

The affordances of learning planning in Second Life

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Second Life (SL) is one of several online virtual worlds that have become increasingly popular during the last five years. Residents in Second Life use an avatar (a computer generated representation of themselves) through which they move, communicate, build and trade virtually. Land costs Linden dollars (L\$) to purchase and own. Although building in Second Life is free, it is regulated by an overlapping set of covenants on land as well as a nascent planning system.

The aim of this paper is to discuss the implications of Second Life for planning education. We begin with a brief overview of Second Life and planning. We then highlight a significant caveat in the use of technology in general before describing four protocols on the use of Second Life in teaching planning. Finally, we describe a case study of the application of Second Life in teaching Crime Prevention Through Environmental Design.

Introduction

Skills in the use of maps, diagrams and models have historically been important in planning. Knowledge of geographic information systems (GIS) are usually essential selection criterion for planning jobs. Skills for using and manipulating maps are included in the curricula of most planning degrees. Historically, the use of visual tools has enabled planners to create, codify, arrange spaces and effect change.

During the last 40 years there has been a combined development in mapping and visualisation using computers. Since the 1970s the use of geographic information systems (GIS) has expanded in line with the availability of data and the speed of computers (Bishop, 2000 p.111, Peters, 2008). The revolution in computing has allowed most local government in the US for example to acquire GIS and the production of the maps from these systems has developed into its own specialist sub-discipline (O'Looney, 2000).

In parallel with the development of GIS, researchers have explored visualisations to portray the contours of landforms and the built environment in three

dimensions. Taking their cue from research in virtual reality researchers have undertaken this work under a 'blue-skies' research paradigm. It has been broadly justified because it has been assumed to contribute to the decision-making process by informing stakeholders (Lange, 1994, Koll-Schretzenmayr et al. 2004, Krygier, 1999; Kingston et. al 2000, Gonzalez et. al. 2007). Wissen et. al. (2008) for example provide evidence that visualising indicators of landscape change can help stakeholders understand processes of change in the environment animating them 'to set up cause-and-effect chains' (p.194).

The use of GIS and 3D visualisation in planning is dramatically changing because of the explosion in internet use. The internet has facilitated the development of community-driven GIS, giving rise to the discipline of 'neo-geography'. Here people use Web 2.0 applications to overlay their own information onto systems that mirror the real world (Hudson-Smith et al., 2009; Goodchild, 2009). The internet has also allowed the burgeoning use of virtual worlds, that employ 3D visualisation, these include Habbo Hotel, Second Life, and Google's Lively to name but three.

The expense and difficulty of using 3D visualisations have meant that they have not penetrated to the same extent as GIS in planning. Could the current rise in the popularity of virtual worlds change this? A number of recent works have argued that it will (Steins, 2007; Horne and Thompson, 2008; Gordon and Khoo, 2008; Foth et al., 2009). Arguing that Second Life can act as a testing ground for planning decisions, Foth et al. (2009) show how this software can be used to generate narratives around planning decisions. Gordon and Khoo (2008) argue that Second Life offers a way to facilitate the development of Habermasian 'placeworlds', as a subset of lifeworlds.

Despite this recent interest in virtual worlds and the extensive research in 3D visualisation, two important questions about Second Life's and virtual worlds' contribution to planning remain unanswered: to what extent will these tools be used by planners in their participatory planning work? And, leading on from this, what likely position will virtual worlds such as Second Life occupy in planning curricula?

The aim of this paper is to develop and argue for protocols to guide the application of virtual worlds to planning education. We use our research on Second Life, detailing firstly why Second Life would be of interest to planners generally. We then use a literature search of journals, books and internet sources and participation in Second Life-based discussion groups to develop a series of protocols for the use of Second Life in teaching planning. Finally we detail the use of these protocols in a post-graduate teaching unit to highlight how Second Life can be used to explore the various aspects of Crime Prevention Through Environmental Design (CPTED).

