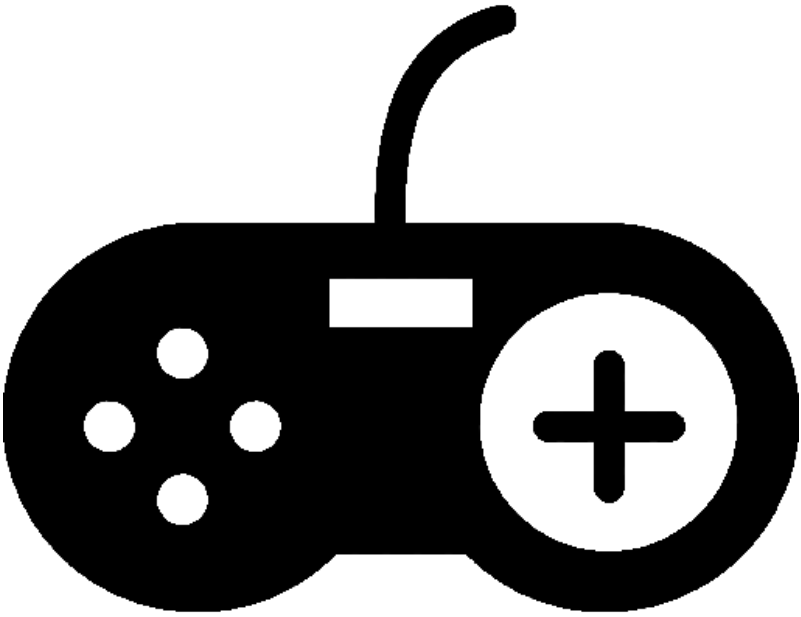
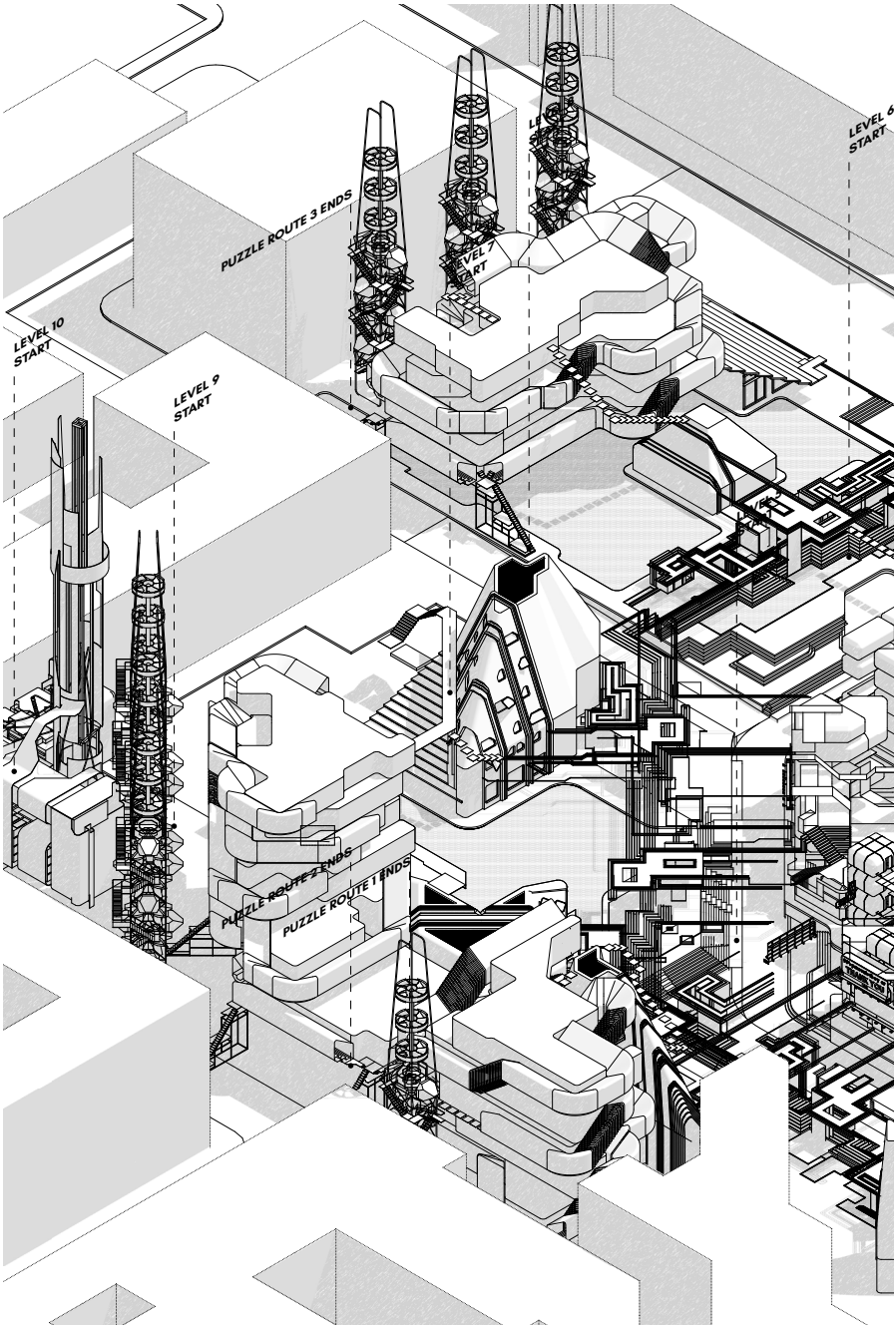
SIMULATING SOCIETY



USING VIDEO GAMES TO CHANGE SOCIETY

_A MANUAL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PUZZLE ROUTE 1 ENDS
LEVEL 6
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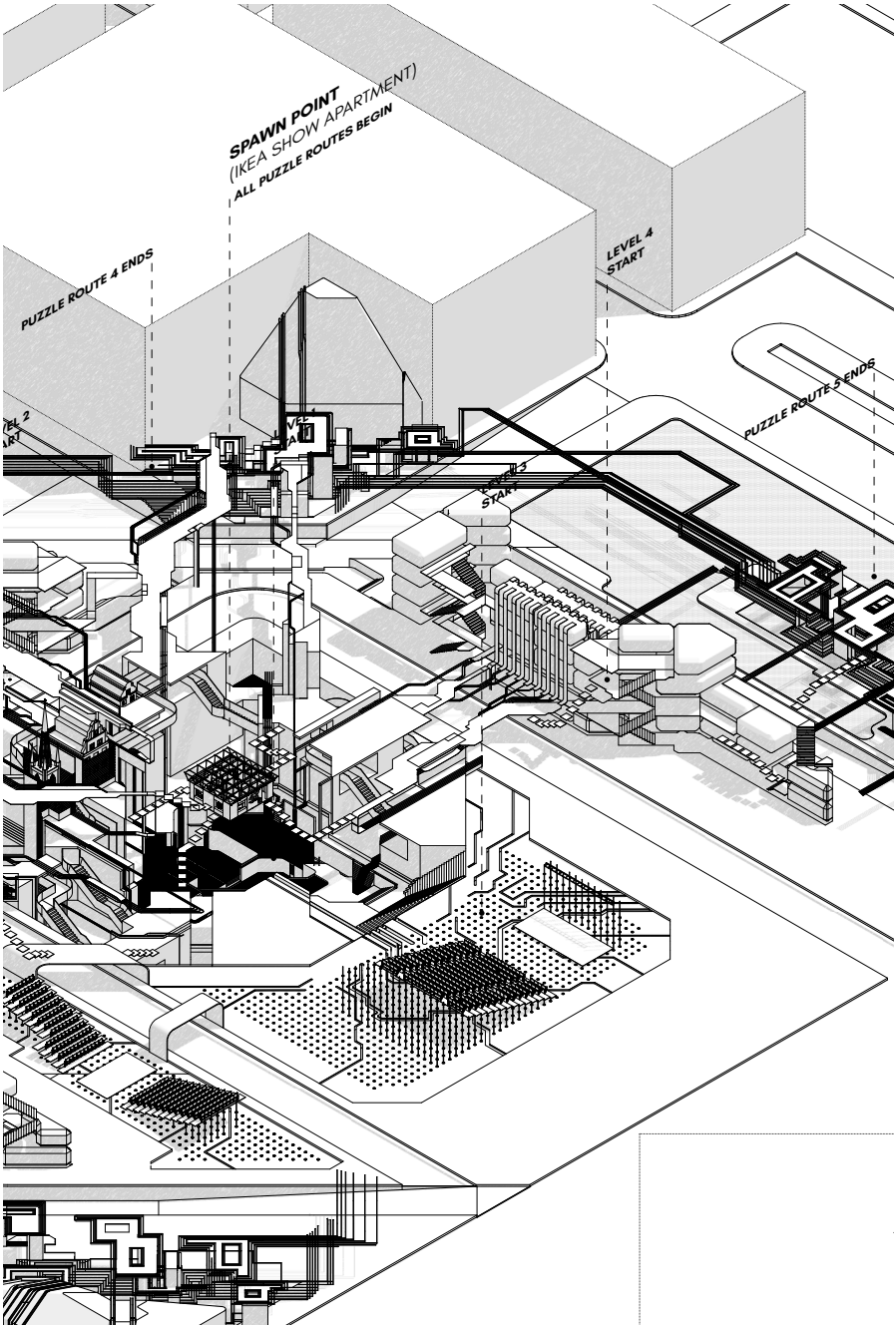
SPAWN POINT
(IKEA SHOW APARTMENT)
ALL PUZZLE ROUTES BEGIN
PUZZLE ROUTE 4 ENDS
LEVEL 4
START
PUZZLE ROUTE 5 ENDS

CONTENTS

A SIMULATION TO CHANGE SOCIAL HIERARCHIES IN STOCKHOLM

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INTRODUCTION

THIS THESIS WILL EXAMINE THE USE OF VIDEO GAMES AS TOOLS FOR SYSTEMIC CHANGE IN SOCIETAL THINKING. THIS THESIS WILL FOCUS ON 'SIMULATIONS' AS THE MOST PERSUASIVE FORM OF VIDEO GAME, WHICH CAN NOT ONLY MIMIC REAL SYSTEMS BUT ALSO REPRODUCE AND CHANGE THEIR BEHAVIOURS BY INTRODUCING NEW SETS OF RULES THAT ARE ADAPTIVE AND INTELLIGENT IN ORDER TO RAISE POLITICAL ISSUES.

BY EXTRACTING KNOWLEDGE FROM VARIOUS ACADEMIC DISCIPLINES AND SEWING THEM TOGETHER AS A SERIES OF TOOLS THE FIRST SECTION ACTS AS A MANUAL ON HOW TO CREATE A VIDEO GAME BEST SUITED FOR CHANGE IN SOCIETAL THINKING. THE SECOND SECTION IS USED TO INSPECT EXAMPLES OF HOW VIDEO GAME SIMULATIONS USE SPECIFIC ELEMENTS TO RAISE SOCIAL ISSUES AND INFLUENCE CHANGE.

THE THIRD SECTION WILL BE A DEMONSTRATION OF MY OWN VIDEO GAME SIMULATION AS A CASE STUDY OF HOW THE PARTICULAR QUALITIES, OUTLINED IN SECTION 2, CAN BE USED TO MAKE A SINGLE ENGAGING AND PERSUASIVE ARGUMENT, THAT HAS THE POTENTIAL TO CHANGE HOW STOCKHOLMERS VIEW THEIR CITY, THROUGH SOCIETAL THINKING.

THE SIMULATION MANUAL

WHAT IT IS TO PLAY

'Communities of play' was coined by Cecile Pearce 'as a deliberate counterpoint to "communities of practice", a term originated in anthropology and widely adopted in computer-mediated communications' to describe adult play communities that are enabled by desktop computers. Often these communities are extensions of analogue forms of play, but can also produce entirely new experiences such as complex alternate realities not capable of being articulated in the physical world. It is this definition of 'play' that I am most interested in.

Communities of play did not begin with the rise of online gaming. Rather they have existed in many forms for centuries. A chess club, sports league or live action role playing game (L.A.R.P) could be considered a community of individuals playing shared or individual goals. But with the exception of sports, they are often considered to be frivolous and marginalized, particularly in western society.[1] Indeed anthropologist Richard Schechner noted 'In the West, play is a rotten category tainted by unreality, inauthenticity, duplicity, make believe, looseness, fooling around and in-consequentiality'.[2]

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1 Pearce, C., Artemesia, Boellstorff, T., Nardi, B.A. and Artemesia, T.B. (2009) Communities of play: Emergent cultures in multiplayer games and virtual worlds. Cambridge, MA: MIT Press.

2 Schechner, R. (1995) The future of ritual: Writings on culture and performance. London: Routledge

L.A.R.Ping gameplay

Dungeons & Dragons boardgaming in play

Contradictory to this many anthropologists would argue that play has connection with serious elements of our own culture[3]. Events such as Mardi Gras in New Orleans, or Halloween, allow adults to engage in fantastic short term scenarios of play. Burning Man festival allows participants to create temporary alternate societies and historical re-enactments that can be used to learn about a societies history, such as 'The English Civil War Society' who create re-enactments to raise awareness of the conflict between King Charles I of England and his supporters and their opponents in Parliament.[4]

Table top role playing games such as Dungeons and Dragons (D&D) were born out of a desire to play social the narratives established in fantasy literature, including Robert E Howard's 'The Conan Chronicles' and J.R.R. Tolkien's 'The Lord of The Rings'. And while the source material used to develop the narrative in these games is fictional the content produced by the community of players has a tangible outcome in the form of fan art and three dimensional figures.

