

A Moment of Experimentation: Spatial Practice and Representation of Space as Narrative Elements in Location-based Games

SOPHIA DRAKOPOULOU

Middlesex University

ABSTRACT

In location-based games, the game narrative can influence the players' movement within the city. The game world is notionally superimposed onto the city's surface. The combination of technologies creates a game system that in turn creates a notional realm of social space. Maps and alerts represent real opponents and virtual objects from the game's imaginary world. Employing representations of space, these games create a social world that encompasses the vicinity of the players. The players' spatial practice forms the conditions for progress within the game narrative. Players may change their location and movement within the city to avoid or interact with other players, collect items and encounter opponents. These games recontextualize and give new meanings to the players' location, rearticulating the spatial cohesion of reality through mobile access to virtual networks.

INTRODUCTION

AT THE TIME WHEN PROJECTS IN LOCATIVE MEDIA were experimenting with cartography, location and situated interaction, location-based games were already at the forefront of research, using ideas of geo-mapping, tagging and ad hoc networks. In the period from 2001 to 2004 location-based games reached their peak of experimentation, combining technologies such as the Global Positioning System (GPS), Bluetooth (short range data exchange), Wi-Fi (wireless Internet), Short Messaging Service (SMS) and cell networks. Using the context of play, location-based games were at the forefront of experimentation by combining location-based technologies.

There was a specific moment in Locative Media when projects focused on a context of play both in the artistic sector and also commercially. In the commercial sector there

were *Botfighters* (2001) in Europe, and *Samurai Romanesque* (2001) and *Mogi-Mogi* (2004) in Japan, while in the artistic sector there were the Blast Theory projects of 2002-2004. Different approaches to game-play (using a combination of technologies) revealed elements that can be implemented in future applications of location-based technologies. In these games, the city is seen as a backdrop to the game-world/environment, and walking within it forms an integral part of the game narrative. Location-based games create a kind of ontology that can be studied for future applications of location-based technologies, as well as illustrating how to create a context for a social and situated interaction in a specified locality.

I investigate location-based games under three strands: the technologies used and their characteristic of changing temporalities, the context applied, and the emerging ontology. In other words, the characteristic of wireless technologies to create a notional realm in which communication takes place, the context of the game itself, and the meaning and the emerging ontology that are supported by representations of space. Inserting a new form of spatial syntax through the combination of technologies and changing temporalities, location-based games depict the opportunity and potential of wireless technologies to offer new contexts that can reinterpret urban space; and they display the ability of network technologies to surpass normative models of telecommunication and transcend them, by applying an alternative context in everyday reality. Representations of space, historically associated with grand narratives and the distinction between the actual and the imaginary, become real-time updated graphical representations that illustrate a fusion between the actual world, the game's virtual objects and the imaginary game world.

Location-based games offer an alternative contact for the apprehension of spatial practice as a qualitative experience that includes virtual elements and properties of physical space. These games reconfigure the model of spatial practice and create a mix that consists of the game's imaginary world and its virtual items mixed with the experience of walking and moving in the city. Maps and alerts are key narrative features that represent the game's imaginary world. Maps represent the game's predefined territory and depict key spatial narrative features, such as the location of opponents and objects found in the player's immediate vicinity. Supported by tracking and sensory technologies, these key narrative elements are updated in real time and are sent to the player in the form of notifications, either by alerts or by active representations on maps. This article investigates this specific period in location-based games and asserts that the technologies employed to support the game system create a notional realm in which the players' actions have meaning.

TECHNOLOGY, CHRONOLOGY

Locative Media experiment with location-based technologies and create socially active networks. Working with cartography, Locative Media rearticulate walking in the city as a

process implemented through, and affected by, continuous access to telecommunication technologies. The mobile phone, and radio-based technologies such as Bluetooth, the Global Positioning System (GPS) and Wi-Fi, enable a mobile device user to access a virtual plane of data, a data space consisting of the Internet, the cell network and the satellites which support the access to and processing of data.