Second Life and planning

Second Life is a computer generated physical space that can be experienced by several people at once. It combines the accessibility of the internet with the rich graphics of 3D interaction, allowing participants to move and interact with each other in a fictional landscape using a character called an avatar. Avatars can purchase land for Linden dollars (L\$). They can place textured shapes or objects on the land and connect them together to build a variety of objects from skyscrapers to jewellery. The ability to purchase land and build on it distinguishes Second Life from a number of existing virtual worlds such as *Neopets*, *IMVU* or *Habbo Hotel*. Unlike older text-based virtual worlds such as *Hunt the Wumpus*, newer 2D simulators such as *Simcity* and games that use 3D graphics such as *Doom*, Second Life is highly visual, its aims are open-ended and it is without rules (Boellsdorff, 2008).

Since building is possible in Second Life and there are no 'game-rules', although there are rules of behaviour, a nascent planning system has developed inworld. In Second Life subdivision and building types and styles are only limited by the number of 'prims' or building blocks and shapes that a single piece of land can sustain. Some of the house styles and regions imitate real-world locations. Others are fantasy lands or are tailored to a particular purpose. This variety is reflected in the ways that educators have found to apply Second Life to their courses.

The chaotic nature of development in Second Life has meant that between 2005 and 2007 a number of inworld developers discovered the added value of building on islands where covenants exist (Steins, 2007). A frequently used covenant was limiting the area of land that could be subdivided or controls on the construction of advertising hoardings known as 'ad-farms'. Ad-farms were used not only to advertise but to force residents to purchase the land on which the hoarding was situated in order to get rid of the visual intrusion. Such was the spread of these ad-farms that in October 2008 Linden Labs announced that they were moving to regulate them, effectively employing a zoning control (Linden, 2008, Au, 2008).

The existence of a nascent planning system in Second Life points to an important difference between virtual worlds and the 3D visualisation research which was inspired by research on virtual reality (e.g. Wissen et al., 2008). While research in 3D visualisation has attempted to control subjects' ability to view a projected reality, in Second Life and virtual worlds generally, subjects are able to create their own reality. As the planning example shows, they can borrow societal rules and normative ideas from the 'real' world and also generate new ones that are better adapted to their needs.

In his ethnography Boellsdorff (2008, 20) argues that Second Life relies on a difference between the virtual and the 'real' remaining in place. This is because the users of a virtual environment see the boundary between the virtual and the 'real' as necessary. Rather than blurring this boundary, crossing it can reinforce it

as many studies in anthropology from gender studies to nationalism have shown (Boellsdorff 2008, 23).

This observation on the difference between virtual *worlds* and virtual *reality* is important from a teaching perspective. Research in 3D visualisation has sought to immerse the subject and control its environment. This research has meant that the building and display of 3D models should be taught to planners. In Second Life the ability for subjects to create their own rules and for them to explore the boundary between the virtual and the 'real' opens up numerous possibilities in teaching as we argue below. Before this we wish to first insert a significant caveat about teaching with technology.

Maybe they are angels? (some caveats on the use of Second Life in planning)

The media spotlight on virtual worlds has led some educators to explore their potential in higher education contexts (NMC, 2007). This may be partly because they offer an alternative to the transmission-focussed approaches to learning that are frequently encouraged by university Learning Management Systems (Gibbs & Gosper, 2006) as opposed to 'reflective discursive interaction' recommended by other researchers (Ingraham, Watson, McDowell, Brockett, & Fitzpatrick, 2002). However, a number of important problems exist when introducing a technology in a teaching. The following details how these apply in the case of planning.

Firstly, the divorce of Second Life from bricks and mortar issues in a teaching environment may be liberating but the extent to which skills and understandings learnt in Second Life can be translated into the actual world is unknown. The Second Life software limits the transferability of constructions to the actual world. It would be almost impossible to make a building in Second Life and then produce a series of blueprints from it that could be used by an architect or planner a facility is provided by other programs. Furthermore in asking students to develop a building in Second Life there is a danger that the importance of some aspects of planning in the real world may be missed. For example in Second Life none of the buildings require assizes. This means that essential components of a development could be omitted bringing to mind Pope John XXIII's query when he was shown blueprints for a Vatican office building that omitted toilets: "Suntne angeli? " ("Are they angels?") (Filler, 2008)

Secondly, Second Life like any teaching technology is susceptible to Gartner's hype cycle (Fenn et al. 2008). Here, emerging technologies go from a period of initial 'over-enthusiasm' sparked by press interest, through the stages of unrealistic and failed expectations, to practical application and mainstream adoption.

