The map as playground: Location-based games as cartographical practices

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ABSTRACT
In this paper I will examine how maps in location-based mobile games are used as surfaces on which players can inscribe their whereabouts and other local information while being on the move. I will look at three different location-based games to which maps are central as a playing surface: *RunZombieRun*, *Paranormal Activity Sanctuary* and *Own This World*. My main argument will be that such cartographical location-based games foreground the fluidity of mapping and emphasise the performative aspects of playing with maps. As such they are not representations used by players for consultation, but as Latourian mediators (Latour 1990, 1993, 2004) they produce new social spaces (Lefebvre 1991). It therefore does not suffice to conceive maps in such games as "mimetic interfaces" (Juul 2009). Instead they should be approached as what I will call navigational interfaces. To understand them as such I will combine perspectives from game-studies with understandings of maps as technological and spatial practices as developed in Science and Technology Studies (STS) and Human Geography.

Keywords
Location-based games, maps as games, casual play, navigational interfaces.

INTRODUCTION
With the emergence of smartphones, many highly popular applications have been developed in which digital maps are used for more purposes than just solely finding your way. Since it has become increasingly common for people to have smartphones in their pockets with GPS and Internet connections, a myriad of applications have been developed that use information about your actual location for playful activities. Some of these applications may be called quasi-games because they do not have very well established rules and actually hold the middle between social networking tools and games (e.g. *Foursquare*, *SVNGR*, *Gowalla*). Such quasi-games definitely entail play-like elements but one may debate their (often promoted) status as games (cf. Glas 2011, Deterding et al. 2011).

Yet other location-based apps have well-established rules and game mechanics. In this paper I will analyse three of such games: *RunZombieRun* (RZR) *Paranormal Activity Sanctuary* (PAS), and *Own This World* (OTW). I have chosen these games because they all use maps from actual environments through which the player moves as a graphical user interface. So, instead of just containing links to maps (e.g. *City Secrets*) or employing fantastical maps (e.g. *Bounty Island*), a topological map of the actual

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environment is the central game-board on which players make their moves. Pivotal to my analyses of these games will be how players interact with and give shape to maps, how maps simultaneously function as (urban) navigational interfaces and game-boards and how the cultural meaning of maps as game-boards shifts in such location-based games.

THE MAP AS GAME-BOARD AND PLAYGROUND

In the games that are central to this paper, players use maps on their mobile phones as their chief "play equipment" (Sutton-Smith 2001). In the massive multiplayer location-based game PAS, for example, the objective is to carry your phone around or to chase and avoid demons that are rendered visible on a Google map. Conversely, when a player is 'possessed' the goal is to rob other players from their sanity. A red pin on the map depicts the location of the player. Ominous spheres where demons are luring are shown as red circular blotches while 'sanctuaries' are demarcated as blue areas. Icons above the map allow you to cast spells, purchase magical items and so forth.[1] Spells can be cast on the map by drawing a pentagram on paper and taking a picture of it that is then 'projected' on the map.

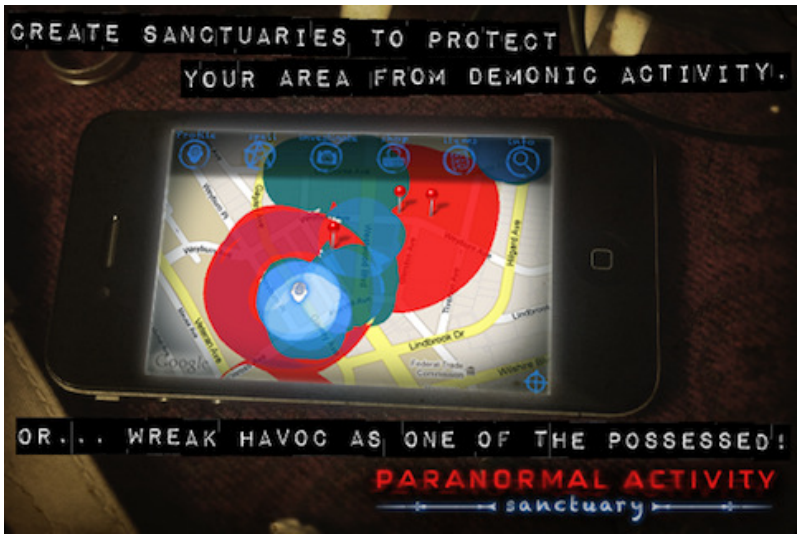

Figure 1: *Paronormal Activiy Sanctuary* (Ogmento, 2010)

