiences. Turner (1974, 1995, 1979) describes the spaces of liminality being places apart, places that physically communicate the separation from the everyday. The 'street' can be a transitional

zone in itself. Urban social experience can be seen as an intrinsically liminal experience (Stevens, 2007, p.53) and the 'street' is the space for that liminality (Matthews, 2003).

The city's sensory intensity and unfamiliarity, the unexpected juxtapositions of people's activities in time and space and overlaps of meaning all help to constitute liminality. People's encounters with difference and the unexpected in public space are escapes from the everyday which continue to transform their sense of self (Stevens, 2007, p.53).

Urban gaming, by the fact of being sited in the street, reinforces the liminality that is present in pervasive gaming. They use game structures that support liminality (Chapter 1) and props that also support this experience (Chapter 6), but they also exist in the liminal space of the 'street'. Street games create an excursion into the liminality of urban space, whether they are explicitly attempting to engage with urban space or not.

The liminal, transformative potential of play in urban public spaces cannot easily be suppressed because it resides within people's everyday bodily experiences. Everyday actions have a role in the continual structuring of the social world, developing people's understanding of who they are and who they want to be and their understanding of how they relate to spaces and to other people around them, and expanding their capacities to act. (Stevens, 2007, p.53)

It is through these bodily experiences of the 'street' that urban gaming has the power to unlock new understandings of the social-spatial world around them.

In conclusion, 'the street' is a form of material-semiotic contingency, a geographical one, for pervasive games. It physically shapes and constrains the modes and styles of play, whilst also providing a cultural backdrop that enriches what outwardly seem like simple games.

Cities have emerged as social spaces with common structures, such as pathways, intersections, boundaries and thresholds. These emerge because of underlying needs for mobility, as well as the nature of interpersonal interaction. Although not primarily intended for play, these spaces do provide the possibility for play, both emergent and designed. Rather than a space for play though, the urban structure provides a constraint in the manner in which social interactions can occur. Designers of pervasive games played in the streets pay both conscious and/or unconscious attention to these structures and the social - or game - possibilities of these spaces. Successful games are the ones that use these structures naturally and in innovative manners.

Additionally, each city has a unique cultural background to the games. But rather than simply being a backdrop, the geographical specificities of each city are woven into the games themselves. Designers might sometimes do this purposefully, but the mere act of playing in a particular urban space automatically incorporates the cultural background.

The 'street' is also an intrinsically liminal space. One where we constantly experience and redefine our social relationships through the material of the city and urban space. Street gaming in particular, and pervasive gaming in general, can engage with these everyday relationships and create liminal situations where these relationships are questioned and re-examined.

## **5. Re-enchanting the everyday**

Law's re-enchantment (2004) is a way to see objects, situations and materials as being redolent with meaning. Rather than material contingencies seeming like a set of constraints, enchantment is a way to see depth in meaning and a burgeoning of opportunities. Enchanted materials are materials with extra possibilities. There are three key tensions that I draw from these.

- **Human vs. Material Agency**
- **Locativity** (a tension between location and generalisable game structure)
- **Liminality** (a tension between the physical and imaginary)

Through this chapter I have given some examples of this enchantment in practice, the ways in which the materials don't just shape but also enable experimental game design practice. The experiences have an emergent richness because of the relationship between the designers and the underlying materials they are

working with. However, there is a natural tension in **material agency** versus **human agency**. This is perhaps the core tension of design, the relationship between what *is* versus what *should be*.

I used four examples, that moved from very detailed out to more general. Firstly at a very low level of detail the black balloons that were used in *Kaboom!*. Through the game context they were enchanted with additional meaning and playfulness. Secondly, was the place of cardboard specifically and craft materials generally. The material practices that surround crafted objects and the craft aesthetic that emerges gives urban games particularly (and I would argue pervasive games generally) a feeling of presence, uniqueness and liveness. Thirdly, through false moustaches, that designers do pay close attention to, and use, the layers of meaning that comes with the re-enchantment that occurs. Finally, that the 'street' exists as an underlying geographical contingency. The urban environment is rich with the possibilities of enchantment; the uniqueness of the game's situations adds richness and depth to the gameplay. However, there is always a productive friction between the spaces games are played within and the game structures themselves. This is a specificity of location; a **locativity**. Different experiences react to the spaces they are set in in different ways. There is always a location specificity, a locativity to urban experiences.

The notion of enchantment has parallels with Rich Gold's seminal Ubicomp paper *This Is Not A Pipe* (1993). Gold argues that ubiquitous computing technologies add an extra layer, or a depth, to everyday objects. Law's re-enchantment, gives

everyday objects a depth that doesn't necessarily rely on added computational capability; however, this added computational capability can be part of this re-enchantment. Because of this, they should not then be invisible technologies, invisible materials, invisible meanings, as Ubicomp agendas would have it (See Chapter 2), but instead communicative materials that talk about their relationships.

It is this layer of communication and meaning that brings about liminal experiences in both urban and pervasive gaming. The physical props and urban spaces, through the context of the game, are enchanted; meanings are added, agencies are created. It is this new layer of relationships, in addition to the relationships and meanings underlying the materials and spaces, that goes towards creating the liminal experience of pervasive games. This is the productive tension that mixes the fictive with the everyday, the **physical with the imaginary**.

Not all of the materials are easily visible. Some are overlooked, hidden, or intangible. Their enchanted aspect, their agencies and the ways in which they shape pervasive and urban games is not necessarily obvious. In the next chapter I describe these invisible materials and surface those enchantments.



## Chapter 7

### Invisible Materials

In the previous two chapters I discussed material as it relates to pervasive gaming practice. Material tends to carry the connotation of physicality, that it is concerned with tangible matter. However, the concept of materiality extends beyond just physical “stuff”, as I have previously discussed. This approach is concerned with the ways in which we create our material conditions and the ways in which these complex constructs shape us culturally (Miller, 2010). But not all material is obvious or physical. I use the term intangible to refer to non-physical materials, and, via Jason Farman (2013b), the term invisible to refer to overlooked or taken for granted materials.

In this chapter, I will examine the intangible and invisible materials of pervasive gaming. Festivals, rules and the technological infrastructures. Importantly though, these are all materials that are parts of pervasive game practice, both play and design.

In the first section, I discuss the relationship between the structure of ‘the festival’ and the scale and structure of the games that are played within them. I argue that the form of a festival requires games to be of a certain type, and that games of

these type can then only be played at festivals (or similar) events. This intangible material relationship is one factor that has led pervasive game practice down a particular design trajectory.

In the second section, I discuss the rules of pervasive games. A seemingly obvious, but certainly intangible, part of games. Pervasive, urban and street games have very simple rule systems and a high degree of social negotiation of them in the practice of play. Also rather than an abstract, or essential aspect of games, rules - although intangible - are very like the other physical materials that comprise games. Game designers work and form them, and many of their properties have very material descriptions.

Finally, in the third section I turn to technology. Even though this practice has been shaped by technology, through ubicomp origins and digital gaming culture, so far in this thesis I have not touched on the underpinnings of the more technologically facilitated games. In this section, I discuss the ways the invisible technologies shape games and the ways the background technological infrastructure makes all pervasive gaming practice a technocultural experience.

## **1. Festivals**

The context that pervasive games are created for, and played in, radically shapes them. A locative game designed to be played on a phone for a single player, such as *Shadow Cities* or Google's *Ingress* is different from SFZero's *Journey to the End of the Night*, a game designed for a specific context such as the festivals that I

observed and took part in. Even though the locative game might seem to be generic, it still has a specificity that sets it apart from a large scale festival game. In the same way it has a context that grounds and shapes the design.

The focus of this ethnography has been games created for, and played at, festivals. Because of this, the role of the festival as a set of contingencies in the design process is vitally important. As the key venue for their play, festivals have radically shaped pervasive game design and practice since *Come Out & Play* first occurred in 2006. The festival itself is on face value a very visible and tangible spectacle of hundreds of people inhabiting a very physical location, as well as all the decorations and the general props and paraphernalia of managing a large crowd of people. However, the ways in which the festival shapes the games and vice versa are both less visible and less tangible.

In each of the festivals I attended there was a highlight game. A keynote performance. A massive event that sprawled out into the street. These were intended to be played by hundreds of people; games played at a scale where the players took over portions of the city.

At *Igfest* there were an evolutionary series of games across the years, *Journey to the End of the Night*, *Las Noches del la Muertos* and *2.8 Hours Later*. In 2011: *Hide & Seek* had *Invisible Cities*; *You Are Go* had *Hounded*; *Come Out & Play* had *CounterSquirt*. These were all large scale games that had 100-200 players in them and would go on for more than an hour, sometimes much longer. They were intended to be the cornerstone events for each of the festivals, a game that all attendees could play if

they wanted to. Because of this, they were difficult to stage, as even with the emergent game structures, they would usually require dozens of facilitators, helpers and actors to make them work.

As well as these large-scale multiplayer games there were often games that were intentional spectacles intended to be viewed by an audience as much as for playing. They were visually and sonically engaging experiences for the watchers as much as for the players. These spectacles intended for the audience as well as for the players, who could only focus on their play, rather than the entire spectacle. Games that I have already discussed such as *Humanoid Asteroid* and *Kaboom!* that were played at *Come Out & Play*, or *Andromeda Mega Express Orchestra* that was played at *You Are Go* are examples of this style. These were games with fewer, sometimes one, player, that were lavish theatrical stagings in a location where the audience could easily view.

Large-scale, participative, crowd games need the scale of a festival to attract the necessary players to make them work. Games designed around theatricality need the audience, otherwise their spectacle is wasted. These games need a festival to make them work, and the festivals need games such as this to work as well. The development of both are then interlinked.

In addition to this, the rest of the games that comprised the festivals tended to have a common structure. They were intended to fit within the framework of the festival. This tends to favour the emergence of three clear game structures.

Firstly, there were games that could take a large number of people at once (10 - 30 people), and be played within fixed time constraints (usually a one hour block). These games had clear beginnings and endings and set time frames. They fitted nicely into the time structure of the overall event.

Secondly, there were games that could be played at any time. Usually single player (or a small group) experiences, often technically facilitated, such as device-based locative games. At other times they could simply be instructions for running your own game. These were games that could be picked up and played at any time and didn't usually have a specific time limit.

Thirdly there were ambient games (Eyles and Eglin, 2008), that occurred across one or more days and relied on players interweaving the gameplay with the rest of their festival experience. The gameplay might take place at any time, as determined by the player.

The first style of game gained commonality at the gaming festivals I observed. The reason for this is that they fit in nicely with the festival schedules. Players also seemed to prefer engaging with time-limited, time-fixed games. They would start, and then keep playing to the end. They also only required the designers to be active with the game for an hour or two; ideally suited for them to also take part in the rest of the festival. When talking to the organisers of the festivals about this, they had admitted to choosing exactly these types of games. My own experience of running a game involved the discussion about the game's throughput; how

many people it could accommodate. The organisers are interested in seeing the highest number of opportunities for play. The value of a game to the festival was, therefore, the number of players it could cater to.

On the other hand, ambient and single player games required the designers (or a representative) to be present for the entire festival to run the game, do device management, nurse servers, or maintain connectivity. For the number of players or the actual accumulated gameplay time, there was usually a high level of designer input and presence required. Meaning the designers couldn't play as much themselves. For the festival this still can mean a high number of possible player experiences, and the presence of these style of games doesn't impact on the overall schedule. For the festival, these are to a certain extent, "free" games, allowing for more scheduled games to be run, whilst providing more diversity of experience, and more opportunities for play.

Because of these factors, the games at festivals have tended to normalise towards the first type. Time-limited, event-based games. There have been many more of this type designed and played. The needs and structure of the festival itself changed the structures of the games. Through this relationship, the practice of pervasive games has evolved into providing games to festivals. The games have changed character from those that emerged from research labs and design schools in the early 2000s because of this new context. They are part of a festival, not isolated.

This requires festival-based pervasive games to be simple and to scale well. It requires them to be simple to understand games because they need to be learnt and played in the space of an hour. It also needs them to work at a particular scale, such as a group of players ranging from 10 to 30 people, and to scale well with fewer or more players. They need to be transportable, because many designers travel, often internationally, to bring their games to a festival. Because of that they use little in the way of materials, and often can be made, using craft materials available locally (as discussed in chapter 6).

The one-off nature of the festival tends to promote a one-off nature in the games. Good gameplay requires playtesting and iterative design (Schell, 2008; Salen and Zimmerman, 2003), which is difficult to carry out in one-off situations. Because of the necessity of creating games for many players, to test them a large number of players is then needed. One of the consequences of this was the creation of a variety of playtesting events where designers could test out early versions of games. For example, Slingshot Games (the team behind *Igfest*) created their *Iglabs*. *Hide & Seek* had their *Sandpits*, and *Come Out & Play* organised regular events at the Eyebeam art and technology centre. A problem for these events was attracting enough players to make them worthwhile tests. Another issue, as discussed in chapter 4, was that players want to play games, not simply take part in a playtest of just a mechanic, or a barely formed game. Because of these issues, the festival organisers usually ended up creating monthly events that became more than just simple playtest sessions. Ostensibly for testing, they were

sometimes mini-festivals in their own right; elaborate stagings across an evening. For example, two of the *Sandpits* I visited had hundreds of players taking part. One was located in the Royal Festival Hall in the Southbank, and another was part of a larger event at the Victoria and Albert Museum. This meant that both the organisers and designers had to walk the narrow line between being able to experiment in these situations and being able to deliver enough of a fully fledged experience to keep players satisfied.

Apart from the overall structuring nature of festivals, they each have a flavour or feeling. Each individual festival had a different character, but each festival line had their own flavour too. Each *Come Out & Play* was different from the others, each *Igfest*, each *Hide & Seek*. For example, even though *Hide & Seek* was held three years running on the Southbank in London, it was held in slightly different locations. Across the two years that I attended, it was once in the Royal Festival Hall, and once in the National Theatre. Even though these were both theatre spaces they had very different physical constraints and different architectural aesthetics. The Royal Festival Hall was located adjacent to the surrounding streets and it had a green space nearby. It was more accessible, more public, and it was easy to get out onto the streets. The space used within it was wide and open, light and airy, many physical games were played in this space simultaneously. The space used in the National Theatre by contrast, although nearby, was quite different. The architecture was concrete brutalist, the space more warren-like,



there were more nooks. Access was through a lobby and up an elevator. The festival location was distant from the streets. The games were more constrained, more low-key, quieter, less physical.

These individual differences emerge in the first place through the game curation and selection process that the organisers run at each of the festivals. They chose, created and curated games that would fit into their vision for the festival. Also, the individual communities that the festivals existed within imparted a flavour (as discussed in chapter 4), especially in the ways in which the organisers tried to cater for them through the festival curation process. Also the locations, the neighbourhoods, the streets that they were situated in gave them a different flavour (as discussed in chapter 6), both through the ways in which the organisers chose games that would work within the physical constraints of the space, but also the ways in which the unique and individual urban aesthetic contributed to the overall festival feel.

Many other games and experiences are also linked to similar event structures, even if not apparently a 'festival'. For example, some of the work of Blast Theory has been shown at arts festivals (2015c), but their work has largely been shown in a gallery context, that has slightly different contingencies to festivals. A gallery context provides the structures that can attract and assemble players. It provides the framework, similar to a festival, that experience can exist within. It also puts in place the same issues of providing for a maximal number of experiences for players. During my time with Blast Theory, one of the issues for their experiences

was also throughput. Trying to maximise the number of players through their work. In a piece like *Uncle Roy All Around You*, although it was a one player experience, there were multiple people in the timeline at any one time. In this, the artists had some, but little control over the speed with which people would complete the experience. In a later work, *A Machine To See With*, there was a strict timeline for players. Although it was designed for two people, many more could be involved across the timeline at any one time. The timings had been carefully choreographed to ensure that people would not meet each other, or be forced into the same set pieces at the same time.