Several factors may contribute to the tendency for educational technologies to follow Gartner's cycle into the downward spiral after the initial hype, including the complexity of educational contexts. Universities are constrained by institutional cultures and diverse stakeholder expectations. The rules and regulations put in place to ensure an equitable and secure environment for students to learn can in themselves work against innovation. The philosophy underpinning Web 2.0 tools such as virtual world technologies is in one sense liberating, offering the opportunity to throw off old 'shackles'; in another sense these innovations have the potential to create chaos as the legacy of tradition is being challenged and disrupted (Hedberg, 2006).

Maintaining currency and responsiveness is challenging in universities where technical infrastructure, organisational policy and procedural frameworks struggle to respond to a changing environment. Academics are often ill-equipped and under resourced to recognise the affordances of technologies and then integrate them into an aligned 'curriculum package'. The balance between relationship educational opportunity, technical capability and organisational supports (Gosper, Woo, Muir, Dudley, & Nakazawa, 2007) can be lost when a new technology such as virtual worlds is launched into an often inflexible system. The disillusionment that results can easily lead to the downward slope of Gartner's cycle.

Where some of the real benefits and practical applications of the technologies emerge, a standing point is reached and a positive slope emerges. So how can the duration of the trough of disillusionment be reduced and movement up the slope of enlightenment be increased to the point where these technologies are adopted in sustainable practice? At an organisational level, strengthening the knowledge, skills and practice in each of the domains of 'curriculum', 'technology' and 'organisation'; as well as the inter-relationship and interoperable practice between them will help (Gosper et al., 2007). For individual academics, their understanding of the teaching and learning processes underpinning learning, their appreciation of the affordances of the technologies and their capacity to link the two into their curricula will facilitate the movement into more sustainable practices.

Using Second Life for teaching planning

We now turn our discussion to how Second Life can be used for teaching planning. We base this on the literature, published examples as well as our own participation in Second Life-based discussion groups. The understandings below are summarised in Table 1.

Using Second Life for exploring planning ontologies

A number of existing areas provide sites for observation and commentary about development. A significant number of sims or islands in Second Life are built with

a view to imitating the real world. Existing versions of London, Milan, Casablanca and Cuba for example provide material to be studied for a first year planning or geography assignment. Since so much of the development in Second Life is effectively unregulated it provides an example to spark discussion on why planning should exist.

Another use could be to examine the ontology of property in Second Life and compare this with reality. This has been trialled by Elizabeth Townsend-Gard of Tulane University's law school. In her exercise first year students were asked to participate in a deliberately 'naive' exercise that asked to look into certain fundamental tenets of property law and investigate whether these had translated into the virtual world (Townsend Gard and Goda, 2008). This is an exercise that could be easily translated to planning.

Using Second Life for studios

Since planning is concerned with land, buildings and their impacts, the ability to build virtually and share 3D information online will provide virtual studio space in planning courses. This approach is employed by Foth et al. (2009) who use Second Life in their work with Noosa District Council to engage school children in the planning process.

There are of course several software tools that are available to do the same task. These include Google's Sketchup tool. Arguably, it would be more efficient to train students to use this than Second Life since it is more likely to be used in the workplace. However, Second Life offers the potential to allow peer-assessment exercises by providing exhibition space. For example Texas State technical college's photography students are required to take photographs and exhibit them in a dedicated space in Second Life. Others students are able to view these and submit anonymous comments in a drop box. Because of Second Life's ability to store all of this data and have it available for viewing this type of exercise could work asynchronously giving students the ability to work and assess their peers' building projects at distance.

Using Second Life for generating machinima

Machinima are short films that are filmed and acted out in Second Life. Butler (2008) describes the use of machinima in providing the background information for the negotiation component of an online law course. Planning academics make use of online role-plays and multimedia exercises. Machinima could be used in the same way to animate and provide the background to a particular case.