D&D's core mechanics of imaginative play were by no means original, being traceable to 18th and 19th century table top army miniatures and in turn games played by almost every culture for thousands of years. Games such as Egyption Senet, Mesopotamian Ur, the ancient African game of Mancala, Chinese Go and Mah-jongg to chess all contained elements of play that mimic social constructs.[5] The introduction of the computer changed the dynamic

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3 Van Gennep (1909), Schechner & Schuman (1976), Turner (1982)

4 Morillo & Pavkovic 2006, p. 101; Gaunt 2000, p. 149

5 Pearce, C., Artemesia, Boellstorff, T., Nardi, B.A. and Artemesia, T.B. (2009) Communities of play: Emergent cultures in multiplayer games and virtual worlds. Cambridge, MA: MIT Press.

of these games from shared play between players to shared play between players and machine, adding a new layer of control for the designer by creating a ruleset that could not be corrupted by individual interpretation.

The first graphical multiplayer online games (MOGs) spawned by table top role playing games were developed in the mid 1990's. Meridian 59, Ultima Online and Everquest, combined role playing with detailed graphic worlds and improved on earlier 2D attempts that were primarily text based and didn't allow the immersion of a 3D world. The success of these virtual communities of play and their consequent descendants were modelled on a number of distinctive qualities based on the analogue communities of play that proceeded them.[6] According to Pearce these characteristics can be categorised as follows:

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6 Murray, J. (2008). Hamlet on the holodeck. 1st ed. Enskede: TPB.

SPATIAL WORLDS

The play world must be inherently spatial, this spatially could be articulated through 2D or 3D graphics or be text based the only requirement is that they define a spatial construct that is navigable

CONTIGUOS

Play worlds must be geographically contiguous, either by continuous contiguous universes such as Middle Earth in The Lord of The Rings or by travelling between planets in a sci-fi game.

EXPLORABLE

Play worlds must be explorable, players may go wherever they like (though movement could be restricted by level or status in the game). Transportation modes can be utilised to strengthen social constructs. For instance most play worlds are based on pedestrian mobility with vehicles used as rewards for completing goals. Play worlds could be described as pedestrian communities.

PERSISTENT

Play worlds must be 'on' at all times. In other words the actions a player takes in one session must be cumulative to the next, their character must develop as a result of play.

EMBODIED PERSISTENT IDENTITIES

Players must have control over their avatars, they must be able to design them to fit their own image to feel connection with the social constructs in the game.

INHABITABLE

Players must be able to inhabit the game. By having a space they can call their own will give them a feeling of contributing to its culture.[7] *This is a specific trait to virtual worlds, whereas one can be immersed in a fictional world it is only in the virtual they are able to inhabit it.*[8]

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7 Damer, B. and Gold, S. (1999). Virtual Organizations and Virtual Worlds. Tilburg University/Virtual World Consortium.

8 Ryan, M. (1992). Possible worlds, artificial intelligence, and narrative theory. 1st ed. Bloomington [u.a.]: Indiana Univ. Press.

CONSEQUENTIAL PARTICIPATION

The notion that your presence in the play world is significant. In a fictional play world your presence does not change its form, in a virtual one its has the ability to alter it

WORLDNESS

Perhaps the most complex and difficult to achieve, worldness refers to the fidelity of context in a play world, it refers to a consistency in aesthetics, gameplay, context etc with the overriding theme of the play world. The method of exploration in the game must be consistent with the environment for instance, it would be confusing to explore The Lord of The Rings in a spaceship, even though the play world is fictional. Tolkien called it 'collective creation of belief[9] *an agreement between the designer and the player.*

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9 Geek Culture: The 3rd Counter-Culture. (2006). Aalborg: Aalborg University.

PLAY IN GAMES

Creating a community of play as defined in the previous chapter is essential if the designer is to incite societal change, but play needs to be contained within a game if it's to be used effectively. There are many types of games with rulesets designed to achieve different goals, I will outline the key definitions of 'game' in this chapter and propose my own terms for games best designed to inform societal change.

The cultural historian Johannes Huizinga uses two different definitions in his essay, 'Homo Ludens' (Man the Player). I will use the second.

'A voluntary activity or occupation executed within certain fixed limits of time and place, according to rules freely accepted but absolutely binding, having its aim in itself and accompanied by a feeling of tension, joy, and the consciousness that it is different from ordinary life.'[10]

10 Huizinga, J. (1949). Homo Ludens. 1st ed. London: Routledge and K. Paul.

This succinctly states a game has both time and space constraints, it is an activity we acknowledge as different from reality. But the definition is lacking in complexity when trying to understand how to use play. The philosopher Ludwig Wittgenstein agrees and states that games are too complex to be understood from a single definition.

'for if you look at them you will not see something that is common to all, but similarities, relationships, and a whole series of them and that'[11]

However the sociologist Roger Callois, believes that a definition could be achieved by breaking down play into categories of game. 'Alea' are games that are based on chance, such as games typically found in a casino, 'Agon' are based on competition, such as footraces, 'Illinx' are games based on enjoyment of movement, such as hopscotch and 'Mimicry' are role playing games such as a game where a player pretends to be part of an alternate reality. Callois notes, that games can be classified as having more than one category. He also further clarifies games as being categorised relative to their complexity, using the term 'Paidea' (Greek meaning both child and school) to describe games with very simple rules and 'Ludus' (Latin meaning game) to describe more complex games.[12]

The clinical psychologist Jean Piaget observed the role of play in young children, and defined games as aligning with childhood development, (i.e we increase the complexity of our games as we grow older). The first stage is games of exercise played by infants during

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11 Wittgenstein, L., & Anscombe, G. E. M. (1997). Philosophical investigations. Oxford, UK: Blackwell.

12 Caillois, R. and Tatić R. (1979). Igre i ljudi. 1st ed. Beograd: Nolit.

the first two years of life, these games involve sense and movement and are used to explore environment through repetitive actions. The second are games of symbolism practiced between the second and seventh years. These games are driven by the players imagination and typically involve relating one object to another, for example a stick might become a sword. The final stage are games of rules such as football, where the game is goal oriented and rule based. Piaget states that once these three game types develop they will remain throughout adulthood.[13]

These definitions explain how different games create different types of play, but no two definitions can agree on a single game best suited to social thinking. However, by comparing Callois and Piget's definitions it's possible to synthesize my own definitions designed to promote social change. Piget expands on his 'symbolic' categorisations by observing a group of children playing a game, he asks them 'who has won the game you have been playing?' the children don't understand the question because they have not reached a developmental stage that establishes winners and losers, this clashes with Callois observation that all developmental stages have winners and losers because all games use rules of varying complexity. This distinction of winning and loosing a game is key to how its play is learned, if the game can be won then all playing is optimised to winning, but if it can not, playing is optimised for exploration of the mechanics of the game.

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13 Piaget, J. and Duckworth, E., 1970. Genetic epistemology. American Behavioral Scientist, 13(3)

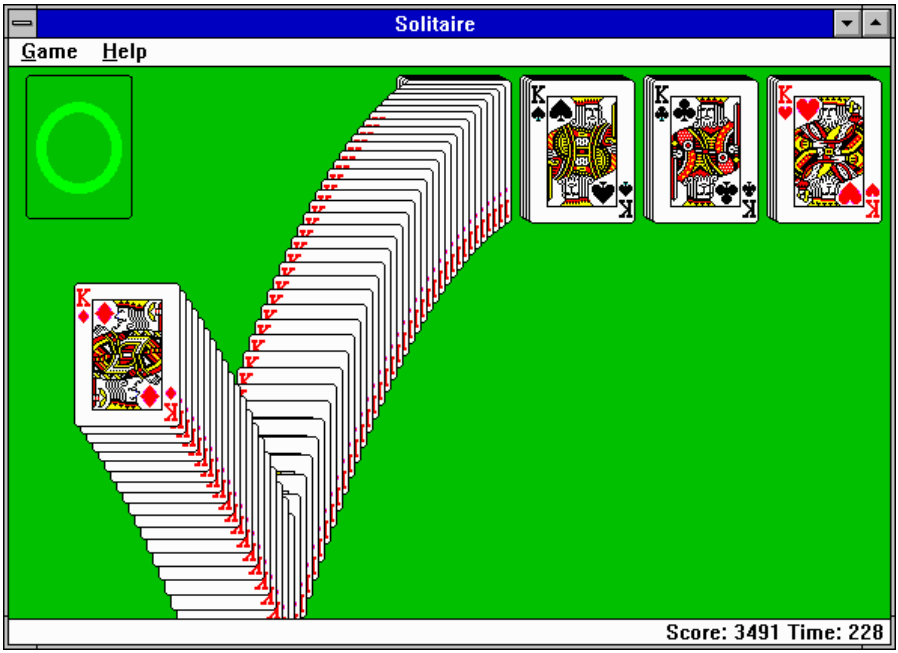
As we will see in later chapters there is a large difference in video games that define winners and losers and those that don't on the participants playing them. My own definition of games then straddles both Piaget and Callois observations. A Games effectiveness in social change can be defined by two distinct categories.

PROCEDURAL GAMES

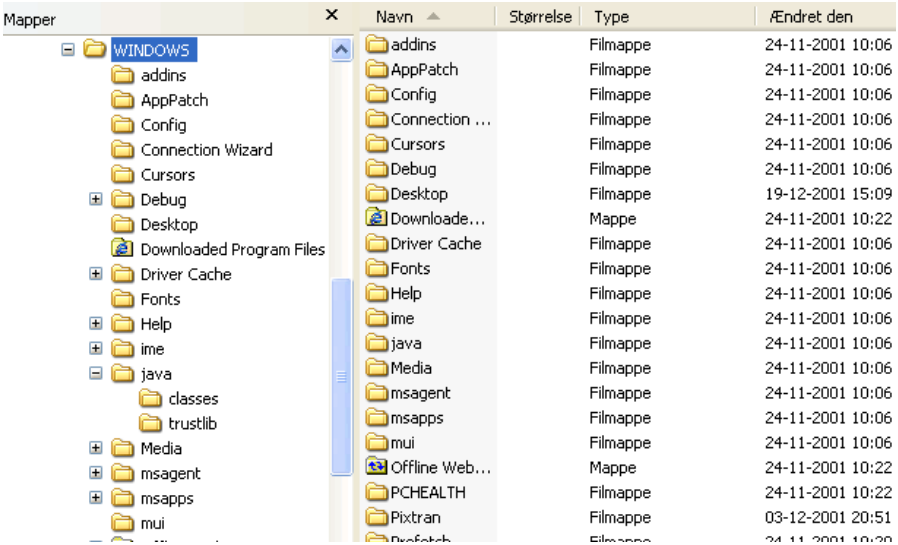
GAMES THAT DEFINE A WINNER OR A LOOSER, SIMILAR TO CALLOIS 'LUDUS' CATEGORY AND PIAGET'S 'GAME OF RULES' CATEGORY

HYPERBOLIC GAMES

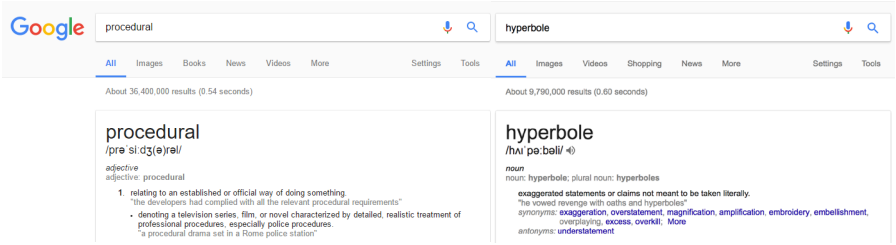
GAMES THAT DON'T DEFINE A WINNER OR A LOOSER, SIMILAR TO CALLOIS 'PAIDEA' CATEGORY AND PIAGET'S 'GAMES OF EXERCISE AND SYMBOLISM' CATEGORIES



Solitare on Windows 2000



Windows XP files and folders



Definitions of Hyperbolic & Procedural Games accoring to Google

Hyperbolic and Procedural games are evident in even the most basic forms of computer software. A procedural game could be solitaire on windows and a hyperbolic game could be clicking links on web pages in internet explorer. The crucial difference between the two is that 'Procedural Games' while very useful for getting players to perform specific tasks have a limitation to how much a player is likely to learn due to them being goal orientated, it is likely for instance, that a player in the solitaire example would only learn the extent of play that enables them to win, possibly even finding ways to shortcut their path to success by cheating. While 'Hyperbolic Games' set user defined goals, a player sets their own rules so is far more likely to feel that the game has been created by them, forming an ownership of the ideas behind it as well as being more likely to learn about all extents of its play rather than finding shortcuts.

GAMES IN VIDEO GAMES

Beyond the definitions of 'play' and 'game' I have noted it is important to note that video games specifically have unique categories created by industry critics, such as platform games, fighting games, first person shooters (FPS), dance games etc. Often these categories will overlap and video game critics will describe a game with two or more examples.

The video game critics Alain and Frédéric Le Diberder categorise video games into three definitions : arcade, simulations and adaptions.[14]

While this categorisation of video games is by no mean definitive, (the media theorist Jean-Paul Lefrance comments that games could be both simulations and arcades[15]) their classification of simulations as interpretations of real or imagined systems is particularly useful for understanding games that bring about social change. The Le Diberder Brothers describe simulations as evolutions of scientific computer experiments which were used to analyse or predict the behaviour of complex systems, representing a 'world' where there don't need to be specific goals, beyond learning about that worlds particular system. Players can freely explore and understand the

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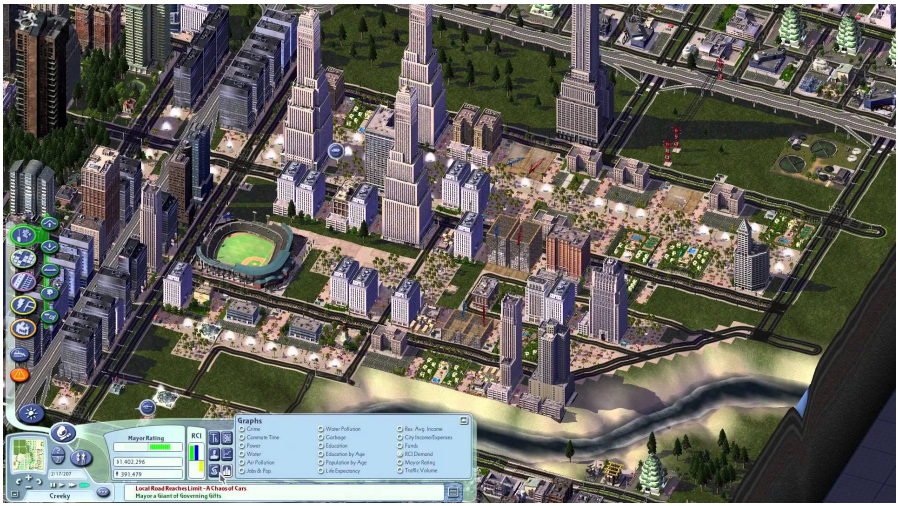
14 Diberder, A.L. and Diberder, F.L. (1998) L'univers des jeux vidéo. La Découverte.