In this section, I have argued that pervasive gaming practice has been shaped by the social and cultural structures that enable their play. That these games and festivals are now inextricably linked, that the style of game supports the style of festival and the festival supports a style of game that can only be played at festivals. The design trajectory has been unavoidably influenced by the situations of play. Because of the scale and opportunities for playtesting, these games are then constrained in their experimentality because the opportunities for playtesting are reduced. The games have to work as a viable experience first time.

## **2. Rules**

The study of rules is a central concern of the Game Studies discipline. The seminal definitions of what games are includes rules as a primary element (Avedon and Sutton-Smith, 1971; Sutton-Smith, 1998; Caillois, 2001; Crawford, 2003;

Huizinga, 1992; Juul, 2005b; Myers, 2009; Salen and Zimmerman, 2003; Suits, 2014; Sutton-Smith, 1998). The ludological approach to game analysis takes the approach that games are formal systems of rules, and ludology is a study of these rule systems (Aarseth, 2003; Frasca, 1999;2007; Juul, 2005b; Salen and Zimmerman, 2003; Wainer *et al.*, 2010). Digital games are incredibly replicable, and the technologies provide for identical repetitions of the experiences. They are a robust, portable and immutable medium. Because of this, in digital game studies rules take on an almost essential character. They seem to appear as immutable forms. However, this ignores their fundamental materiality. Rules don't exist in abstract, they are only ever part of a fundamentally physical processes. In digital gaming, they exist as part of a structure of technology that includes the hardware and software required to play the game, as well as the specific locations they are played within and the players playing the game. Games don't play themselves, they are only ever a collection of processes with a material underpinning. Just as designers in other disciplines work with applicable materials, so do game designers, with rules being a common substance that they work with. Games being assemblages of material processes, some physical, some intangible, some overlooked.

There is an obvious physicality to the rules in pervasive games. Games played in the physical world, or involving everyday objects and life, take and use this tangibility. This play with space, objects and people is a key, and conscious, part of the practice.

Very material terms, such as robust, brittle and mutable are often used to describe rules in general, and importantly, rules as they pertain to pervasive gaming. These terms are important in both revealing their materiality, but also in discussing the practice of design in pervasive gaming practice.

In this section I describe this materiality and then go on to discuss the nature of rules in pervasive gaming; rules in operation being individually performed rulings. I go on to discuss how, again because of their festival context, pervasive game rules are necessarily simple, straightforward and understandable. Because of their social and physical situation, the rules are also very much performed into being and are socially mutable.

*Gentrification: The Game* is a good example to return to because it was a relatively long and complex game for festivals, lasting about two hours. The game had two different types of team, developers and locals, who had slightly different options available to them. The game progressed over a number of rounds that escalated in complexity. The teams could choose to “capture” locations (by the players running to that location and photographing it with either phone or camera), and improve them with permits gained through more property capture. Starting in round two they could also choose to take part in a challenge, such as stage a protest, compose poetry, or create a “slick advertising campaign.” In these later rounds, the teams could split up to be able to capture locations and complete challenges at the same time. They could also collaborate with, or spy upon, other teams to check their progress or tactics. The progress was tracked via a

representation of the street in both chalk on the sidewalk, but also digitally on a website that could be accessed via phone. This made for a game with more complexity than most others I have seen at festivals.

The beginning of the game is particularly informative about the ways in which rules are performed in the game. Of the two hour period that I observed, it took about 20 minutes for groups to form and the rules to be explained.

Group, or team, formation is a clear physical instantiation of the rules. A simple rule about team size, or the number of teams in the game, must be performed by the people there. A seemingly simple rule has physical, social and cultural implications that need to be negotiated, and quickly, at the beginning of the game. In *Gentrification*, people mixed and milled around at the start. Some people knew each other, some may have already met at the festival. Most are strangers to the group as a whole. Even after the rule on group size and number of teams is made clear people don't mix freely, the designers have to get involved and split up groups and help them reform. Most groups are then made up of some people who know each other. In the group I followed, only two people knew each other. What on face value appears to be an innocuous rule becomes a means of mixing strangers, and flavours the game. This simple rule creates different meanings in each different group.

After the groups formed the rest of the rules were explained. It took the designer four and a half minutes to go through the basics. In *Gentrification*, as in all my other experiences, the rules are explained verbally, and unscripted, by whoever is

running the game. The designer does their best to get across the rules and game processes, often speaking to a large group without any aids<sup>48</sup>. The explanation of the rules becomes both a performance and a performative act. Through explaining the rules the game is performed into being.

No matter how clearly the rules are explained there is always room for confusion. In *Gentrification* there are the obvious questions and clarifications that happen at the beginning of the game, but the rules and processes emerge as the game is played.

“Do we start?” was a question raised near the beginning of *Gentrification*. Tasks have been given out, but it is unclear as to whether anyone should actually start moving. Are they players playing yet? One group moves off to start their tasks, then they get brought back by one of the designers. No. It wasn’t time to start.

Rather than being fixed, solid things the rules are processes that emerge as the game progresses. After the first round of property collection, the team of players returns to the ‘base’ to report in and collect their permits. Getting these permits is obviously surprising to some of the players, and even though their purpose in

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48. At *Igfest* and *Hide & Seek* megaphones were used on some games. When I ran *Robo Racers* I used one for some of the games. The difference that this makes to both the designer/facilitator and the players is marked. Without a megaphone a tremendous amount of effort is required to project to a crowd, and the megaphone helps with this. The very act of using a megaphone also encourages a performance, in the regular sense of the word; bringing about more of a spectacle and turning the designer into a performer. From the point of view of the crowd it certainly aids in hearing everything that is being said. Understanding the rules is hard enough when you can hear all that is being said, missing chunks of an explanation makes this even more difficult.

improving properties was explained at the beginning, the designer handing out permits re-iterates that this is what they are for. The team then takes these permits to another volunteer, the “chalker” to record which locations they’ve captured. In a brief explanation the chalker himself admits to not quite knowing what is going on. One of the game designers appears and again explains the capturing procedure. The chalker then says “I’m learning as I go.” For the first 20 minutes of the game there is this continued reiteration of the rules and processes. Players from this team and others are discussing in their groups what is possible, and consulting with the designers to clarify. At about this 20 minute point then I can hear players in the team I’m videoing, and others around me, beginning to talk tactics. At that point I can see strategies emerge from this rule negotiation. The players on my team spend the next 5 minutes talking about strategy and discussing the game. In part, this is due to them all being strangers and the game is common ground, but through their expressive body language and the fact they all stand in a circle, they are obviously engaged with the game and their part in it. The rules and structures are becoming clearer to them.

Not only is the explanation of the rules at the beginning of the game performed, but the whole game is performed by it’s playing out. Players physically express their knowledge or ignorance. When they believe they are acting according to the rules they do so with conviction. When uncertain, for example in the “Do we start?” example above there is hesitation. When presented with permits, some of the players clearly communicate their confusion through their looks of surprise,

so they are given a brief rule snippet then and there. That bit of the processes is explained. When players do things that are outside of the expected process or rule set, then the designers must try and corral them, involving physical action: movement, gestures, shouts. There is a fluidity to this collective action and understanding. The players are trying to work within the constraints of the game. They are not cheating, but through their sometimes transgressive actions, questioning, tentative movements they are testing the possibilities of the rules. Because of this the processes that proscribe the game are slightly fluid, slightly mutable. The collective action that occurs as the game is socially understood through the individual actions of the players. Through this slight indeterminacy, they are performed into being via the actual gameplay. Each game thus different as each set of players interprets them and plays them differently. This negotiation is similar to what Gary Fine (2003) observes in fantasy roleplaying, and Linda Hughes (2006) in playground games, but contrary to the non-negotiability of digital games (Salen and Zimmerman, 2003, p.142-148).

In talking about the idea of meta-rules and implicit rules in games, Stephen Sniderman says “Regardless of the game you are playing, you cannot know all the rules” (2006, p.477). He is describing all of the other levels of rules, restrictions and codes of conduct that support the actual playing of games. The rules themselves are only the visible elements of far deeper social and cultural relationships that enable gameplay. He goes on to talk about “Rulings versus rules” (p.479), that is the functional decision making that occurs in interpreting



rules in gameplay situations, but also the interpretation of rules in exceptional situations that they don't appear to cover. In *Gentrification*, although rules were explained at the beginning, play occurs through rulings, rather than through rules. It is through the continual clarification process that the players and designers were engaged in that the 'rules' truly emerge. Ruling is a decision-making process that both the designers and players partake in. The players are making a decision on their actions based on the rules and their own sense of engagement and fair play. The rules of the game can be quite simple, but the manner in which they are ruled upon takes into consideration many contextual factors such as, but not limited to, social situation, other players actions, and the players own state of mind at the time.

Rather than the game being made up of rules, it is made up of rulings; the actual processes of the effects of the rules in the real world. It is a top-down and bottom-up effects going on at once. The rules are communicated as a set of constraints; top down. But it is the rulings, the bottom up, material instantiations of these rules that makes the game. In *Gentrification* it is the designers stopping players from walking off too early that is a ruling. A rule, and maybe not even a clear one, in effect. It is also the player's own actions, putting the rules into effect. So it is them taking a picture of themselves with a street number to show they have captured a property. The designers are not there, but the players are 'playing by the rules', making their own ruling in the complete absence of other players, teams or designers.

Following on from this, digital games rather than rules machines become ruling machines. The individual operation of rulings is then similar to Ian Bogost's (2006) concept of 'Unit Operations'. Rather than a top-down systems view he proposes a critical approach to digital gaming that is bottom-up, that is concerned with the individual units, and the low-level operations and relationships between them.

Next I would like to discuss referentiality and intertextuality, and then simplicity. These general points about rules emerge from both this examination of *Gentrification*, as well as pervasive games overall.

*It's a Monopoly game, but like real life Monopoly.  
(Gentrification player to passerby)*

*Gentrification* was consciously based on *Monopoly*. It was intended to be a real-world version, of both the gameplay - capturing property and developing it, but also its implicit messages about capitalism and urban development (Salen and Zimmerman, 2003, p.520-521). Because of that, it becomes a game about experiencing *Monopoly* at the street level, not as an abstract board. The rhetoric and aesthetic was very much about being 'in' a game, creating an experience that perfectly delivers on the desires of the players to be 'in' a game (as discussed in Chapter 4). The game is thus heavily referential on both a functional and symbolic level (in the manner discussed in Chapter 5). It references the cultural positioning of *Monopoly*, but importantly, to do this the designers consciously use the rules of *Monopoly*. In doing so they achieve more than just a cultural referencing, they also

provide the players with a set of rules and processes that they already understand. Because of *Monopoly's* commonality, its rules are also commonly understood. Making the game easier to explain and easier to play. *Gentrification* is not alone in this. In fact, most games rely on a common underlying base of rules, mechanics and processes. The work of Steffan Björk documents common patterns in game design through both digital (Björk and Holopainen, 2005) and pervasive games (Björk and Peitz, 2007). His work shows the high degree of underlying commonality in game design in general. Each new game is not a creation on its own, but a functional remix of elements from other games. Urban games rely very much on this. Due to the short time span of play, the low likelihood of replay, and the necessity to explain games quickly they must then by necessity rely heavily on likenesses to existing games; often digital or board games. Also, because of their inherently physical nature, they borrow heavily from traditional physical games, such as playground games, or wide games<sup>49</sup>. It is then the communication of the translation of these that is most important in explaining how a game works to new players.

However, even given this, one of the players in *Gentrification* remarked about 15 minutes in, asking me about the demographic of players:

*You have to be a lot younger to work it out. Too many brain cells. I have no idea, I'm not even following [what is going on]*

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49. A wide game is the name given to outdoor activities usually played by Scouts and similar organisations. They are intended to be wilderness games, played either at meetings or whilst camping. They are usually team based and are often played at night, in the dark.

She was confused, and couldn't figure out the rules, or what the other players in the team were doing. Between them however, the rest of the team had figured out the game enough to complete the first task in a matter of a few minutes, after only the high-level explanation of the rules, or procedures of play. Even though there is this functional and symbolic referentiality at work, then players still need to be aware of what is being referenced to understand the rules and appreciate the game. The player needs to have the necessary embodied cultural capitals, as discussed in Chapter 4.

This still creates a pressure for the rules to be straightforward and understandable. Apart from rules being referential, they must also be simple. As discussed above, in the section on festivals, urban games played at these events must fit into a schedule and time slot. Because of this, there isn't the time to explain and understand complex games with detailed rules. Many players will not have the necessary background to quickly understand games and their rules, let alone complex ones. The games have to be simple, straightforward and understandable. There is an underlying tension in this, because many of the players do have a gaming background (see Chapter 4) and they desire sufficiently challenging games that will make use of their cultural capitals.

In this section, I have described the workings of rules in *Gentrification: The Game*. Rather than being a system of rules, a game such as *Gentrification* is more like a performance of 'rulings'. These rulings being the operationalisation of the rules,

as they are understood by the players, both individually and collectively as a group. These rulings are material, occurring through the players, their actions and the objects and space they use and create.

Rules in pervasive gaming are functionally referential and often intertextual. That is they are borrowed from elsewhere, and often specifically relate to other 'texts' whether they be games or other media. Partly this is because of the social and cultural context for the practice (as discussed in Chapter 4) but this is also partly driven by the need for the games to be easily understood in a short space of time.

Because of this, the games have to be simple and straightforward. They cannot be too complex or they will be unplayable in the festival context. Because of this pervasive gaming as a whole, and festival-based urban games can look simple from a ludological point of view. But the important aspects of these games is in the detail of their performance and material nature.

### **3. Invisible technologies**

Technology plays a part in pervasive games design practice, even when technical elements are not present. As discussed in chapter 2, pervasive gaming has its roots in technology research, and the earliest practice was dominated by these agendas (McGonigal, 2006). The attitudes, technologies and rhetorics of this technology research still flavoured pervasive gaming through to at least 2011 when I undertook my research. Although probably most of the festival games at the festivals I attended and most of the games I observed appeared to have little in

the way of “technology” (for example, mobile phones or other novel devices) the interest in technology was always behind the scenes. As one of the designers said in an interview.

*I think [we are] probably [interested] because it's the technology games that we're trying to sell. We can do a game that's in any kind of format but in order to make it a viable proposition it needs to have some kind of legacy, it needs to have some kind of greater connected power. Again back to the scalability. [...] the biggest game that we run holds 200 people, so if that was a piece of theatre that's a reasonable audience. [...] But that's still not a mass audience, so that's where we use technology. (Game Designer)*

However, although there is always this background interest in technology there are conflicting factors that mean that creating technology-based experiences is harder work than it at first appears. The pressure of the festivals and scale of games also tends to act to drive technically facilitated games out of the festivals. As the previous designer, who was obviously technological solutions goes on to say about one of their games.

*Everything had to be individually configured, so that's 20 configured one way, 20 configured another way and then you had to make sure that your player set had an equal number of each of those so you'd have ideally 40 players turn up and 20 of each kind of team would go out, and the technology would be flaky enough so that, 10% of the devices wouldn't work for some reason, and it was radio-based, so the radio communication was flaky in itself. But then if you've got 40 people in a game, well if it takes 2 minutes to give everybody, a piece of technology you've never handled before, here's how it works, here's what you're going to do with it, 2 minutes is pretty quick, well 80 minutes to set up a game that's going to last 20, it's crazy. (Game Designer)*

So a tension emerges in the practice of pervasive game design. On one hand, there is the desire to use technology, in the form of highly technical components (such as mobile phones, software, etc), because of factors such as personal interest,

scaling experiences for profitability, or because these are novel and different. On the other hand, there are factors working against technology use, such as the nature and constraints of the festivals, logistics in device and software management, and the large overheads of creating functional software. In navigating the space of this tension, designers have tended to move towards low-tech games in the main, with a few high-tech games standing out, but having been developed for their replicability and portability (for example Gigantic Mechanic's *Shadowplay* projector games, or The Copenhagen Game Collective's *Johann Sebastian Joust*). So, even when not physically present, technological considerations are there as an invisible background to the practice. This is another element that makes pervasive gaming practice inherently technocultural, even when high-tech objects are not physically present.