Hence the used map 'absorbs' all signs from the material world, a profound difference to pervasive games like *Geocache* in which players are encouraged to use a GPS device to find treasures that remain tangible (although hidden) in the physical world. Contrary to many other pervasive games, these mobile map-based games blur the distinction between the physical world and game-world through an ongoing integration of real-world aspects into the game-world. The map becomes a portable game-board that constantly incorporates the physical and spatial activities of players on the move.

At first glance this bears a strong resemblance with analogue game-boards that can also be carried around and where one can likewise move on a cartographical surface whilst leaving markers and other inscriptions. It seems in particular similar to games with

mobile game-boards that you take on a journey, such as *Trek,* where a map of an environment serves as a basis on which players put layers of information that shift according to their mobile activities. Yet a crucial difference between such analogue games and the ones under scrutiny here is that in the latter, the actual physical positioning of the player becomes an intrinsic part of the game-board. Players become pawns inscribed on the map and the game-board becomes a transformative hybrid of the map that is being used and the environment through which players move.

This is significantly different from analogue cartographical game-boards like *Conquest of the Empire* or *Age of Steam* that can be considered as classical *immutable mobiles*. Anthropologist of techno-science Bruno Latour coined this term to explain the social production and status of techno-scientific artefacts. Immutable mobiles don't lose their fixed shape when used in different locations and situations. Using as an example the difference between a map being drawn in the sand (that will eventually be wiped out by the sea) and a map being inscribed in a notebook, Latour identifies the map in the sand as mutable and immobile while the map in the note-book is an immutable mobile that can be transported without changing form. According to Latour particular traits ensure that a thing becomes an immutable mobile: it has to be a *flat inscription* that can vary in *scale*, can be *reproduced*, is *re-combinable*[2] and is *super-imposable* with other inscriptions (Latour 1990, 37-38). Analogue cartographical board games indeed invite players to superimpose, inscribe, reproduce and reassemble position on a surface. The surface of the map is layered with pawns, markers and so forth, yet the surface, the *fond de carte* (November, Camacho-Hübner, and Latour 2010, 581) remains immutable. Although I wouldn't go as far as to argue that the game-board has become a mutable mobile in the case of location-based games, I would nevertheless maintain that the *image* of the map itself has lost some of its immutability since the image of the map is constantly altered by the actions of the mobile player. Here lies a clear difference with analogue board games that depend on maps: the appearance of the map as surface to play on has become transformable. Although this goes for maps in most digital games, in location-based games this transformability is dependent on both the mobility of the map *and* the player.

This reciprocated mobility of map and player points to the most important feature of the mutability of maps in such games: on the map the player's touring and mapping activities are constantly hybridised. The French philosopher Michel de Certeau used both terms as separate categories to describe the frictional relationship we encounter in daily life between going places as a subjective experience and simultaneously having to deal with abstract and depersonalized renderings of our environments such as maps (de Certeau 1984). In general, digital maps open up possibilities to play with and overcome this friction by hybridizing activities of going and looking (Lammes 2008). In RZR this merging is, for instance, established through running (going) whilst looking at your location on the map. Or as it is summarized when you open this app: *Zombies in the neighbourhood. They are not fooled by plants. The only way to hold them back is to run. Run with your iPhone in hand*. A Google Earth photographical aerial image of your surrounding functions as the map on which you have to take this fast tour of your environment. In the left-upper corner a mini-map shows an overview of the area. On the main map and the inserted map the position of the running player is indicated by an arrowhead-symbol and the position of Zombies as contours of bodies. In this game aerial photographs function as a game-board on which both the real position of the player and the virtual position of the zombies is inscribed. Consequently a fusion of playground (touring) and map (looking) occurs.[3]