15 Heaton Lorna, Lafrance Jean-Paul. Les communautés virtuelles ludiques. Réflexions sur les jeux multi-utilisateurs. In: Réseaux, volume 12, n°67, 1994.

GAMES WITH A SMALL RULESET AND CONTINUOUS PLAY STYLE. SHOOTING GAMES SUCH AS SPACE INVADERS OR PLATFORM GAMES SUCH AS SUPER MARIO BROS

SIMULATIONS OF REAL OR IMAGINED SYSTEMS. VEHICLE SIMULATORS SUCH AS MICROSOFT FLIGHT SIMULATOR OR LIFE SIMULATIONS SUCH AS SIM CITY

ADAPTIONS OF GAMES THAT EXISTED BEFORE THE COMPUTER SUCH AS MICROSOFT SOLITAIRE OR CHESS GAMES



Sim City (2004)

SOURCE SOURCE SOURCE

New York City 2004

world they find themselves in. In this way they are extremely similar to my own definition of 'Hyperbolic Games'

An example which allows players to understand the behaviour of an architectural environment is Sim City which mimics the dynamics of a real city. Alain and Frédéric Le Diberder observe that the game has many rules which define play but no clear goal.[16] The player is free to create any goal they like, they could for example create a city that is extremely large or extremely small while still being functional or a city that is very wealthy. Since there is no way to win Sim City, its classification can be described as being a 'Hyperbolic Game', where the designer has created a world with parameters to learn about but no specific goal other to learn about a particular social system. The player is free to achieve their own goals within these parameters. The key difference between a digital simulation of a Hyperbolic Game, and an analogue Hyperbolic Game, is in the ability to create an incorruptible autonomous entity to monitor gameplay, this prevents misinterpretation or dilution of the mechanics of the gameplay by the player, which I will talk about more in the next chapter.

16 Diberder, A.L. and Diberder, F.L. (1998) L'univers des jeux vidéo. La Découverte.

MODDING

It is worth noting that even with the incorruptible entity of the computer game, designers are not always in control of the interpretation of the social thinking behind gameplay, ideas can be subverted by unexpected influences, such as 'Garry's Mod' for Half-Life 2 which allowed players to create and test custom tools which gave them access to previously inaccessible areas of the game.[17] But it is possible to plan for, welcome and incorporate the corruption of ideas as I will outline in this chapter.

An 'Easter Egg' is not a chocolate egg, but an insiders joke between the creator of a video game and the player, trigged by an undocumented set of commands and it was the beginning of all unofficial modification of the video game medium.

In 1978 Warren Robinett secretly included his name in flashing colours in the Atari 2000 game Adventure. Upset that as the sole designer and programmer of the game, Atari had not given him publicity, he created a secret room and a single grey pixel as the key. It was invisible, located in the centre of a wall that was also coloured grey but if you accidentally moved your cursor over that pixel, the game would indicate you could pick it up and by doing so, and taking it to another location, it would unlock the secret room.

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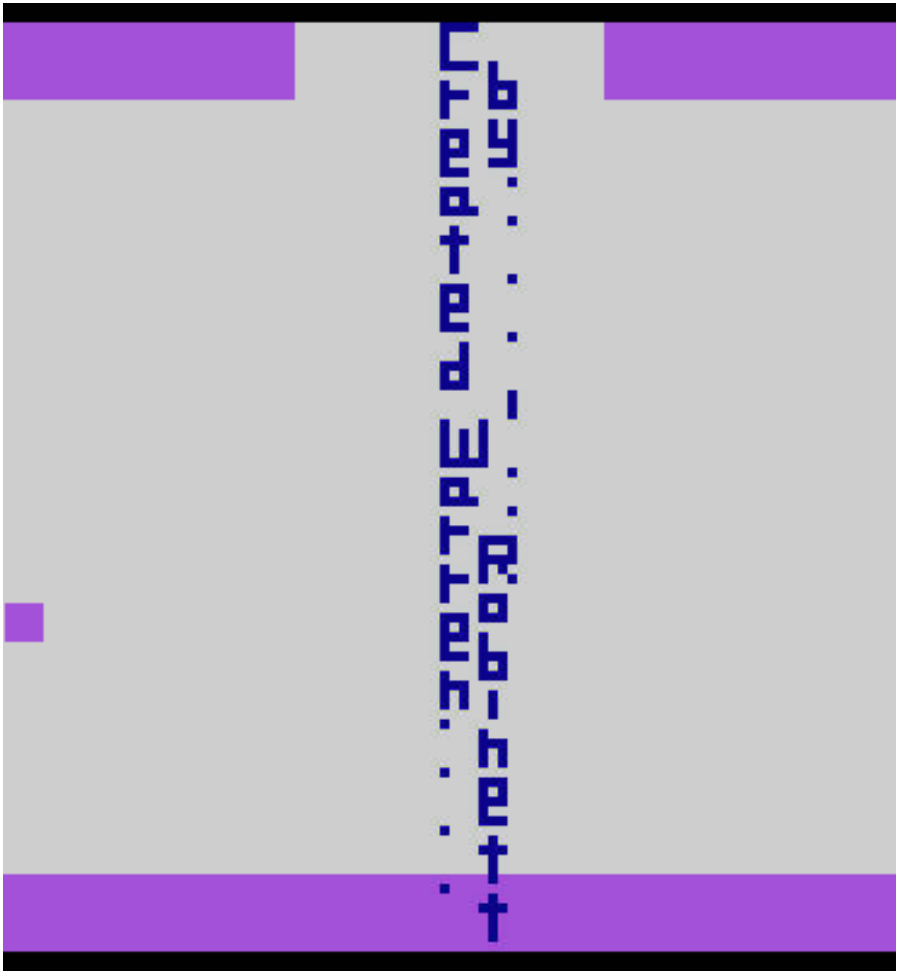
17 "A Brief History Of Garry's Mod: Count To Ten". Rock, Paper, Shotgun. August 29, 2012. Retrieved May 16, 2015.



Warren Robinett's easter egg in Adventure

Inside was Robinett's name in giant multi coloured flashing letters.[18] The Atari executives only found out when players started discovering the easter egg upon release and unbeknownst to them a new form of video game design had begun, one which would eventually change how games developers design games entirely.

Space Invaders allowed players to get a secret double shooting gun if they held down the reset button while powering up the game[19], while other titles allowed special features for pressing certain combinations of buttons such as the inclusion of muscular men in bikini's, which was added in secret by developer Jacques Servin to the Sims spin-off 'SimCopter'. The bikini clad men would appear and kiss each other on specific days. The studio consequently fired Servin over and hastily released their own mod to de-gay the game.[20].This was the beginning of the transition from easter eggs as purely decorative modifications to fully fledged cheat codes that would fundamentally alter the social thinking of the gameplay.

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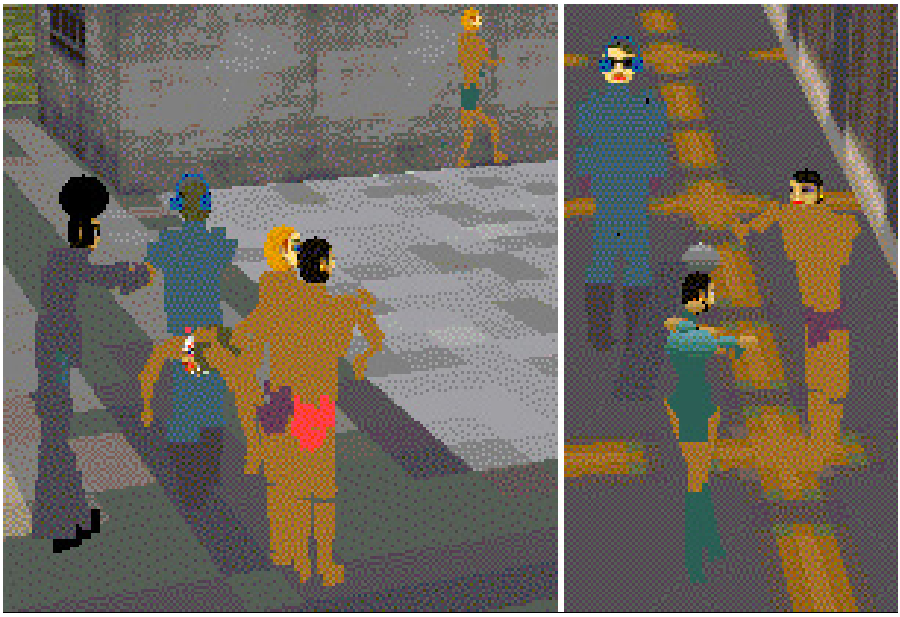
18 Wolf, M.J.P. and Perron, B. (eds.) (2003) The video game theory reader: A reader. New York: Routledge Member of the Taylor and Francis Group.

19 AtariAge Forums. (2002). Double shot tip for space invaders - Atari 2600. [online] Available at: http://atariage.com/forums/topic/6804-double-shot-tip-for-space-invaders/ [Accessed 11 Mar. 2017].

20 Masaki, L. (2007). The man behind SimCopter's gay "Easter Egg"?. [online] LOGO News. Available at: http://www.newnownext.com/whatever-happened-to-the-man-behind-simcopters-gay-easter-egg/06/2007/ [Accessed 11 Mar. 2017].

The main aim of both player and designer responsive design is the same, to offer players the chance to experience gameplay in ways that were not originally intended or foreseen by the developer of the video game. In her Book 'Cheating' Mia Consalvo gives four reasons why players might choose to cheat: to become unstuck, to play God, to compress gameplay time or in the case of online gaming, simply to be an ass.[21] By considering these cheats as an inevitable subversion of the gameplay it is possible to plan for modifications as I will explore further in section two.



SimCopter's 'gay' easter egg

21 Consalvo, M. (2009). Cheating. 1st ed. Cambridge, Mass.: MIT.

A VIRUS AS A FRAMEWORK FOR SIMULATION DESIGN

A scientific simulation of a virus, whether digital or analogue has been described as having three main elements: the source system, the model and the simulator, which are linked by relationships to one another.[22] If we took the video game SimCity as an example, then the source system is a real city, and the experimental frame focuses on efficient urban planning, rather than other aspects of the city such as preservation of historic buildings. The parameters under which you build your virtual city are The Model and the computer SimCity is played on is the simulator.

This framework allows us to examine simulations in a clear manner, how they work and how they are interpreted and attribute my defined terms of play and games to different parts of the virus framework. This is particularly useful when considering that not all simulations are based on real source systems or perhaps deal with analysing abstract models. It is not enough just to have the elements of a simulation, we must consider how those elements are used together if we are to shape social change. The model should be a set of rules that allow players to maximise their understanding of the experimental framework that is examining the source system and the simulator be digital to minimise misinterpretation of the social thinking of the designer.