Even if many games are not explicitly engaging with technology, or don't seem to contain technical objects there are some that do. Apart from the technological historicity to the practice, there are two other aspects of these invisible technologies that I wish to address in this section. The first are the intangible technologies, based on radio waves, that are fundamental to ubiquitous and mobile computing. I discuss this via the example of *The Comfort of Strangers* (a game described in chapter 5). The second point concerns the background technical infrastructure and the ubiquity of technical devices that makes much of this style of gaming possible. I discuss that mainly via Blast Theory's *A Machine To See With* as well as using examples from other games.

In the process of addressing these two points I will discuss how pervasive gaming practice is (sometimes consciously and sometimes accidentally) critical of this technology, and although the technology would seem to be invisible, it is an always present part of the practice, partly because of the historicity, partly because of the fundamentally non-visible nature of the technology, partly because of the overlooked and everyday nature of the technical infrastructures.

*The Comfort of Strangers* was a game I discussed in Chapter 5. It was intended to be an experiment in swarm dynamics. The game comprised of 40 players on two teams, Lovers and Dancers. At the beginning of the game you don't know what team you are on. Each player started on 10 points. When they were close to another team member their points went up, when they were close to an opposition team member, they went down. They could have 20 points at maximum, and when reduced to 0 were out of the game. This is all carried out via dialogue in headphones, all audio. This simple rule set created the dynamics they were looking for in a game. The players did swarm. As the game started players would be forced to seek out their teams. Then players would clump together in groups, because their points and survivability were maximised. Bigger groups were safer and more resilient to other groups.

The game used HP iPaqs, handheld Personal Digital Assistants (PDAs). These were predecessor devices to the smartphone, without phone or touchscreen technology. They did have GPS, Wi-Fi and Bluetooth capability as well as infrared



connectivity. *The Comfort of Strangers* used the device's Wi-Fi capability to detect proximity. It would detect Wi-Fi signal strength and had a list of all the device addresses, so it could know which team any other device was on.

As I discussed in chapter 5 it was the material constraints of the space that shaped the game. Different configurations of buildings, open spaces and even street furniture would influence the Wi-Fi signal and therefore influence the game. These interactions are fundamentally intangible, the radio signals that make up Wi-Fi are not visible to the eye, the speed of transfer, and processing that occurs on the devices is inconceivable. The inner workings of the game are therefore invisible, both overlooked and outside our senses. However, *The Comfort of Strangers* tries to make this tangible through the working of the game. Player's points, or health, were dependent on the functioning and inter-relationships between the devices, the radio waves and the environment around them. In using this relationship the designers are using Wi-Fi as a material, making it tangible (through audio interactions), but not explicitly visible. However, Wi-Fi is unlike other physical materials, it has its own unpredictable and mutable properties.

During the everyday use of a device such as a PDA or a smartphone, Wi-Fi is expected to not be a concern. It is meant to work seamlessly, providing connectivity that supports a variety of other applications and uses. However, when it stops working then Wi-Fi becomes very obvious. When this happens one must wander around to find a signal again, or delve into the devices settings to try and fix it. The Wi-Fi now has control over you, rather than the other way

around. It is defining your actions. In the language of ANT, it has moved from being a mediator to being an intermediary (Latour, 2007, p.37-42). It is now a middle-man that will transform, or translate, the meaning of the interaction, not simply passing the meaning along. Rather than being a passive actor in the technology stack that transports meaning without transformation it now has agency. It changes the way players must do things, necessitating that they work within the strictures of the Wi-Fi. Maybe it was never simply a mediator, it has always been an intermediary, but one that is unconsciously, or invisibly, obeyed.

In *The Comfort of Strangers*, the vagaries and agencies of the Wi-Fi become more obvious. The Wi-Fi has emerged to take a leading part in the game, not simply an infrastructural one. It isn't exactly predictable, but neither is it random. Just like the black balloons used in *Kaboom!* (as discussed in chapter 6) the Wi-Fi has an agency of its own that adds a playful unpredictability to the game. The players may not be totally aware that they are playing with Wi-Fi as well as the other players of the game. It is still invisible radio waves and the underlying mechanics of using it are never mentioned. However, this doesn't stop it from being another capricious player in the game.

As the game designer above noted, Wi-Fi is "flaky". The "flakiness" of ubicomp technologies has been well noted. Mathew Chalmers proposed a design strategy of 'seamful design' to work with the unpredictability, breakdowns, dropouts and black spots in connectivity and sensor functioning (Broll and Benford, 2005; Chalmers and Galani, 2004; Chalmers *et al.*, 2003 Chalmers *et al.*, 2005; Drozd *et*

al., 2006;). Rather than trying to design for a seamless experience, this design approach suggests working with the 'seams'. In a seamless experience all the technologies work in the way expected and there are no break downs. As Chalmers points out this never happens, and that technological approaches to removing the seams are technically difficult, if not impossible. A better approach is to understand what the seams are and to work with them, not against them. The idea of seams again evokes the fundamentally material feeling of the underlying technologies. Again, this design strategy is another example of understanding and working with the materiality of ubiquitous computing technologies. A game such as *The Comfort Of Strangers* takes this one step further and works with the underlying technologies as a mediator, an active actor.

Wi-Fi, GPS, Bluetooth, RFID, NFC are inherently unpredictable and "flaky" and in part because of this many designers are put off working with them. The ubicomp materials that some technical pervasive games are comprised of are seamful intermediaries, not seamless mediators. They are further invisible players in the game, with unexpected consequences. Though as the interviewed designer mentioned above, technology is still often seen as a route to scale and economic security. In other technically supported games, the underlying material of the game is not a single technology, such as Wi-Fi, they depend on a much larger, wider and deeper set of technologies that make up the global mobile technology infrastructure. This is comprised of such things as mobile phone telephony, mobile internet connectivity, the Internet, GPS and location services and many

more. Individually these technologies may have the seamful, flaky nature as discussed above, but as a whole they are a black box; they take on a different, more seamless and invisible character.

Blast Theory describes *A Machine To See With* as locative cinema. In it, the players are the lead actors in a heist movie, but it mostly occurs through phone calls from an automated system.

Just listen to the voice on the phone. The voice tells you what to do. The voice says you're playing the lead in a movie. Hide in the toilets, find the getaway car, stake out the bank and take a deep breath. You're going in.  
(Blast Theory, 2015a)

Although *A Machine To See With* may not strictly be a game, it is a artistic experience that uses and critically addresses hidden technological infrastructures. I observed Blast Theory tailor it to the Brighton streets in 2011.

On the day you participate in *A Machine To See With* you are given instruction on where to be at your allotted time. Players are called at that pre-determined time, and then through further instructions and dialogue are led through the city, through various set pieces to the final point of robbing the bank, joining with one other player along the way; their partner. There are no actors, no help if you run off course. The whole thing is pre-recorded and the voice on the phone honestly tells you so at the beginning. The experience sets you up as the lead. And the world around you as a set. It consciously and purposefully gets you to see yourself in this role. Not a real bank robber, but a filmic bank robber.

The game runs from a piece of open source call centre and telephone exchange software called Asterisk (Blast Theory, 2015a; Digium, 2015). This provides the automated calling, voice recording and the Interactive Voice Response (IVR) system that provides a small amount of interactivity. However, the game, or locative experience, is largely not interactive at all. The entire piece is scripted and in no way responds to the player. There is only one ending, one route through as a player. The game though is cleverly scripted, so that Blast Theory can lead you through the city with eerie accuracy.

The game never truly knows your position. However, knowing that you are following the instructions, Blast Theory knows where you will be. In *A Machine To See With* they have purposefully created a location-based experience that does not use location sensing technology. The directions and dialogue that occur over the phone display an unerring accuracy, directions are given via street signs, posters and landmarks, seemingly knowing your location and gaze. Rather than using technology to achieve this, Blast Theory have carefully choreographed the script for each participant, through painstakingly walking and rewalking these routes. In part, this is possible due to Blast Theory's experience and history of working with location-based experiences. The less technically intensive approach was a purposeful choice to create something that can be used on a device as commonly available as a regular mobile phone, without any downloads, and as a conscious divergence from their existing practice.

Even with this seemingly low tech approach, there is still an invisible background of technology. Firstly, in that their practice had been dealing with location-based technology for the previous decade. Creating a location-based experience without location sensing technology is a reaction and critique of that technology. Secondly, although the interface, simple phone calls, seems everyday and low tech, it is still reliant on the background technical infrastructure of mobile telephony and the internet. It is also built with Asterisk, a very complex piece of software that can enable highly customisable telephone interactions<sup>50</sup>.

Inspired by a visit to a major US data centre, Jason Farman writes of the materiality of locative media (Farman, 2013b). He discusses Foursquare, a location-based app that he uses to ‘check in’ to the data centre, whilst knowing that Foursquare house servers in that data centre. Upon tracing the data flows between his phone, nearby cell towers via the internet into the physical location he is in, and then all the way back again he is surprised.

When tracing the flow of my data, it struck me how circuitous the pathway was to send and receive information. Even more striking was the fact that much of the journey of my data took place across a very

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50. In this case Blast Theory did not use Asterisk for any form of ‘real’ interactivity. Nothing the participant did would influence the outcome of the piece, there was no required response. At one point it does appear interactive, but this is an illusion and the responses are very limited. Blast Theory as a group are very critical of ‘interactivity’ in the sense of people truly being able to influence their route through. Even though some of their pieces appear to be free roaming they are all scripted and ordered. (personal communication with Blast Theory’s Matt Adams)

static infrastructure. In fact, much of what we consider to be “mobile” media is generated through very non-mobile technologies such as the cell tower and fibre optic cable. (Farman, 2013b, p.236)

Even in the free-roaming world of locative applications, most of the work happens in the very fixed world of cables, antennas, routers and other hardware. And although much of this is managed via various pieces of software, on the phone, through internet devices through to the server, they are located in a very material world. However, as Farman points out, the infrastructure that supports all of this is hidden, and purposefully so. Cables are buried, data centres exist in nondescript warehouses, and even cell tower antenna are disguised (often badly) as everyday objects such as trees or church steeples.

As Farman points out there is a politics of making things invisible.

The move to make our mobile objects and infrastructures invisible is to deny the “vibrant matter” of things and the essential part they play in the ways that we think about being human in this pervasive computing age. (Farman, 2013b, p.240)

Making things invisible seeks to remove them from view and ignore the role they have in the way we practice space, identity and community creation. Whilst some aspects of the global technical infrastructure are not possible to perceive on a sensory level, Farman believes that making things visible is vital for both cultural analysis, but also for the public. Farman’s point is that identity is embodied through, what he calls, a ‘sensory-inscribed’ engagement with things around us; people, objects, cultural structures, spaces.

In *A Machine to See With* the route between the phone and the exchange software, via cell antennas, the internet and into Asterisk is hidden behind its everyday nature and the instantaneous responses. Asterisk itself is invisible to the people taking part, the voice of Blast Theory's Matt Adams being the only thing heard. However, *A Machine to See With* draws conscious attention to the technology behind it. At the beginning, the narration tells the listener that it is all recorded, that they will get no help, that they are alone in this, the narrator long gone. Later in the experience there is also a sizeable digression, a monologue on the nature of call back machines and their use in a USA presidential election. As well as this the piece draws the participants attention to their own phone; this everyday item now becomes the main interface for the action. As *A Machine To See With* progresses you are paying attention to your phone, waiting for it to call back. It is consciously in your hand, now an object of importance as your link to the heist. It is complicit in your transgressive desires and also commits you to them.

In doing this *A Machine To See With* is calling attention to elements that support the complex network that enables it to work, whilst also creating a seamless narrative through them. It makes them obvious, now visible objects, not just invisible everyday tools, whilst also weaving them into the experience. Jason Farman uses concepts from Heideggerian philosophy and Object-Oriented Ontology to describe this process (Farman, 2013a; Farman, 2013b). Heidegger would term it "readiness-to-hand" (Heidegger, 1978) and Harman "tool-being" Harman (2002). The tool, in its essence as a tool, is invisible in use, but when it



stops being used, or breaks down, becomes visible as an object in its own right. That is it moves from being ready-to-hand to present-at-hand, it moves from invisibility to visibility. In an experience such as *A Machine To See With* the technical objects also move from visibility to invisibility. When I am told to go and sit in a pub toilet to wait for a briefing, the phone is literally present and in my hand. An object with many possibilities. When I'm on the street trying to follow directions in a city I'm not familiar with it is pure interface to the narrative and instructions.

Farman also likens this processes to Bolter and Grusin's *Remediation* (2000), with media operating in a similar way to object-based tools. He equates ready-to-hand to their immediacy - a medium's tendency to create immediate sensory experiences, removing the separation of the medium, and present-to-hand to hypermediacy - the visibility of the medium's form and structure. Bolter and Grusin also describe how remediation is an oscillating and enfolded experience, no medium ever sits entirely in one camp or the other.

*A Machine To See With* is not alone in this process. In Chapter 5 I described how pervasive games open up the material elements of the games. They are put on show, whether high- or low-tech. The materials that make up any pervasive game enactment are hybrid networks of objects, media and people, where all these actors are not seamlessly joined, but continuously in the process of forming, moving from ready-to-hand to present-to-hand; immediacy, to hypermediacy.

Both *The Comfort of Strangers* and *A Machine to See With* reside in a continuity of technical experiment, even if both are aligned critically to it. Both emerge from an experimentation with, and an understanding of, playful experiences where technology isn't the driving agenda, but instead is a material to be used. Both of these draw attention to, and expose the technical elements of pervasive gaming rather than using them to create a seamless experience.

In either game discussed above, this exposure of game elements is very contrary to the Wesier (1991) vision of ubiquitous computing as an invisible technology, that has been one of the central developmental threads of pervasive computing (Dourish and Bell, 2011). Pervasive games have developed in a manner in which, rather than technology being fundamentally invisible, it is obvious, exposed. The exploratory game design that has occurred has ended up bringing the technologies, low or high tech, out into the open as another material of the game. Not a hidden, fundamental substrate or infrastructure, but just another part.

In both examples, certain key technical elements can be analysed from the points of view of either ANT or Object-Oriented philosophy. Each viewpoint shows how each of these experiences provide a framework where the technology is not hidden away from view, but that its effects, affordances and materiality are made visible.

In *The Comfort of Strangers* and *A Machine to See With*, Wi-Fi and Asterisk are respectively what ANT would call mediators. Both of these elements are the generative aspects of these experiences. The relationship between them, the

designers and the players is playful in itself because of the transformations and translations that occur through the mediators. They are not entirely predictable, they are not entirely reliable. They have a tangible effect and are felt if not directly seen. Rather than being invisible, they are revealed. In both games the devices used, PDAs and mobile phones, oscillate between being ready-to-hand and present-at-hand. *The Comfort of Strangers* using a novel device that turns into a game interface, *A Machine to See With* using your everyday phone, but drawing attention to its function and nature throughout. Both experiences explicitly draw attention to them, but also use them in their tool-being. There is a productive tension in the flickering between these states. The devices are not seamless interfaces, they become visible and material.

