Pervasive Mobile Games: Creating Forms of Engagement With Public Space

Killian Desmond

A research Paper submitted to the University of Dublin, in partial fulfilment of the requirements for the degree of Master of Science Interactive Digital Media

2018

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Abstract

This dissertation examines the impact location based mobile games (LBMG) have on encouraging interactive and positive engagement within public space. Oscar Newman's Defensible space theory and Jane Jacobs' Human Scale are used as references for examples of interactive and positive engagement with public space. The Network Society and Networked Publics are discussed in order to demonstrate the changes technology has had on public discourse, emphasising on the isolated nature of online communities. Johan Huizinga's concept of the Magic circle and Roger Caillois' concept of Paidia and Ludus are examined in relation to LBMGs to provide a framework for analysing later case studies. LBMGs are determined to expand the boundaries of games spatially, temporally and socially.

In chapter three, the primary mechanics of the mobile game Ingress are first examined. Then these mechanics are analysed using the definition of positive engagement with public space established in chapter one. It is established that the game creates positive engagement by promoting the regional rhetoric of the players location through its use of landmarks in its game system. In chapter four, the primary mechanics of geocaching are examined and compared to those of Ingress. It is determined that geocaching encourages positive engagement with public space by remapping the players experiences of the space.

Introduction

Chapter 1 - Defining Meaningful Engagement

1.1 - Modernism and the Decline of Public Space

1.2 - Establishing Community through Defensible space

1.3 - Fostering Positive Engagement through Postmodern Design Principles

1.4 - Network Publics

1.5 - Layered Space

Chapter 2 - Principles of Games and Play

2.1 - The Magic Circle

2.2 - Paidia and Ludus

2.3 - Games and Pervading Boundaries

Chapter 3 - Case Study: Ingress

3.1 - Primary game Mechanics and Goals

3.2 - Establishing Territory Through Competition

3.3 - Global Narratives and Regional Rhetoric

3.4 - Emergent Gameplay - Transcending the Narrative

Chapter 4 - Case Study: Geocaching

4.1 - Primary Mechanics and Goals

4.2 - Endogenous Value of Space

4.3 - Creating Place from Space

Conclusion

Table of Illustrative Material

Introduction

This dissertation seeks to examine the impact location based mobile games can have on creating more interactive and positive engagements with public space. The first chapter will examine possible definitions for positive engagements with public space, it will analyse the decline of public space throughout the twentieth century, demonstrating the negative effects this has had on localised communities and also describe the postmodern principles of urban design that were born out of this decline. The writing of Oscar Newman on defensible space theory and Jane Jacobs and jan Gehl's concept of the human scale will be discussed. As technology has become the primary setting for public discourse, Manuel Castells concept of the 'Network society' and Dana Boyd's 'networked publics' will be discussed. Chapter 1 will also include an examination of Victor Turner's concept of liminality as locative media often exists in a hybrid state.

Chapter two will describe the principles theory behind games and play, discussing Johan Hiuzinga's concept of the Magic Circle and how this concept is affected by the location based mobile games. Roger Caillois' definition of paidia and ludus will be examined. The chapter will finish by examining how location based games pervade spatial, temporal and cultural boundaries.

The third chapter will be a case study of the mobile game Ingress and will focus on the social and competitive aspects of the game and how they promote community and engagement with localised public space.

The third chapter will be a comparative case study of Geocaching and will focus on how endogenous value can be applied to place.

Chapter 1 - Defining Meaningful Engagement

As this dissertation focuses on the impact pervasive games and media have on creating more interactive and meaningful engagements with public space; it is important to first clarify what is meant by both public space and meaningful engagement within the context of this dissertation. Public space can be traditionally thought as the physical space that exists outside of private life where strangers equally engage in activities which are not possible in private environments. Meaningful engagement is engagement with space that is active and thoughtful and could provoke discussion within a community, be it virtual or physical, that relates to this space.

1.1 Modernism and the decline of Public Space

To understand contemporary interactions with public space, it is helpful to understand the effect modernism has had on this engagement. Sociologist Georg Simmel describes modernist engagement with public space as "blasé" or indifferent due to the overwhelming stimuli present in cities. Individuals become more independent and reserved, creating a shell that disconnects them from the public realm that surrounds them (Sennet, 1969). Simmel also notes that this results in a freedom from the structures and boundaries usually created by society as the individual is capable of disassociating themselves from the community that surrounds them, a choice that is not given in more closely knit rural environments. Interactions between people on the street become short and functional as communities develop separately from mutual interests and views rather than from proximity. (Sennet, 1969, p47 – 60). This holds true to today as communities are more often removed from physical space, existing purely in the virtual.

The decline of public space can be linked to the modernist belief in "linear progress; positivist, technocratic, rational planning of social and geographical space" which arose due to the need for cheap and efficient urban renewal in the aftermath of the second World War (Irving, 1993). The modernist architectural organisation Congrès internationaux d'architecture moderne (CIAM), proposed that the social problems of a city could be solved through a tightly controlled and rational design process.

Prominent member, Le Corbusier's 'Chartes d'Athenes' outlined this design process, dictating how modernist urban design should be approached. This design process was quickly taken on board due to its practical use of cheap materials and high rise living units that would reduce the use of land. This propensity towards efficient, sweeping design also applied to infrastructure and zoning regulations, resulting in cities that were decentralised and homogeneous in nature. Residential and industrial zones were made distinct from each other, buffered by parks that would act as common spaces of social interaction. This style of urban planning reflected the individualism of modernist thinking described by Simmel and resulted in the creation of the 'white flight' suburban sprawl of the fifties and sixties (Irving, 1993).

1.2 Establishing Community through Defensible Space

Due to the quick spread in popularity of CIAM design principles, many lower income housing projects were created that applied the primary principles of the design philosophy, such as creating distinct residential zones or blocks. However, they could not sustain the expense for the amount of infrastructure needed to successfully maintain and manage these blocks, as they were originally built as a cheap solution to low income housing. This resulted public spaces around high rise blocks that were empty and prone to crime. The vibrant, green spaces imagined by Corbusier were devoid of any positive engagement. Examples such as the Pruit-Igoe housing projects, see figure 1, were famous for their crime and racial segregation and were demolished less than twenty years after their completion. Oscar Newman was one of the first of many architects and city planners to try and rethink how crime can be reduced by positive engagement with public space. He created the theory of 'defensible space' which describes how residents who feel in control or have responsibility for the spaces they inhabit create environments that hinder crime.

Newman describes a number of factors that can be considered during the design of social housing that can help to promote the development of defensible space. The primary factor is territoriality, this is the encouragement of a co-ownership of public space where individuals regard the public space surrounding them as an extension of their private space, even when this space is not enclosed or confined in any way. This is usually achieved by breaking down residential spaces into smaller, more intimate collections rather than the large blocks suggested by Corbusier.