The Yellow Arrows project, which began in 2004, is a representative example of Locative Media. This project creates a user-authored environment by asking participants to paste stickers anywhere in the city of New York. Each sticker carries a text message left by the participant. Pedestrians who spot the sticker can retrieve the message left, and add their own by sending a text message with the sticker code. The **Yellow Arrows** project has now expanded to other cities, as in the punk rock Washington tour of 2008. The Urban Tapestries project also creates a user-authored environment. Participants using a PDA (Portable Digital Assistant) and a London map can pinpoint their location and write messages about that specific location. Participants leave notes of their recommendations, personal experiences, observations, information, or descriptions of their walk in the city (Silverstone and Sujon 2005, 39). **Other participants can access, edit and add notations.** Also in 2008, the London-based Hive Networks collective created the **Hidden Histories** project in Southampton. This project focuses on education and oral history, using the Southampton Oral History Archive. With Wi-Fi, Bluetooth and FM radio, users access audio file hot-spots located around the town's landmarks and significant places. These audio files contain descriptions and stories by local residents and war veterans. The project explores how the city can become a museum, and progresses into a more conceptualized idea of how this technological realm and its potential can be applied in the context of education and history.

"Annotating the city with 'geograffiti'" (Hemment 2005, 33) and "pervasive gaming" (Benford, Carsten and Ljungstrand 2005, 54) are some of the terms used to describe new data processes that create virtual parallel worlds. Locative Media associate digital media with location (Tuters 2004) and put location at the forefront of social interaction between technologies, devices and people (Hemment 2005, 33). Locative Media mark a creative intervention in the urban environment. Such ad hoc networks are being discussed as encouraging examples for the future application of autonomous networks (Rheingold 2002, 139-159) created in local areas. Technologies originally created for purposes of surveillance and civil control are now being reappropriated, reinterpreted to include the level of the individual in their network architecture (Holmes 2003). Location-based games also play a large part in the formation of an understanding of Locative Media. Using ideas embedded in Locative Media, location-based games offer a redefinition of future applications of tracking and mapping technologies, ad hoc networks and network processes. Experimenting with new technologies, location-based games recontextualize location and create social contexts in a mixed-reality model.

In the period between 2001 and 2004, experimentation with location-based technologies that combined the Global Positioning System (GPS), Bluetooth (short-range data exchange), Wi-Fi (wireless and LAN Internet), Short Messaging Service (SMS) and voice calls, provided illustrative examples of the possibilities for Locative Media to create people-situated interaction in public, to alter the experience of walking in the city, and to recontextualize location. Between 2001 and 2004, artists' collectives and commercial projects focused on a context of play. The context of play applied in these projects reveals very successfully the possibilities of location-based technologies in recontextualising location to represent the city in a user-authored annotative environment, and to create a context for social interaction in a locality. This article highlights the most important location-based games and examines the ability of these new technologies to create a notional realm of telecommunication in which the game world is materialized.

CHANGING TEMPORALITIES

It was when Locative Media were being established as a field of practice and research that location-based games began to emerge, together with arguments on the rearticulation of the experience of time and place through networked technologies and the mobile phone. A new notion was created that saw a communicational space being added in everyday life: a notional realm of telecommunication formed by the transmission of data, and by the actual network infrastructure of base stations, relay aerials, antennas, satellites—the nodes and intersections used to carry data.

In 2001 Sadie Plant, in her paper "On The Mobile," was the first to identify that in the mobile mode of social life, boundaries of time and space are renegotiated (Plant 2001, 70). In 2004 McCullough, in his book *Digital Ground*, recognized that the future of location-based technologies and public displays created possibilities for the city grounds to become a live surface (McCullough 2004, 88). According to McCullough, new networks should be perceived by the sum of their dynamic components, as "constellations of services" rather than just a network of computers (2004, 107). GPS displays of geo-data are increasingly becoming ubiquitous, so that "representing scenes and situations becomes the essential challenge" (2004, 91). Nigel Thrift in his paper titled "Movement Space" imagines a "chronometrical sea" (Thrift 2004, 589), a space created out of the endless calculations performed between the network components, such as time switches and data packet fragments. Thrift argues that "vocabularies for describing spatial configuration will change" (2004, 599), a "sense of direction will become given" (2004, 600), and "space will increasingly be perceived as relative" (2004, 589). Thrift sees a perpetually mobile space, an environment created out of what he calls "qualculation" which is formulating, in new ways, our sense of location, metrics and access to information (2004, 593). He suggests that the "networking of space and time"

(2004, 596) is creating a new way in which space and time are experienced: “locatable space is changing its character” (2004, 597).