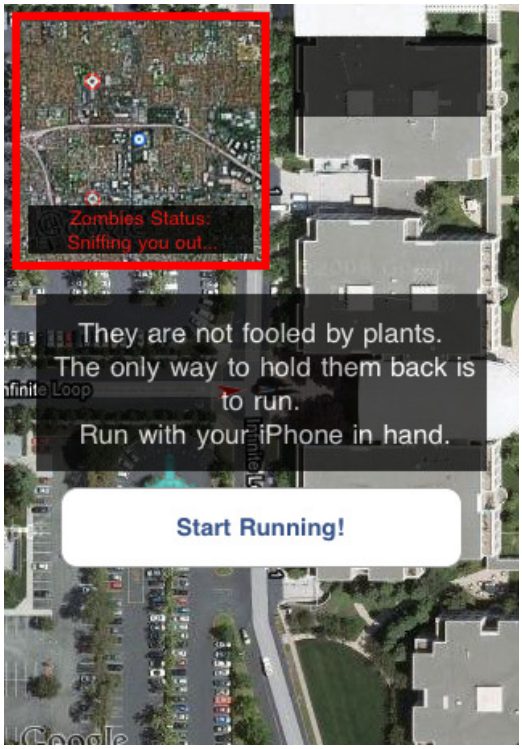

Figure 2: *RunZombieRun* (SeeSawApp, 2010)

In OTW a similar process is at work. In this strategy game, reminiscent of a board game like *Risk*[4], players tour their actual environment to locate, map and outwit other players. A Google map overlaid with gridlines delineating players' territories functions as the mobile game-board. The position of the player is shown as a blue dot on the map. Underneath the map, icons give players options to conquer, to look for leaders, to purchase resources, to leave messages and to join alliances. Like in RZR the map functions as a mobile game-board on which players can *physically* situate and see themselves and others moving. Hence touring and mapping are hybridised to shape ever-changing images.

THE NAVIGATIONAL INTERFACE

OTW and RZR thus blur the line between game-world and our physical surrounding by absorbing the actual touring of our vicinity into a cartographical mutable image. This integration of mundane spaces and game-world is amplified by the fact that such games can be played for short stretches of time and can be effortlessly combined with other 'touring' activities (e.g. going to work, shopping, visiting a city as tourist) as well as other functions of mobile phones (e.g. texting, making a phone call, twittering). Mobile smart phones are convergent technologies that are always near at hand, which invites players to engage with such games in a scattered and casual manner. Being so strongly embedded in daily life, and in a techno-scientific multi-tasking culture of going, looking and doing, they are best described as *dispersed* gaming activities. Players constantly step in and out of such games while this doesn't necessarily destroy the gaming experience. As discussed by Montola et al, it becomes problematic to maintain that these games adhere to the notion of a magic circle (cf. Montola 2005; Montola, Stenros, and Waern

2009, 19,21).[5] Instead, they generate a ludification or gamification[6] of casual spatial activities and, vice versa, turn digital games into unceremonious spatial events.

In his book *A casual revolution: Reinventing video games and their players* game-scholar Jesper Juul speaks in this context of casual games:

> There is a new wave of video games (…) that are easy to learn to play, fit well with a large number of players and work in many different situations. I will refer to these new games using the common industry term casual games. (Juul 2009, p.5)

Juul speaks of two kinds of casual games: downloadable games and games that make activities in real life visible through "mimetic interfaces" (e.g. *Guitar Hero* guitars or *DDR* dance mats, p.5). Similar to the games that Juul describes cartographical mobile are downloadable and make use of interfaces that render visible how players move and act. Yet different from the casual games that Juul is examining the activity of the player is not so much mirrored by the interface in the case of cartographical games: *via* the interface new spaces are produced that are hybridisations of playground and game-board.

From mirrors to sign-things

It is all too common to think of interfaces in metaphorical (and idealistic) terms of windows or mirrors. Both designers and academics seem to be recurrently unaware that interfaces are 'sign-things' (Latour 1990) which play a crucial part in producing (spatial) meanings (Pold 2005, Lammes 2011). As the games under scrutiny here foreground, interfaces (in this case the screen of the mobile phone) are not so much mimetic tools but rather mediators via which players are invited to produce new spatial relations. A park may be changed into an actual battlefield, a haunted space or a racing track, via an interface that invites players to navigate through that park while perceiving it in a different manner. Thus new spatial connections are produced by how players move with their phone in hand.