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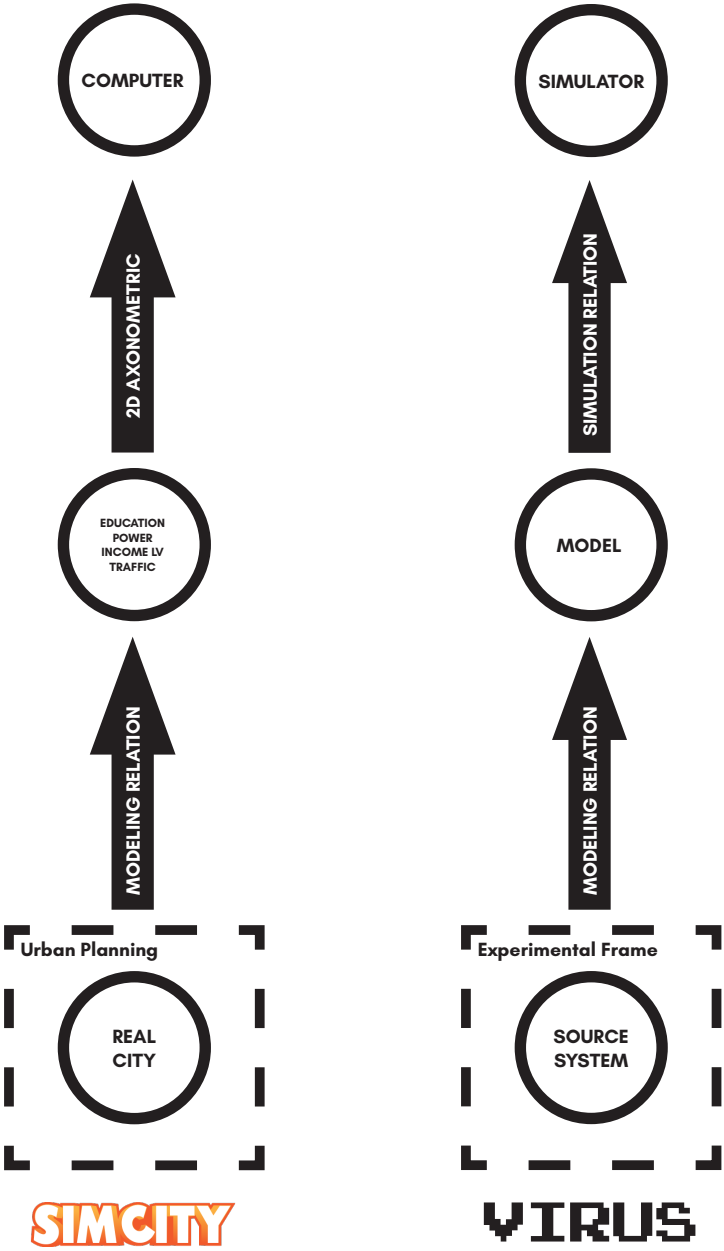
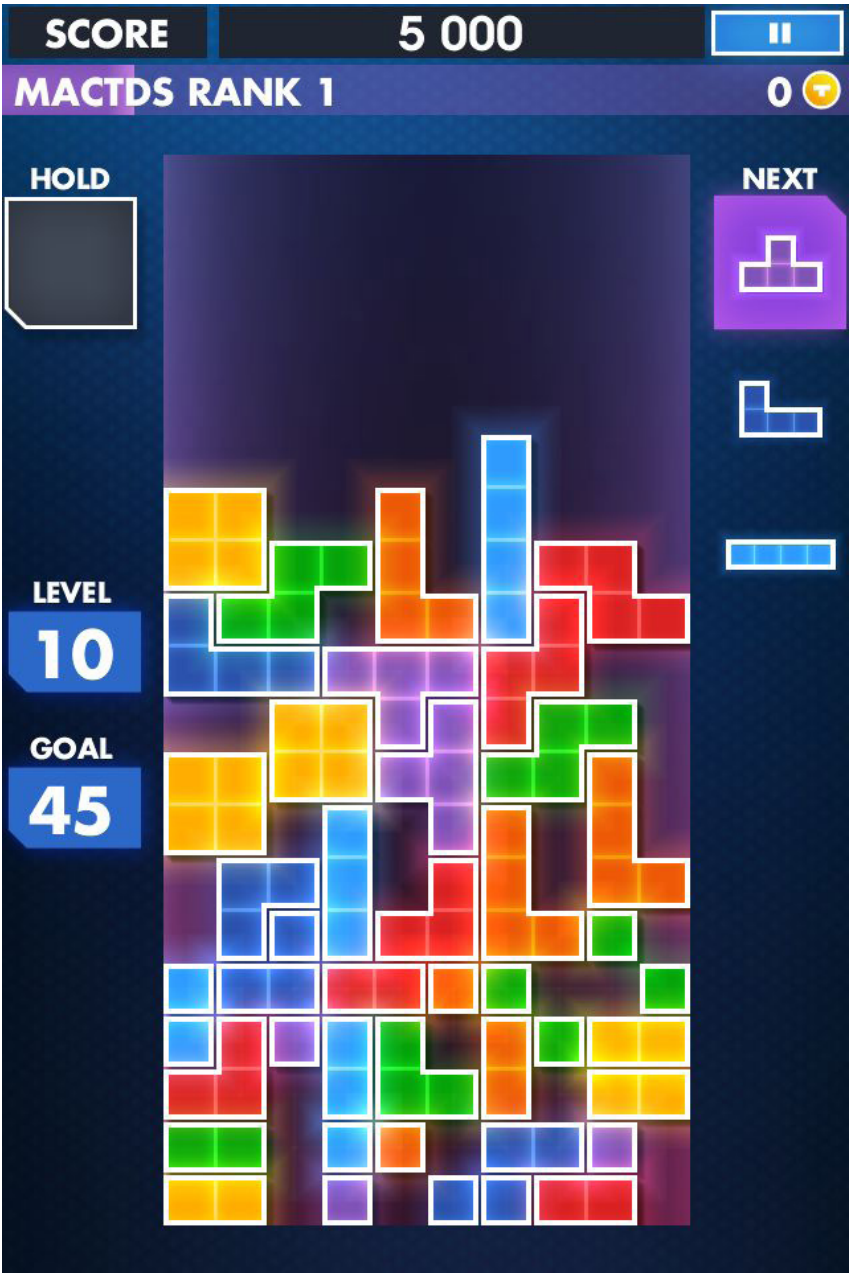
22 Zeigler, B., Kim, T. and Praehofer, H. (2010). Theory of modeling and simulation. 1st ed. Amsterdam [u.a.]: Acad. Press.



Zeigler's analysis of a virus and SimCity comparison



Tetris Gameplay

The two arrows linking the Source System, Model and Simulator represent the transmission of information about the virus from one part of the simulation to the next. The Simulation relation defines how the model is represented in the simulator. For instance It has been debated that Tetris is an example of a simulation that is based on a real source system.[23] Or It could be interpreted that it is just an abstract environment for one to test their gameplay skills.[24] This representation is extremely important in accurately articulating social thinking as I will discuss in section 2.

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23 Murray, J. (2008). Hamlet on the holodeck. 1st ed. Enskede: TPB.

24 Frasca, G. (2001). Videogames Of The Oppressed. Masters. Georgia Insitute of Technology.

CONCLUSION

It can be summarised that for a simulation to truly enact social change, the simulation must be based on certain principles that enhance gameplay in persuasive ways. The best way to implement these principles is to use Zeigler's simulation of a virus as a framework to build the simulation. The designer must also consider how the player will corrupt that framework through unofficial modification and adapt the design to allow for that corruption. Lastly the Simulation must contain a combination of both Piaget and Callois's definitions of game which I have coined 'Hyperbolic Games' and those games must posses Pearce's eight definitions of social play. In the next chapter I will discuss how specific games have taken advantage of these characteristics to change social behaviours both inside and out of the virtual world.

DESIGN FOR CORRUPTION

VIRUS AS SIMULATION DESIGN FRAMEWORK

Makeup oi a simulation

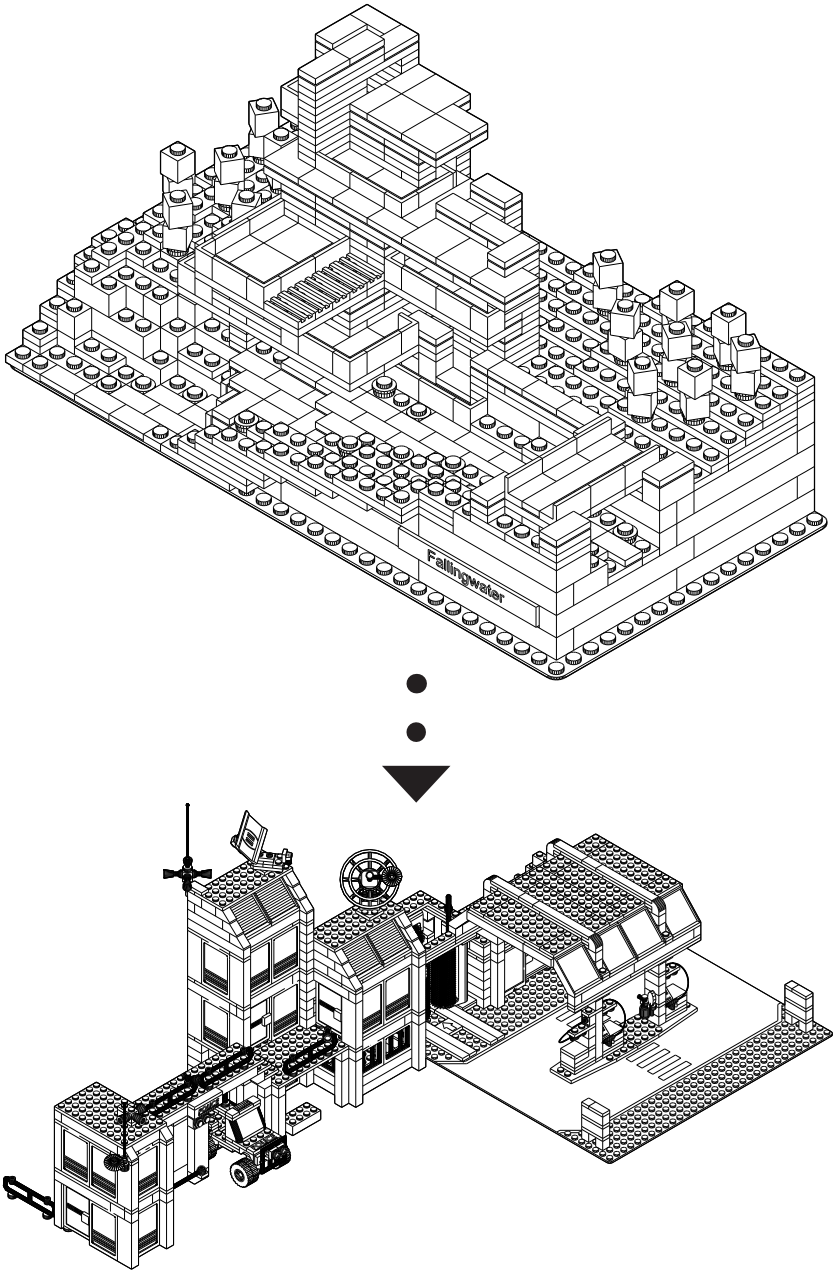
USING SIMULATIONS AS TOOLS FOR SOCIAL CHANGE

AN ARGUMENT FOR VIDEO GAMES VS OTHER FORMS OF REPRESENTATION

As demonstrated in the last chapter it is possible to optimise certain principles in the design of a video game to influence social change. This chapter will focus on examples of simulations that use those principles to influence social change in specific scenarios, but first I would like to compare video game simulation to other forms of media to make a case for video games superior capabilities in representing new ideas about how society could function.

It is of course possible to create a simulation or representation of a source system in other forms than a video game. A city (like the one it is possible to represent in SimCity) for instance could be represented by a film or an image but will not be changed by the viewers actions. A toy such as Lego, is a representation of the buildings in the city and the player is able to manipulate the form of the city by reassembling blocks in infinite iterations.

The video game allows for an added layer of complexity and control. The city on the computer can be animated, it can include more detail such as lights or doors and these characteristics can be manipulated by creating pitched roofs and have defined consequences such as happier residents according to certain parameters.



Lego assembled in one architectural combination and re-assembled in another

Brenda Laurel clearly argues why computers are better at interactive representation than other forms of media.[1]

'[the computers] interesting potential lay not in its ability to perform calculations but in its capacity to represent action in which the humans could participate'

It is the control of participation or interactivity of a simulation which makes it unique as a tool for representing social thinking. Brian Upton describes this control using a game of chess as an example. If we set up a game of chess the board will be in front of us, the pieces arranged on their proper squares, the chess clock sitting next to the board, but what are the rules? They may be written on the back of the box or you could look them up online or any number of options, but when you actually come to play the game the rules don't matter, the only rules that matter are the ones in your head.[2]

In a video game no rules ever need to be displayed because the rules are hardcoded into the game itself, the player must adapt his or her playing style to whatever design the rules of the game have. The rules are learnt by small explorations, what happens when I collide with this? Can I jump over that? As we spend more time playing the video game we base our actions less on the rules of the game and more on our understanding of those rules. This testing of the rules creates a deeper understanding of the social thinking or philosophy upon which the video game is based.

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1 Laurel, B. (n.d.). Computers as theatre. 1st ed.

2 Upton. B. (2015). The Aesthetic of Play. 1st ed. The MIT Press

Film for instance has been used extensively as a political tool and it has been argued one of the best mediums to influence social change. From its birth at the end of 19th century as 'a unique medium that reproduced images, movement and sound in a lifelike manner, fusing meaning with involvement'[3] to create compelling social arguments.

But films translation of social issues to assert influence over an audience is not a simple one. Film (especially mainstream cinema) tends to subvert political issues rather than trying to solve them. The audience are rarely shown the boring algorithmic process of law enforcement in favour of highlighting larger social issues.[4] In Films such as Micheal Mann's Heat or John Woo's The Killer both the thieves and the killer are above the law, but so are the police. In the case of The Killer not only in the polices final act of judicial violence but also in the way you never see the paperwork, or the interviewing of witnesses, or the court appearances. The directors forgo this form of representation to convey much larger issues such as honour or friendship.

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3 Benjamin, W. (2010). The work of art in the age of mechanical reproduction. 1st ed. Lexington, KY: Prism Key Press.

4 Jameson, F. (2016). Signatures of the visible. 1st ed. [Place of publication not identified]: Routledge.

Video games on the other hand don't try to hide bureaucratic process, they celebrate it, making the player not only aware of a social issue but also forcing them to learn, internalise and become intimate with the system that created that social issue. Ted Friedman writes of the historical simulation game 'Civilization' where players build a city in 4000 BC and attempt to expand and develop it from the ancient era to modern times that

'Computer games teach structures of thought, [they] get you to internalise the logic of the program. To win, you can't just do whatever you want. You have to figure out what will work within the rules of the game. You must learn to predict the consequences of each move and anticipate the computers response. Eventually, your decisions become intuitive, as smooth and rapid-fire as the computer'[5]

Players not only experience a social issue in the same sense as cinema, where a story is told highlighting a particular social condition, they also experience one, in order to play the game, where they learn how to control the system that created that social condition.

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5 Friedman, T. (1997). Civilization Essay. [online] Web.mit.edu. Available at: http://web.mit.edu/21w.784/www/BD%20Supplementals/Materials/UnitFour/friedman.htm [Accessed 31 Mar. 2017].

Civilisation gameplay

ESTABLISHING FIDELITY OF CONTEXT IN SIMULATIONS

A common thought in video game simulations is that because the world we live in is so closely linked with the computer, players benefit from hours of realistic gameplay. It trains the player to become familiar with the dynamics of the machine they are using, to be dexterous and develop muscle memory. Indeed Ronald Reagan believed that video games would train a new generation of super soldiers.