As Farman (2013b) points out there is a politics inherent in the materiality of technology. Making things visible again enables a criticality that is avoided when they are ostensibly invisible. Mary Flanagan (2009) discusses the critical possibilities of games, including artist's locative games. Criticality is not a simple given, it comes in a variety of manners. A game itself, or the way it is played, could question the game's content or an aspect of the background to the game that is taken as a given. This criticality can provide an insight, a new viewpoint or an analytic framework. The critical approaches that games can take to technology are then also varied, there is no fixed way in which they expose technology, no fixed stance on the game structures that designers create that might frame this critically, or fixed stance on how players interpret it. However, technical

pervasive games do expose the materiality of the underlying technologies. As I've described above this can be theorised in either, or both, an ANT approach or via Farman and an Object-Orientated philosophy approach. In one sense the non-human actors/players in the games, the technology, are shown to have a playful agency; their effects are made tangible or visible. In the other sense, the technology is revealed as present-at-hand, and made visible, possibly oscillating back into an invisible, ready-at-hand state. The effects and the elements being present and visible enable a criticality to take place at the very least because they are now seen. Designers can then work with this to build games that may encourage reflection upon this point, or create narrative and mimetic structures that have a particular rhetorical position with respect to these technologies.

The practice of pervasive gaming contains this inherent criticality of technology. Firstly through the practice's historical roots and engagement with ubicomp technologies. The practice's divergence from technological to experience experiment can be read as being critical of technology's involvement in urban gaming. Then it is also critical through the ways in which games make technical objects and the technical infrastructure visible. The materialisation of technology that can and does occur in pervasive games allows for the politics that Farman mentions. The embodied interactions with the materiality of the technology enact this criticality. It is not didactic but instead revealed through the dialectic of play.

## 4. Invisible tensions

This chapter shows the ways in which unseen materialities shape the design and play of street games specifically, and pervasive games generally. These invisible materials shape the course of pervasive game development and play a large part in the design trajectories that the practice followed.

There are four oppositional forces at work that I wish to draw out from this chapter and return to in the next chapter, the conclusion.

- **Invisibility**
- **Constraint and Variation** (event structuring)
- **Simple vs complex rules**
- **Technology vs No Technology**

As Farman (2013a, 2013b) points out, there is a politics of **invisibility**, whether it be conscious or not. There are agencies and agendas in the hiding or revealing of materiality and the removal of physicality. Invisibility removes the enchantment of the materials (Law, 2004), visibility returns the “vibrancy” to the matter (Farman, 2013b). The visibility and invisibility question is a fundamental dichotomy. All forms of pervasive gaming are shaped by invisible materials, but often dig into and engage with these invisible materials. For example, ARGs are shaped by the background of the internet but encourage players to dig into websites by hiding clues in HTML code. Location-based games use the invisible geographies of GPS, but at the same time expose players to GPS drift and dead

zones. Urban games respond to the cities and streets they are set in but also get players to re-evaluate their relationship to the everyday spaces that surround them.

Pervasive games as a practice can create the space for a criticality of the invisibility of their materials, whether those be lived space, game structures or technologies. The design of any particular game must negotiate the politics of invisibility whether it seeks to hide or reveal.

### **Event Structure**

Pervasive games are shaped by their context of play. No matter the situations they are played within, no matter the style of situation or event, whether it be a festival, a gallery or a one-off, they face the contingencies that make them conform to the necessities of that event. These contingencies are such things as; budget, scale or location. This creates a tension between the creative and experimental directions that designers could take the games in and the requirements of the situation within which they are played.

### **Simple versus Complex Rules**

Because of the festival situation that street games are played in, the games need to be simple and understandable. This is supported by the level of functional intertextuality, borrowing rules and processes from other games. The rules are also fluid and mutable; the material of rules working through myriad enacted rulings. This creates a tension between the desires to have deep, engaging, replayable games and simple games that are easy to learn and play. In other

situations, this may be different. The differences between the situations of gameplay creates a design space between the need for simplicity and the desire for deeper or more complex games.

### **Technology versus No Technology**

The historical practice of pervasive gaming is inherently critical of technology. In the practice of street games, this has shown a divergence from technically facilitated experiences to non-technical ones, even if designers are still often interested in the technology. In technical games, the materialisation and visibility of the technology creates a natural criticality.

There has been a tension between wanting to experiment with technology and to create something cost-effective and playable. Again the nature of the situations for the games constrains their use of, and type of, technology.

This relates to the tension raised in chapter 2 concerning **technology mediation versus physical experience**. In that chapter it emerges from the dichotomy between mediated and direct experience, but in this chapter I have shown that the question of technology, and its relationship to physical experience, is more complex.

## Chapter 8

### A Framework for Understanding Pervasive Games

Pervasive games are an imaginary medium (see chapter 1). Just as Parikka describes (2012b, p.61-62), they are dreamworlds that surround the reality of the media, technologies and experiences of the actual practice. As a coherent technology or medium, they are non-existent. However, as he continues, imaginary media are “an affordance for the new - to think media anew, and in weird places, in weird bodies” (Parikka, 2012b, p.62). Imaginary media are part of the unfolding of different technologies and experiences. They are part of the production of the new through transgressing the barriers of the impossible.

The practice of pervasive gaming is a technocultural phenomena; that is technology and culture are inseparable (Giddings, 2006; Balsamo, 2011). The effects of technology on culture and the effects of culture on technology cannot be dealt with separately and trying to make any true distinction between where one leaves off and the other starts is impossible. Pervasive gaming as a whole, and urban gaming as a subset, contain a mix of cultural and technological influences that make them what they are.



The concept of materiality is a fundamental underlying principle for understanding any technocultural phenomena. That a cultural phenomena such as pervasive gaming is played out in the physical world at one points calls for a common understanding of material, physicality and embodiment. But by considering a more radical materialism (Mackenzie, 2002), we can see that each situation - the players, the streets, the weather, the time of day, etc. - have an extraordinary impact on each individual playing. They are contingent on their context and their development, or evolution, is also highly contingent on this context.

A reliable definition of pervasive games is problematic due to their nature as an imaginary media and the way they often challenge the concept of games, the necessity of technology and the nature of experiences. However, there is still a practice and community surrounding them. There are people who are engaged in playing and my interpretation of pervasive games as a practice flows from them, and from understanding them. As I point out in chapter 3, the best route to do this has been through ethnographic research. However, because of the technocultural underpinnings, it is not purely an ethnography of the people, it is an ethnography of both the people and material that make up the practice and their co-constitutive nature.

The meaning, the experience, the aesthetics that emerge do so through processes that are both cultural and technological, symbolic and material (Akrich and Latour, 1992).

Liminality is a process that is both physical and embodied, as well as cultural and symbolic. It mixes material and culture to create a state where the distance between the physically actual and the fictive imaginary is lessened. These truly mixed-reality experiences are a material symbolic process.

The questions of this research were twofold:

- How is the development of pervasive gaming, the history and future, enabled and constrained by its technocultural situation?
- How does this technocultural situation affect and shape the experience of pervasive games?

In the first instance, I have been concerned with how technocultural phenomena develop, how they progress in unexpected directions, and the factors that contribute to this.

In the second instance, my aims are to understand the relationship between technoculture and experience; explored through pervasive games as an example. The (visible and invisible) forces of technology and the experience's inherent physicality and materiality are key to this understanding of the relationship between technoculture and experience.

This conclusion has two main purposes. First is to bring together insights from this ethnographic understanding into a framework for describing and discussing the historically situated practice of pervasive gaming. Secondly is to highlight insights from this research that can be used more generally in understanding technocultural phenomena.

To do this I will, in the first section, summarise the key messages of the previous chapters. In order, I will step through the main points from each. To do this I employ the concept of tensions to create the dynamic design space that produces pervasive gaming. First listing the tensions as summaries of the previous chapters, and then grouping them thematically as transversal themes.

The final section is a reflection of the themes, implications and future possibilities of this research. I leave some parting thoughts on technoculture, material, practice and liminality. Then, through a reflection on the recent past, look to the future of pervasive games, their study, and the applicability of these methods in other domains.

## **1. Tensions: the space of design and experimentation**

In the foreword and introduction, I discussed how pervasive games exist in between the epic and the banal. They are a technocultural phenomena that are on one hand idealised in the technological imaginary and are present in the messiness of the everyday. Pervasive gaming, and the practice that also includes terms such as urban gaming, street gaming or big gaming are not one thing, but a

multiplicity. Given their indeterminacy, pervasive games as a practice, form or genre, might be understood as a set of tensions rather than a definition. They are liminal, in the very real sense of the term, in that they are on the edge, in the in-between spaces. Neither truly one thing or another. They are games that challenge what games are; they are technological experiences without the technology. They are defined by paradox and uncertainty, rather than a stable, central point. Throughout my ethnographic research I uncovered further tensions and it is through these dichotomies that an understanding of pervasive games can emerge. This concept of tensions presented here emerged from the whole body of this research.

Technoculture, as I have discussed is the inseparability of the concepts of technology and culture. However, there is also a complex relationship in this connection. Technology is not simply culture, and culture is not simply technology. Design, in a broad sense of planning, creation and making, is the dynamic connection between the two. As Balsamo pointed out, design is an act of cultural reproduction, using technology as its means (Balsamo, 2011, p.11). So the concept of design has a role in negotiating the process of technoculture.

As discussed in chapter 1, design research is the process of research either through or on design, via the practices, process and artefacts of design (Buchanan, 2007; Frens, 2007; Cross, 2007). But what does this research generate? What are the results? Authors such as Squires (2002) or Laurel (2004) discuss design research as a way to find out the needs for products and services, a

way of informing design about the cultural and social situations of their end products so they can make better things. The results are presented as some kind of product requirements. Certainly, within the academic discipline of Human-Computer Interaction ethnographic results have tended to be couched in the terms of requirements. As Paul Dourish points out, the canonical HCI paper reporting ethnographic results will close with a section titled “implications for design” (2006, p.1). He says that most of this work misses the methodological strength of ethnography; that they miss both the theory and writerly approach that makes ethnography what it is. As he goes on to say, a bulleted list of design implications or requirements is not a valid summary of an ethnographic study.

So returning to the epic and the banal, it is the very tensions that provide an ideal way to summarise and describe the design space that pervasive games emerge from. It is through these tensions that pervasive games come to be, mutate and change. The space of these tensions is the design space that artists, technologists, game designers and players engage.

Tensions are a way to describe a space of possibilities. They describe the dynamic contingencies that map out the space of possibilities within which specific experiences come to be (Mackenzie, 2002; Simondon and Hart, 2001). They are conceptual edges, but not strict boundary conditions. They are a way of talking about more than just requirements, or implications for design (Dourish, 2006). Instead, they present a model that would inform design on one hand and also be a broad culturally situated picture of practice. They are not intended to make

design decisions for designers but can inform them. They are also not simply oppositions or spectrums, but instead concepts that can fold together, creating hybrid situations and solutions that work by bringing together the ends of the tensions. So rather than saying that urban games must be made out of cardboard, the discussion of tensions is one about craft versus professionalism and the 'presence' of the designers in an experience, versus an impersonal, hi-fi finish.

From an HCI perspective, Deborah Tatar (2007) creates what she calls a "design tensions framework" for use as a paradigm of interactive system design. As she points out, the idea of tensions in design is not unusual, starting with the fundamental tension "between what *is* and what *ought to be*" (2007, p.415). For her, a tension doesn't identify a problem or a solution but is instead a choice. Either between criteria or in allocating a limited resource.

In discussing the design of cyber-infrastructure Edwards *et al.* (2007) talk about tensions as a key issue in software systems design. Their tensions are akin to Tatar's in that each requires a choice and usually results in uneven distributions of resources. They evoke Serres' metaphor of the Northwest passage discussing how a tension-sensitive design approach is akin to navigating the shifting ice floes; that last years passage is not the same as this years. So rigid approaches don't work. Instead, it is a design via navigation. A method that is sensitive to the underlying tensions.

In their analysis of the software development of the Large Hadron Collider's physics grid architecture, Zheng *et al.* (2011) discuss tensions in terms of paradoxes.

The concept of paradox is not intended to suggest logical impossibility or irresolvable conflict; rather paradox provides a means of presenting and analysing productive tensions, dynamics, and motivating challenges of systems development. (Zheng *et al.*, 2011, p.4)

Paradoxes such as “structured chaos” or “learned improvisation” would at first seem to be contradictions are actually tensions in organisational planning and system development. Zheng *et al.* say, similarly to Edwards *et al.* (2007), that it is the enactment of these contradictions, the navigation of them, that is the way in which things get done.

In the context of pervasive games and media, these tensions also to some extent parallel the work of Fleuriot and Dovey (2012, p.86-89) originally carried out in 2004. They discuss a set of “design dimensions” for creative works using pervasive and mobile technologies that describe the choices that designers and artists make.

Their dimensions are:

- Space/Place - arbitrary mapping to meaningful mapping
- Production values - professional to amateur
- Data depth - one level of data to multiple levels of data
- User Control - none to complete
  - clear rules to unclear rules
- Social - private to public
  - solitary to shared
- Time - fixed running time to open running time
  - permanent installation or one-off event
- Immersion - surface to depth
  - information to evocation

Fleuriot and Dovey (2012) call these descriptive dimensions. They are ways to describe the fixed points of extremely varied experiences and the common design decisions. In this, they are similar to the tensions I have outlined, and show a set of common concerns with my work as they are seeking to understand similar cultural and technological experiences although theirs are intended first and foremost as a way to aid designers and outline a set of binary choices.

The concept of tensions presented here emerged from the whole body of this research; from the ethnography, theory and existing literature. It represents how the community talks about itself as much as it is a theoretical framework (Corbin



and Strauss, 2008). It is through these paradoxes and dichotomies that pervasive games as a practice can be understood. So moving on from describing the concept of tensions, I now continue with the results.

## **1.1 Tensions emergent from this work**

Ethnography as a practice itself is rife with tensions. The researcher must at once be a member of a community, but also an observer outside that; able at once to fulfil the roles of participant, but also academic. Also, between being in the field and being back home, doing analysis and writing up. Again, between working with theory and letting the fieldwork talk for itself. Finally, as Bateson (2000) and Korzbyski (1933) both point out, if ethnography is a map, it is certainly not the territory; there is always an inherently complex interplay between the representation and the actual.

I will first reiterate the tensions that have emerged from chapters 2, 4, 5, 6, 7 then discuss cross-cutting themes that have emerged.

### **1.1.1. Chapter 2**

In Chapter 2 I examined the history of pervasive games. I pointed out that pervasive gaming is a child of ubiquitous computing research agendas and philosophies, as well as digital gaming. But that even though there is a background of set of practices that it emerged from, there is no clear developmental thread or grand teleological direction. Though the practice of pervasive gaming emerged from two heavily technically facilitated practices,

ubisomp and digital gaming, the development trajectory of pervasive gaming has more often eschewed digital technology and the practice has explored what are seemingly less technical routes.

Also in Chapter 2, I examined the discourse surrounding pervasive games. This discourse contained rhetorics that are mobilised to suit the authors' points and needs. However, there are common themes and tensions running through this literature. As discussed in chapter 2 these are:

### **Game vs Performance**

Are these experiences really games, or some other form of experience? Some experiences are artists using game forms or elements. Some experiences are game designers using artistic techniques or modes. Some games are consciously spectacles, creating a situation for audience enjoyment as much as for player enjoyment. In some situations, the games are purposefully challenging what a game is, and what it means to play.

### **Game vs The Everyday**

Much of the literature surrounding pervasive games stakes a claim for their involvement in the "everyday" nature of reality, in contrast to seminal game studies literature that usually claims a separation between play and everyday activity.