Just as Plant identifies a tension among mobile phone users as to how to perceive the space in which their conversation takes place (Plant 2001, 52) and Thrift suggests the emergence of a mathematical realm of calculations, the qualities and quantities of a new space of possibility are emerging through new applications of telecommunications and location-based technologies. The games described in this article employ a transfigurative mix of location-based technologies to create a playful and social activity within the urban environment. The combination of technologies and networks that supports the communication between players allows for representational tools such as maps and creates a notional realm that coincides with and allows for a reinterpretation of reality. Using mobile devices, location-based games illustrate how the notions of the virtual and the actual coexist in the access and process of telecommunication. The physical space felt by the individual’s senses, and the notional realm experienced by technological equipment, create a new model of spatial practice. Movement and coordinates within the city space are reinterpreted and display the capacity of the individual to share an experience of the urban environment with a virtual world.

EXAMPLES OF LOCATION-BASED GAMES

Mogi-Mogi. 2004. Tokyo/Japan (DURATION: 24/7).

Mogi-Mogi is a recent example of a commercial location-based game. Still very popular in Japan, it started in 2004. Borrowing from the Pokémon craze, the objective of the game is for players to collect virtual items located in specific locations and earn collection points. The game uses a map—a graphical representation of the game’s virtual world that corresponds to the real-world maps of Tokyo and Japan. Subscribers pay a monthly fee. Players can swap objects between them and meet to exchange objects at allocated meeting places. Players can also play online by reading the map and assisting players on the street.

Botfighters. 2001. Finland, Sweden and Russia (DURATION: 24/7).

Launched in April 2001, *Botfighters* was created by the It’s Alive creative media company. It is run by Telia network operator in Sweden and by DNA Finland in Finland. To join the game, players initially log on to the game’s website, where they create a robot and choose items such as ammunition, protective shields and ‘health kits.’ *Botfighters* is based on the Short Messaging Service (SMS), with players receiving SMS messages alerting them of another robot’s presence nearby. A fight between two robots is then conducted with text messages: players write directional actions—for example, ‘fire,’ ‘retreat,’ ‘use protective shield,’ ‘use weapon,’ ‘use ammunition.’ Battles can last up to twenty minutes. SMS messages also alert players when virtual items such as health kits or weapons and ammunition are nearby; players collect them by physically moving to the indicated

location. The game system tracks the user's location/position inside the cell using the method of triangulation (one mile proximity). In a story read in London's *Guardian* newspaper: a player who is shopping in the supermarket with his wife is interrupted by a message alerting him that another robot is nearby; he then detaches from the boredom and domesticity of supermarket shopping, and engages in battle with that robot (Dodson 2002). Players are charged for every message sent, with the profits shared between the network operator and the It's Alive company. On average, subscribers spend £10 a month, although enthusiastic players have been reported to spend a lot more. Currently, the game is very popular in Moscow, where it has been run by SonicDuo since 2003. Players there have the option to download a 'radar facility' into their phones to locate other Botfighters (Dennis 2003).

Can You See Me Now. 2002. In Sheffield (DURATION: 6 hours), Rotterdam (DURATION: 20 hours) and other cities. Blast Theory, a UK-based artists' group.

The game assigns two types of players: street runners and online players. The street runners (who are Blast Theory members) use hand-held computers, GPS receivers, wireless network connections and walkie-talkies to chase up to 15 online players. The street players and the online players communicate with each other and intersect each other's communications. All players see a map that is a graphical representation of the city, defining the game's terrain and depicting the players' location (see Figures 2A, 2B). Each online player controls a virtual avatar that runs at a set speed on the virtual map. When a street runner approaches an online player, online players have the option of viewing a 3D representation of that place in the city. Players can zoom in and out of the map. If a street player approaches an online player within a six-meter radius, he/she has been caught.