This enables residents to feel like they have a more power over the area they inhabit. Rather than being an individual in a large collection, they are part of an understandable community. By creating smaller, more manageable residential collections, there is less opportunity for crime as everyone is invested in the community that surrounds them (Newman, 2008). Defensible space can be described as private/public spaces designed to encourage a sense of ownership and common understanding of how the space is used. The development of defensible space therefore discourages crime caused by the residents apathy towards the public space they inhabit.

1.3 Fostering Positive Engagement through Post-Modern Design Principles

Design principles used to develop such communities were not only created as a deterrent for crime. Journalist and author Jane Jacobs opposed the modernist approach to urban planning, promoting a design principle she described as the human scale. This design approach encouraged communities such as those described by Newman to develop around mixed-use neighbourhoods where there is constant use of the public spaces by both residents and strangers. The types of buildings should be equally diverse and the size of each block be small to make the neighbourhood feel denser and more active. Jacobs described this use of space as 'exuberant diversity' and is a key part of what she considered a successful neighbourhood. (Jacobs, 1961 pp.150 - 151). This mixed-use, active nature of public space allowed for city planning that caters to the individual needs of each resident while promoting a similar sense of engagement with space that Newman describes.

This concept of the human scale was further developed by architects and urban planners such as Jan Gehl who developed methods for creating public spaces that support spontaneous use from their inhabitants. By encouraging pedestrian and cycling traffic and discouraging vehicle traffic, more opportunities for social interactions can take place within the streets, helping to create more engaging public spaces. By examining the concepts laid out by such urban planners and architects, an understanding for what is considered positive engagement with public space can be created. (Gehl, 2011).

1.4 Network Publics

The transition from modernist to post-modernist design principles suggested by the architects and urban planners such as Oscar Newman, Jan Gehl and Jane Jacobs fail to address how technology has influenced both traditional ideas of public space and virtual public space or how these two 'publics' interact and cross over each other. Danah Boyd describes the virtual public space as a 'networked public' : "the space constructed through networked technologies and the imagined collective that emerges as a result of the intersection of people, technology, and practice."(2010). Network publics often consist of individuals that share a particular worldview or have a specific intention for engaging with their online public of choice. This results in the creation of communities that are not bound by physical space but by their beliefs or interests. These communities are created through what anthropologist Marc Augé describes as the individual 'production of meaning'.

> "Never before have individual histories been so explicitly affected by collective history, but never before, either, have the reference points for collective identification been so unstable. The individual production of meaning is thus more necessary than ever" (Augé, 1995, p.37).

Augé writes about the state of information consumption in the age of globalisation. He describes how in the globalised world there is a saturation of information, forcing individuals to find their own meaning from the information at hand. This creates a social state he refers to as 'super modernity'. This in turn results in the individual 'networked publics' that Danah Boyd describes. Manuel Castells develops on Augé's theory, describing a 'space of flows' which consists of networks connected by hubs where information is transferred. Boyd's 'networked publics' are therefore connected through these hubs, the 'space of flows' connecting each of these individual communities. (Castells, 2010, pp.442 - 443) It is clear then, that the arrangement of communities online is analogous of the type of community suggested by Oscar Newman's defensible space theory as each member of the online community has a sense of agency over the space that they contribute to.

1.5 Layered Space

When considering location based media and games, the communities or the experience of engaging with public space seem to be caught between physical space, the space of places, and the space of flows. This combination of physical and virtual can be thought of as a liminal space. Anthropologist Victor Turner describes liminality as a temporary state between two phases where those within this state existed outside of either, entering a state of ambiguity. Turner describes in 'The Ritual Process' how this state of liminality allows for a break in social convention as participants no longer gave their pre ritual status within the community. Turner refers to this condition as 'communitas', where the "structural ties" of a community such as caste or class are broken (Turner, 1969, pp.95 - 97). The transfer from physical space to the virtual when using location based media engenders a ritual process that results in a sense of liminality and communitas for those participating as they exist in the ambiguous space between both states.

Michiel de Lange talks extensively of this while describing a now defunct social media platform called Bliin. The platform connects to public space, logging participants location and allowing them to submit site specific details about the places they visit. De Lange describes the platform as a hybrid space. As the participants location changes both physically and virtually, participants also take part in activities in both spaces at the same time, further constituting the platforms hybridity.(de Lange, 2009, p.60). De Lange also states that the platform itself is a hybrid of the physical and virtual but the boundaries between both are still present. He describes the participant as travelling through two distinct spaces rather than a single mixed space. It is by consciously passing through these barriers that the participants derive a feeling of doing something outside of the norm.(de Lane, 2009, p.61). By engaging with this platform, participants gain a new insight into potentially familiar physical spaces. As the platform is a virtual space, it exists within the 'space of flows' defined by Castells and therefore, participants are subject to a social co-presence that is not restricted to physical proximity. As the content of the platform submitted by participants refers directly to physical space that participants can add text or images that can offer a new interpretation of the space to other participants or simply share simple stories about ordinary places that surround them that are "fragmented, fleeting and self-referential. (de Lange, 2009. Pp.66 -67).

By using the platform described by de Lange, the participants enter a liminal state, leaving the norms of the physical community that surrounds them. The unified social co-presence that exists between participants creates a sense of communitas, allowing the participants to expand their understanding of the public space that surrounds them.

To conclude, contemporary interaction within public space has become diverse and difficult to define as virtual public space or 'networked publics' become the dominant space for social interaction. As locative technology becomes more sophisticated and prevalent, interaction within these spaces becomes layered. It is clear that positive forms of social engagement within public space is encouraged by the space fostering a diverse range of purposes that caters to a mixed demographic. However, individuals still need to have a sense of agency over choosing the community they engage with and how to engage with this community. Locative technology has the potential to facilitate this need without resulting in the homogeneous communities created by modernist design principles. Locative media and location based games also encourage communities in a state of 'communitas' as participants interact in public outside of convention due to the shift from the physical to the virtual. The next chapter will discuss the primary principles of games and play to further examine how locative media and, more specifically, location based games enable an environment that foster communities that interact with public space.

Figure1: Pruitt Igoe Complex (Wikimedia Commons:United States Geological Survey, 2008)

Figure 2: Bliin social media platform (European Space Agency, 2000)

Chapter 2 - Principles of Games and Play

To assess the impact location based mobile games and playful locative media have on our interaction within public space the fundamental principles that describe how we engage with games and play must be established. There are key differences between the processes of play and the formalised ritual that participants of a game take part in, each allowing for a different types of interaction within public space. These can range from emergent behaviours in public space that result from playing with a games mechanics or addition of an endogenous value to a place through the creation of goals and rules.