### **Technology Mediation vs. Physical Experiences**

This is the tension between mediated and immediate experience. What role does technology and physicality play in both the mediated and the immediate?

### **Hybrid Reality (The Real vs The Virtual)**

Where do these games sit in the mixed up definitions of the real, the virtual, the fictional, the physical? What challenges do they make to these definitions? Where is the game taking place? What mixture of realities makes up the game space?

### **Resistance vs. Play**

The tension between games in urban space being a resistive or dialectic practice, or simply “just good fun”.

### **1.1.2. Chapter 4**

In Chapter 4 I pointed out that the dominant socio-cultural driver for pervasive game practice was participants’ historical engagement with, mostly, digital gaming culture. Because of this players want to be “in” games, making pervasive gaming practice a physical reflection of deep cultural engagement.

Participants’ deep involvement with digital and non-digital games, and the surrounding cultures, give them a cultural fluency, or cultural capital, that they enjoy using. Partly because of the historical nature of the development of this cultural capital, and partly through a broader framing of games as childhood activities, these games have a strong sense of nostalgia for the players. There is a significantly high level of retro-referentiality that gives the games their specific character, and one that the players enjoy.

Paradoxically, although there is significant historical referencing and nostalgia, the character of the community is forward facing. They are concerned more with experimentation and development. They wish to take part in experimental and challenging games.

Also important is the social reflection of the liminal character of the experience of pervasive games. Players experience a strong sense of 'communitas' (Turner, 1995); the feeling of a strong bond with the other players. This bond makes social interaction easy and there is an aesthetic enjoyment of the inherent sociality. Both because of this, and also because of the nature of festivals (as I discuss in Chapter 7), the games are necessarily social, and although are often simple games on the surface, are usually socially rich games. The tensions that emerge from chapter 4 are:

### **Nostalgia vs. Experimentation**

There was a strong sense of nostalgia for childhood and play that symbolically references the past. This is paradoxically set against the backdrop of experimentation with game design, physical experiences, and new technology development and use.

### **Game vs. Experiment**

Both the players and designers desire to be experimental and challenging. So there is a middle ground to be walked between being experimental enough, but still being able to deliver a playable game-like experience.

### **Simplicity vs. Depth**

Is the game kept simple and accessible, or does it contain references, language or concepts that come from other games and other cultural phenomenon? How can design provide valuable experiences for players with considerable domain specific cultural capital versus people who may just drop in?

### **1.1.3. Chapter 5**

In Chapter 5 I began the discussion of the underlying materiality of pervasive game practice, and the way in which the everyday nature of the materials and the especially embodied character of gameplay shape the games. Returning to the point made in the previous chapter about the underlying referential nature of pervasive games, I looked at the ways in which this referentiality occurs in both symbolic and material ways, and that in fact an analysis of the two must be made at the same time. Attempts at symbolic referencing must use different materials from the originals (not the least in the obvious way of translating the digital to the physical). The ways in which then the gameplay and meaning emerge from these new combinations and juxtapositions gives a depth that goes beyond just a simple translation.

The games themselves are also very mutable and malleable and players enjoy exactly this aesthetic. This is the initial conditions versus the play, the expectation versus the reality. How do things play out in the game as it progresses versus how they started? Effectively being able to play with the games themselves, to mould and change them as gameplay progresses. This was termed **reconfiguration** in chapter 5. Reconfiguration is a natural product of play, but the opportunities for it are set up through the game materials and design. It is through this reconfiguration that many of these tensions discussed in this section resolve themselves.

Additionally, the games have a very human constitution. They are hybrid machines of human, physical material and sometimes digital. The exploration in gameplay has tended to move away from experiments with technology to experiments with social gameplay, where the sociality that occurs is often with and through the underlying materials, as much as human-to-human.

This is the tension between **Human and Game-Machine Hybridisation**. What elements are human and what are machine? How do the pieces fit together? Why the necessity of one or the other? How does the use of humans as game machinery change the aesthetics of the experience?

#### **1.1.4. Chapter 6**

In Chapter 6 I moved on to discuss the actuality of the materials, what they bring and how they shape pervasive games. I discussed the agencies that these materials bring with them; how they shape the games and impart a particular aesthetic to gameplay. Cardboard is a route into understanding the prototypical and craft feel of many of the games. Moustaches are a liminal prop that supports engagement and involvement. The uniqueness of the streets and urban environment give the games an unreproducible quality.

#### **Human versus Material Agency**

A key tension to emerge from this work is the relationship between human intention in the design process, the use of the technocultural imaginary, and the agency that materials have. This is one of the core tensions; that of what *is* versus what *should be*.

#### **Locativity**

Each playing of an urban or pervasive game has a unique relationship to the specificities of the urban space in which it is played. In some cases the game may be portable (playable in different locations), in others not (designed for exactly that place). In either case, there is a fragility in the relationship between the specific urban space each playing is situated in.

## **Liminality (The Physical versus The Imaginary)**

There is an inherent tension between the material and the imaginary, and negotiating this is key to creating liminal experiences. There are relationships between the fictional and the real that allows both to be subjectively hybridised.

### **1.1.5. Chapter 7**

In Chapter 7 I discussed the less obvious materials of pervasive gaming. The invisible, non-physical and intangible elements that shape the practice. Even more so than the other materials these are overlooked, precisely because they are not directly observable. They form the background to the practice, but even if they are intangible they are still material. I explore three of these: festivals, rules and technology.

Festivals, and similar events, shape the games that are played at them. They provide the opportunities, but also the constraints that have driven the design trajectory of pervasive game practice. Pervasive games, as festival games, can only be played at festivals, can only exist within those situations. Aspects - such as the scale of games, the style of play or the level of technology use - are all affected by the necessity of a game being able to be run, and run reliably, at a festival.

Because of the festival context, the games have to also have understandable rules so they can be played and enjoyed within the time constraints. This creates a pressure to be simple and straightforward, but also to use rules, processes and structures for games that players are already aware of. Although some games may



be symbolically referential to other games, digital or otherwise, they are also functionally referential. In doing this urban and pervasive games at festivals become heavily referential and intertextual.

Technology also becomes an invisible shaper of pervasive gaming practice, both at festivals and in other games not at festivals. Technology is a shaper of games that are both technically facilitated, using high-tech equipment or infrastructure as well as games that do not seemingly involve technology. The practice of pervasive game design was shaped by technology experiments, and designers have a keen interest in technological solutions. The human-material hybrid nature of pervasive games makes invisible technologies visible, the effects are felt as materialised mediators in experiences, or as oscillating present-at-hand tools and interfaces.

### **Invisibility**

There is an underlying tension in the types of technology and its visibility. There is a politics in negotiating this invisibility that pervasive games necessarily engage with.

### **Constraint and Variation**

There is a tension in conforming to the structure that an event such as a festival provides, or challenging this entrainment. In other events and situations, there will be other structures to either conform with or push against. This is the tension between using and challenging existing patterns of experience.

## **Simple versus Complex Rules and Structures**

The tension in creating a simple, easy to understand game and one that may have replayability, strategic depth and possibly contain narrow cultural references.

This is related to the tension emergent in chapter 4, **Simplicity vs. Depth.**

## **Technology versus No Technology**

There has been a constant tension between wanting to experiment with technology and to create something cost effective and playable. This emerges through the challenges of technology development and the realities of experience design in the physical world. This is related to the tension in chapter 2 -

**Technology mediation vs. Physical experiences.**

## **1.2 Emergent themes**

In the seventeen tensions identified above, there are six common themes. These six themes emerged through a simple keyword coding, bringing tensions identified in each chapter together under common linking concepts. Most of the tensions link across two themes; crossing over and bringing the themes themselves into tension. The six themes are:

- The concept of **'game'**, and oppositions to this.
- The nature of **experimentation.**
- The nature, presence and **practice of technology.**
- Contrasts with various **rhetorical constructs of 'the real'.**

- The idea of **the everyday**.
- **Design and agency**. The interplay of materials and intentions.

These themes ultimately answer the research question of the ways in which pervasive games are technoculturally situated and the ways in which that situation shapes their experience. My research shows that pervasive games are constituted through these six themes and the interplay between them. It is because of this that experiences emerge in sometimes surprising and unexpected manners. The lens of these themes and tensions, and their relationships, provides an explanatory framework for reading the trajectory of pervasive games.

### **1.2.1. Game tensions**

One of the main themes is concerned with the very concepts of 'game' and 'play'. These set up contrasts between the idea of a game and other situations or phenomena, such as spectacles, performances or the everyday. This links the following:

- **This Might Not Be a Game** (game vs not game).
- **Game vs. The Everyday**.
- **Play vs. Resistance**.
- **Game vs. Experiment**.
- **Rules and Structures** - (simple vs complex).

Are pervasive games an experience for players, or a spectacle for all? Are pervasive games in fact truly games or some form of collaborative performance? Do pervasive games take place in, or make use of, the everyday? As discussed in chapter 2 these events often challenge the nature of what a game might be, pivoting the experience into a collaborative performance of another ilk.

The tension of game vs. performance is a challenge to both the game-like nature as well as the performance nature of pervasive games as live events. The results in Chapter 4 followed up on this by showing that players came to game festivals seeking games. When challenged with experiences that weren't what they were expecting, then they were dissatisfied. Having said that, in my observation of urban games, the spectacular aspect of the experiences is vitally important, whether that be as a spectacle for the participants or for an audience. As pointed out in chapter 7, the very nature of festivals, as a structuring factor, pushes games to be both game and spectacle, as well as physically embodying the sensuality of the spectacular. Urban games certainly are sensual games (in that they engage all senses), and the performance and the spectacle are part of this physical and sensual aesthetic. There is certainly a tension between being a game and being a performance, but this tension manifests itself as a hybridity, or a dialectic, not an opposition. In generalising I would argue that pervasive games are only understandable as performance first, then as game.

In chapter 1 I discussed the fundamental problems with constructing games as a category separate from everyday life. In the writing surrounding pervasive games this relationship, or separation, is played with. The tension between the two is consciously created and then straddled. Some of this separation discussed in the literature between game and the everyday is trying to establish games as something outside of the everyday, and thus pervasive games as challenging the nature of games and gameness. Some of this separation is about play in the so-called “real” world, the physical world.

Throughout my research, I have seen that in the vast majority of urban games, technically enabled pervasive games, or related artistic practice such as the work of Blast Theory, the participants know they are playing a game. They know they are taking part in an event or activity that is not part of their *everyday* life. They are having an ‘Experience’, not just experiencing (Bruner, 1986). As discussed in chapters 5 and 6, much of the material of urban games is everyday, seemingly mundane, but enchanted with more meaning through participating in the game. In chapter 7 I briefly discussed the relationship of urban space as a material contingency. Part of the issue in this tension is that the notion of the everyday is both complex and wielded differently by different authors. Sometimes it is an everyday synonymous with the so-called real world, the physical world. Sometimes it is referring to a non-game background to games. Sometimes it is referring a more academic concept of the everyday.

It is easy to try and conjure up a homogenous and clear assemblage of the everyday through references to the major theorists on the subject such as de Certeau<sup>51</sup> and Lefebvre<sup>52</sup>. However, even their work showed that the everyday that they refer to is a rich, dirty and messy mix that defies definition. A key aspect of both authors is that their everyday space is a resistive space, a combative space, underpinned by both Marxism and a Hegelian dialectic. Everyday life is negotiated through relationships between large-scale ideologies and everyday spatial practices of making do.

Which begs the question, are pervasive games situated in this form of resistive space? What are the kinds of tension that games would have if designed and played in such a resistive space? This opens up the tension that has been alluded to by many authors references to situationism, the *dérive*, *détournement* and psychogeography (Flanagan, 2009; Hjorth, 2011; McGonigal, 2006; Montola *et al.*, 2009; de Souza e Silva and Hjorth, 2009) as well as using the concept that

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51. For de Certeau (2002) everyday life is a tactical “making do” that works in and against the dominant strategies, the networks of power relationships that structure and entrain society.

52. Lefebvre’s core tenet is that “(Social) space is a (social) product” (1991b, p.26). Our space is both social, and also produced socially. For him social space is comprised of three concepts and the relationships between them. First, *spatial practice*, that “the spatial practice of a society secretes that society’s space” (1991b, p.38). Second, *representations of space*, space conceptualised and encoded, the space of scientists and engineers. Third, *representational spaces*, the directly lived space, experienced through its images and symbols.

games are inherently good; a mode of escapism or a mode of personal development (see chapter 2). It opens up the relationship between games as resistance and games as fun.

My experience of urban gaming has been that it has been largely focussed as a practice of creating 'fun' experiences. That is not to say that many games are not consciously questioning the politics of the everyday and urban space. *Gentrification: the Game*, that I have discussed a number of times through this thesis is one example. It is consciously evoking a set of politics and sets out to question ideology. However, this would only seem to occur at the symbolic and narrative level, not in the experiential level; making use of the rhetorical power of games to bring a message across (Bogost, 2007; Frasca, 2007; Sicart, 2008). Mary Flanagan (2009, Ch6) has discussed the different approaches that urban, or pervasive, game designers use in contrast to that of artists adhering to situationist and psychogeographical tradition. Psychogeographic artists have a tendency to make their audience feel uncomfortable, challenged, different in the juxtapositions between space, memory and activity. Whereas urban gaming in my experience leans very heavily towards making 'fun' experiences, not uncomfortable ones. This is backed up by the example of the game in chapter 4.4. In the example I used, the players were made to feel uncomfortable. It did challenge their boundaries, pushed the experimentation, and so simply made it less "fun".

Flanagan is also concerned with this as a form of “entertainment colonisation” (2007, p.6), taking over the everyday space of one set of people for the pure entertainment of another. This raises questions of empowerment in these situations and this tension of the game vs the everyday becomes a politically charged tension.

Games, especially digital games are now everyday activities. The experience and use of them is ubiquitous and, in the language of de Certeau, they are used as tactics of ‘making do’; used to pass time, to escape, to create one’s own space. They are a part of the experience of everyday life. In contrast, urban games, as events, are an *Experience*, with a capital ‘E’, they stand out from the regularity of lived experience (Abrahams, 1986). A game such as Atari’s *Kaboom!* are essentially quotidian; simple, repetitive, common. The recreation at *Come Out & Play* is a stand out event. So in this sense, pervasive games also create a tension, or in this case maybe an opposition, between the everyday nature of games and the standout, spectacular moments of live events, festivals and the full body sensual nature of physical experiences.

So the tension between pervasive game and the everyday is different from what it would seem to have been constructed as. In the writing around pervasive games, there is a preciousness about games as a form, that games are in some way special. However, this research has shown it is not about games as being separate from the everyday, the real world in any sense. Rather it is in the detail of the hybridity of pervasive games as games played in the physical world, with



everyday objects and spaces, and as standout, memorable (liminal) experiences. It is the nature and resolution of this that points to the ways in which we fundamentally change our relationships to spaces through the play of pervasive games. It is the resolution of this tension that creates the frisson and joy of re-experiencing the everyday. It is the creation of moments and events that re-interpret the everyday and give us pause to re-evaluate our relationship to the everyday space around us.

As these tensions cross themes, I take 'game vs experiment' and discuss it in the context of the next thematic area.

### **1.2.2. Experimentation**

The concept of experimentation summarises another key theme in the practice of pervasive games, whether this be avant-garde practices, technology development, or playing with the concept of game-like experiences. These tensions are all ways in which the practice challenges the status-quo. In this theme are:

- **This Might Not Be a Game** (game vs not game).
- **Game vs. Experiment.**
- **Nostalgia vs. Experimentation.**
- **Technology Mediation vs. Physical Experience.**
- **Technology vs. No Technology.**

Continuing from the previous section with the “this might not be a game” tension, this raises questions about why the nature, or conceptual definition, of games are being challenged. People from a variety of disciplines: designers, technologists and artists played with pervasive games, creating a wide range of experiences, often to improve their own practice in their home discipline. Game designers got to play with different game forms, and bring insights back to digital games. Theatre practitioners found new ways of interacting with and managing audiences. Experience designers got to understand physical experiences first hand. And, in what might have been the start of the practice, computer scientists found new ways to test their technology in the wild. Pervasive games, as a wide church, provided room for many different practitioners to experiment with physical experiences, urban play and the design of fun.