I would therefore propose to perceive such interfaces as *Latourian mediators* (Latour 1990, 1993, 2004). Similar to for example a door-hinge or a key, they proscribe certain spatial actions (e.g. 'turn left', 'touch me', 'take me out of here') and invite specific interactions between the game, players and other humans or things. Interfaces are the material means through which the player as navigator and cartographer can create particular and shifting spatial relations. To view interfaces as technological artefacts that act as such mediators allows us to move away from a preoccupation in which the transparent and non-intrusive mirror or window is conceived as "the archetypical interface" (Cypher and Richardson 2006, 2). In the case of the cartographical location-based games that I am writing about here, the term *navigational interface* would be more appropriate to use. The phone screen becomes an interface that invites players to watch themselves as a navigational vehicle that tours on the map. Via the interface as mediator the player navigates actively through physical environments and constantly blends playground and the mapping game-board. Thus the navigational interface does not so much proscribe to 'mimic' environments but rather to transform them by navigating through them with specific game-rules in mind.

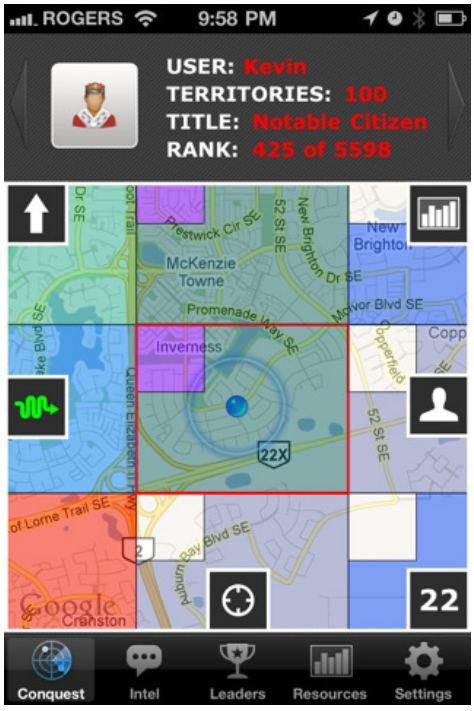

Figure 3: *Own This World* (BNID, 2010)

The production of playgrounds

As a specific kind of neo-cartography, digital maps in location-based games underline what November, Camacho-Hübner and Latour (2010) have recently marked as a shift in the public perception of maps from the "mimetic" to the "navigational". They consider risk as a key notion to allow us to move away from a problematic interpretation of maps as objects that mimic actual environments. They use the notion of risk to draw attention to the fact that maps are always performative practices which outcome is never fully predetermined. Yet, I would add that 'play' is an important and compatible concept to account for this quality of digital maps as well: play always implies a certain degree of risk (Geertz 1972; Sutton-Smith 2001).[7] Also, like risk, play can never be fully calculated, hence opening possibilities for users to treat maps as outcomes of constant processes of hybridisation. Yet different from risk, play is far more embedded in the domain of popular culture, therefore being a powerful tool for changing the public perception of mapping from the mimetic to the navigational in the context of daily life.

Whilst a mimetic interpretation of maps relies on a belief that maps have a direct resemblance to, for example, a landscape or a battlefield (two points of reference), a navigational understanding of mapping approaches them as "chains of production" (November et al., p.584) in which references are made depending on relevance. Location-based cartographical games maps foreground the latter interpretation of maps. First of all, the chain of production is made prominent since players are constantly aware of the networks that are involved in making maps: data input of themselves and other (virtual) players, the strength or weakness of the Internet and GPS connection (and the number of satellites providing that signal) and so on. Players are, as November et al. put it, aware of "institutions, skills, conventions, and instruments" (2010, p. 584) that make up the map. Secondly the relevance of reference is accentuated since players are constantly sensitive to their own role of in creating such shifting alliances by having a say over the significance of references and particularly by putting themselves on the map.