2.1 The Magic Circle

The term 'Magic Circle' is often used to describe the play space that is constructed by the players, suspended outside of the regular rules of reality. The term was coined by sociologist and historian Johan Huizinga who described it as "temporary worlds within the ordinary world, dedicated to the performance of an act apart"(1955, p.10). The players within the magic circle enter it knowingly and it is this choice to suspend reality to perform within the game world that creates the magic circle. The magic circle can be compared to Victor Turner's state of liminality as the players enter themselves into the ritual process of the game, where new social structures are constructed. Turner describes how through a structured ritual process a sense of 'communitas' can be created.

When entering a game, often the player takes on the role or character during the game session. The character that the player becomes not only allows for a more immersive narrative but also gives the player specific abilities or goals to achieve during the play session. Often the boundary between the motivations of the character, constructed to give the player a goal to aim for and a system for reaching that goal, and the motivation of the player become transparent, resulting in what Markus Montola describes as d play'. He states that "It makes sense to think of the degree of bleed as a measure of how separate different levels of play (actual/inner/meta) actually are." (Montola, 2012, p.54).

Therefore, a bleed occurs between the player and the character they portray within the magic circle. The boundary between the structured space of the magic circle reality can be described as porous as reality often informs the conditions of the game. For example, players have the ability to exploit the game by gaining knowledge about its mechanics or rules outside of the confines of the game itself by looking at game wikis or online tutorials. Often, it is up to the individuals own discretion to decide how much they wish to manipulate their involvement within the game and allow for a more transparent bleed between character and player. (Castranova, 2005, p. 159). This porous nature is particularly evident in location based games as the physical and virtual aspects of the game often overlap and inform each other. The magic circle extends out from the mobile device connecting the player to the virtual and becomes blurred with the physical space the player is in.

When considering the porous nature of a games boundary it can be useful to to understand games as both open and closed systems. Katie Salen and Eric Zimmerman describe a system as “a set of things that affect one another within an environment to form a larger pattern that is different from any of the individual parts”.(2004, p.50). They also describe how systems are fundamentally comprised of physical or abstract objects of focus, the attributes or qualities of these objects in relation to the system, a relationship between these object and finally an environment in which the system takes place.(2004, pp.50-51) A objects of focus within a closed system have no interchange with its environment while an open system expands the system of the game from the environment and also projects the games system into the environment, affecting how the player interacts with the environment both culturally and physically.

The players willingness to embrace the systems of a game is described by the philosopher Bernard Suits as the ‘Lusory Attitude’ and is an important aspect in creating the ‘magic’ described by Huizinga, Salen and Zimmerman. Suits describes the lusory attitude as finding pleasure in the inefficiency of prescribing to the systems of a game or "the voluntary attempt to overcome unnecessary obstacles" (2005, p.54). This faith in the social contract of the game system allows mutual competition between players within the games limited scope. (Salen and Zimmerman, 2004, pp. 96 - 97).

3.2 Paidia and Ludus

The Lusory attitude we take on while playing a game and the porous nature of the magic circle create different levels of play which the player can pursue. These different levels of play demonstrate the fundamental difference between location based games and other forms of location based digital media. Media can often be considered 'playful' yet not be considered a game by definition as it does not have the necessary systems that allow a player to acquire a lusory attitude to the media at hand. The definition of play, and how media is classified as a result of these definitions, is under constant debate regarding locative and other forms of media. A helpful approach to understanding how media can be defined more clearly as a game is by analysing Roger Caillois' definitions of paidia and ludus. In 'Man, Play and Games', Caillois expands on Huizinga's concept of the magic circle and specifies two states of play, paidia and ludus, which both come together to form what is generally understood as a game. (Caillois, 1961).

Paidia could be considered the more pervasive form of play experienced, as its boundaries are more lose and unstructured. Caillois describes paidia as 'the spontaneous manifestation of the play instinct." Activities that can be described as paidic forms of play such as aimlessly doodling on paper or pulling apart cloth into thread are an immediate disordered agitation of the norm and can be seen as a form of temporary distraction from the monotony of everyday activities.(Caillois, 1961, p.28) It is for this reason paidia defines unorganised forms of expression and curious, alternative engagement with one's surroundings. In contemporary discourse of game design, paidic activities are often described as emergent forms of gameplay, or simply gameplay that arises outside of the confines of the games rules or goals.

Ludus is the structure which is often applied to paidic activities. This generally takes place when spontaneous activities are given a cultural convention or a goal within the confines of the activity. Ludus describes a controlled form of play that focuses on expression through the confines of rules and an expressed goal, often creating the sense of competition present in games. (Frasca, 1999 pp. 1-6). Caillois describes Ludus as complementary to paidia as it refines the activities that take place, allowing for the development of skill or technique and the application of strategy, all factors that are usually associated with conventional games(Caillois, 196, 29).

It is important to understand that paidia and Ludus are two states of play rather than different forms of play altogether. Paidic activities often develop into ludic, and games contain elements of paidic diversion from the rules and competition enforced by ludic structures.

By allowing the player to experiment with the games mechanics, they can indulge their spontaneous play instinct, giving them a sense of agency over the experience. These unstructured uses of the games mechanics often allow the player to experiment and develop the necessary skills that are needed during more structured periods of play where the games are more ludic in nature. In co-operative games or multiplayer games, these paidic activities allow for more personalised rules to be created, demonstrating how paidic and ludic play inform and expand each other. Giving players this balance of independent diversion and structured challenges to guide them is the most important part of designing games and is what makes them a unique form of media. (Jensen, 2013).

2.3 Games Pervading Boundaries

Location based games often use mechanics and rules that allow for an open system where the play space and its present condition can have a big impact on how the game is played. However, these games are often given a ludic quality through goals and rules that the player abides by. These pervasive games demonstrate how the magic circle can be more porous and how the social contract that is accepted by players do not need to be confined to a specific time and space to be able to attain a lusory attitude towards to game experience.

The context aware nature of location based games expand the magic circle to wherever the player is physically located. The objects that are part of the games system therefore become hard to determine as the context of the game environment is and the objects within that environment are constantly changing. Bo Kampmann Walther describes how entities within pervasive games require ‘contingency handling’ as often traditional game elements such as levels or NPCs are replaced with unpredictable real world entities. (Walther, 2005). It is important to note that a game that takes place within physical space is not necessarily pervasive. It is the unpredictable nature of tying the game to any physical space that the player is in that games the game pervasive and have the features of an open system. (Montola, 2009, pp. 12 - 14).

Traditional forms of interacting with games expect the player to engage with the game for a session of time in which all elements of the game's system are present. (Bjork and Holopainen, 2005). This is not possible in pervasive games as the temporal dimension, as with the spatial, in which the game takes place is expanded. In the case of pervasive multiplayer games, the duration of a game session is infinite as players can join and exit the game on their own terms, the games progress slowly ticking in the background. This slow ticking in the background is an important aspect of pervasive games as the player as the game exists within the periphery of the players consciousness and when they return the duration of time they have spend away from the game will factor into how they decide to play. Huizinga defines the participants of a game as certain and defined yet engagement with a pervasive often slips into the subconscious demonstrating how through temporal expansion the strict boundaries of a play session are renounced. (Montola, 2009 pp.14).