Uncle Roy is All Around You. 2003. London, ICA (DURATION: 60 minutes). Blast Theory. Street players and online players collaborate to look for Uncle Roy and exchange information. Street players use a hand-held computer to see an interactive electronic map, which corresponds to a model of the real city (see Benford et al. 2003). Online players also use this map to help street players in their quest by sending them text messages with directions and advice. Street players are directed to various locations throughout the city to look for a variety of clues in the form of postcards and physical objects, which can be found in specific locations. The game ends when players find Uncle Roy's office. When street and online players finally find the location of Uncle Roy's office on the game's electronic map, the street players physically enter an office and answer questions found on postcards, while online players enter a virtual office and answer the same questions as the street players.

I Like Frank in Adelaide. March 2004. Australia (DURATION: 60 minutes). Blast Theory. This game is similar to *Uncle Roy Is All Around You*, but here the online and street players collaborate to find Frank. By using only a 3G phone, street players communicate with online players via voice and text. Online players see a virtual representation of the city, a map that depicts the location of street players and specific locations which need to be 'unlocked' by directing street players towards them. The street players then recover postcards with questions that give them clues to Frank's location. They also receive cryptic text messages with clues. The game is over once Frank has been located.

Samurai Romanesque. Since 26 January 2001. Tokyo, Japan (Java based; DURATION: 24/7). Borrowing from MUDs, this game is based on a fictional world of ancient feudal rule in Japan. The game world is affected by real weather conditions, and players receive weather reports on their phones. Based on i-mode graphics, players see a graphical representation of their character/avatar. The samurai in the game have a 40-day life-span, within which they can produce children who will inherit some of their parents' properties. Players continue playing with their samurai's offspring. Battle begins when two players—two 'samurai'—come in close proximity. Players have the option to use instant messaging to chat with their opponents. Power-ups, weapons and other collectable items can be found using the game's map, which also depicts virtual shops and actual meeting places for players to socialize and swap items. The map represents the city they are in. Subscribers pay a monthly fee.

Human Pacman. 2004. Singapore (DURATION: 10 minutes).

The players consist of two pacmen with two helpers, and two ghosts with two helpers. The helpers are stationary, but the game characters are mobile and wear a VR helmet. Their view is a mix of the game's graphics—dots, power pills and cookies—superimposed on a video image feed from the camera mounted on the VR helmet. Stationary players can see the whole map of the game and direct the mobile players to specific locations through voice communication (Cheok et al. 2004, 74).

PacManhattan. 2004. New York, U.S. (DURATION: 10 minutes to 1 hour).

Also inspired by *Pacman*, *PacManhattan* uses a less complex technology set-up. The perfectly gridded streets of Manhattan are mapped onto the famous grid of the Pacman video game, and players dressed as Pacman and ghosts chase one another on the city streets. Using mobile phones, the street players communicate with stationary players, who use a map to update the street players' position, informing them of their opponents' movements and the location of power pills and cookies. The street players rely on the information coming from the stationary players.

Shoot Me If You Can. 2002-2003. Korea (DURATION: 90 minutes).

Borrowing from and inspired by first-person shoot-'em-ups, players chase each other on the city streets. Split into two main teams that wear distinctive stickers or t-shirts, each member tries to 'assassinate' a member of the opposing team by taking that person's photograph.

Pirates! August 2000. Bristol, UK (DURATION: 20 mins to one hour).

This game is an example of early experimental work (2000) based on academic research. The game scenario is based on pirate ships, naval battles and treasure hunting. Players in groups are assigned to a ship. The ship and its captain have various upgrades as the game progresses and players (team members) complete missions. Using PDAs and portable computers, players see a graphical representation of the virtual game world and choose to make landfall or attack another ship (that is, other players) by physically approaching that area within the game terrain (see Figure 7). Sensors placed in the game arena enable the tracking of virtual objects and players. The game world—lands and an archipelago—are mapped onto physical space: "An important reason to make 'Pirates!' a mobile game, is to make real world properties, such as locations, objects, and states of co-location between multiple players, intrinsic elements of the game" (Björk et al. 2001).