Having said that from a practitioner point of view, pervasive games were a practice of experimentation, from a player point of view they evoked and played with a strong sense of nostalgia. The range of experiences, both game-like and playful were often drawn from childhood play styles or game experiences. For example, games were often based on chase and tag style mechanics or treasure hunts, and many drew on the symbolism of 80s and 90s digital games, as well as traditional board games. Interestingly the notion of ‘gameness’, the quality of something feeling like a game appears to be strongly informed by childhood

experiences. So even if pervasive game designers were pushing with their own, home practice, they needed to, and did, provide experiences that were appropriately 'game-like'.

Although, as I have stated earlier, the practice of pervasive games started as technical experiments, the trajectory, however, has followed a significantly less technical route. There has been a tension in technology and experience experimentation. On one side there is a desire to experiment with technology, on the other is the desire to experiment with physical experiences, coupled with the need to deliver playable, enjoyable experiences. These forces have certainly pushed the technology from urban and street games that were the primary focus of my ethnography. Where technology is still used, the game forms tend to normalise with particular types. For example, location-based GPS has become associated with persistent, asynchronous, mobile app location-based games such as *Shadow Cities* or *Ingress*. These games have picked up and developed the same underlying model of competition and capture of locations that were originally created for *Bot Fighters* at the turn of the century (Sotamaa, 2002).

The types of experience, the forms that have emerged, sit at the juncture where this practice of experimentation mixes with the material nature of what is being experimented with. That material being things such as the space around us, physical materials or technical elements.

As discussed in chapter 7, technology is an invisible background to the practice, whether it is present or not. The experimental tension of technology vs no technology segues into the next thematic area.

### **1.2.3. Technology tensions**

Although most of the experiences I have been involved in, playing and observing, have had low levels of technical facilitation, technology as a background and shaping force has always been present. So, unsurprisingly, technology is another common theme in the tensions that have emerged. These tensions are:

- **Human and Game-Machine Hybridisation.**
- **Technology Mediation vs. Physical Experience.**
- **Technology vs. No Technology.**
- **Invisibility.**

Pervasive games are often contrasted to digital games, or screen-based media experiences, in that they require physical activity, whereas digital games don't<sup>53</sup>. The rhetoric of this can then be seen as operating within the logic of *Remediation* (Bolter and Grusin, 2000). Both urban games, and pervasive games in general, are then a remediation of digital games; reworking, repackaging, folding one medium in the form of another. Given the logic of remediation, a tension itself between immediacy and hypermediacy, pervasive gaming might be seen as an attempt to make digital games more immediate. One where the physicality of the games

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53. These rhetorical moves ignore the inherent physicality of interacting with digital games.

delivers a more direct experience, the technology mediation appears to be removed. Given the technological trajectory of urban games, that is to remove technical elements from experiences. It would seem that this remediation process, the seeking of the immediate, is removing the technical elements that would make urban games appear as a technical medium, simply reverting them to physical experiences. The ultimate in an immediate experience. But in these immediate experiences, the technical elements leave gaps, are forced into the background or to the edges, making invisible.

The emergence of these gaps during experimentation and design is what has led to the tensions of 'technology vs no technology' and 'technological mediation vs physical experiences'. Continuing from this, as discussed in chapter 5, urban games have moved to appear less like mediated experiences, and more like low-tech human-material machines. They have ended up as hybrids of people (players, designers, volunteers), prototypical materials, commodified digital technology and urban space. In doing this they are very unlike other cyborg-hybrids which appear as blackboxed, rolled-up media objects where there is a fuzzy distinction between human and technology (Latour, 1999; Giddings, 2007). Instead, they have more of an appearance of visible, complex, cybernetic machines; people, objects, devices, and the background technical infrastructures obviously interoperating.

It is the designer's implicit understanding of the materiality of the experiences, the hybridity of construction and the relationship between technological mediation and physical experience that has moved the practice away from technology development to experience experimentation. I will discuss the tensions of material agency and designers' desires further in the section below (2.2.6) on design and agency, but it is this move away from technology experimentation that creates the dialogue between visible and invisible technologies.

So the practice of pervasive gaming contains an inherent criticality through material encounters with hybrid structures of technology, lived space and physical game processes. Through various forms of the practice different aspects of technology, whether that be objects, infrastructures or interactions are made visible in the same political and phenomenological manner that Farman (2013a, 2013b) discusses (see chapter 7). These are encountered through the dialectic of play rather than didactic or other artistic forms. The design of any particular game inherently addresses the politics of invisibility - whether it seeks to hide or reveal.

In the next section, I continue the thread of invisible technologies. It is through the interweaving of the physical world and invisible technologies that the hybrid realities of (especially technical facilitated) pervasive gaming are constructed.

#### 1.2.4. Confusion about “reality”

The fourth theme is made up of the tensions that are concerned with the mixing, or hybridisation, of realities. These tensions are:

- **Hybrid Reality.**
- **Human vs. Machine.**
- **Technology Mediation v Physical Experiences.**
- **Liminality** (the physical vs the imaginary).

In all of these cases “the real” is somehow predicated to be the opposition of something else; i.e. the virtual, the digital, the extraordinary or the artificial against “the real”. Somehow what is “real” is more real than the other. When everything is considered to be fundamentally material these distinctions begin to lose their power. “The real” is based on viewpoint. What is more real, the sidewalk being played upon, or the digital signals that make up the imaginary world being displayed onscreen?<sup>54</sup>

Throughout this work there are two seams of working with reality (which are not entirely separable). The first is the theoretical and ethnographic one. Namely, that this was a study to examine the ways in which people construct and differentiate their realities. The results of that are an understanding of the ways in which these realities are materially and socially constructed. The second has been the concept

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54. In *Playing With Non-Humans: Digital Games as Techno-Cultural Form* Seth Giddings (2007) discusses various views on simulation and their relevance to game studies. His argument in some ways parallels this one in that, even though simulation is usually constructed to be in opposition to “reality”, simulation is still always real.

of mixed-reality, or more properly hybrid spaces (de Souza e Silva, 2006a); whether those be a technically facilitated experience that mixes physical activity with technical mediation, whether they simply be interfaces, or be virtual worlds. In this, the concepts of relational space and hybridisation are important in understanding the experience of pervasive games.

Generalising this point beyond the technical games, it also can include all manner of experience in which the physical is mixed with the fictional as well. At the very base level these are the same. The human psyche can conjure wonderful ways to hold disparate, and even conflicting, ideas in the non-game and non-pervasive worlds, so it should not come as a surprise that people can suspend their disbelief and immerse themselves in subjunctive worlds. I would go beyond the hybrid spaces that de Souza e Silva discusses (de Souza e Silva, 2006a; de Souza e Silva and Sutko, 2008), a technically inscribed one, and work with a hybrid reality that is based on the idea of *subjunctivity*, the conjunction of “as if” worlds. This subjunctive experience is not implicit in technological experiences but is instead rooted in the hybrid relationship between the material and the imaginary, and the ways in which this relationship is designed into the experience.

However, in technically facilitated experiences it is the fundamentally material affects of technologies as visible, and invisible, technologies, that create new opportunities for these hybrid realities. It is the three types of invisible technology that enable this; the not directly sensed nature of radio waves, the ubiquity of mobile interfaces, and the hidden technical infrastructures (as discussed in



chapter 7). As Kitchen and Dodge point out in *Code/Space* (2011) new softwares create new spaces, and fundamentally shift our relationships and perceptions of the physical world.

Liminality takes on a different sense when reality stops being the stable opposite to the seemingly less real. Rather than liminality being another opposition to reality, it is a stance or state. Liminality is, as discussed in chapter 1, more of a mode, or process of change. An anti-structural break from regular space, as Turner points out (1995), liminality is not the structure of the everyday, but still has its own sense and order. Without this internal structure, or sense, liminality would return to the everyday. Liminality requires its own rules of play, a space to which games as a form are perfectly suited. Pervasive games play in this space of anti-structural breaks, creating liminal processes, new forms of temporary hybrid spaces, with their own internal logic, during play. They use the space of the everyday, but operate with a unique perspective.

### **1.2.5. The Everyday**

Continuing with the concept of liminality I will discuss its relationship to the theme of the everyday in this section. The tensions in the theme of the everyday are listed below. I have already discussed the first three above in other sections:

- **Invisibility.**
- **Game vs. Everyday.**
- **Play vs. Resistance.**

- **Liminality** (the physical vs the imaginary).
- **Locativity**.

From a variety of angles it would appear as if pervasive gaming is situated in the everyday. The practice's heritage in ubiquitous computing gives it a concern for creating experiences in the everyday. Generally, the game's physicality and locations places them in urban space and other everyday situations. The rhetoric of designers and academics discusses them within the academic critique of the everyday. However, even if pervasive games do exist in, what is ostensibly, a mundane space, my argument has been throughout that the practices exist in tension with everyday life. They provide standout experiences, not everyday experiences. As discussed above, the concepts of game and play create a tension with the everyday. Additionally, I argue that there is another force acting on the practice and that is their liminality; this otherworldly mix between the physical and the fictional, the actual and the imaginary.

In pre-industrial society, the distinction between the structured everyday social existence and the liminal space of rituals may have been quite marked. Many authors, including Turner (1979, 1974; Turner, 1983), have discussed the application of liminality to other spheres (notably performance studies). Others have noted the liminal character of certain aspects of "everyday" life in contemporary society (Matthews, 2003; Shields, 1991), or that the very nature of modern society is liminal (Szokolczi, 2003; Szokolczi, 2013; Thomassen, 2014).

As Szokolczai (2003) points out the character of modern life is seen as a series of transitions between states; travelling, changing social role, being in different spaces. In contrast to pre-industrial society, people in modern society are constantly slipping in and out of liminal modes as people change between these states, leading to the overall character of modernity being liminal. The modern world is filled with liminal spaces, such as airports, bus stations, tourist destinations, and importantly the street as a transitional travel space between destinations. It is in these liminal zones that pervasive games are set. The practice sets itself up in the spaces, such as the street, where the liminal and the everyday naturally collide. Rather than pervasive games simply being either engaged with everyday space or as liminoid experiences, they instead are involved in this mix of everyday and the liminal.

Technocultural experimentation is itself a liminal space. Innovation and technology development is about creating different ideas, new structures, breaking with the old and creating the new. The logic of experimentation is then like Turner's anti-structure when compared to the structure of normal development. It has a sense to it, but not the sense of normal development. It requires a break with the norm, a stepping outside of regularity. Also as Thomassen (2009, p.20) points out personal agency is foregrounded in liminal periods. One doesn't rely on the societal doxa (socially self-evident belief) to

structure one's actions, one is freer to experiment behaviourally. So experimental design in this sense is very much a relationship between personal agency and the agencies of the materials that one is working with.

### **1.2.6. Design and Agency**

Where does experimentation leave off and design begin? They are both common concepts in the process of working with material contingencies, figuring out how to make things, to structure the world. The tensions under the theme of design are:

- **Human Agency vs. Material Agency.**
- **Nostalgia vs. Experimentation.**
- **Constraint and Variation.**
- **Rules and Structures** - Simple vs. Complex, Simple vs Depth.
- **Reconfiguration.**

In the introduction, I discussed how design negotiates the relationship between the technocultural imaginary and the materiality of the physical world. From either a media studies or design point of view, there is a productive area in this tension that is worth exploring. This relationship is one of human agency versus material agency, not as an opposition, but a set of inter-relating forces that are navigated. This navigation occurs during the design process, the designer's imagination working with the material they are working through; whether that be cardboard, rules or moustaches, or such things as hardware and code.

Designers respond to the various contingencies that shape their practice, such as nostalgic representations, the structures of festivals or the simplicity required for the systems of rules in the games.

In most cases of urban gaming, the experiences are not “professional”. They are rough, ready, quick makeshift; a bricolage of ready to hand materials, existing structures and human involvement as the literal glue. This is the designers, makers, artists, technologists’ reaction to the material nature of the technocultural. These responses to the material and cultural conditions of the game are a strategy, a way of dealing with the structures and contingencies, but with agency, a sense of play, a feel for the “game” (Bourdieu, 1977). They are material strategies, using prototypical, quick, bricolage-style approaches to the practice. Or what I have termed ‘lo-fi design strategies’ because of their use of, and similarity to, low fidelity prototyping approaches used in many forms of technology development.

These lo-fi strategies then have a direct impact on the aesthetics of the experiences. They define the aesthetics through the materials used and the way the designers are directly involved in the experiences. They are efficient and cost-effective and reflect the realities of the situations the games are designed in and for. The nature of this design approach is part and parcel of the experience. It brings with it a craft, visual and tactile, aesthetic and a present, human element. Technology, where used is readily available, but often novel or quirky, or used in an unexpected manner. This returns us to the technology tensions, which again

impart their own aesthetic through their use, misuse or juxtaposition. The specifics of the relationship between design and the materiality of pervasive games forms the aesthetics that emerge.

These strategies that emerge through the practice are perhaps the crux of this research. They emerge in response to the material context and contingencies of the game design that is taking place. They use available, prototypical materials to create liminal and subjunctive experiences. In the Serres' sense of navigation, they are charting courses through the shifting ice floes of experimentation, innovation and design. An understanding of these strategies as navigation in both this and a wider context, makes use of the key themes of this thesis: technoculture, material, practice and liminality.

## **2. Wider Implications**

Although this research has been about experimental gaming practices, the core concern of this work has been an appreciation of what technoculture is, and more importantly how to study it. Technoculture being the phenomena and situations where an understanding of culture must include the forces of technology, and an understanding of technology must contain the forces of culture. This thesis draws on a number of disciplines for influence, notably, cultural studies, Games Studies, Human-Computer Interaction and Anthropology and hopefully insights from this research might feed back into those academic areas. This understanding of pervasive games, and this means of approaching

them, could find fertile ground in theatre, festivals, live events and other artistic practices. Indeed, in any area where experience and technical experimentation are occurring. It also provides a set of methods and a basis for further technocultural research in experience design.

First I turn to a short reflection on the concept of technoculture as it has emerged through this research. Then I will discuss three themes (Material, Liminality and Practice) that have pervaded this research.

## **2.1 Technoculture**

At the heart of the concept of technoculture there is a false tension between technology and culture. This tension occurs in both a material and conceptual sense. Studies of either are predicated on the knowledge that the other is always a significant factor in understanding it. The relationship between them is tense, and there is the constant debate between technological and social determinism. Because of this relationship between technology and culture, a new approach to technocultural phenomena, such as pervasive gaming, is required. One that doesn't prioritise either text, culture or object.<sup>55</sup>

Emerging from this is an understanding of a technocultural "form" or "text", such as pervasive gaming, that is not predicated on, or identifiable with, text, structure or genre. Instead, it is better to understand technocultural form as a practice

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55. In literary influenced cultural studies, the text becomes a locus of study. Even in fields such as game studies, where an, often, anti-literary ludological stance is taken, the text, or game, is still the pre-eminent locus of study.

