

IMMERSIVE REALITIES

An Expansion Pack for Landscape Architecture

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A thesis submitted in partial fulfillment of the requirements
for the degree of Master of Landscape Architecture

University of Washington 2018

Committee: Thaisa Way, Jeff Hou

Program Authorized to Offer Degree: Landscape Architecture

University of Washington

ABSTRACT

Immersive Realities: An Expansion Pack for Landscape Architecture

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While studying abroad in Berlin, I had the experience of exploring a city the way I would explore a video game. I allowed myself to be led by curiosity, thoroughly investigated my surroundings, and was frequently delighted by my findings. A simple walk felt like an adventure. It was a completely immersive experience, just like a good video game.

The video game industry has developed remarkable tools to design virtual spaces that create memorable experiences for the player. The environments must be continuously engaging, because if the player gets bored, the game is likely to be a commercial failure. These requirements have shaped video game design to focus specifically on immersive player experience.

Landscape architects design for immersive user experience as well. However, the breadth of their responsibilities (to clients, contractors, building codes, the environment, stakeholders, etc.) mean that their work is less narrowly focused on user experience. This thesis is a foray into video game environment design, with the intention of harvesting lessons learned from designing virtual space and sharing them with designers of the built environment.

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Playing Urban Explorers

In 2016 I studied abroad in Berlin. Eager to become familiar with the city, I started taking daily walks. I typically wouldn't make plans. I simply let my eyes wander and my feet carry me in different directions. My walks were incredibly fun experiences, so much so that I started to think of walking as playing a game. Instead of saying, "I'm going for a walk," I would say, "I'm playing urban explorers." On any given walk I would discover something exciting, as simple as an alley covered with graffiti, to a petting zoo, or an "intercultural garden". I found clues to Berlin's history hidden in the very streets themselves. One day I walked along the brick line in the ground that traces the former location of the Berlin Wall. Another day I tripped over a bronze cobble that was turned out to be a little memorial to Berliners killed by Nazis. Every discovery felt like a prize in a giant open-ended game.

During one of my walks it occurred to me that the experience of the walks reminded me of my experience exploring open world video games. Open world games are a type of video game defined by open-ended gameplay. Instead of following a linear, predetermined, course, the player is placed into a virtual world where they can go wherever they want, and do whatever they want, whenever they want. To motivate exploration in such an open-ended setting, open world games are often populated with hidden treasures, secret places, backstories, and rewarding experiences. The world is designed to help the player find these hidden stories, missions, and rewards.

After my study abroad I returned to Seattle, only to find that playing urban explorers was much less fun. I took several walks around my neighborhood, without discovering as many treasures, secrets, or stories as I had in Berlin. Disappointed, I began to ask myself what had made urban exploring feel like a video game in Berlin?

How to Use this Thesis

My broadest intention for this thesis was to expand the relationship between landscape architecture and video game environment design. As my research progressed, I learned several design lessons from video games that could be immediately available for designers of the built environment. To make these findings more accessible to the design community, I decided to split my thesis into two parts. The first part (what you are now reading) contains broader research and comparisons between the two fields, while the second document organizes applicable design tools in a more accessible format, essentially a handbook.

The first portion of my thesis, what I'll call the literature review, contains my research findings, methods, and conclusions. The primary audience is more academic, perhaps others conducting research on video game design and the built environment. The second portion, which I'll call the handbook, is intended to be a source of knowledge and inspiration for designers. It is a curated collection of design lessons, complete with examples from games and real life, recommendations, and illustrated concepts. While the literature review is a comprehensive review of my research, the handbook is meant to be a quick read, where designers can find new ideas.

Limitations

Before fully exploring my research findings, I'd like to acknowledge some limitations of study pertinent to this thesis. The field of video games is broad and in order to narrow the focus of my research I had to leave out certain aspects. I focused exclusively on exploration in open world video games. I deliberately left out other prominent game experiences such as combat, superpowers, escapism, etc. I recognize that many gamers enjoy video games for these aspects, however I chose to focus solely on exploration because it most closely parallels the way people experience landscape architecture.