CONTEXT: MAGIC CIRCLE, VIDEO GAME INFLUENCE, AND THE JOURNEY-STORY FORMAT

Location-based games such as the Blast Theory Projects, *PacManhattan*, *Human Pacman* and *Shoot Me If You Can* have a set duration and are played within a pre-specified terrain in the city. The 24/7 games such as *Samurai Romanesque*, *Mogi-Mogi* and *Botfighters* can be played anytime and anywhere in the city. But in *Botfighters*, *Samurai Romanesque*, and similar games, the players' actions, battles and upgrades take place inside the game's imaginary world, while in games such as *PacManhattan* and *Shoot Me If You Can*, the players' actions are enacted in actual space, with players physically moving from one location to another to catch or avoid opponents.

Salen and Zimmerman in their book *Rules of Play: Game Design Fundamentals*, use the term "magic circle" to describe "the space within which a game takes place" (2004, 99). The magic circle creates an enclosing notional space in which the rules of the game and the players' actions are ascribed meaning relevant to the game's goals and set playful activity (Salen and Zimmerman 2004, 374). According to Björk, one of the co-creators of *Pirates!*, "players can only change the game state by performing actions" (Björk and Holopainen 2003, 3). According to Salen and Zimmerman, "the organisation of spatial features in a game is critical to the design of a game's narrative space of possibility" (2004, 390). In location-based games, the city space within which the game world is found becomes the space of possibility. Location-based games are played within the urban environment; their magic circle encompasses the real world and the game's imaginary

world. The space of possibility is inscribed inside the city itself and is formulated by the players' movement within it.

For Henry Jenkins, spatial narrative in video games constitutes the base of the game's narrative structure: "within an open-ended and exploratory narrative structure like a game, essential narrative information must be redundantly presented across a range of spaces and artefacts" (Jenkins 2004). Video games use the journey-story format: in *Doom*, *Final Fantasy* and the *Tomb Raider* series, clues and artefacts are embedded within the game's mise-en-scene, and the player explores and unlocks secrets as she/he is navigating the game world (Jenkins 2004). For Murray, in her book *Hamlet on the Holodeck*, the journey-story format adds "the dramatic power of navigation" (1997, 82) and enables players to feel real emotions of fear and suspense (1997, 135). Murray locates the influence of navigation as a key element in video game design to the *Pong* and *Pacman* games (1997, 80). Location-based games borrow codes and conventions from the journey-story format and the video game genre. For instance, in *Botfighters* players collect health kits and weapons in the same way as in *Doom* or the *Tomb Raider* game series. In the Blast Theory projects and *Shoot Me If You Can*, the city becomes a maze of paths and intersections, with players running and hiding in order to catch or avoid opponents.

For de Certeau, "Every story is a travel story—a spatial practice" (1984, 115). A spatial practice is not defined through attributes of space conceptualization (distance, duration, the alphabet); it can be seen as a narrative structure of tempo, order and form (1984, 116). De Certeau asserts that every journey-story is a spatial practice that embodies spatial narrative. Telling a story or walking down the street implies a spatial narrative, authored or self-experienced. This spatial narrative is formed as one encounters objects, places and intersections, so that a real-life experience can become a spatial narrative. The model of spatial practice and the journey-story format are narrative elements used in all the games discussed in this article. In *Pirates!*, *Human Pacman*, *Botfighters*, *Samurai Romanesque* and *Mogi-Mogi*, the game world is superimposed onto real space, virtual objects are found in real space, players look for them in specific locations—in physical space and to progress within the game narrative.

In location-based games the spatial distribution of game objects within the game's pre-specified terrain creates the experience of a spatial practice, narrated by the game context and its magic circle. Objects and random encounters with opponents reformulate the players' experience of walking in the city, and allow for a reinterpretation of otherwise familiar surroundings and places. A quotation from a player on the *I Like Frank* website states: "I didn't find Frank in any kind of embodied sense, but his trace encouraged me to be a tourist in my own city and to keep seeking out those individual and uncommon details that struggle for recognition within the everyday experience of public life" (Anon. 2004).

EMERGING ONTOLOGY: REAL PLACES, MAPS AND VIRTUAL OBJECTS AS KEY NARRATIVE FEATURES

In location-based games, objects and encounters with other players are key narrative features that form an integral part of the game narrative. In *Botfighters*, for example, SMS alerts provide information as to the location of useful items such as health kits. Communication by phone in *PacManhattan* and *Uncle Roy*, and alerts by SMS in *Botfighters* or by cute graphical representations in *Mogi-Mogi*, are all forms that illustrate the necessary narrative features.