As the scope of the magic circle created by pervasive games is expanded by their unique spatial and temporal attributes, so are the social boundaries that usually control a game. Non players can be become participants in the game by entering the space of the games action or by unintentionally affecting the outcome of the game for voluntary players. It is difficult to determine if these people are considered as object or obstacles in the game or players as when they become aware of the game they can consciously affect the games outcome through metagaming or simply involving themselves in ways that are unexpected. It is therefore important for pervasive games to have elements in the game system which act as ludic markers. The more control that is given to the game, the less likely unintentional bystanders can become part of it. (Montola, 2009, p.203).

It is clear that location based mobile games are affected by the same fundamental principles that describe games and play as they rely on systems to manage the actions of their players and require players to obtain a lusory attitude to accept the conditions of the game. However, this form of game also expands on the traditional spatial, temporal, and social boundaries associated with games. The following chapters will analyse examples of such games, discussing the traits that allow them to become platforms for discussing and evaluating public space. How traditional game principles help to guide this discussion and evaluation and in what ways do they expand on the traditional boundaries constructed by game systems.

Chapter 3: Case study - Ingress

Ingress is an example of a global, location based mobile game (LBMG) that follows the primary principles of games and play laid out in chapter two. As the game has existed since 2012, it has formed a substantial community of regular players that demonstrate how pervasive games can affect our interaction with public space. Unlike other LBMGs such as Pokemon Go, Ingress does not use an already existing popular brand as it's narrative. This allows for a clearer understanding of the reasons for the games popularity and the kind of community it has created as they have developed purely from the qualities of the game rather than other extraneous factors.

3.1 Primary Game Mechanics and Goals

Ingress is a science fiction mobile game released for android and apple devices. The framing device set for the game is that mankind has discovered an exotic and powerful substance called XM. This discovery has also revealed that a transdimensional intelligence called 'shapers' may be infiltrating our dimension through portals. In response to this discovery the world has been broken into two factions, the Resistance and the Enlightened, which disagree on how to use this substance and on the reason for the shapers infiltration. The player acts as an 'agent' for one of these factions. Both factions try to control territory by claiming portals created by the XM that exist across the game world. (Niantic, 2012) The game suggests to the player through transmedial narration in the form of online videos and articles published by the developers called 'ingress reports'. However, the player will mostly engage with the story of the game through their interaction with its mechanics.

While playing the game, players will pick up XM that is scattered across the game world by physically walking into range of the XM. XM is the energy source needed to participate in all the other activities in the game. This mechanic encourages players to keep moving and explore new areas. While exploring, players will come across portals they can hack, this is the main activity player will participate in Hacking portals gives the player useful items and action points (AP) a resource which enables them to level up and gain access

to new in-game equipment. Another important activity is claiming portals using items called resonators. (Niantic, 2012).

By claiming portals, players are adding to the territory owned by their faction, the overarching goal of the game. Players can also attack other players resonators, weakening their control over a portal. As players gain AP and level up, they can access stronger items, allowing them to control the game space for their faction more effectively. Players can also link portals together to create triangulated fields that cover the terrain. Finally, players can create missions for other players to accomplish. Accomplishing these missions does not give any in game reward but allows local members of each faction to strategize and plan their expansion into new territory. (Hauge, Stefan and Sobke, 2017, p.41).

These mechanics demonstrate that the game system focuses on encouraging two types of activities from its players. Firstly, the exploration of the game space through navigating the physical. This is the movement mechanic of the game and is primarily how the game incorporates real world activities into the game as players must navigate through physical space. Secondly, claiming and maintaining new territory for your chosen faction. These activities allow the player to spend resources they have gained while playing and actively effect the in game world for members of both factions. These types of activities mostly take place within the virtual game space but refer to the physical space as portals are represented by physical landmarks. (Hauge, Stefan and Sobke, 2017).

3.2 Establishing Territory Through Competition.

As every player participating in the game is part of faction, the game world is in a constant state of conflict, with each faction battling for control over territory. This can create an interesting relationship between the player and the physical space they inhabit as they begin to associate the contested space of the game with its physical counterpart. Ordinary locations are imbued with a new narrative that emerges from the events experienced by each individual player of the game and the common competition between the two factions.

As previously described, locative media and LBMGs allow participants to experience a social co-presence with other players. In the case of Ingress this co-presence exists between members of the same faction who can communicate through the games chat function called

the ‘COMM’. The player can choose the range for visible messages, allowing the community to discuss the game both locally and globally.

It is interesting to consider Danah Boyd’s concept of the ‘networked publics’ in the context of the public community created from this COMM feature. It is clear that when using this chat feature in its global range, the player engages with “ the imagined collective that emerges as a result of the intersection of people, technology, and practice.” (Boyd, 2010). The ‘practice’ in this case being the main objectives of the game. Boyd describes how networked public generate a collective ideology not created from physical proximity but through shared interests and goals. Any participation with this public must contribute to this collective or will go unnoticed. (Boyd, 2010). In the case of games such as Ingress however, the range of interaction can be restricted by reducing the range of the COMM from global to local, as shown in figure 3, becoming more localised to the position of the player. In this case, smaller sections of the larger networked public can develop each focusing on the more specific details of the game that affect their local area. For example, if your local area is controlled by the other faction, you and other members of your faction will mostly be disrupting claimed portals rather than maintaining or discovering new ones. Each player and members of their community will have a different game experience based off of the conditions of the game local to them. (Harris, 2015, p.8) This scalable public interaction and the difference in game experience due to this scalability is unique to this form of game and shows how hybridised the physical and virtual spaces of the game are.

It is clear that part of the motivation for claiming new territory in Ingress is to further the goals of the players chosen faction. However, the player is also motivated to claim and maintain territory out of their sense of ownership over the portals they claim and manage. Michael Saker refers to this sense of ownership in his analyses of the location based social media site Four Square.

> Interestingly, this playful ‘parochialization’, with its need for repetition, leads participants to not only experience a deeper sense of connection and relationship with the places they are mayor of but also some degree of possession over them. This illuminates the blurred boundaries between play and ordinary life when considered through Foursquare (Saker, 2016, p.1180)

Saker demonstrates how playful engagement with public space, controlled through a game system can create a deeper connection with this space. In the example Saker gives the sense of ownership the person feels over the space is created through competition over the 'Mayor' status. This type of competition is common in Ingress both on an individual and communal level. Players feel a sense of ownership over the portals they claim as they often have to repeatedly visit them to maintain portal shields and upgrade resonators. Local communities form through this maintenance. The qualities promoted by the game are similar to those promoted by Oscar Newman's 'defensible space' theory, as fostering a sense of ownership over local areas of public space is a fundamental part of designing defensible space. This demonstrates how LBMGs such as Ingress can promote positive association and engagement with public spaces that might not be present for those not playing the game.