(Bourdieu, 1990; Certeau, 2002; Bourdieu, 1977), that links material with people. It is an assemblage of play, combining all the various actors, human, non-human, social and institutional (Taylor, 2009b). However, the practice is not simply concerned with the gameplay but opens out into networks of relationships that extend beyond the moment of play. As discussed in chapter 4, the cultural situation of urban gaming has taken on a meta-textual flavour, relying on players' and designers' existing knowledge and dispositions. People wanted to play games about games, play games with games, and play in games. In some senses, this is akin to fan cultures and extended universes (Jenkins, 2006a; Jenkins, 2006b), where literary text, digital media and community collide.

Technocultural studies then needs a set of methods, approaches and techniques for looking at this assemblage of culture, technology and material that are informed by current trends in "new materialism" (Parikka, 2012a; Van der Tuin and Dolphijn, 2012). The three aspects of this are flat ontologies, flux and reconfiguration and the method of tracing material relations.

Firstly, all new materialist approaches propose a flat ontological status for everything in the technocultural assemblage; removing the primacy of the human individual as the force of agency and the locus of investigation. Throughout this thesis I have used this as a way to show how the material, physical or not, have shaped the practice of pervasive gaming in unexpected manners. That games, experiences and the communities around these have emerged for good reason,



but not necessarily the expected reasons. These methods don't stop at the boundaries between human, object, technology or nature, but in crossing them understand that there are methodological and cultural tensions between them.

Secondly, these approaches examine the assemblages in flux, how they change and maintain themselves in response to forces (Latour, 2007). In chapter 5 I introduced the idea of reconfiguration as a way to look at how experiences develop during play; how the game agencies help the experience find new stable points or to progress in new directions. These reconfigurations occur at any scale, in a single game, or across the development of a global practice. In chapter 7 I also discussed the ways in which the festival structures influenced the shape of street gaming.

Thirdly, as a practical method, these approaches track and trace the movement, relations and powers of "stuff" (Miller, 2010). They don't look to people first but instead pick apart the fabric of material relations that clothe the human, cultural encounters they ultimately seek to understand. Throughout this thesis I have turned to the "stuff" of games to show how materially grounded these seemingly immaterial experiences are. And although physical games would appear to have more physicality than other technocultural experiences, they all do have an underlying material nature that can be picked apart and traced.

## 2.2 Material

An understanding of technoculture must be grounded in the concept of materiality. This brings with it a particular set of methods and approaches.

Mixed up in the term 'technoculture' is another apparent dichotomy between technology and culture. Technology would seem to be inherently physical and culture seemingly ephemeral. However, both are intrinsically material. The practice of culture is firstly embodied and then replicated through material and technology. As the title of an article of Latour's nicely puts it, *Technology is Society Made Durable* (Latour, 1990). In this, he posits that there is fundamentally no distinction between technology and society, and social relations occur between things as much as between people. The dividing line between what is simply material and what is technology is very often fine and our natural affinity to use the things around us is fundamental to what it means to be human.<sup>56</sup> In chapter 6 I described some of the non-technical materials encountered in pervasive gaming. The dividing line between the "technology" that involves electronic and digital devices and the technology that provides, and allow us to work with, cardboard is very blurry. We cannot escape an already existing technological background, as well as a cultural one.

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56. It would then seem like there could be an argument to call this concept "material-culture" rather than "techno-culture", however the term already has a very specific meaning and huge traction within anthropology. In addition these insights are intended to be aimed at the study of cultural and technological (in the common sense) phenomena where either force cannot be truly disentangled. Which, arguably, is then all cultural phenomena in the contemporary world.

As said above, technocultural studies needs a set of methods that are informed by trends in new materialism. Because of the historical tendency to prioritise texts and human relationships, much of the work in recent materialist studies has started with objects and the physical stuff around us. Starting there delivers fresh insights, and at this point is a practically productive place to start for technocultural studies.

This isn't an easy task. As Daniel Miller says (2010, p.53), "stuff doesn't shout". Objects have a humility about them that makes this tracking and tracing difficult. Especially in our contemporary world, where much of these materials and their relationships are invisible, hidden or overlooked as I have described in chapter 7.

A final point on material. One of the interesting insights to emerge from this research has been the relationship between the material and the imaginary as influenced by the work of Parikka (2012b) and Balsamo (2011). It is the tracing of intertwined agencies between the physical and the imaginary, between technology and human that help to understand technoculture and the practice of innovation. Bringing these four ideas together is not to say that the physical is equated to technology and the imaginary to the human. Indeed the imaginary is constructed through both human and technology, as is the physical. If there is a matrix drawn from these four types, then it is in the area of the technological imaginary that the most different and unique insights occur. The imaginary here is not a Lacanian imaginary, existing purely in the psyche. It exists beyond individuals and is shared through constructs, artefacts, fictions, plans and

rhetorics. It extends through experimentation and design, some of which become “real” some of which become what media archaeology calls imaginary media; the weird and impossible (Parikka, 2012b). This relationship between the imaginary and material is core to the practice of creation, design and innovation, in both technology and culture.

This relationship between the imaginary and the physical is a liminal one. It is resolved through a process of liminality, a space away from the everyday flow, a space where multiple possibilities can first exist and then be resolved. This liminality can occur as part of the design process, or, more obviously, as part of the play process as described in chapter 5. It is the space where the expectations and desires of the designers and players works itself out with the physical reality of the objects and materials of the game.

### **2.3 Liminality**

Liminality is an important concept, both analytically and metaphorically. It comes out as an important tension that cuts across many of the themes above and it is also metaphorical for this research as a whole; that it seeks the in-between spaces, the tensions, the edges of practice; to be able to reflect on the whole. The temporal and experiential readings of liminality are an important part of understanding technocultural phenomena. There are three important aspects

of liminality to take away. First, the liminal as a general structure. Second, liminality as experience. Finally liminality as a condition of contemporary everyday life.

The structure of liminality; the going in, the experience, the coming out, can be generalised as a temporal structure for conceptualising any specific experience, as a departure from another experience, or flow, and a returning to a similar or new state. It is a way to think through any ruptures to normality. Bjørn Thomassen (2014, p.1) has suggested that liminality is as important a concept for social thought as practice or structure. Liminality conceptualises the moments where the relationship between structure and agency are fluid. It is through liminal, anti-structural, phases that these are resolved. The liminal is all about “form”, “formation” and “transformation” (Szokolczai, 2009). I have discussed the summaries of my results as tensions, and it is in liminal moments that tensions can be resolved, either through the process of design as discussed above, or through the reconfiguration of gameplay as I discussed in chapter 5.

I believe that an essential insight from using the liminal structure to analyse events is that more attention needs to be paid to the going in and coming out parts of the experience, not just the middle section. How do these breaks and transitions occur? What is happening to the technocultural assemblage when these transitions occur? A liminal analysis of experience includes the how and

why of the going ins and coming outs; the transitions, not just the middle of the experience sandwich. How do technocultural experiences create ruptures in the everyday background?

Liminality has an original spatial sense as well as a temporal one, that Turner emphasises. Time apart from the regularity of the quotidian. Liminality is also experiential. It is important to note that the character of the liminal state can either be freeing or anxious (Thomassen, 2014). It can provide a space for boundless possibility, creativity and new opportunities. Or it can be a space of too much choice, nihilism and fear of the unknown. This jumping back and forth between moments of possibility can be framed in very different ways. In my experience of researching games this is framed and facilitated as being a positive experience, but even then for some games, and for some people it hasn't been positive. In other technocultural phenomena, this liminal rupture from the everyday can instead have a very negative tone, one bringing fear and nervousness.

This is especially important when the character of modern everyday life can be seen as one of "permanent liminality" (Szakolczai, 2003; Thomassen, 2014). Our contemporary situation can be seen to be one of multiple overlapping liminal experiences of differing lengths. As Thomassen points out, that since the sixteenth century it has become part of the modern project, "play, comedy, gambling, sexuality, entertainment, violence – in short, all the most evident aspects of liminality linked to human experience – took central stage within cultural,

political and economic modernity” (2014, p.14). Liminal acts, spaces and structures dominate, bringing both their character and possibilities; the freedom and the anxiety, the contradictions and unexpected directions. It is necessary to take into account this everyday liminal background when trying to understand events and experiences as stand out liminal states. Permanent liminality is important in analysing the nature of the goings in and comings out of other contemporary liminal states.

Technocultural experiences, ones that dominate the attention and move the user into their own interaction space, then have this dual possibility of freedom or fear, and can all too easily flip-flop from one to the other. The point of break, or rupture, is the period where this tone can be controlled, but without understanding that this is required, all too often experiences jump straight into the middle liminal period, without allowing for a managed break or re-integration. The most successful pervasive games did do just this, but everyday technocultural experiences, such as social media or digital gaming, do not often appreciate the first and third parts of the liminal cycle.

## **2.4 Practice**

In addition to material and liminality, the concept of practice is helpful in exploring technoculture. Practice is often glossed and seldom problematised (Postill, 2010), however, it is a powerful concept and an aid to understanding experience. Practice theory tries to create a third way between the two

explanatory forces for social theory; do individual actions create social structures, or do social structures form individual actions? Practice theory is normally concerned with forms of societal making do and the relationships between society and the individual. However, there are two subsidiary points I wish to explore here. First practice as becoming and secondly the importance of design practices.

In the simple sense, practices are processes. They are a becoming, not a being. Technocultural forms, phenomena, events or objects can all best be understood as practices. Rather than being read as simply texts, or beings, they are dynamic events in action. Readings of technoculture, at any level, must read them as such; unfoldings and reconfigurations in a dynamic becoming. Development and change are part of their nature, they are not static. The dynamics of practice theory and the concept of liminality have influenced my reading of systems in action and was the basis of the concept of reconfiguration as described in chapter 5.

An example of this relationship between being and becoming, material and practice comes from chapter 7; about rules and rulings. Rules are the material of games, the substance that they are comprised of, but it is rulings that are the practice of games. It is through rulings that games become games. For a traditional game, the machinery of rulings are the players themselves, collaborating in the playing of the game. For digital games, the rulings are most often enforced via digital means, through the console, controller, computer,



screen. This becomes a way of reading objects in the way they are used, rather than just a semiotic analysis. Experience emerges through use and action. The relationship between material and practice then becomes very important for technoculture.

Also, a reading of technocultural phenomena, whether they be pervasive games, digital games, ebooks or websites, must also take into account all the practices through which they emerge. Firstly the design, authorship and technical practices that create them. Secondly, the practices of their use; playings, readings, consumings. Thirdly, the practices in the way they use their participants; data gathered, political and economic goals achieved. It refuses to take for granted any single, stable point of view. No single reading is sufficient to encapsulate technocultural practice. The limitations of the technocultural milieu, as well as the freedoms possible, give a broad picture of the overall practice. Throughout this work I have continuously looked to understand the material, social and cultural constraints and examine the possibilities explored by all the participants in this overall assemblage.

The concept of tensions also helps to map out this space of practice. They are a way to simply outline some core concerns in the practice. Obviously, they do not address the total richness of a field of practice. However, they are a cross-section that can lend explanatory power to why those practices emerge or change in the ways that they do.

The design aspect of this is important. Design processes themselves always resolve the tension between what is and what should be; between the singular and collective imaginary of designers and makers, and the material contingencies of the physical world. It is the agency of designers (I use this term broadly to mean anyone creating, making, authoring) in conjunction with the material contingencies of what they are working with that shape the possibilities and agencies implicit in the technocultural artefacts they create. As discussed above in the section on Design and Agency (This chapter, 1.2.6), it is the strategies that emerge from the practices of the designers that shape technocultural phenomena. They shape what they become, and they shape the aesthetics. Ignoring designers' relationship to the material they use ignores the reasons for particular experiences and aesthetics.

### **3. The future of pervasive game studies**

As I have previously mentioned, the study of pervasive games has had the character of a media archaeology. Throughout my work, it felt like witnessing the trajectory of an imaginary media. Now it certainly has the look of a medium suited to this form of historical reflection. Not quite the archive that media archaeology usually favours, as these small-scale, live events were always difficult to document. Even during my initial research, the unearthing of previous experiences already had the feel of archaeology, in the regular sense of the word. It was always a piecing together of fragments rather than being able to directly

experience the phenomena. The time of an apparent unity in any form of pervasive game practice has passed. As discussed in chapter 1, there were already different types emerging, shaped by situation, technology and audience.<sup>57</sup> Reflecting on pervasive games in 2016 does feel like an exercise in history and genealogy; piecing together the past, and tracing the threads of development. As a set of experiences, they have become influencers, precursors or myths shaping the enactments of contemporary developments.

I have kept track of many of the people and groups in the field. Of the festivals I observed closely, only one out of four is still running. *Come Out & Play*, the original is still going, but *Hide & Seek* and *Igfest* both shut down, and *You Are Go* only ever ran once. Many have shut down, moved on or changed their focus. It would appear that some have continued, or returned to, their original disciplines or careers. Some, such as Blast Theory, continue to produce work. Differentiating terms such as pervasive, urban or big games would seem to have disappeared. Games might not appear forefront across all their practices, but it forms an ever-present background. Whether this is a product of a decade of experimentation

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57. Location-based games are beginning to fit into common structures, with different thematic and story structures overlaid. ARGs were a staple of advertising and marketing, especially in TV, for a while, but the interest would seem to have waned. Gamification, after a brief period of intense excitement and hype has become subsumed into a wider, and more nuanced picture of motivational design. Urban/street gaming probably had the smallest audience of these four types, and even when there were many weekend-long festivals, it was never very large. Since the reduction of festivals and events it has a further reduced exposure.

with cultural production that held games centrally in the lens, or because of a more general cultural background of games is certainly a question worth exploring.

One of the central concerns of this thesis is whether there ever was such a thing as pervasive gaming, and therefore how to grapple with the study of an amorphous technocultural phenomena. Given the fluidity of the space, the question of what the future holds for both this practice and the study of it is not direct and clear. Rather than a straightforward trajectory of continuing research it must instead follow a number of threads that look to the application of the transferable concepts, the method and approaches. This falls in three, no doubt overlapping, areas. Firstly, physical experience design, especially where technology is a significant feature. Secondly, digital game design and studies. Thirdly, the rich space of study in the relationship between technoculture and design practice. In the next three sections I outline future directions for research using the findings and approach presented in this thesis.

### **3.1 Physical experience design**

The most important implications to come out of my research are those that apply to the design of physical experiences that involve a technological element. This design space is also the most logical continuation for the research started in this thesis. Any future work would likely be interdisciplinary and cross disciplines

such as: media and performance studies; human-computer interaction; game studies and design; experience and interaction design; as well as probably impacting on engineering and computer science.

As discussed in chapter 2, pervasive games were, in part, a result of research interests in virtual reality being redirected into so-called “mixed-reality”. There is a resurgence of interest in virtual reality and also mixed- and augmented-reality technologies<sup>58</sup>. Over the next few years there will be significant amounts of technically driven playing with reality. It is my belief that this ought to be supported by rigorous and appropriate qualitative research into the technocultural background. The themes identified in this research can help to create great, and sustainable, experiences which will augment the underlying technological research and development. I address future research opportunities in this area through the central concepts of material and liminality.

Whilst it may seem like a truism to discuss material when focusing on the design of physical experiences, it is worth highlighting the predominance of the visual. Virtual- and all flavours of mixed-reality are inherently based on the idea of screens, displays and visual overlays<sup>59</sup>. These technologies originate in the visual,

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58. As is already being seen with products such as *Magic Leap*, Microsoft’s *Hololens*, and Google’s *Daydream* and *Glass*.

59. A possible tangential sideline of research would be to examine the nature of mixed-realities based on other senses, and to compare and contrast with the visual. Experiences such as locative media, pervasive media and soundwalks have experimented with using audio overlaid on the real world for quite some time. The very notion of “reality” in VR, AR and MR would seem to be (problematically) predicated on the visual.

even if there are experiments in haptics and tactility, which may be included as an attempt to not break the visual spell of virtual reality. Through nearly twenty years of experience I have seen how most of the work of digital and interaction design is conceptually carried out in visual mediums. It occurs onscreen, in diagrams, through post-it notes and whiteboards. Sarah Pink (2015, p11) discusses both the ocularcentric nature of contemporary society and also traditional ethnographies. Participants are observers, documenting what they see, through written formats.