This thesis also focuses exclusively on the pedestrian experience in public spaces. While in some games, players drive a car or ride a horse, the majority of games are played on foot. I think this reflects that human beings engage best with our surroundings and have more memorable experiences on foot. Because the pedestrian is a primary audience for both landscape architects and game designers, this research focuses primarily on the pedestrian experience. Finally, since most games are set in public spaces, a realm where landscape architects can have a great influence, I filtered my research specifically for design lessons that would be useful in public space.

Relevance

Could video game design techniques inspire people to go outside? If the design techniques that cause people to spend hours exploring virtual worlds, can entice people to explore the physical world, video game design techniques in public spaces could have a positive effect on individual and community health. Studies have put the number of people who play video games at over 1.2 billion¹. In a recent report by the Entertainment Software Association, gamers in the United States spend 3-6 hours per week playing games.² If just a fraction of that demographic spent more time exploring outdoors, as I did in Berlin, there would be a significant increase in people activating public spaces, building community, and improving their health. The Center for Disease Control recommends 1.5 hours of physical activity per week, and says that 80% of Americans fall short.³ Just a half hour of ‘playing urban explorers’ instead of playing the latest Mario game could mean engaging in the recommended amount of physical activity per week.

Spending time in public spaces can also improve social capital that is considered a source of resilience against disasters⁴. Encouraging people to walk could decrease car use and increase the number of people using public transportation. Finally, many of the techniques used by video game designers support placemaking that can strengthen local businesses, rejuvenate neighborhoods, and improve safety⁵. This research has the potential to advance our ability to design for community and health, as well as landscape architecture theory and pedagogy.

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- 1 Soper, “1.2 Billion People”
 - 2 “2017 Essential Facts”
 - 3 Jaslow, “80 Percent of American Adults ...”
 - 4 Houston “Social Capital...”
 - 5 “Ten Strategies...”

A BACKGROUND ON VIDEO GAMES

Because understanding my findings requires a basic knowledge of video games, I have provided this section as an overview of the medium for those who are unfamiliar with video games. In it, I provide a brief background that includes concepts I will reference in the rest of this thesis. I have included a glossary of terms at the end of the chapter (pg 15) to help readers familiarize themselves with important concepts.

Classification of players

In the mid 90’s, a taxonomy of player was developed to classify different types of gamers and their motivations. Though many have disputed this classification’s ability to describe all gamers, it remains a useful tool in understanding the different audiences video game designers serve. The types are known as Bartle’s Taxonomy of Player Types⁶ and are as follows:

Achiever : motivated by levels, high scores, gold coins, status

Socializer : motivated by interactions with other players or NPC’s

Explorer : motivated by discovering and understanding the world

Killer : motivated by achieving domination over others

⁶ Bartle, “Hearts.”

The player type who is likely most relevant to the work of landscape architects is the explorer-type. Catering to explorers would entail ensuring there are hidden places to discover, maps to read, embedded stories to uncover, and details to take delight in. Explorers like to stop and investigate, making them good for local businesses. Though the explorer-type is the most obvious audience for landscape architects, socializer, achiever, and killer player-types should not be forgotten. Socializers need places that support making new friends, meeting old friends, and group activities. Achievers are extremely goal oriented. An achiever could be a commuter who strives to get from place to place in the most efficient way possible or someone who enjoys becoming an expert on a certain neighborhood. The killer-type thrives on competition, power, and disruption. In games, a bored killer is the most dangerous because they are likely to cause trouble. In public space killers could be engaged by interactive parts of public space including street games such as chess or exercise equipment.

Classification of Games

Games have classifications much like films do. These classifications evolved to organize online discussion forums, game reviews, and game stores. Games are most often classified in three ways: by genre, by format, and by mechanics (the controls). While a game might be classified as multiple genres, they can typically only be one format or mechanic type. Different types of games provide players with different ways of moving through space, different motivations for doing so, and different outcomes. For example, one genre of game may give the player a rush of adrenaline by simulating violence, while another might be about telling a compelling story, and eliciting emotion.