3.3 Global Narratives and Regional Rhetoric.

Ingress' social features are not the only part of the game that blurs the line between the local and global. The game often tries to marry the local activities of its players and the global narrative of the game through special events. The game also includes a sense of regionality into game objects that are part of the games system. This reflection of regionality demonstrates how Ingress qualifies as an example of an 'open system' design as described by Salen and Zimmerman as the game reflects particular aspects of its environment, changing based on the players position (2004, p.53 -54).

Shira Chess describes how this mixture of local and global as supporting the global narrative of the game or the regional rhetoric of the physical space. She explains how the global narrative of the game is furthered through events such as XM anomalies. These are rare events that the developers of the game create for specific locations and occur for a limited time. By holding these events and making them part

of the global canon of the game, the developers allow the players to feel they are involved in the overarching narrative of the game.

These events are then published to the entire Ingress community through Ingress Reports. As the reports are documented as real events taking place in physical space, the narrative is established outside of what is traditionally thought of as the 'Magic Circle', further demonstrating how pervasive LBMGs expand and blur the games boundaries. Unlike the individual networked publics that are created from dividing the game into factions, this global narrative is experienced equally by both factions. Often the XM anomalies do not even take the factions into considerations or allow for them to coincide for the sake of progressing the story. As both factions use the XM resource in the same way, a global narrative that supports technological advancement and considers the ethics of using untested forms of exotic energy is created that is experienced by all players. The XM anomaly events are examples of how the game uses local, time specific events to convey a larger narrative(Chess, 2014, pp. 1110 -1111).

Ingress is also capable of reinforcing the 'regional rhetoric' of public space. Chess describes regional rhetorics as a disruption of a global narrative through community building and the "recontextualising of local space" (Chess, 2014, p.1109). An example of an in game activity that promotes this recontextualising are the player made Missions. These missions do not give the player anything useful for other parts of the game but allow for players to create for each other walking tours or localised puzzles that use already existing portals as stopping points. Even though this form of gameplay does not advance the player or the game in any way it is still a popular diversion from the main gameplay loop (Hauge and Sobke, 2017, p.43)

Compelling player Missions are made possibly by the fact that all the portals in the game are of some regional significance. Rarely will a portal in the game be established by the developers for reproduced places such as shop chains or restaurants, areas of public space that Chess refers to as 'flat data'. Portals can be found connected to statues, independent cafes, or cultural heritage sites. It is important to state that these sites do not need to be important to a global public but just relevant to a local audience. Often apparently mundane spaces can become portals due to some unique aspect they have. As can be seen in figure 4, The game map of Ingress only shows portals, XM deposits and a bare view of the streets surrounding

the player. The ‘flat data’ of the world is left out, only unique local landmarks remain. This demonstrates how games such as Ingress are capable of reinforcing the local regional rhetoric, allowing players to gain a closer connection to the physical space around them.

3.4 Emergent Gameplay - Transcending the Narrative

The ‘open-system’ nature of many pervasive LBMGs allow for their players to interact with the game in ways that are unexpected or were never considered by the developers of the game. This is due to the constant interaction of the players surroundings with the game system. If play can be considered as a spectrum between the paidic and the ludic as suggested by Roger Caillois, this open system encourages paidic forms of play.The current position of the player can cause them to make spontaneous choices based off their curiosity rather than calculated decisions reached through an understanding of the games rules. Paidic forms of play that originated from open game system can be described as emergent gameplay.

Bo Kampmann Walther describes how the changing choices a player makes in a game and the fixed rules or mechanics result in game emergence:

> This dialectic between parameter space and actual game path (or variability space) also sheds some light on why games are complex; basically it is because there is an uneven relationship between the unchanging set of rules and the actual and changing realisation of a particular game. This asymmetrical tie between rules and realisation (or rules and strategies) can be termed game emergence (Walther, 2011).

Walther describes how the number of strategies, or intended actions of the player, always outweigh the rules, allowing for new ways of playing.

A major form of emergent gameplay in Ingress is the creation of ‘field art’, as shown in figure 5. Players participate to create drawings out of fields that link portals. As this activity is not part of the official game rules and takes advantage of the game mechanics and system, it can be classified as emergent behaviour. However, as this form of game emergent behaviour requires planning and coordination between many players over a long period of time, it is an unusual example. Often field art is creates in response to real events such as national holiday or to commemorate a specific date. This is a form of emergent behavior that relates to the player’s regional rhetoric and only takes place during specific time frames. Ingress and other forms of LBMGs are unique in that they are capable of producing emergent gameplay that fosters a sense of community by collectively diverging from the primary goals of the game. As with the example of the XM anomalies, faction identity becomes less

important and factions often collaborate during the field art events.(Chess, 2014, p.1114). It is important to note that these events are almost always community and culturally driven rather than events implemented by the game designers.

As players of Ingress conceive of ways to use the games mechanics and objects to engage in a form of emergent play, they are also taking part in a process called 'metagaming'. Stephanie Boluk and Patrick LeMieux describe this process. "the metagame ruptures the logic of the game, escaping the formal autonomy of both ideal rules and utopian play via those practical and material factors not immediately enclosed within the game as we know it."(2017, p.2). "Those practical and material factors" often consist of ways to exploit the game or allow for the game to become more balanced. An example of this in Ingress is how in many cities there are locations that both factions leave unclaimed. This allows new players to gain experience and learn to play the game without having to put up with portals belonging to high level players making it difficult to level up. These truces go against both the in game narrative and the goals of the game and are not part of the game rules. However, members of both factions see that there will be no new players in their local area if they cannot play the game (Chess, 2014, p. 1114). Often these unclaimed areas are public parks or squares, places where new players are more likely to start playing. The community is metagaming by understanding how other players learn to play and using that knowledge to encourage new players to grow in their local community. Many online games follow this trend of meta gaming as player bleed from a the 'lusory attitude' described by suits where the constrictions of the game are accepted to a more meta state of play.

In conclusion, Ingress is an example of a LBMG with a sophisticated community whos players interact with each other on both a global and local scale. The games mechanics allow its players to establish new connections with the spaces that surround them through claiming territory and reinforce already existing relationships with physical space through maintaining its virtual counterpart. Ingress also demonstrates how such games can encourage a sense of local community as players take part in time sensitive events and co operate in emergent behavior that transcends the scope in which the game was originally designed.