As I have demonstrated throughout this thesis, an approach that looks to the material is vital in helping us understand the aesthetics of physical experiences involving technology. This material is often invisible or intangible. It can become enchanted and exert flavoursome agency. It can also play with its human actors and reconfigure into more stable hybrid structures.

In its infancy performance studies embraced liminality and ritual processes (Schechner, 1985; 1986; 1995). The space and experience of performance was originally theorised through Victor Turner's work and had been described as being between anthropology and theatre (Schechner, 1985). Due to its interdisciplinary nature it has borrowed far and wide over the last forty years and ritual and anthropology no longer form the core. However, I believe that the liminal process and other insights from ritual studies such as the subjunctivity

concept of Seligman et al (2008) are very relatable to physical experience design. These aid in understanding both how to effectively mix realities and some of the unique affects attributed by participants to the experience of mixed realities.

I have also successfully used this framework in a separate project to gain insights into technology-enhanced immersive theatre (Dixon et al., 2012). Again uncovering, through ethnography, the liminal aspects and material contingencies inherent in contemporary technocultural design practices. Apart from the obvious ritual props of masks and processes for separating from the everyday it also examined the detail of the many objects in the performance and architectural elements, such as the stairways, to gain insight into the aesthetics. The process mixed my own experience as a player/participant, observations and interviews with other player/participants, as well as engagement and interviews with the actors, crew, directors and technologists; following all actors (in the ANT sense), and looking for the important, invisible materials.

Applying this style of ethnography to inform physical experience design (and related creative works) is a clear direction for future research. The intention to be involved iteratively, or in parallel to, design activities. Although in the example above it was applied to immersive theatre, it can equally be applied to a range of more technically facilitated experiences such as virtual- or mixed-reality (as mentioned above). This thesis has presented a very in-depth and long-term study, but the sensitivities and approaches can be applied in a more lightweight manner and would deliver insights quickly into a design process. At the very least

exploring the materiality of the intangible and investigating beginnings and endings of experiences are two simple routes into deeper understandings of the technocultural context of experiences.

### **3.2 Digital games**

This research also has a number of ramifications for the design of digital games and provides possibilities for the future academic study of them. Some of which are currently being addressed by designers and researchers, others certainly open up new avenues for exploration.

Chapter 4 talks to the point of the shared cultural milieu between designers and players. This is an important aspect of both aesthetics and design. The relationships between this cultural background, design activity and play is something that has been explored to some degree (Dovey and Kennedy, 2006). However, it could be repeated to understand the contemporary digital gaming situation that takes into account its mainstream adoption and the current divergence of gaming forms. From the point of view of game design, these studies can open up new avenues for development that can explore different cultural niches. An ethnographic approach and understanding of these niches could identify unique opportunities for digital game design.

Chapters 5 through 7 discuss the material nature of the human-machine hybrids that comprise games and the aesthetic implications of this view. These insights would seem to be even more applicable to digital gaming, where the game would



seem to be a machine intent on co-opting human activity in a collaborative effort to “complete” itself. Cybernetic understandings of the relationship between human and game have been a basis for game studies (Aarseth, 1997) and there has been a move away from the screen and into the material by some researchers (Apperley and Jayemanne, 2012). In pervasive gaming, the games adapt to the player, but digital games are significantly less mutable. However, during play both the players and games do adapt to each other; intermesh and intermingle. Further research along this technocultural angle would create an interesting viewpoint on how gameplay operates. Introducing the concept of practice to this material understanding provides a framework to explore how games structure an experience, whilst allowing certain freedoms and agencies to the player. Reframing this material and practice thinking and bringing it into the realm of aesthetics would help to deliver insights into the pleasures of diverse forms of digital gaming, such as sandbox games, or those that severely constrain choice by being “on rails.”

A final point for game design is a repeat of a point from the last section. Paying attention to the beginning and endings of play would seem to be a very important part of game design, and one that is often ignored in digital game design due to its unpredictability of use. The beginnings of games are paid much attention to, the ways in which the player is entrained to the structures of the game. The tutorials and introduction to the diegetic world are carefully choreographed. In most occasions the end of the game is marked by an epic finale and engaging cut

scenes. However, the starts and endings of play sessions themselves would seem to require some care, to help with that transition from the space of the everyday to the space of the game. To help re-establish the story-world and the practice of gameplay. Further practice-based, or applied research in this field could be used to help understand if these micro-transitions for each play period were useful or not. Case-by-case ethnographic explorations of individual experiences and their contexts can be useful not only for those games but can, through repeated research, extract further generalisations and principles for game design.

### **3.3 The study of technoculture and design practice**

The third direction for future work is to follow up on the theoretical and methodological sensitivities in a broader context. Whereas the previous two subsections have focused on future opportunities to use research, perhaps more instrumentally, to inform design, this section links that to the research *of* design. The approach used in this thesis and the sensitivities discussed, help understand the sometimes unexpected directions and developments in technocultural practices. I believe that they are relevant in existing disciplines; at the very least in Cultural Studies, Game Studies, and Human-Computer Interaction. A technocultural ethnography is useful in applied and instrumental research contexts because it can deliver insights that other ethnographically driven design research cannot, but also, importantly delivers findings that reflect upon the technocultural milieu within which the design practice resides. The tensions

framework creates a design space that goes beyond simple recommendations and sets up a dynamic system that can be worked with. Whilst the framework for tensions creates a space for design, it also shows how that space reflects the world more broadly.

Pink et al. (2016) state that there is a gap created and left open by recent advances in both the fields of digital and design anthropology. There is now a productive space between HCI research, the anthropology of design and ethnography for design activities that they believe is not being sufficiently covered. They argue that design and digital ethnographies need to be brought together to engage with the materiality of everyday life and designed objects. The work presented in this thesis I believe has been an example of this and has also developed methodological sensitivities that help contribute to this joining together of the disciplines where culture is studied and where culture is created.

There is a more specific avenue, for this style of ethnographic research that works to join digital design and anthropology. It can be productively applied to contemporary, mainstream digital design activities; not to games or physical experience design. There are two overlapping opportunities that feel like they would deliver rich results. The first is to explore the embodied nature of digital design knowledges and the second is to follow the seemingly immaterial and invisible “stuff” of digital design processes. These no doubt could be explored together or taken separately.

Design is often termed as a 'practice'. In that the practitioner is always practicing their skills, continually improving. In the light of practice theory, this takes on an alternate sense. Designers (individually or in groups) must negotiate and navigate the tensions between their agencies and imaginations, and the contingencies and constraints of the underlying materiality of the digital world they are working to create. In all the versions of practice theory, this process is embodied and based on embodied knowledges. It is a logical next step to ask the question, what are the embodied practices of contemporary digital design? How do the creators of our digital worlds (probably unconsciously) understand the materiality and physicality of their undertakings?

The second approach is deep anthropological exploration to explain the dirty materiality and messiness of digital design. In the ephemeral, invisible and intangible world of digital, what is the material that is being worked on? And what are the unexpected and unavoidable consequences? This approach would both follow the stuff of what is designed, but also the stuff of design. Digital design creates a slew of intermediary artefacts (post-it notes, whiteboards, meetings, diagrams). What does all this physical stuff do for design? How does it play into the physical and embodied knowledges of design (as mentioned above)?

Importantly, in carrying out this research it should bring together the practices of the ethnographer and the designer. As I have demonstrated in this thesis, an active engagement delivers valuable results in this context. Observers gain more by being participants. As Pink et al. (2016, p17) say:

The work of the designer is to intervene in other's worlds [and] that of the anthropologist has conventionally been to inhabit other's worlds and create accounts and understandings of these worlds without changing them. Neither of these remain as viable propositions as single activities. (Pink et al, 2016, p17)

The work of ethnography *for* design and ethnography *of* design should be doing just that. It must necessarily bring these two activities together, and recognise that the way to understand the technocultural world is to be engaged in creating it.

## Afterword

It's a sunny day and I'm standing on a narrow strip of grass next to Daldy Street in Auckland, New Zealand. This is part of the North Wharf development, a place layered in play and entertainment. It is an area set aside for recreation. There are multiple playgrounds nearby, basketball court, large-scale public art, as well as restaurants and cafes. It was originally built for an event, the Rugby World Cup in 2011. All around there are people playing, strolling, eating or watching over their children. I raise my hand and say "I am Spartacus!" To be matched by a clamour from my team, all also claiming to be Spartacus. I am here playing a social game, with my family, at the *Wild Streets* mini-festival. On the opposing team my son is wearing a plastic Roman helmet and miming his eagerness to cut the heads off any would-be rebel leaders.

It feels different from my fieldwork, I am not documenting, not field-noting, I have no camera or video with which to record. I am not organising anything, I am not running a game. This time I am just spending an afternoon playing with my family, and a whole lot of strangers who also drop in to play.

Writing this now, some years after my fieldwork, I am a literally a world away from where I carried out my fieldwork. I am in a different country. A different space. Five years have passed, a significantly longer period than that in which I was engaged with the practice I was engaged in. However, the influence of what I

have studied is here. One of the organisers of *Wild Streets* had been to many of the *Hide & Seek* events in London and was inspired by those. The impact of pervasive games as a technocultural phenomena are felt years later, and a world away. The threads, the echoes and practices of street, urban, big or pervasive gaming that I had explored are felt globally.

In 2012, following my fieldwork, 'deep hanging out' (Wogan, 2004) and simply hanging out in the regular sense, I had to break off all active research and leave an academic career for health reasons. I also moved country soon after. For the following years I slowly documented my research in isolation from the communities, individuals and games I had been deeply engaged in. If my primary research felt like a circling in and a deep immersion, then my writing of this ethnography felt like a circling out. It was a sifting through the record, the memories, the sensations, from a figurative as well as literal, distance. In some ways, this distance has helped move me from the inside, back to the outside as an observer. After roughly three years of intense engagement with the practice, I've now had five years divorced from it and the people involved. The sadness and sense of loss are no doubt a hallmark of any ethnographic project. Studying culture in this manner demands an empathy, and a deep level of embodied, multi-sensory understanding (Pink, 2009). All research such as this requires one to become a part of something, develop a passion for it (Highmore, 2009), and then to often leave that thing behind.

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## 2. Ludography

*2.8 Hours Later* (2010) Singshot.

*A Machine To See With* (2010) Blast Theory.

*Astroids!* (2011) Andromeda Mega Express Orchestra.

*BotFighters* (2001) It's Alive.

*Can You See Me Now* (2001) Blast Theory.

*Chore Wars* (2007) Kevan Davis.

*Civilization III* (2001) Firaxis. Infogrames.

*CounterSquirt* (2010) Mattia Romeo and Greg Trefry. Come Out & Play.

*CounterStrike* (1999) Valve Corporation.

*Day of the Figurines* (2006) Blast Theory.

*Desert Rain* (1999) Blast Theory.

*Dungeons and Dragons* (1974) Gary Gygax and Dave Arneson. TSR.

*EpicWin* (2010) Rex Crowle.

*Escape from the Tower* (2008) Josephine Reid Richard Hull, Ben Clayton, and Tom Melamed. Calvium.

*EyePet* (2009) SCE Studio London. Sony.

*Feromon* (2011) Viktor Bedö. You Are Go.

*Flypad* (2009) Blast Theory.

*Gentrification: The Game* (2010) Atmosphere Industries. Come Out & Play, Hide & Seek, You Are Go.

*Geo Melee* (2010) Imaging Research Center Fellows & Neal McDonald. Come Out & Play.

*Heroes Evolutions* (2007) NBC.

*Hounded* (2011) Slingshot. You Are Go.

*Humanoid Asteroid* (2010) Sam Strick Nick Fortugno, Dave Warth. Come Out & Play.

*i love bees* (2004) 42 Entertainment. Microsoft.

*I'd Hide You* (2012) Blast Theory.

*Ingress* (2013) Niantic. Google.

*Invisible Cities* (2011) Hide & Seek. Hide & Seek festival.

*Jewish Time Jump: New York* (2013) Converjent.

*Johann Sebastian Joust* (2010) Die Gute Fabrik.

*Journey to the End of the Night* (2006) Sean Mahan and Sam Lavigne Ian Kizu-Blair.

SFZero.

*Kaboom!* (2010) Pete Vigeant & ESI Design. Come Out & Play.

*Killer: The Game of Assassination* (1981) Steve Jackson. Steve Jackson Games.

*Las Noches del la Muertos* (2010) Slingshot. Iifest.

*Majestic* (2001) Origin. Electronic Arts.

*Mary Mack 5000* (2010) Lina Fenequito Kaho Abe. Come Out & Play, Hide & Seek.

*Merchant Kingdoms* (2010) Oberon Interactive.

*Minecraft* (2011) Mojang. Mojang, Microsoft.

*Monopoly* (1935) Charles Darrow and others. Parker Brothers.

*Necropolis Family Tree* (2010) Tara Gladden and Chris Till with Coney. Come Out & Play.

*O.M.M.R.P.G. (Offline Multi-Mirror Reflector Positioning Game)* (2007) Ryu Jung Min Byun Ja-Young, Shin Jee Sub, Mun Won Woo, Park Joo Yong, Ahn Ki Jin, Kwon Hyung Chul, Kim Hyung Jun, Han Jee Hee. Come Out & Play, Hide & Seek.

*PacManhattan* (2004) Student project supervised by Frank Lantz. New York University.

*Pathfindr* (2010) Dakota Reese Brown and Bobby Marko. Come Out & Play.

*Perplex City* (2005) Mind Candy.

*Pirates!* (2000) Interactive Institute PLAY research studio. HUC conference, Bristol, UK.

*Reliving the Revolution* (2005) Karen Schrier.

*REXplorer* (2007) Regensburg Experience.

*Rider Spoke* (2007) Blast Theory.

*Robo Racers* (2011) Dan Dixon. Iifest.

*Second Life* (2003) Linden Lab.

*Shabbat-put* (2010) PlayRites. Come Out & Play, Hide & Seek.

*Shadow Cities* (2010) Grey Area.

*Shadowplay* (2011) Mattia Romeo and Greg Trefry.

*The Beast* (2001) Elan Lee Jordan Weisman, Sean Stewart, and others. Microsoft.

*The Comfort of Strangers* (2008) Simon Evans and Simon Johnson.

*The Nokia Game* (1999) Joost van Liemt and Sicco Beerda. Human-i Euro RSCG.

*The One* (2010) Catherine Herdlick and Gabe Smedresman. Come Out & Play, You Are Go.

*Ulrike and Eamon Compliant* (2009) Blast Theory.

*Uncle Roy All Around You* (2003) Blast Theory.

*Underworld: SweetDeal* (2009) A-steroids.

### **3. Other creative works**

*A.I.: Artificial Intelligence* (2001) Film directed by Steven Spielberg.

*eXistenZ* (1999) Film directed by David Cronenberg.

*Google Glass* (2013-2015) Optical headmounted display created by Google.

*lonelygirl15* (2006-2008) Mesh Finders Fabricated vlog series created by Miles Beckett, Greg Goodfried, and Amanda Goodfried. EQAL.

*Roku's Reward* (2007) Corporate vision video produced by Hewlett-Packard.

*Star Trek: The Next Generation* (1987-1994) TV series created by Gene Roddenberry.

*Swingometer* (2010-) Mixed live action and CGI by the British Broadcasting Corporation.

*The Game* (1997) Film directed by David Fincher.

*The Matrix* (1999) Film directed by Andy and Larry Wachowski.