Players are part of and are playing with shifting references between landscape and map, constantly aware of their phone-screen as a navigational interface that invites them to produce such spatial relations. They are in that sense very similar to navigators at sea, also always aware of the perilous and shifting connections between map and territory (November et al, 2010, p.585) Likewise, a player of RZR runs while looking for 'warnings' such as the noise of approaching cars in the real world or from Zombies that appear like ships from the mist in the virtual world. Or a player of OTW keeps track of other players and teams that may be roaming the street. Players are constantly aware of the mundane world through which they move, which is not the same as the game-world mediated by the map that they see on their phone. Yet different from the navigator at sea, players of such digital cartographical games see their own and other's manoeuvres (or better: moves) back on the map. Hence the "upstream and downstream" production of maps is ever-present as references from the physical world that are important to the game are hybridized through the navigational interface and made part of the map. Or as November et al. put it: "it is not mimetic (…) they do not divide in two, so as to form a real analogical 'outside' and a mapping representational one 'inside'" (p. 586).

Furthermore, players of such games select an alternative set of references from the navigator at sea. In cartographical games, the references are chosen depending on their relevance for the game. It consequently makes player sensitive to how the spatial construction of spaces hinges on what references are selected by travellers for understanding them (cf. Vertesi 2008). Especially because playing such games generates "augmented" spatial relations (Manovich 2006) the player is very observant of how references depend on their significance. In PAS, for example, players are finding their way through a physical environment by the use of a navigational interface on which a symbol of a square can acquire an augmented meaning of both being a place where you can take a bus and being a dangerous ground. For a 'normal' voyager that uses a (digital) map it is more natural to interpret the symbol on the map as bearing a mimetic reference to the environment. Navigational interfaces in location-based games emphasize that references on the map are *chosen* ones rather than mimetic ones, and that meanings of spatial relations are not pre-given but are rather socially produced (Lefebvre 1974).[8]

PLAYFUL MAPPING

With the advent of digital maps and a simultaneous "ludification of culture" (Raessens 2006) all new kinds of playful mapping practices have emerged. Surely playing and mapping have a shared history that goes way beyond the digital turn (Perkins 2009; Flanagan 2009) yet playful mapping has entered a new era now that players are able to manipulate the appearance of maps in multiple ways and can constantly wipe out images of maps to create new ones whilst being on the move. Furthermore technological means of communication (satellites, WIFI, Bluetooth, GSM) enable a constant flow of communication of such transforming images. Digital maps thus provide a new range of possibilities for agency and creativity on the part of the player as navigator and cartographer. They are 'processual' simulations (Kitchin and Dodge 2007) rather than representations, being adaptable to performative acts of players in daily life.

Location-based games that use the map as a digital game-board open up new possibilities for re-thinking maps as practices that shape our understanding of spatial relations. They show us that it is untenable to perceive maps in purely mimetic or semiotic terms and highlight the function of maps as Latourian mediators. They ask players to use their phones as navigational interfaces for hybridizing the map as game-board with the playground as an area for touring. This generates a different awareness in which

categories such as inside/outside, object/subject, play/non-play, map/tour become contested and the social production and performative character of maps is foregrounded.

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ENDNOTES

[1] There is also an option to investigate your vicinities for looming spirits by using your camera to "shoot' demons' that otherwise would remain invisible.

[2] In analogue board games like *Carcassonne* and *The Settlers of Catan* players combine pieces of maps. The pieces in themselves are nevertheless immutable mobiles and are, in perfect line with Latour's definition, *recombined*.

[3] At the same time digital location-based games are closely related to analogue outdoor games where players can likewise be physically part of self-drawn maps by literally standing on them. Maps are then demarcated on the ground by chalk-lines (of which the depiction of the Zombies reminds us), pylons or other markers. However a strong incompatibility is that digital location-based games depend on the screen of the phone as an interface, a mediator on which the position of the player is externalized and *watchable*. Now players see and situate themselves on their phones. They do not exactly stand on the map but use an interface to merge playground and game-board.

[4] Popular culture has always been fascinated by a nostalgia of mapping and touring and games can be perceived as a new manifestation of this (see Fuller and Jenkins 1995).

[5] One could even argue that such games foreground the fact that the magic circle is anyhow a highly problematic concept (Calleja 2012; Pargman and Jakobsson 2008; Consalvo 2005; Lammes 2008; Taylor 2006).