Using Second Life for exploring what would normally be out of reach

With their capacity to immerse students in the process of learning, capture their activities and reflections and enable others to comment on and challenge these

reflections in real time, virtual worlds have the potential to be used as cognitive tools rather than simply more creative environments for engaging students with content.

A number of educational institutions have already begun using as a site for conducting simulations. Second Life provides an area in which participants can practice a procedure or experience an environment that may be difficult or costly to reproduce in the actual world. An example of this is the University of California, Davis where psychology students are given the opportunity to experience being in a hospital or being institutionalized as a schizophrenic patient.

Table 1: The use of virtual worlds in planning

| Learning planning... | Capacity of online environments before virtual worlds | Affordances of virtual worlds for higher order learning | Application in planning |
|---|--|--|--|
| <i>Planning ontologies through virtual worlds</i> | Learners could explore fundamental ideas in planning such as property through readings. | <ul style="list-style-type: none"> - Users question the basis on which constructs such as property are created - Users understand the values that people attach to place and identity - The experience can be constructed in advance as a model to explore- - Learners can create their own characters and manipulate virtual worlds quickly and easily - Construction and creation of 3D models is cheap and quick compared to their physical analogues - The sharing of 3D models among participants is simple facilitating peer assessment and distance learning | - Exploring the virtual world in field trips. Using Second Life to examine the difference in the concept of land and property in Second Life and the actual world. - Using the brief history of planning in Second Life as an example of why planning exists. |
| <i>Planning studios</i> | Users create 3D models either in reality or using a software | - The networked ability of Second Life allows collaborative building to take place at distance. | - Peer review exercises of building |
| <i>Second life for generating Machinima to support role play or other information</i> | Generating visual cues and information as case studies is reliant on finding them. | Second Life affords a space where short movies or photographs can be taken. Almost any case can be created. | Allows greater flexibility to illustrate certain aspects of a course |
| <i>Second Life for exploring what would normally be out of reach</i> | In some cases distance precludes access to locations or situations | Second Life give the option to tailor an environment to highlight a particular issue. | Crime Prevention Through Environmental Design Allowing able bodied students to move around an environment as though they were in a wheelchair |

Using Second Life for teaching Crime Prevention Through Environmental Design

The next part of this paper describes a workshop that was designed to give post-graduate planning students an opportunity to explore an area that would normally be out of reach or difficult to access. For this workshop we drew on the street auditing toolkit designed by Azmin-Fouladi (2008), the productive possibilities of the virtual world as described by Bayne (2008) and the work of Graham Steventon (see Steventon et al. 2008).

Using an island in Second Life a workshop was designed for post-graduate planning students as part of the unit 'Sustainable Urban Regions'. Second Life was used to convey the subtleties of Crime Prevention Through Environmental Design (CPTED). A simulated field trip was chosen for this workshop because it would be unethical to evaluate students' fear of crime during a trip at night. In addition, a significant challenge in this unit has been to efficiently cover a broad range of case studies. Students were asked to read and reflect upon a review of CPTED (Cozens et al. 2005). They were then asked to explore and deconstruct an dystopian environment that was designed to display elements of CPTED during a three hour class. The elements focused were territoriality, surveillance (passive, active and mechanical), activity support, access control, target hardening and image management (see Cozens et al. 2005).

Students were referred to particular parts of the built environment and systematically asked to audit how they felt elements of the design would promote or suggest fear of crime. At the end of the session the class discussed each of these sites, the use of Second Life in an exercise such as this and the value of applying CPTED measures to an urban environment.

Conclusions

Using the example of Second Life this paper has argued that virtual worlds in planning can be used in four different ways. We argue that virtual worlds can be used to explore the ontology of planning. We also argue that they can be used for studio classes, making short films known as machinima and for accessing areas in planning that would normally be difficult to access. Finally we describe the use of case study of evaluating an urban environment in Second Life using the ideas of Crime Prevention Through Environmental Design.

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