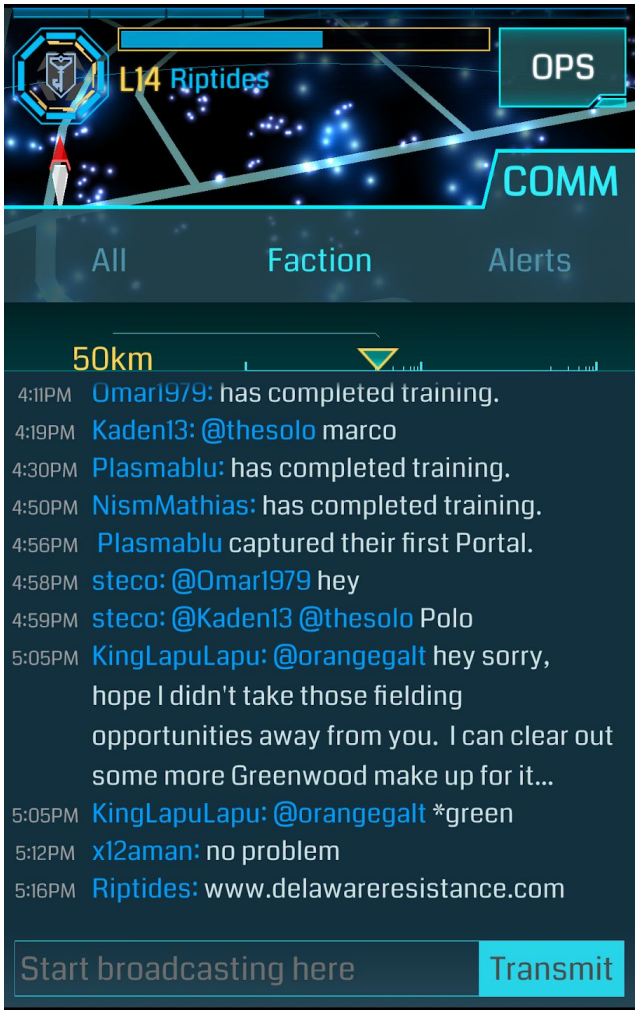

Figure 3: in game COMM menu
(http://www.delawareresistance.com/)

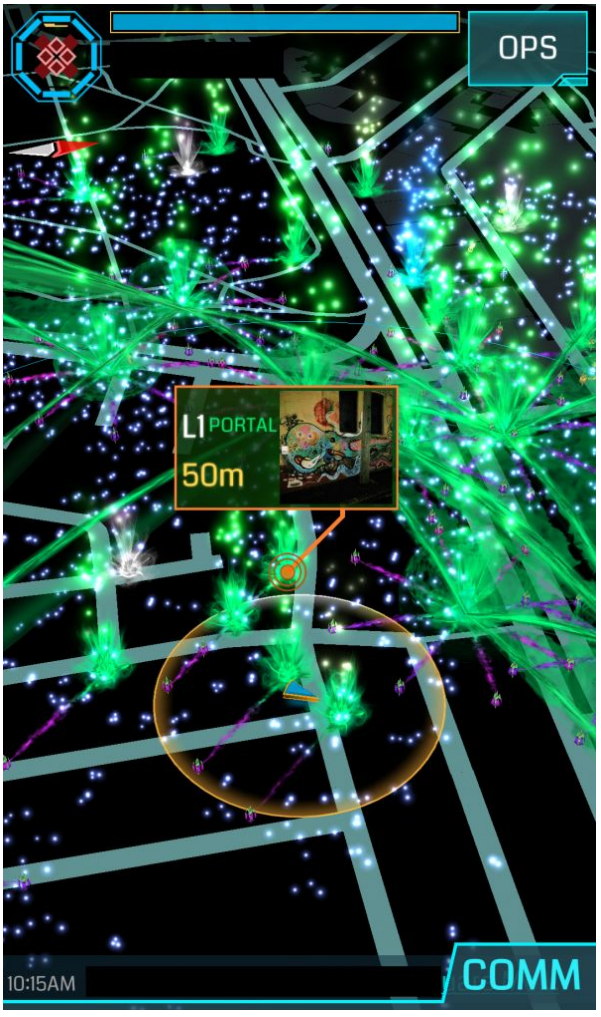

Figure 4: in game map showing portals
(Kyle Moore : http://analoggamestudies.org)

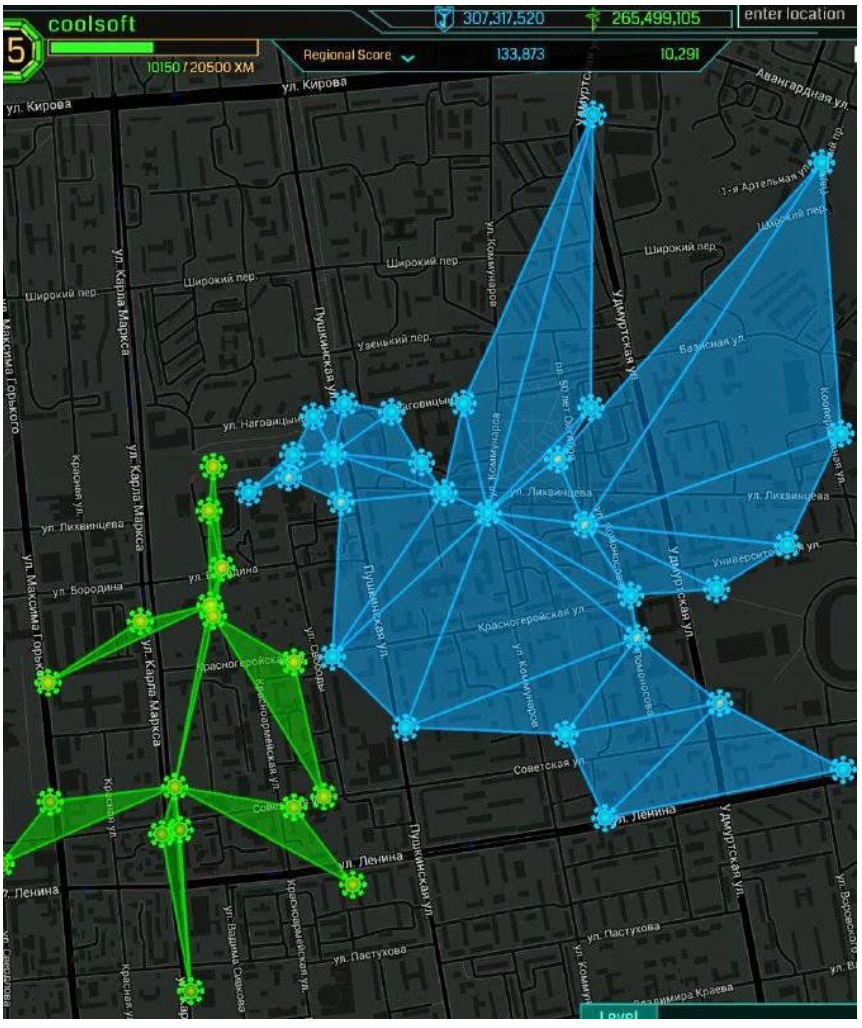

Figure 5: Field art created to commemorate the end of the second World War (@Ingress: https://twitter.com/ingress/status/597097116645855232)

Chapter 4: Case Study - Geocaching

Geocaching was one of the first LBMGs to become a global phenomenon and has been an inspiration for many recent examples of LBMGs that have been developed, including Ingress. It's simple mechanics and open system allow for many community created forms of gameplay and has attracted a wide demographic. By comparing the differences between Geocaching and Ingress and demonstrating how these differences affect player engagement, a clearer understanding for how LBMGs affect our interaction with public space can be established.