'I recently learned something quite interesting about video games. Many young people have developed incredible hand, eye, and brain coordination in playing these games. The Air Force believes these kids will be outstanding pilots should they fly our jets. The computerised radar screen in the cockpit is not unlike the computerised video screen. Watch a 12-year-old take evasive action and score multiple hits while playing "Space Invaders," and you will appreciate the skills of tomorrow's pilot.'[6]

Comparison's between Los Angeles and GTA:V Locations

6 Ronald Reagan: "Remarks During a Visit to Walt Disney World's EPCOT Centre Near Orlando, Florida ," March 8, 1983. Online by Gerhard Peters and John T. Woolley, The American Presidency Project. http://www.presidency.ucsb.edu/ws/?pid=41022.

Today it's possible to accurately simulate thousands of technical operations from flight simulators to rubbish collection, video games can be used as training tools at some level. But what elements of these tools are useful to help players make connections between the physical and digital worlds? In non digital play it is extremely important to represent realistic environments to create realistic gameplay but video game play allows for a greater degree of freedom in representation. The designer of the physical world is restricted to visual and textual representation while the digital can be crafted from actions and consequences.

This divorce from realistic representation allows a greater expression of social representation from the designer. Games such as Grand Theft Auto (GTA) or Final Fantasy are set in fictional worlds with fictional characters but use source systems of realistic elements to construct an environment. GTA for instance is based in the fictional city of 'Los Santos' (The [City Of] Saints) and is modelled unapologetically on 'Los Angeles' (The [City Of] Angels). 'Hollywood Boulevard' becomes 'Vinewood Boulevard', 'Venice Beach' becomes 'Vespucci Beach' and so on.[7] GTA uses these locations as props to tell a story of a sun-baked metropolis, full of fading celebrities and psychotic locals. It hints that it was once a place of economic prosperity, now desperately trying to keep itself together in the midst of an economic drought. An immersive and dramatic take on the 'City Of Angles' in the wake of the financial crash in 2013 which subtle differences in appearance enforce.

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7 Grand Theft Auto V. (2017). Rockstar Games - Grand Theft Auto V. [online] Available at: http://www.rockstargames.com/V/ [Accessed 4 Apr. 2017].

Bruce Shelly talks about realism as a tool that can be manipulated for greater effect in his article on the website 'Gamasutra'

'Realism and historical information are resources or props we use to add interest, story and character to the problems we are posing for the player. That is not to say that realism and historical fact have no importance, they are just not the highest priority'[8]

But there is a difference between realistic representation and realistic narrative in source systems. The Sims for instance uses unrealistic axonometric views and sectioned buildings to depict realistic aspects of normal life, such as going to work or listening to music while GTA uses photorealistic textures to depict unrealistic fantasies of stealing cars and murdering people with little consequence. Missile Command, a 1980's arcade game released during the second half of the cold war, compelled players to defend their country by shooting a barrage of constantly incoming missiles out of the sky. It depicted the very real fear of nuclear destruction using a very unrealistic and abstract interface. Another example by the same studio 'Atari', entitled Battlezone, was deemed so realistic in its representation of tank warfare that the US Military commissioned Atari to build a second version to train tank operators. All despite the unrealistic wireframe renderings of real tank warfare.[9]

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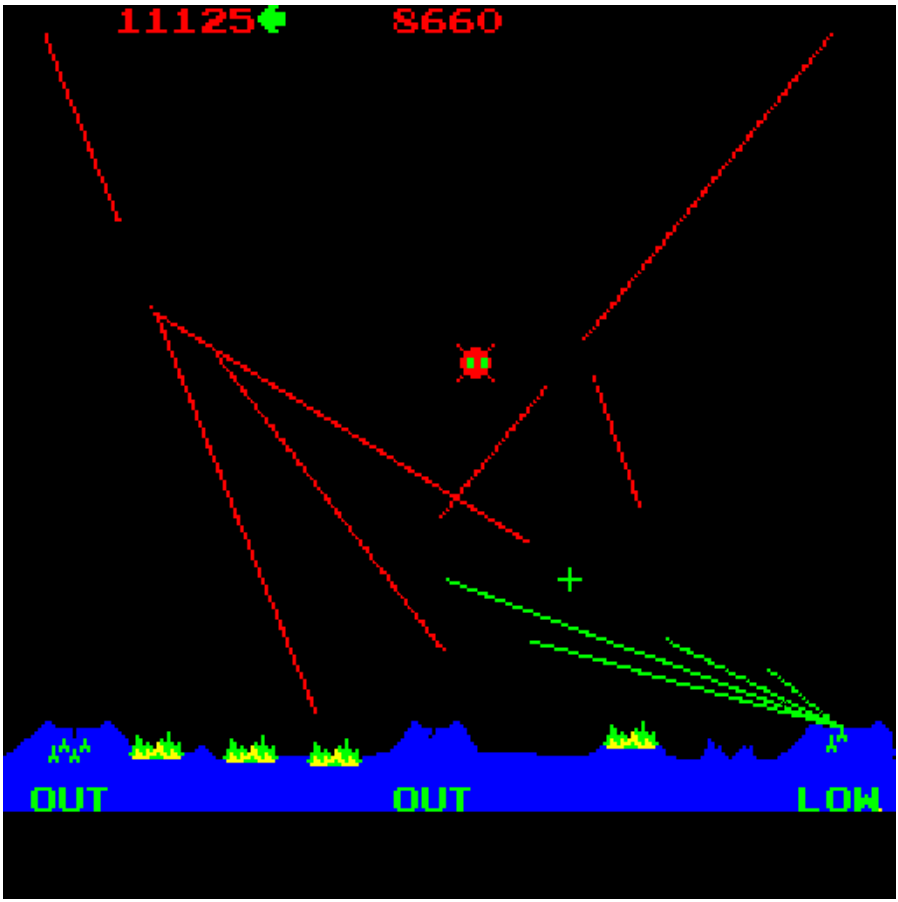
8 Shelley, B. (2001). Gamasutra - Guidelines for Developing Successful Games. [online] Gamasutra.com. Available at: http://www.gamasutra.com/view/feature/3041/guidelines_for_developing_.php?print=1 [Accessed 17 Apr. 2017].

9 Galloway, A.R. and Galloway, er R. (2006) Gaming: Essays on algorithmic culture. Minneapolis, MN: University of Minnesota Press.



Missile Command gameplay

These games if anything prove that sociological realism in video games is not necessarily linked to realistic depictions of sociological functions. In fact the closer we come to realism in video games the more removed we become from meaningful commentary on social issues. This is demonstrated in the game State Of Emergency by the same game studio that developed GTA, 'Rockstar'. The game mimics the social upheaval felt after events such as the Rodney King beating in a future world, where after a period of economic depression the US government has been overthrown by a capitalist group called the 'American Trade Organisation' (ATO) who have installed a paramilitary group, establishing a police state. The player chooses one of 5 characters who are part of a gorilla resistance movement known as 'Freedom' who have sparked national riots and must complete a series of missions amidst the chaos to overthrow the ATO.[10] The game itself is fantastical in its depictions of violence and is a failure if assessed by its ability to represent life at the sharper end of urban living in America. But its representation of the opinions of the marginalised communities the 5 playable characters represent (defected policeman, corrupt lawyer turned good, gang member, orphan hacker, disgraced athlete/former veteran) is masterful, weaving a fantasy of unencumbered rebellion, rising from oppression and striking back against the mass media and uncaring government. The game literally instructs players to 'smash the corporation', encouraging them to take action against corporate culture.

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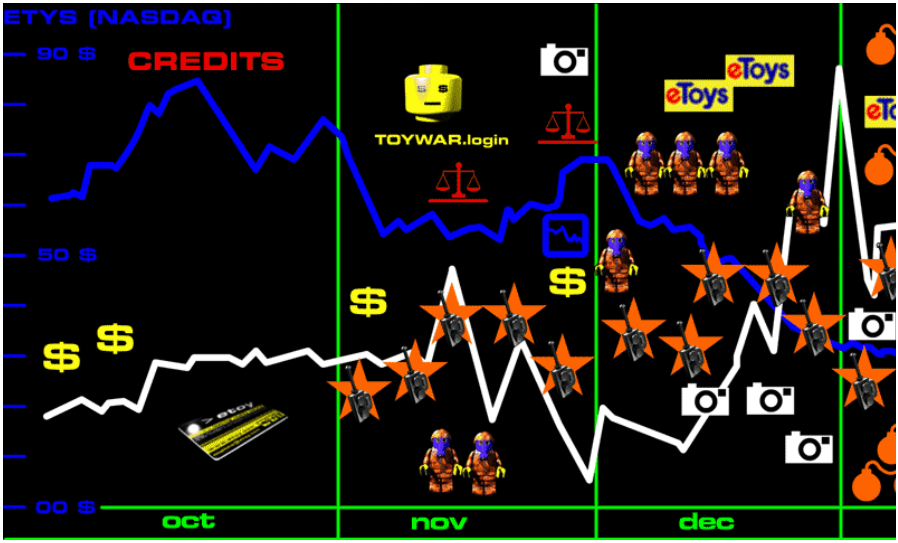
10 Rockstargames.com. (2002). State of Emergency. [online] Available at: http://www.rockstargames.com/stateofemergency/ [Accessed 9 Mar. 2017].

State Of Emergency Gameplay

Race riots in Charlotte, North Carolina

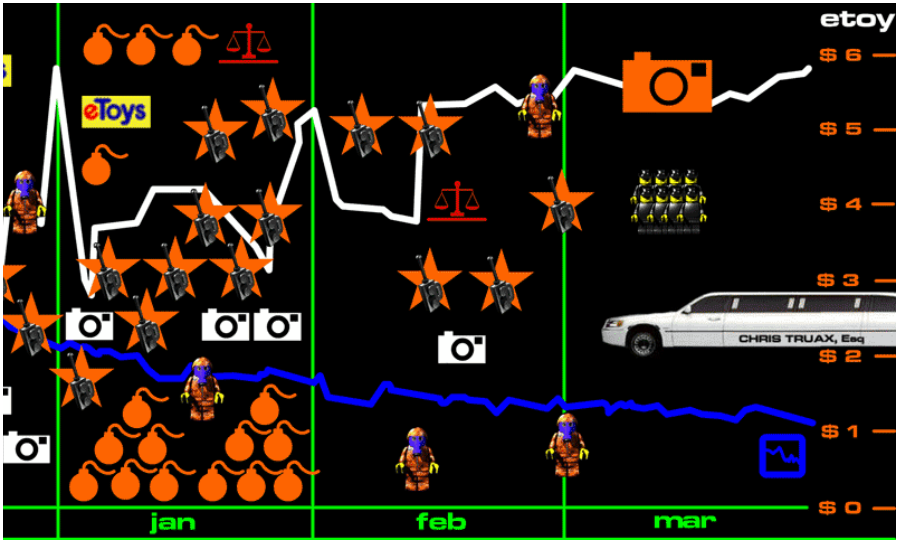
‘ Etoy’ the Swiss art group created a video game to negatively affect the stock price of the online retailer eToys.com who had recently sued the art group for copyright infringement on their name. Instead of fighting the lawsuit in court they recruited the public to fight on their behalf creating the MMO Toywar a complex simulation of corporate disruption. Players could launch smear campaigns designed to attack eToys public image called ‘media bombs’. In the first fortnight of the games launch eToys NASDAQ stock price fell by 50% and it wasn’t long until the online retailer declared bankruptcy.[11]

Toywar Gameplay



11 Fahimian, Giselle (2004). “How the IP Guerrillas Won: ®TMark, Adbusters, Negativland, and the “Bullying Back” of Creative Freedom and Social Commentary”. 2004 STAN. TECH. L. REV. 1. Archived from the original on October 10, 2007.

If State Of Emergency gave players the opportunity to live their fantasy of sticking it to the corporate giant then Toywar let them stick it to a real one. But Toywar achieved a level of social realism that State of Emergency did not, instead of just living the fantasy, the fantasy became a self fulfilling prophecy, it is a brilliant example of a video game that showed the connection between the actions players made in the game and the consequence of the changes in the real social context the game discussed. In his book 'Essay's on Algorithmic Culture' Alexander Galloway writes that for games to exert realistic social influence or reflect realistic social constructs then they must have 'fidelity of context', rather than exact reproduction of social environments.[12] So then video game simulations must use abstract social realism or 'fidelity of context' as the 'Simulation Relation' part of the virus framework to translate real social issues into a fantastic virtual playable environment which will re-influence the same social issues that created it.



12 Galloway, A.R. and Galloway, er R. (2006) Gaming: Essays on algorithmic culture. Minneapolis, MN: University of Minnesota Press.

CHRISTIAN THEMES AS FIDELITY OF CONTEXT IN URU

Uru: Ages Beyond Myst (Uru) was a MOG based on the Myst simulated universe developed by Cyan Games. The Myst games focused on an explorer who is able to write books which create links to other worlds set in different periods of time. Uru focused on a world set in a modern era where players explored an abandoned city once inhabited by a race called the D'ni. Myst was ranked as the top PC game of all time for eight consecutive years until the release of The Sims in 2001 and is perhaps the best example of 'Simulation Relation' being used to translate real social issues into a virtual playable environment and then re-influence the same social issues that created it. It was described by Game Revolution in 2004.