[6] With gamification I refer to the integration of game mechanics into daily activities, mostly as a marketing tool (e.g. reward systems), while ludification is a more general and cultural term to indicate the integration of play into daily life. The latter term doesn't primarily entail game mechanics and rules, but is far more about play as a general cultural and anthropological phenomenon in the way that Sutton-Smith (2001) approaches it.

[7] Brian Sutton-Smith (2001) speaks of deep play as the most perilous kind of play. Clifford Geertz uses the same term in his famous essay on Balinese cockfighting: "play in which the stakes are so high that it is, from his utilitarian standpoint, irrational for men to engage in it at all" (Geertz 1972). When we envisage a continuum between "deep play" and less precarious kinds of play, shallow play would be on the other side of this spectrum. Risk is also seen as an important aspect for designing videogames (Yee 2009; Wilson 2011; Hayot and Wesp 2009)

[8] After all a player feels like being in a different world when running through a street with an iPhone in hand avoiding Zombies etc., whilst 'by-standers' may not be aware of the difference, except that the person is running and looking at a phone. (cf. Montola, Stenros, and Waern 2009, p. 203)

BIBLIOGRAPHY

BNID (Big Nerds in Disguise). (2010) *Own This World.* [Windows phone 7, iPhone 3GS, iPhone 4] Calgary, Alberta Canada: played April, 2011.

Bradley, Milton. (1995) *Conquest of the Empire* [board game], Milton Bradley, Eagle Games, Plainfield, Illiinois USA.

Calleja, G. "Ludic identities and the magic circle," in Homo Ludens 2.0: Play, Media, Identity, ed. V. Frissen et al. AUP, Amsterdam, 2012 (forthcoming).

de Certeau, M.. The practice of everyday life. University of California Press, Berkeley & London, 1984.

Compass Engine Corp. (2011) *Bounty Island.* [iPhone 3GS, iPhone 4, iPad] Vanvouver Canada: played June 2011

Consalvo, M. "Rule sets, cheating, and magic circles: Studying games and ethics," in IRIE. International Review of Information Ethics vol. 3 (December 2005), pp.7-12.

Chia Jit San. (2010). *RunZombieRun* [Version 1.7], SeeSawApps. Singapore.: played April 16, 2011.

Cypher, M., and I. Richardson. "An actor-network approach to games and virtual environments," in Proceedings of the 2006 international conference on Game research and development (Murdoch University, Australia, 2006), pp. 254-259.

Deterding, S. et al. "Gamification. Using game-design elements in non-gaming contexts," in Proceedings of the 2011 Annual Conference on Human Factors in Computing Systems (2011), ACM, pp. 2425-28.

Flanagan, M.. Critical play: Radical game design. The MIT Press, Cambridge Mass., 2009.

Foursquare (2009). *Foursquare*. [Android, Blackberry, iPhone, Windows phone 7, Palm, OVI, Version 3.0.1] New York USA: played 2010- 2011.

Fuller, M., and H. Jenkins. 1995. "Nintendo® and New World Travel Writing: A Dialogue," in Cybersociety: Computer-Mediated Communication and Community, ed. S. G. Jones, Sage Publication, London, Thousand Oaks, New Dehli, 1995, pp 57-72.

Geertz, C. "Deep play: Notes on the Balinese cockfight," in Daedalus vol. 101, no. 2 (1972), pp. 1-37.

Glas, R. "Breaking reality: Exploring cheating in gamified media," in Proceedings of 5th DiGRA conference: Think, Design, Play, Hilversum, The Netherlands, 2011.

Gowalla inc. (2009) *Gowalla* [iPhone, Android, Blackberry, Palm. Version 3.2.1] Austin, Texas, USA: Played 2010-2011.

Hayot, E., and E. Wesp. 2009. "Interview with Brad McQuaid and Kevin McPherson," in Game Studies vol. 9, no. 1 (April 2009).

Juul, J. A casual revolution: Reinventing video games and their players. The MIT Press, Cambridge, Mass.. 2009

Kitchin, R. and M. Dodge. "Rethinking maps," in Progress in Human Geography vol. 31, no.3 (2007), pp. 331-344.