4.1 Primary Game Mechanics and Goals

In its simplest form, geocaching is a technologically aided treasure hunt. Players can access the coordinates to small containers called caches that have been placed all over the world by others playing the game. Players access these coordinates through a website that also shows the general location of the cache on a map. The player is then tasked with physically finding the cache using these coordinates. When the player finds the cache they can mark their username onto a logbook that should be stored in the cache. When the cache's logbook is checked by the cache's owner, the player will be given a 'find' to their profile. This simple act gives the game a ludic quality as players strive to 'collect' as many caches as they can.

This process is given variety as caches can vary in size from small caches that contain just a logbook to larger caches with enough space to hold tokens and tradable objects that players leave and remove from found caches. Figure 6 shows an example of a small cache and logbook. Special 'multi-caches' are multiple caches that need to be found in order, often requiring the player to solve puzzles to identity the next caches position. These can form long walking tours, creating a sense of adventure in the quest to find the final cache holding the logbook and whatever 'treasure' other players have left. Each cache is given two difficulty ratings, one for its obscurity and the other for its remoteness. (Geocaching, 2018) This adds to the ludic quality of collecting as more experienced players can test themselves by trying to find the most difficult caches. The website also records how often a player logs a found cache

leading more competitive players to try and create streaks for how many days in a row they can log a new cache.

4.2 Endogenous Value of Space

One of the main differences between geocaching and Ingress is geocaching's lack of any narrative. There is no story to give the player motivation as in Ingress. Geocachers must find motivation by imbuing the results of the games system of collecting with an 'endogenous value'. Jesse Schell describes this term as a value that is imparted onto an object, or activity, within a game that only has value within that confines of that game. However this does not mean that any object that the player interacts with a game should have an inherent value by design, an in game object will only receive an endogenous value if the processes for obtaining it are compelling to the player. Endogenous value is felt by the player and can not just be included arbitrarily in the game. Simply stating that something has a value does not work. In the case of geocaching, there is a self perpetuating quality, as the process for finding caches is engaging, giving the caches an endogenous value while also making the player more ambitious in finding new caches. (Schell, 2015, pp.32 -34). Kenton O'Hara describes this endogenous value as a progressively building source of motivation for the player. Players often start playing due to curiousity or as a novel way to experience the outdoors but as the ludic nature of collecting caches builds up, they have imbued the game objects with a sense of value. O'Hara states that " The significance and meaning of the next cache is dependent upon the context of what they have already collected and achieved." As players are looking to maintain and progress a record of achievement as they play, they do not need any motivation in the form of them contributing to an overarching narrative such as the narrative demonstrated by Ingress. (O'Hara, 2008).

4.3 Creating Place from Space

As this endogenous process of instilling value into the caches effects how the players perceive the locations surrounding them, these spaces gain an identity and become potential landmarks for those that have played the game. This contrast can be compared to the visual style of the game map of Ingress. Without being aware of the existence of the cache, players only experience the 'flat data' of the location. When a player has found a cache, the location loses its anonymity as the location entered the games 'magic circle' or game system.

Geographer Yi Fu Tuan describes this change in perspective as 'place and space'. He describes space as the broader of the two definitions. Spaces are flexible and open for interpretation. Places however, are more centralized and fixed as they are endowed with value. (Tuan, 2014). It is clear that through the game process, the spaces that players find are transformed into specific places of value for each player. Players also value places that hold geocaches if they were the ones to place them originally. As these caches require maintenance and their logs need to be checked, players establish a strong connection to the space. This connection is not born from new discovery but through repetition. O'Hara describes how the motivations for those creating caches is complicated as players may just want to give back to the community, they might simply enjoy making puzzles or they simply want to share a place that they already have a connection with to other members of the community (O'Hara, 2008). Here we can see similarities between geocaching and Ingress as both games encourage repeatedly visiting specific physical locations in an effort to maintain a areas of the game space that belong to a specific community. However, with Ingress, the player is merely responding to already existing elements of a game system such as portals, there is a limit to how much control they can have over the virtual representation of physical space. In comparison, When a geoguess player creates a cache, they are independently creating a unique addition to the field of play. It is clear that Ingress focuses on developing in game communities through a controlled game system whereas geocaching is more interested in allowing the community to control and maintain itself. Yet both games manage to transform mundane examples of public space into compelling and self reflective catalysts for local community engagement.

4.4 Unmapping and Remapping

Jason Farman describes how when playing LBMGs a player both unmaps and remaps the local public spaces that surround them. The player enters a hybrid state where they are navigating physical space but the information they receive from their mobile device supersedes the input from the environment. As the player is interpreting the physical space through the details of the game map, see figure 7, they are visiting places they have been but with new meaning. The virtual space is augmenting the physical. Farman describes this augmentation

> 'augmentation' allows the player to unmap known spaces, and the ludic pleasure of collecting(ie., the joy received from engaging with the play elements of the game) motivates further exploration of the 'new' spaces that result. Before the final 'find' of the cache occurs, the player's focus is on the exploration of a known physical world imaginatively unmapped with the help of a mobile device that layers a virtual one atop it. (Bunting and Farman, 2014, p.167)

The space is then 'remapped' as the player is now aware of the location of the cache. It is no longer a virtual object but physical. This is a feature that is quite unique to Geocaching. While other games such as Ingress refer to the physical world surrounding the player through image or text, they are ultimately confined to the mobile device. The players ability to interact with the cache is a physical manifestation of the virtual side of the game. As the caches often exist hidden in plain sight, it is almost as if the virtual world is secretly permeating the physical. Markus Montola refers to this phenomena as Spatial expansion. It is interesting to question where the boundaries between the real world and the game world exist in the case of the cache as it is a physical object that exist primarily within a public space but contains a log book and other ephemera that belong to a completely online community.