'There are few truly monumental moments in video game history , a small number of games have fundamentally changed the cultural landscape. However, it is clearly the case that Myst is one of those game and its heyday was one of those moments'[13]

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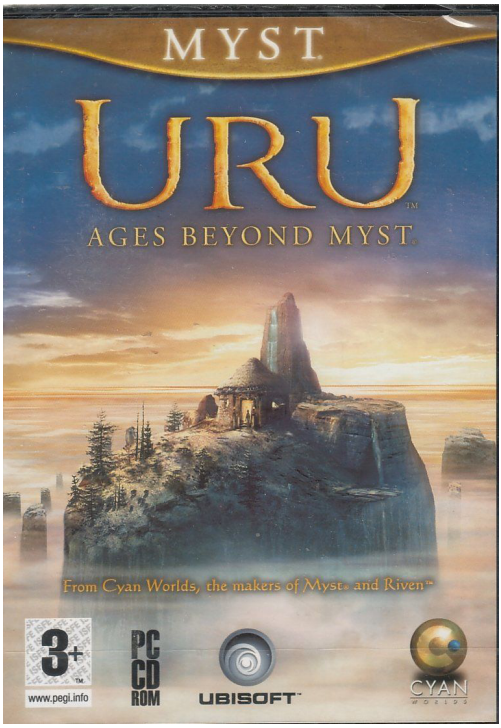
13 Pearce, C., Artemesia, Boellstorff, T., Nardi, B.A. and Artemesia, T.B. (2009) Communities of play: Emergent cultures in multiplayer games and virtual worlds. Cambridge, MA: MIT Press.



Uru: Ages Beyond Myst PC game cover

It's success was attributed to a number of factors beyond its use of 'fidelity of context' that are worth noting. While games in the past had used the PC's limited processing power to create fast but pixelated gameplay with electronic low resolution arcade audio with a focus on action over immersive visuals and atmospheric audio. Uru used high quality 3D graphics and full resolution audio to create one of the first truly emotive simulations. The gameplay was simple and free from complex on screen controls, players walked around the environment in first person perspective exploring a meticulously crafted 3D world and this allowed the slowing of the pace of gameplay. In addition players already had an understanding of the Myst universe, Uru simply provided a new way to experience a world they already partially knew.

Entering the cave to the lost city of D'ni

However one of the most overlooked aspects of Uru's success was the use of religious iconography and themes. The game was created by two brothers Rand and Robyn Miller evangelical Christians, the sons of an evangelical pastor who lived in eastern Washington.[14] Who despite stating that the game does not have an evangelical agenda and was intended for a secular audience used well know bible stories to shape the spiritual feel of the game that made it so viral.

At the beginning of the game, players take on the role of 'the stranger' finding themselves in the middle of an unfamiliar desert, their first task is to find an entrance to an underground cave, within which are the ruins of an abandoned city. A hologram of a woman who introduces herself as Yeesha appears. She explains that it was once inhabited by an ancient civilisation called the D'ni. The D'ni lived in harmony with nature and the universe and 'The Great Fall' of this once prosperous civilisation, which has led to the abandoned city the player finds themselves in, could be compared with 'The Fall of Man' from chapter 3 of The Book of Genesis where God expelled Adam & Eve from the Garden of Eden for committing the original sin.[15] Yeesha makes reference to the indirect cause of 'The Great Fall' being the pride of the D'ni people and even the name of holographic guide Yeesha has been compared by some players as an alternate spelling of 'Jesus'.[16]

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14 Carroll, J. (1997). (D)Riven. WIRED.

15 Dods, M. (n.d.). The Book of Genesis. 1st ed. London, New York, Toronto.

16 Mystonline.com. (2013). Myst Online: URU Live Forums • View topic - Christian Symbolism in Myst. [online] Available at: http://mystonline.com/forums/viewtopic.php?t=26328 [Accessed 17 Mar. 2017].

Another world or level featured in the game is 'The Book of Atrus'. It's back story involves the character Atrus, who arrives in the city of 'Tehranee' and is immediately assumed to be a descendent of a well respected race called the 'Garternay'. Gradually Atrus begins to take issue with the 'Tehranee' enslavement of a class of people called the 'Bahro'. Eventually he reveals some personal details about his past which expose him as only partly 'Garterney' making him as low in the eyes of the 'Tehranee' as the 'Bahro'. A plague befalls 'Tehranee' caused by Atrus's presence in the city and the slaves indirectly gain their freedom. Atrus gives the 'Bahro' a copy of the ancient laws of the D'ni people and tells them to set up their own society somewhere else.[17] Not unlike the story of 'Moses' who in chapter 2 of The Book of Exodus was placed as a baby in a basket by the Nile to avoid infanticide, there he was found and raised as an Egyptian by the Pharaoh's Daughter. When he reached adulthood, after killing an Egyptian who was beating a Hebrew boy, God spoke to Moses, instructing him to free his people. Moses told the Pharaoh it was God's wish for his people to be free but the Pharaoh would not relent. After 10 days of plague the Pharaoh gave in and Moses led the Israelites out of Egypt to form a new society.[18]

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17 Mystonline.com. (2013). Myst Online: URU Live Forums • View topic - Christian Symbolism in Myst. [online] Available at: http://mystonline.com/forums/viewtopic.php?t=26328 [Accessed 17 Mar. 2017].

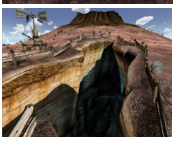
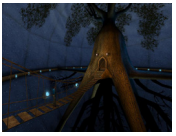
18 Napier, B. (1982). The Book of Exodus. 1st ed. Atlanta, GA: John Knox Press.

The entrance to The Book of Atrus world

These are not the only examples of similarity to biblical stories and Indeed it could be viewed that choosing a narrative where the player discovers books that create links to other worlds is an allegory of the books found in the first half of the Christian bible known as the 'Old Testament'. If this is the case then not only are narrative Christian themes utilised but also symbolic objects.

So really the game might be titled *Uru: Ages Beyond Myst* **but rather by the more appropriate name** Christianity: Ages Beyond The Old Testament**. It acts as a guidebook for choosing whatever particular version of Christianity appeals to you, first by introducing basic spiritual concepts through the use of linking worlds, then through the exploration of the beliefs used to create those worlds and finally by allowing the player to create their own worlds. That is not to say that the Miller brothers are some sort of grand religious conspirators, secretly trying to convert their audience, but rather that they are articulating a formula which has been successfully shaping culture for thousands of years.**

1 THE RELTO
2 THE CAVERN
3 THE DESERT
4 THE CLEFT
5 THE NEXUS
6 THE NEIGHBOURHOOD
7 THE TREE OF POSSIBILITY
8 THE JOURNEY CLOTHS
9 THE BAHRO CAVES
10 THE AGES

1		PLAYERS HOME ON A SMALL ISLAND IN THE CLOUDS	HEAVEN
2		UNDERGROUND CITY MADE BY THOSE WHO CREATED THE BOOKS	THE GARDEN OF EDEN
3		UNKNOWN AND EMPTY LAND	UNCHARTERD WORLD
4		FISSURE IN THE DESERT THAT CONTAINS THE OPENING TO THE CAVERN	THE HOLY MOUNTAIN
5		MECHANICAL LIBRARY CONTAINING BOOKS ACCESSED EITHER FROM THE CAVERN OF THE RELTO	THE CHRISTIAN CANON
6		A CLUBHOUSE FOR PLAYERS TO SOCIALISE AND ACCESSED VIA THE NEXUS	CHURCH
7		TREE IN THE CENTRE OF THE CAVERN CREATED BY YEESHA	THE TREE OF LIFE
8		CLOTHS MADE BY YEESHA, COLLECTED IN 7 MISSIONS TEACHING PLAYERS ABOUT THE D'NI	THE TEN COMMANDMENTS
9		HIDDEN CAVES IN THE CAVERN ONCE INHABITED BY THE ENSLAVED BAHRO	UNDESIRABLE CHRISTIAN HISTORY (THE CRUSADES)
10		BOOKS TO PLAYER CREATED WORLDS	INTERPRETATION OF THE BIBLE

On the 9th February 2003, a day that would become known as 'Black Monday' the Uru Prologue server began its shutdown process. Cyan games would cite a lack of online players but this is widely contested amongst the Uru community who rather believe it was because of poor marketing. On the servers final day players assembled in their 'Neighbourhoods' or in each others 'Ages' to talk and reminisce. Some of the most dedicated players gathered in the ruins of the ancient D'ni city and formed a tight circle so it would appear their avatars were holding hands as their screens froze and the final message appeared on screen 'There is something wrong with your internet connection'.

But within minutes an unexpected and unplanned buzz appeared on a favourite chatroom of Uru players, Koalanet. Players were migrating to talk about the post traumatic stress of their world ending, they were unwittingly becoming refugees, Koalanet acting as their temporary camp, players would spend the next few weeks and months scouting other online games for potential new homes. Eventually a group of about 200 players settled in the online game 'Second Life', a game with no set objectives but rather a virtual world with built in 3D CAD modelling tools for players to build, trade, participate in group activities or socialise within user generated content. Here they began to construct 'D'ni Island' made up of famous areas of the Uru world complete with linking books that if clicked would take you to certain areas. They recreated a Nexus with links to a series of Reltos, fountains to gather around in the centre of neighbourhoods, egg rooms, imagers, a map displaying device used in the The Cavern and even Uru esq. architecture from library's, to vehicles, to street lamps. So it could be observed that one of the key traits taken from the original game was an architectural spatial awareness, players obviously had a deep understand-

ing of the spaces they had inhabited in Uru and their associated meaning to re-construct them so accurately in Second Life

A common observation of a real world diaspora is the desire to return to or restore a lost homeland,[19] even if that homeland or the identity associated with it is imaginary.[20] If that is the case then history and fidelity of context can be said to have blended in Uru to create nostalgias for pasts that never existed. Indeed it is telling that one of the best known examples in history of a real world diaspora is the biblical dispersion of the Jews from Israel and it could be said that Uru players had been trained from the start for dispersion through the central theme of the game: the restoration of the culture of the D'ni people. It is possible that players saw the restoration of the game outside of the bounds of the software as just an extension of the originally intended gameplay, exploring new worlds and overcoming obstacles to adapt to the destruction of their world.

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19 William Safran. Diaspora: A Journal of Transnational Studies, Volume 1, Number 1, Spring. 1991, pp. 83-99 (Article). Published by University of Toronto Press.

20 Anderson, B. (1991). Imagined communities. 1st ed. Verso.

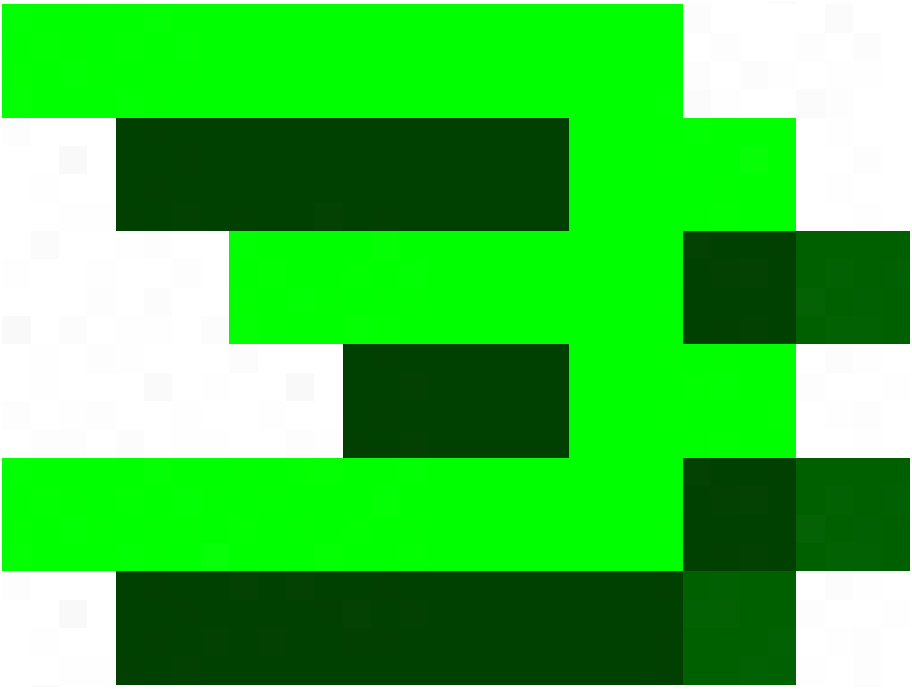
This form of inter game migration is not a new concept and happens often, creating subtle cross pollination across platforms, designers and players. The advantage of Uru as a case study is that a single event triggered a mass migration of dedicated players the likes of which had not been seen before. This created the opportunity to track the actions of a specific group of players over a short period of time. As I have shown, the Uru community was a tight knit group comparable to a sect or even religious cult which also made their actions more pronounced. They made their new world adapt to them, not only by building replicas of their homeland (D'ni island) in game but also in their play style by creating linking books (Reltos) which had no context in the game they had chosen to inhabit.

Players gathering around a fire in a re-constructed 'Neighbourhood' in Second Life

Re-constructed D'ni Island in Second Life

CONCLUSION

In conclusion video games have a particular advantage in giving players tools to change social issues over other types of media. This is done through the use of interactive rulesets that enable a unique understanding of the social thinking behind the gameplay. It is possible to observe players using these tools in certain video games that use the principles outlined in section one, such as players in Etoy affecting the litigation of an online retailer or State of Emergency polarising social issues around minority persecution. Furthermore by analysing religious themes in Uru, we can see how players may be conditioned to exert spatial social change outside the initial virtual environment.