In the book *The Production of Space*, Henri Lefebvre divides social practice into the “three moments of social space” (1991, 40). “Space is conceived of as being transformed into ‘lived experience’ by a social ‘subject’, and is governed by determinants which may be practical (work, play) or ‘biosocial’ (young people, children, women, active people) in character” (Lefebvre 1991, 190). In location-based games, the game system creates a social world which is notionally superimposed onto actual space, so that the imaginary game world is perceived as a new dimension, added as a layer onto actual space. During these games, space or walking within it is perceived within the variables that occur from the differentiation of what’s actually there and what’s communicated and felt by the interaction with the game and other opponents. This is the effect of “representations of space” on the individual’s perception of social space, as Lefebvre asserts.

According to Lefebvre, maps and all kinds of “graphic representation or projection” (1991, 285) are representations of space. Maps can be seen as communication and information systems, “conveyed by images and signs” (1991, 233). In location-based games, the maps used depict minimal information, only what is necessary for the player’s navigation. In *Can You See Me Now* street runners chase online players, supported by a combination of GPS and Wi-Fi, while using a PDA that depicts a map of the city and the position of online players. Stationary players use a similar map that depicts the location of street runners in real-time. The creators of *Can You See Me Now* describe the representational maps used by online players and street players as “a highly abstract 3D model of the hosting city. The model shows the streets’ layout and outlines models of key buildings but doesn’t feature textures to details of dynamic objects such as cars or, of course, most of the population” (Benford et al. 2003). The street runners use two maps, one of a global view and one of a “close-up local view centred on their current location” (Benford et al. 2003). In these games the map acts as a tool and the anchoring element that validates the coexistence of actuality with the game’s imaginary world. In *Human Pacman* the player’s view is a mix of game graphics and the video image of the real world. The creators of *Human Pacman* explain how the two representations of the physical world and the Pacman world coexist: “Pac-World is a fantasy world existing simultaneously in physical reality, in AR and VR modes” (Cheok et al. 2004). In *Human Pacman* the player’s view is of virtual game world overlaid onto actual physical space:

“We have converted the real world to a fantasy virtual playground by ingraining the latter with direct physical correspondences” (Cheek et al. 2004).

For Henry Lefebvre, representations of space can be thought as an expression of social practice carrying relative relations between a “common knowledge and ideology” (1991, 41). Representations of space are founded within an understanding and knowledge that are between real and imaginary. In representations of space, space is conceived through an order of signs, codes and “frontal relations” (Lefebvre 1991, 33). In location-based games, the game world and actual reality coexist. Players have an understanding and knowledge that the game world is artificially infused with actual space—it exists in parallel to and reinterprets the players’ location within the context of the game. Maps and alerts help illustrate how the game world encompasses and is superimposed onto actual space.

GAMES’ SOCIAL SPACE AND SPATIAL PRACTICE

According to de Certeau, a walk through the city can be considered to be a journey-story and a spatial narrative, with the objects encountered, the buildings and junctions, all forming part of a spatial narrative and becoming a form of spatial syntaxes (1984, 115). De Certeau suggests that walking in the city can be thought of as temporal variations resembling ‘turning phrases’ and other conventions in literature (1984, 100–101). For de Certeau, “Space is composed of intersections of mobile elements. It is in a sense actuated by the ensemble of movements deployed within it” (1984: 117). “Stories thus carry out a labour that constantly transforms places into spaces or spaces into places”; stories can identify places and actualize space (de Certeau 1984, 118). In location-based games, the narrative structure of walking in the city and experiencing space includes additional elements of the game world, as well as buildings, intersections and familiar surroundings. Walking in the city can be altered and formulated by making decisions and changing course to collect a virtual item, or to encounter or avoid opponents. Players suspend disbelief and venture out in a specially constructed space of meaning that includes imaginary elements of the game world and incorporates real elements from the urban environment. Binding together imaginary game world and reality, the sociality ascribed in these games gives an extra dimension and realizes the games’ reason for being—their *raison d’être*.