Lammes, S. "Spatial regimes of the digital playground: Cultural functions of spatial practices in computer games," in Space and Culture vol. 11, no. 3 (August 2008), pp. 260-272.

———."Transmitting location: Digital cartographical interfaces as transformative material practices," in Aether: The Journal of Media Geography (Autumn 2011, forthcoming).

La Morisse, Albert (1957). *Risk.* [board game] Hasbro, & Winning Moves USA. Pawtucket, Rhode Island & Danvers Mass., USA.

Proceedings of DiGRA 2011 Conference: Think Design Play.

La Mosca Games. (2011) *City Secrets* [iPhone 3GS, iPhone 4] Calgary, Ghent, Belgium: played July 2011.
Latour, B. 2004. "The Berlin key or how to do words with things," in Material culture: Critical concepts in the social sciences, ed. V. Buchli. Routledge, London, New York, pp. 327-337.
———. "Visualisation and cognition: Drawing things together," in Representation in scientific practice, ed. M. Lynch and S. Woolgar. MIT Press, Cambridge, Mass, 1990, pp. 19-68.
———. 1993. We Have never been modern. Harvester Wheatsheaf, London, 1993
Lefebvre, H. 1974. La production de l'espace. Anthropos, Paris, 1974.
———. The production of space. Wiley-Blackwell, London, 1991.
Manovich, L. "The poetics of augmented space," in Visual Communication vol. 5, no.2 (2006),pp 219.-40.
Montola, M. 2005. "Exploring the edge of the magic circle: Defining pervasive games," in Proceedings of DAC 2005 Conference (2005).
Montola, M.., J. Stenros, and A. Waern. Pervasive games: theory and design. Morgan Kaufmann, Burlington, 2009.
November, V., E. Camacho-Hübner, and B. Latour. "Entering a risky territory: Space in the age of digital navigation," in Environment and Planning D: Society and Space vol. 28 (2010),pp. 581-599.
Ogmento (2011). *Paranormal Activity Sanctuary*. [iPhone 3GS, iPhone 4, iPad WI-FI+ GS, Version 1.4], Los Angeles & New York, USA: played 16 April 16, 2011.
Pargman, D., and P. Jakobsson. "Do you believe in magic? Computer games in everyday life," in European Journal of Cultural Studies vol. 11, no. 2 (May 2008), pp. 225-244.
Perkins, C. "Playing with maps," in Rethinking maps, ed. M. Dodge, R. Kitchin, and C. Perkins. Taylor & Francis, London, 2009, pp 167-88.
Pold, S. "The critical interface," in Proceedings of the 4th decennial conference on Critical computing: between sense and sensibility, ACM New York, USA, 2009, pp.109-112.
Raessens, J. "Playful identities, or the ludification of culture," in Games and Culture vol.1, no.. 1 (January 2006), pp. 52-57.
SCVNGR inc. (2010) *SCVNGR* [iPhone, Android. Version 3.5.5] Cambridge, Mass, USA: Played April 2011.
Sutton-Smith, B. The ambiguity of play. Harvard University Press. Cambridge. Mass., 2001.
Taylor, TL. Play between worlds: Exploring online game culture. The MIT Press, Cambridge, Mass, 2006.
Teuber, Klaus. (1995), *The Settlers of Catan*. [board game] Kosmos, Germany.
(1954). *Tr*ek: The roadmap game [board game] Wesley Industries, USA.
Vertesi, J. "Mind the Gap: The London Underground Map and Users' Representations of Urban Space," in Social Studies of Science vol. 38, no. 1 (February 2008), pp. 7-33.
Wallace, Martin. (2002) *Age of Steam*. [board game] Warfrog Games, USA.
Wilson, D. "Brutally Unfair Tactics Totally OK Now: On Self-Effacing Games and Unachievements," in Game Studies vol. 11, no. 1 (February 2011).
Wrede, Klaus Jürgen. (2000) *Carcassonne*. [board game] Hams im Glück, Germany.
Yee, N. "Befriending ogres and wood-elves: Relationship formation and the social architecture of Norrath," in Game Studies vol. 9, no. 1 (April 2009).