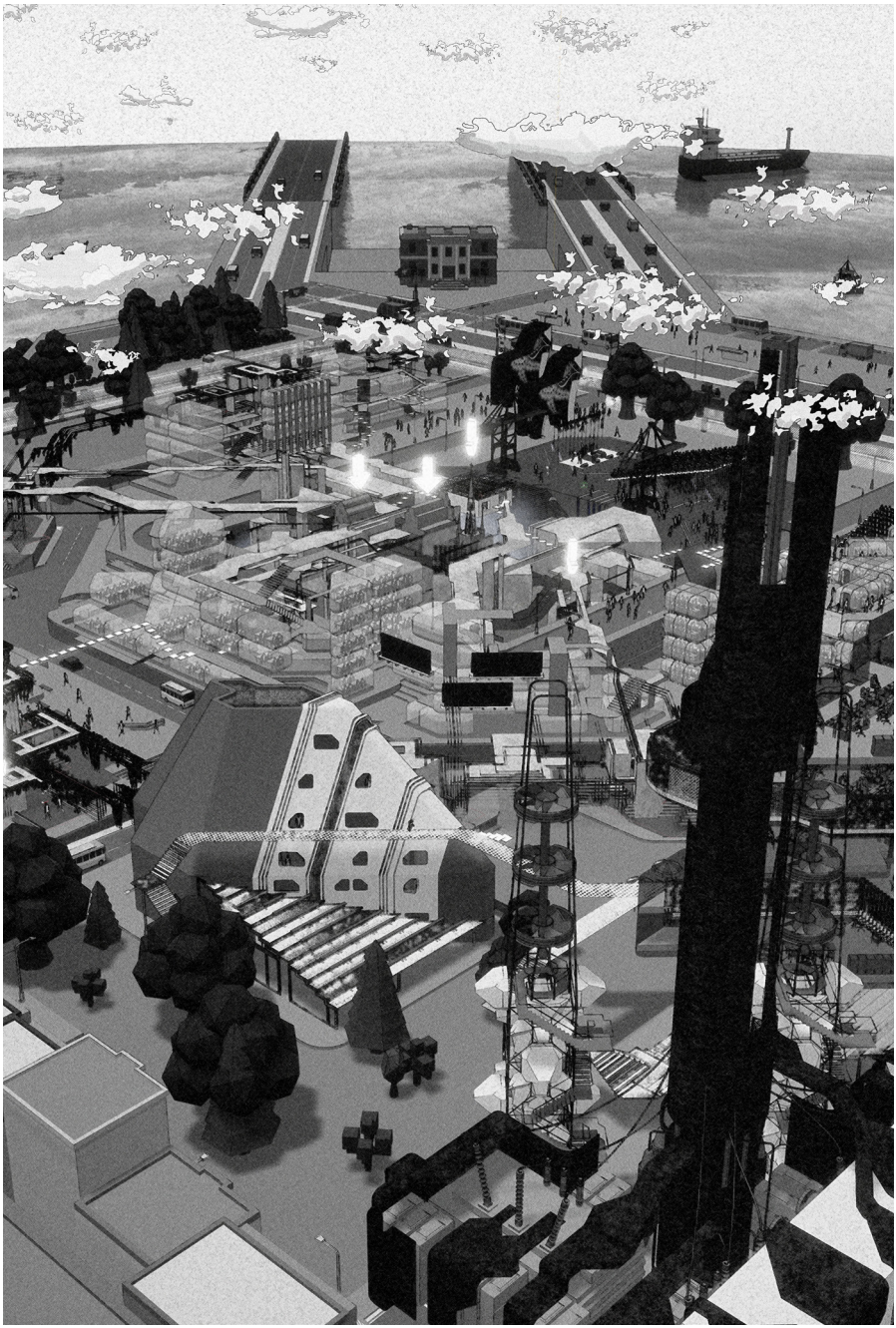
A SIMULATION TO CHANGE SOCIETY IN STOCKHOLM

CREATING A SIMULATION TO CHANGE STOCKHOLMS SOCIAL HIERARCHY

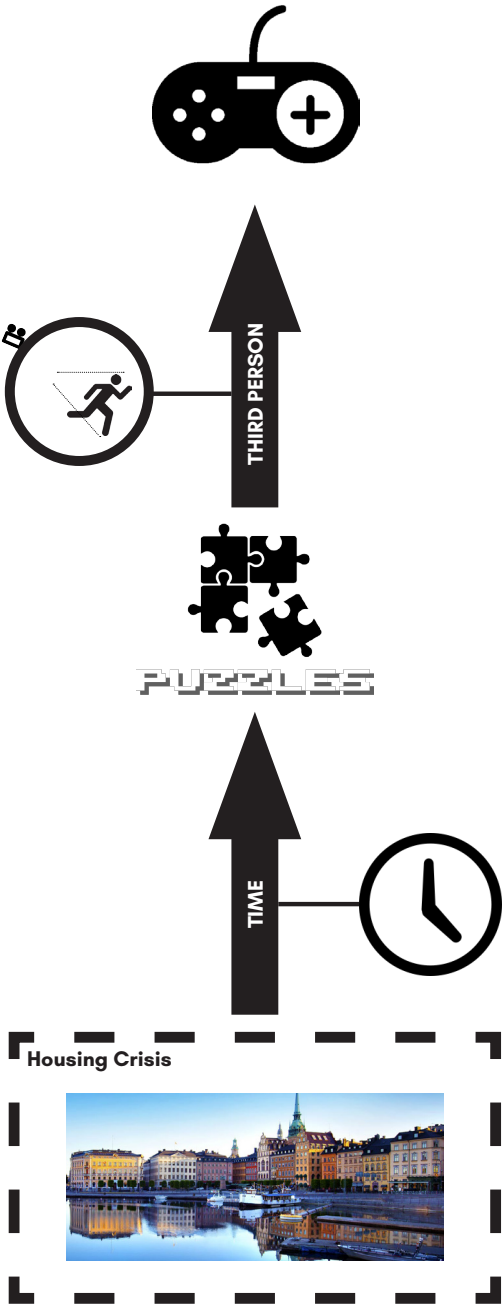
It is worth noting from the outset that any design proposal carries with it the bias of the designer and the reactions of the player is largely dependant on my own aesthetic and political ideologies. With that in mind this chapter will focus on using the techniques I have outlined in sections one & two to establish a model of simulation that has the power to change the social attitudes towards urban planning and architecture in Stockholm, Sweden.

Stockholm : Changing Societal Thinking

The city of Stockholm is in the grip of an immense housing crisis, engendered by a pioneering egalitarian housing system that has been diluted by austerity and conservative governments. A new social hierarchy has emerged based not on where one is able to live, but rather how long they can live there for. Stockholm's inner city is gridlocked, with nowhere for new residents to go. The infrastructure was adequate for much of the 20th century, now Sweden's unique unitary housing model has become a twenty year waiting list for inner city homes, creating an ever increasing gap between the haves and have nots. Sweden is now struggling to maintain its ideals of providing housing for all.



Zeigler's framework for a virus adapted for Simulation Stockholm



By using this time based social hierarchy as a tool for investigation, a new simulation, made using a layered organisational strategy of time based buildings and infrastructure is proposed to change players social thinking from a location based society, to a time based one. A series of puzzles tailored to each layer teaches players about the rules associated with this new society, equipping them with critical tools with which to view their society that will change Stockholm for the better.

Using Time as a Virus

The game is built on Zeiglers framework of a virus so that it has the best chance of infecting Stockholm with social change. Stockholm is the source system which is examined with the experimental frame of the housing crisis. The model is made using a series of puzzles that enable the player to experience the social hierarchy and modelling relation of time and the simulator is the computer whos relation to the model is the third person view to enhance an architectural perspective. This virus would be distributed as a free open source software. In other words the games source code would be available to anybody that wanted to learn from it, copy it or share it.

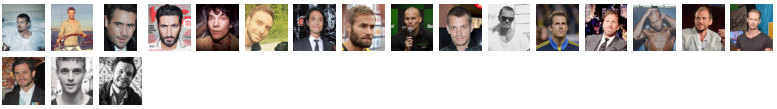
Ownership of Social Thinking : Player Responsive Design

In the game Uru it is possible to select multiple variations of avatars, characteristics such as, skin colour, gender or faces are all interchangeable. Unlike the real world, the characteristics a player chooses have no effect on gameplay, a player will gain no advantage in the game by choosing certain characteristics. This does not have an effect on the ideology of the gameplay because the aim of the game is to learn about biblical narratives. In my simulation players start off with a blank character which they must 'modify' to become the ideal Swedish man or woman, this will give them an advantage in solving puzzles throughout the game, the implicit message being that one most modify themselves, and their way of thinking to be successful in this new Stockholm, thereby allowing player responsive design which encourages the player to take ownership of the identity of their avatar and the actions they take in the game. This also conforms to Pearce's criteria of Embodied Persistent Identities by giving the player control over their appearance.

Swedish National Football Team

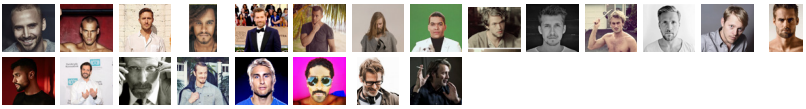
Swedish National Ice Hockey Team

18 Swedish Men Who Are So Breathtaking You Actually Won't Be Able To... Breathe - Buzzfeed



Swedish National Bandy Team

24 Scandinavian Men Who Have Ruined All Other Men - Buzzfeed



CHARACTER CREATION

EYES

NOSE

MOUTH

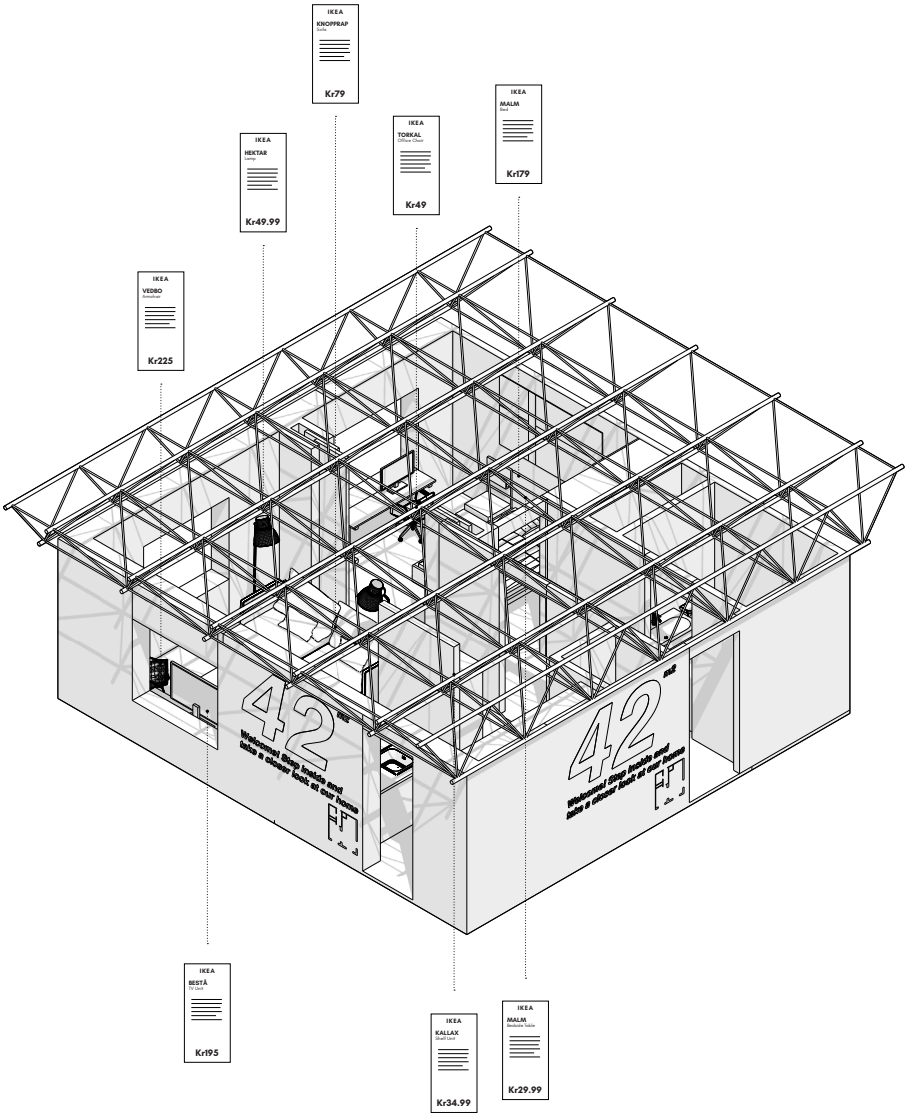
EARS

HAIR

Character creation gameplay from Simulation Stockholm showing charcter being modified by assesing characteristics of the Swedish National Sports teams and prominent buzzfeed articles

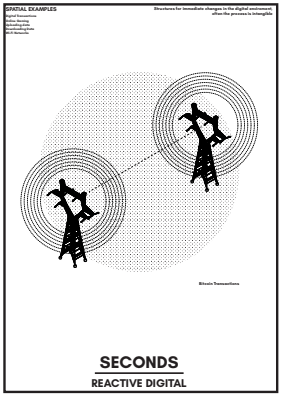
Establishing Fidelity of Context

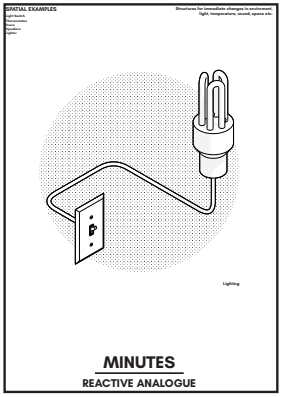
Once the character is created the player 'spawns' (appears for the first time) in the centre of the map, in an Ikea showroom, this creates an immediate physical fidelity of context similar to how GTA:V depicts familiar locations to remind users they are in an augmented Los Angeles, reminding the player they are playing a game in Stockholm, Sweden. It also gives the player a home within the game, satisfying Pearce's Inhabitable criteria. Once they venture outside the showroom they find themselves floating above Swedish thermal baths, here they solve the first puzzle by diving into the baths. They must find, below the water, a series of images depicting information about the housing crisis and its effect on changing Stockholms social structure from location based to time based. Once all the images have been found, time is reversed and the player is lifted from the water back onto the platform where the Ikea showroom had previously been. This introduces the player to the concept of time based gameplay in a similar way to how Uru introduces its players to Christian themes by their first task being to find the lost city of D'ni (which parallels discovering the Garden Of Eden) and satisfies Pearce's Worldness play criteria. Upon completion of this puzzle they are presented with a book detailing the ten time based layers of the city which they will explore. Five illuminated paths lead away from the platforms each one directing players to the puzzles they must solve to learn about and unlock the subsequent layers of the city.