In location-based games, the dynamic of mixing screen-based information with the urban environment creates a kind of ontology not present in other manifestations and experimentations of location-based technologies. The ontology of virtual items/objects and reappropriated places creates a kind of dynamic that is worth noting and recognising as unique. The game’s imaginary world creates a social space in which players interact. Location-based games manage to mix virtual objects with elements from the real world. Walking in the city is seen as a model that can be modified and transmuted into a narrative experience. The players’ walking and location are recontextualized and

given an additional meaning. By adapting a virtual avatar or enacting a game character on the city streets, an additional context is added to the player's location. Employing a mixed-reality model, these games illustrate the concept of virtual objects and a social world which are created out of the game context and coexist with the experience of walking in the city and everyday life. These games create a sociality by prompting players to interact with one another in a specified locality.

CONCLUSION

Today, Sony's PSP (PlayStation Portable) offers in one product the capabilities that were once improvised using a combination of devices. The PSP offers four different peripheral devices that provide GPS navigation, video viewing/making, and instant messaging. Go!Messenger, which requires wireless bandwidth connection, provides instant messaging, voice and video calls. It's supported by BT (British Telecom) in the UK. Go!Explore is a GPS device that provides satellite navigation for walking and driving. No Internet connection is required, as the attachment links up directly to satellite. The PSP's Go!Camera allows for video calls and taking pictures, and includes video editing software. With Go!View, users can subscribe to/rent and download films and TV programmes. There's no uploading capability; rather, users first download content to their PCs and then transfer it to the PSP.

Presented as a town guide, the PSP Go!Explore offers navigational capabilities as well as a user-centered annotative environment. The user can store and bookmark relevant information such as favourite places and routes (Anon. 2008). It does not include the option to view annotations made by other users. However, the PSP Go!Explore does reveal a world in which the user is the solo inhabitant. It uses 3D and 2D representations of the city space to help users identify their bearings, and also features a compass. The PSP Go!Explore makes GPS accessible, as a function, to the level of the pedestrian. What's missing, though, is a *raison d'être*, a sociality ascribed in the interaction with the interface and the place the user is found in. What is stopping Sony from integrating the PSP's Go! functionality with a social networking application for gaming? It can only be a series of proprietary policies and privacy issues and the sheer number of users. This new device does not manage to surpass the potential created in the early days of the almost DIY (Do It Yourself) combination of technologies. What the PSP Go! suite lacks is social interaction.

Furthermore, the PSP Go!Explore faces competition from mobile phone manufacturers and telecoms. Nokia and Motorola have independently formed services that provide location services. GPS navigation and downloadable town guides are now offered as commercial services from most mobile phone operators and telecoms. In the UK, T-Mobile's Web'n'Walk service integrates access to the Internet, Google Maps and other navigational features and offers pedestrian navigation, listings and address-finding software to the mobile phone. In October 2008, T-Mobile also released the Android

phone. The Android is a device that supports Flash applications and promises to create a community of users that can populate the device with community software in the form of Java-based programmes and games. Today all current-generation mobile phone handsets include services that were once improvised on a level of experimentation and under a context of play.

For a brief moment at the beginning of this century, artistic work experimented with the potential and ability of mobile networks to create new contexts for situated and spontaneously formed interaction between people. Moving away from screen-based gaming, location-based games created an ontology of virtual objects and real places, mixing reality with the imaginary game world. Against the backdrop of changing temporalities and through the use of a transfigurative mix of technologies, location-based games demonstrate how access to a social world by a technical network can alter the experience of spatial practice both momentarily and for some time. What was once a DIY approach to a combination of technologies is now offered in most mobile devices. The field of Locative Media continues to develop and creates new approaches. Location-based games as a movement and a genre have had their moment. But the ideas engendered through these games should be addressed and explored further in any future application of location-based technologies and social interaction in a specified locality.