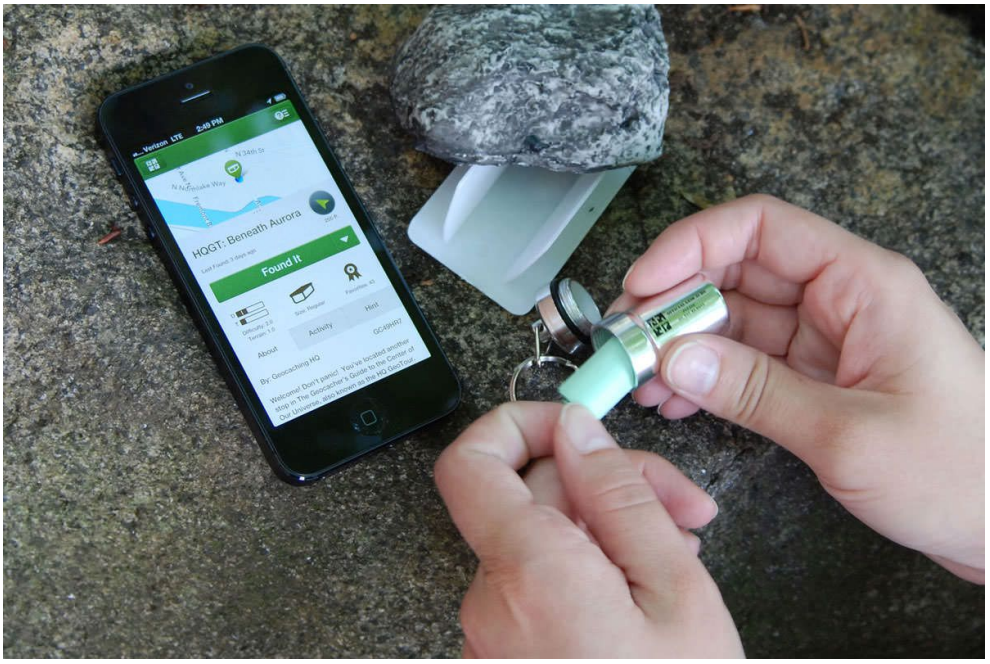

Figure 6: an example of a small geocache
(www.geocaching.com/play/search)

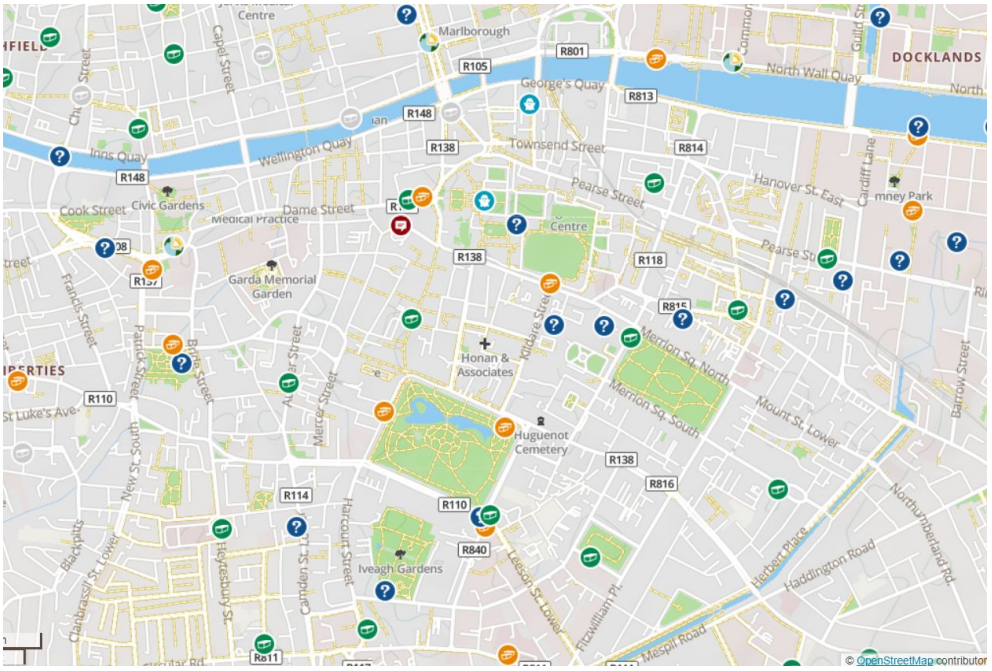

Figure 7: Example of the geocache map.
(https://www.geocaching.com/map)

Conclusion

This dissertation examined how pervasive, location based mobile games can encourage meaningful and interactive engagements with public space. As described by Jane Jacobs and Jahn Gehl, positive engagement with public space is created through mixed use environments, the potential for spontaneous interaction and the ability for communities to feel they can have agency or possession over the spaces they inhabit.

It is clear however, that public discourse takes place more often online as people split up into 'networked publics', a form of community that transcends the need to exist in within physical proximity. While these networks have increased interactivity between like minded individuals, they remain segregated and closed, far from the mixed use public envisaged by Jane Jacobs.

LBMGs create a hybrid space between the physical and virtual that both allows for these discrete online communities of networked publics but also can encourage a sense of regionality within those communities that relates to physical space. LBMGs also expand the what is considered game space, creating an unprecedented transparency between the virtual and physical. One of the most useful abilities that LBMGs have in this regard is their ability to recontextualise space. Through its game mechanics, Ingress has promoted local history and landmarks by building these details into the game in the form of portals, players will create new associations with the physical world that surrounds them as they constantly use portals for various activities in the game.

Ingress also demonstrates how through clever use of territorial conflict in its narrative, tight knit communities can be formed. The Ingress factions demonstrate how encouraging a sense of co-ownership over space in a fictional setting can recontextualise your relationship with particular spaces. Events such as XM Anomalies and the creation of field art show demonstrate how locative forms of media can combine the efficiency and communication power of modern 'networked publics' with a local or regional identity.

Geocaching on the other hand demonstrates how a narrative is not needed to encourage players to value parts of their environment. The endogenous value created from finding caches can promote new ways to explore public spaces and ‘unmap’ potential prejudices concerning certain spaces. As geocaches are community driven they offer an unlimited amount of ways that the public could create discussion within public space.

The research therefore identifies a number of ways in which location based mobile games can affect how we interact with public space and demonstrates the amount of potential this form of media has for recontextualising public space, developing communities or simply allowing the public to be more connected to their local surroundings.

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Images:

Figure 1: United States Geological Survey (2008). *Pruitt Igoe*. [image] Available at: https://upload.wikimedia.org/wikipedia/commons/b/b9/Pruitt-igoeUSGS02.jpg [Accessed 10 May 2018].

Figure 2: European Space Agency (2008). *Bliin Social Media Platform*. [image] Available at: http://www.esa.int/spaceinimages/Images/2008/01/bliin_online_Amsterdam [Accessed 10 May 2018]

Figure 3: Delaware Resistance (2018). *Ingress COMM menu*. [image] Available at: http://www.delawareresistance.com/ [Accessed 10 May 2018].

Figure 5: Ingress (2015). *Ingress Field Art*. [image] Available at: https://twitter.com/ingress/status/597097116645855232 [Accessed 11 May 2018].

Figure 6:Geocaching (2018). *geocaching cache*. [image] Available at: https://www.geocaching.com/play/search [Accessed 11 May 2018].

Figure: 7: Geocaching (2018). *Geocaching map*. [image] Available at: https://www.geocaching.com/map/ [Accessed 11 May 2018].