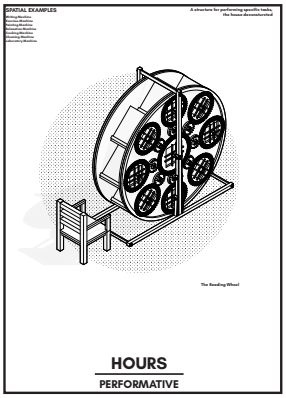


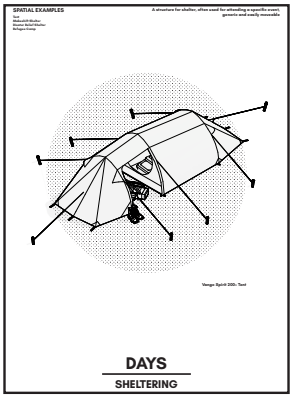
Simulation Stockholm IKEA show apartment

Simulation Stockholm 'Time Based Architecture Guide' presented to players on completion of the first puzzle to help them in understnading the time based layers of architecture in the game





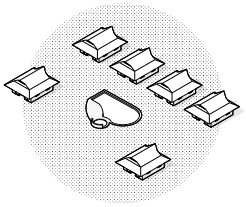




SPATIAL EXAMPLES

A shared structure, rented or able to accomodate different users for short periods of time

Time Share



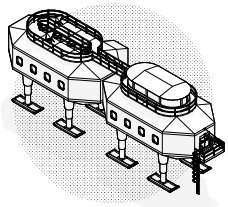
WEEKS

SHARED

SPATIAL EXAMPLES

A structure for fulfilling a specific need, highly specific, semi static

Halley VI Antarctic Research Station



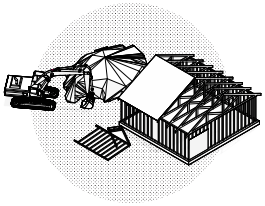
MONTHS

MOBILE

SPATIAL EXAMPLES

A structure for proffessing, to improve life in the future

Home Build in Process



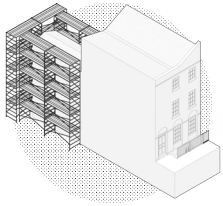
YEARS

INVESTMENT

SPATIAL EXAMPLES

A structure for adaptors to changing needs, often intergenerational or able to realise many small changes over long periods of time

Home Adaptation



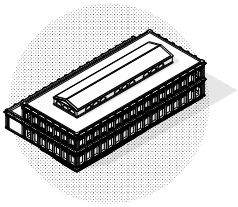
DECADES

ADAPTIVE

SPATIAL EXAMPLES

A structure designed for flexibility, usually a large empty space able to be re-purposed to a single new use

Roman Basilica



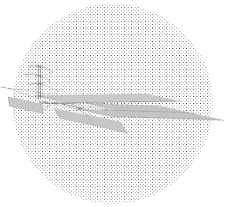
CENTURIES

RE-PROGRAMMED

SPATIAL EXAMPLES

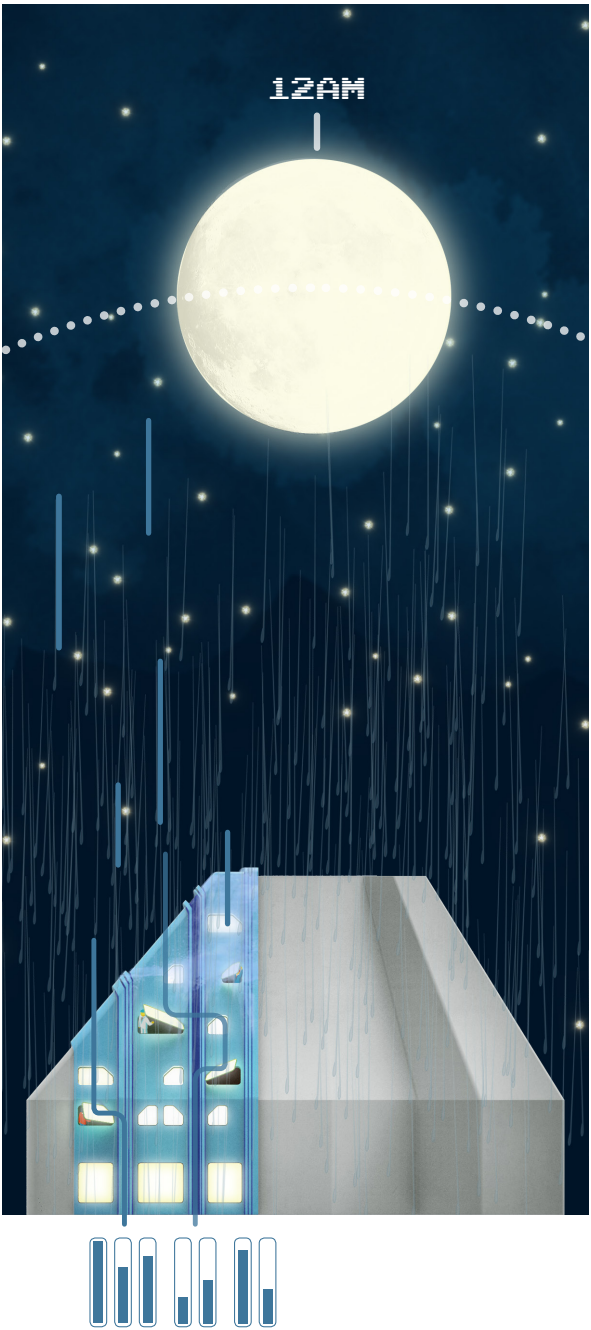
A structure for 'permanent' use, intended to exist and be used for its original purpose beyond any conceivable time frame

Onkalo Spent Nuclear Fuel Repository



MILLENIA

GEOLOGICAL

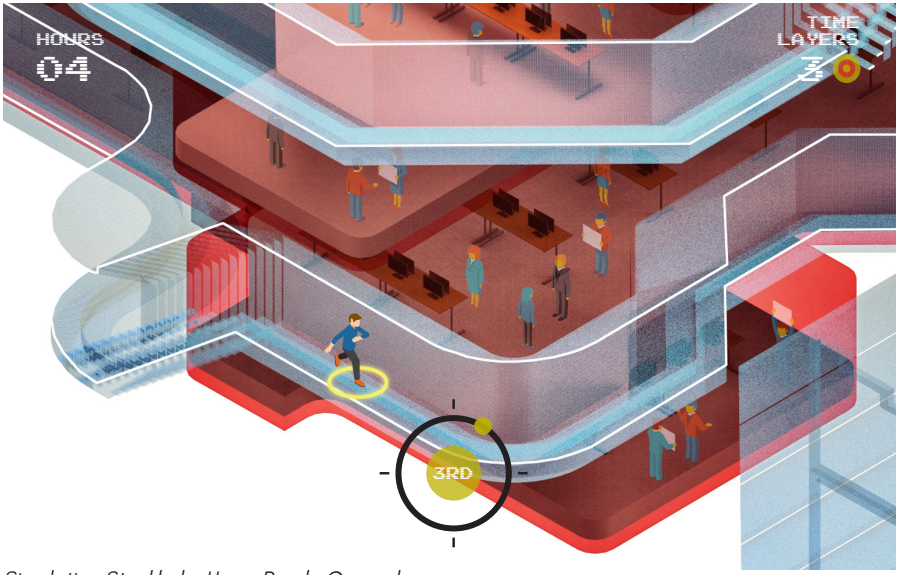

12AM

These puzzles form the core of the game and are in fact ten simulations of time based processes that form the thinking behind Stockholm's new time based society. Each puzzle allows the player to experience the unique architectural qualities behind each layer of the design in isolation. By completing each puzzle players earn time 'Power Ups' which can be used to slow time down or speed it up giving the player more time to finish other puzzles or advance time to begin another puzzle once all the layers are unlocked. Completing all the puzzles players will unlock all areas of the game, but players must continually complete puzzles at set time periods, (every one game day or one game month depending on their layer), for the city to continue to function. So it is not possible to win the simulation in a traditional sense, only to perpetuate the cities functioning, making the puzzles hyperbolic games.

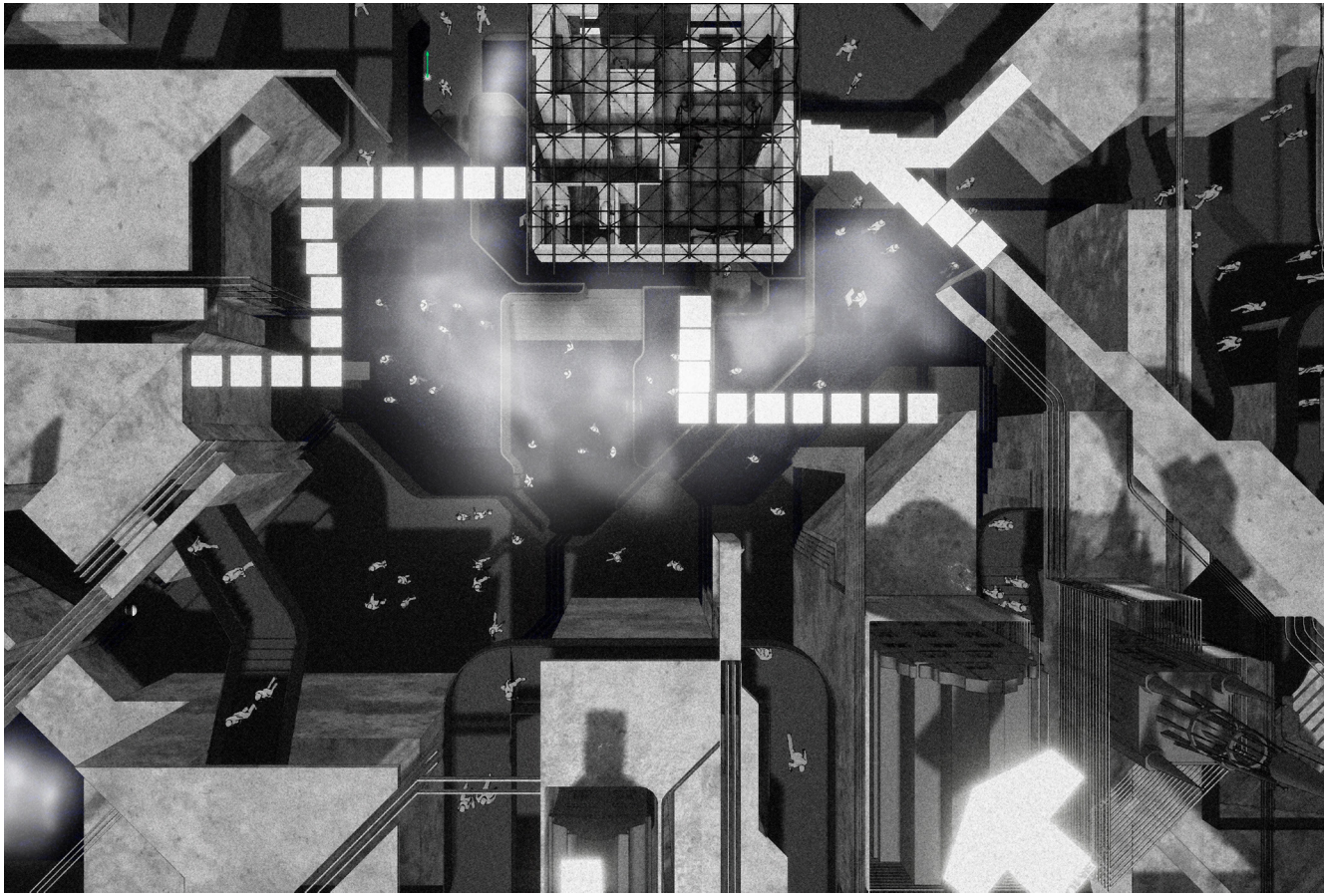
By altering the architecture to solve these puzzles I satisfy Pearce's Consequential Participation criteria as the players literally alter the form of their city to complete puzzles. For example, the layer which represents the time period of days, has a puzzle where players open and close windows to channel water down the side of the building, the object is to collect as much water as possible to power other time period layers. The player has a single gameplay day to complete the puzzle and any extra water collected can be exchanged for a time Power Up.

Another example is the puzzle that must be completed to unlock the layer that represents hours, players must use perforated viewing platforms that wrap around the office buildings to view the participants inside. By starting at one end they must reach certain points of the building at certain hours of the gameplay day to view office daily life, such as workers arriving at 9am or team meetings at 3pm. Any extra time the player has before reaching the viewing area checkpoints can be used for Power Ups. By giving the player the ability to speed up or slow down time as a bonus I re-establish time as a currency that enables players to control the functioning of the game in much the same way that State Of Emergency and Etoy re-established violence and litigation as gameplay currencies.

This game serves to show that by creating a simulation with specific qualities of games and play using the framework of a virus it is possible to create a video game that can form social change through gameplay, and by analysing examples of these games it is possible to extract other qualities such as giving players the control over the appearance of their avatar to feel an ownership of the actions taken within the game or to use fidelity of context to establish the players relationship with Stockholm, or using time as a currency to enforce the concept of a time based society. These qualities create a new video game with the power to change residents view of Stockholm from a location based social hierarchy to a time based one and to convince them to actively change their city as a result.



Simulation Stockholm Hours Puzzle Gameplay



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