Location-based games are illustrative examples of how walking in the city can be altered by the addition of an imaginary social world that is combined with actuality via access to mobile devices and networks. Representations of space become active information displays used as tools to interact between virtual networks, information and people in actual space. The elements of the games' magic circle, narrative features and journey-story format bind together and make the players perceive an imagined game world that exists within the boundaries of the physical world. In location-based games the willingness of players to explore and accept an imaginary game world through the use of representations of space alters and modifies the experience of spatial practice. As I have demonstrated, location-based games can be analyzed in three strands: the technologies used and the emerging ideas; the context applied for social interaction; and the emerging ontology. The characteristic of changing temporalities in these new technologies, the game context and the representations used, all create a new experience for their players.

REFERENCES

- Anonymous. 2004. I like Frank. (last accessed 22 December 2008).
———. 2008. Go Explore user manual. (last accessed 22 December 2008).
Benford, S. et al. 2003. Uncle Roy is all around you: Mixing games and theatre on the city streets. In *Level Up International Digital Games Research Conference (DIGRA) 2003, Conference proceedings. 4–6 November 2003 Utrecht University* (last accessed 22 December 2008).
Benford, S., M. Carsten, and P. Ljungstrand. 2005. Bridging the physical and digital in Pervasive Gaming. *Communications of the ACM* 48 (3): 54–57. (last accessed 22 December 2008).

- Björk, S., J. Falk, R. Hansson, and P. Ljungstrand. 2001. Pirates! Using the physical world as a game board (last accessed 22 December 2008).
- Björk, S. and J. Holopainen. 2003. Describing games. An interaction-centric structural framework. In *Level Up International Digital Games Research Conference (DIGRA) 2003, Conference proceedings. 4–6 November 2003 Utrecht University* (last accessed 22 December 2008).
- Cheok, A. D. et al. 2004. Human Pacman: A mobile, wide-area entertainment system based on physical, social, and ubiquitous computing. *Ubiquitous Computing* 8: 71–81 (last accessed 22 December 2008).
- De Certeau, M. 1984. *The practice of everyday life*. London: University of California Press.
- Dennis, T. 2003. Botfighters—a new Russian addiction. *The Inquirer* 21 October (last accessed 22 December 2008).
- Dodson, S. 2002. Ready, aim, text. *The Guardian*, 15 August (last accessed 22 December 2008).
- Hemment, D. 2005. The mobile effect. *Convergence: The International Journal of Research into New Media Technologies* 11 (2): 32–40.
- Holmes, B. 2003. Drifting through the grid. Psychogeography and imperial infrastructure (last accessed 22 December 2008).
- Jenkins, H. 2004. Game design as narrative architecture. In *First Person: New Media as Story, Performance, Game*, eds. N. Wardrip-Fruin and P. Harrigan, 118–130. Cambridge, MA: MIT Press.
- Lefebvre, H. 1991. *The production of space*. Malden, MA: Blackwell.
- McCullough, M. 2005. *Digital ground: Architecture, pervasive computing, and environmental knowing*. Cambridge, MA: MIT Press.
- Murray, H. J. 1997. *Hamlet on the Holodeck. The future of narrative in cyberspace*. Cambridge, MA: MIT Press.
- Plant, S. 2001. On the mobile. The effects of mobile telephones on social and individual life (last accessed 22 December 2008).
- Rheingold, H. 2002. *Smart mobs. The next social revolution*. Cambridge, MA: Basic Books.
- Salen, K. and E. Zimmerman. 2004. *Rules of play: Game design fundamentals*. Cambridge, MA/London: MIT Press.
- Silverstone, R. and Z. Sujon. 2005. Urban tapestries: Experimental ethnography, technological identities and place. In *MEDIA@LSE Electronic Working Papers* 7 (last accessed 22 December 2008).
- Sotamaa, O. 2002. All the world's a botfighter stage: Notes on location-based multi-user gaming. In: *Proceedings of Computer Games and Digital Cultures Conference, 6-8 June 2002 Tampere, Finland*, ed. F. Mäyrä, 35–44. Tampere: Tampere University Press (last accessed 22 December 2008).
- Thrift, N. 2004. Movement-space: The changing domain of thinking resulting from the development of new kinds of spatial awareness. *Economy Society* 33 (4): 582–604.
- Tuters, M. 2004. The locative commons: Situating location-based media in urban public space (last accessed 22 December 2008).