Sample Classifications

By Genre : action, adventure, indie, scifi, fantasy, strategy, sports, puzzle, role-playing game

By Structure : open world, linear, sandbox, single/multi-player

By Mechanics : first-person, shooter, turn-based, walking simulator, driving simulator

One could classify the experience of being an average person in the real world as a first-person, open world, walking simulator. Depending on the person and how they go about their life, it could also be adventure, driving simulator, sandbox, even action or strategy. Given the many game classifications that can be applied to the real world, it goes without saying that environmental design strategies from those games could be applied to the real world in order to strengthen the experience of being in a particular genre of game.

Movement in Space

Classifying games by structure organizes them by how they allow the player to move in the virtual space. In some games, movement is more or less comparable to how we move through real space and in other games movement is an abstraction of real world movement. Movement in games has evolved from side-scrolling games, such as *Super Mario Bros*⁷ that limit the player to moving in one plane, to linear games like the 1996 *Tomb Raider*⁸ where the player essentially traversed obstacles courses on a predetermined track, to open world games that allow the player to move through space the way we do in the real world.

An open world game is one where the player is a free agent in an existing world – meaning they have power to influence their experience of the game. Before the technology existed to create open worlds, game designers struggled to design multiple outcomes in a game. This limited their capacity to create realistic worlds. One way game designers made up for this, was by simulating important decision-making, though the decisions were without consequence. For example, when a player encounters a fork in the road they have the opportunity to make a decision. They don't know it, but both paths lead back to the same place. In this way, the player was able to engage their agency by making a decision, without knowing that the decision had no impact on the outcome of the game.

7 *Super Mario Bros.*

8 *Tomb Raider.*

The game type most relevant to the real world, and therefore the realm of landscape architects, is the open-world game. In open world games, players play in fully formed virtual worlds and are given the freedom to go wherever they want and do whatever they want without restriction. For example, the game *Assassin's Creed* starts with a main storyline, and the player is given a mission.⁹ In order to progress the story, the player must complete mission after mission (namely assassinations). However, the player can choose to disregard the missions completely and instead spend time exploring the virtual world. The game encourages this by hiding side-quests, rewards, and stories in the environment. While exploring, the player can meet people who ask for favors, provide details to buried treasures, or reveal relevant backstories. Populating the space with stories, activities, and rewards makes the virtual world feel more real.

A subset of open world games are Sandbox games. These are open world games with the added feature that everything in the game can be dismantled and rebuilt. The most famous of these is the *Minecraft* series, where players can take apart their entire environment and build almost anything.¹⁰ To date, a number of extraordinary things have been built in *Minecraft*, including a basic computer that can perform binary logic and basic calculations.¹¹ These games enable players to affect meaningful change on their environments. As we have to some extent in the real world, minecraft players have the power to dismantle and remake the world around them.

9 *Assassin's Creed.*

10 *Minecraft.*

11 Statt, "Minecraft".

Another subset of open world games are the immensely popular MMORPGs, massively multi-player online role-playing games. The most well-known example of an MMORPG is *World of Warcraft*¹². The world of *World of Warcraft* exists online and can be accessed by anyone at any time. *World of Warcraft* peaked at 12 million subscribers in 2010¹³. Any of the millions of subscribers could be in the online world at any given moment, making the world a lively and active social space. One of the key aspects of MMORPGs is the relative anonymity. Players choose avatars and usernames to represent them in the virtual world. The actions they perform in the virtual world are disconnected from their real world identities, leading many to act more vicariously than they would otherwise. *World of Warcraft*'s open world shares many characteristics with the real world, including allowing players to explore on their own, interact with others, buy and sell items, decide what activities to participate in, and with whom.

¹² *World of Warcraft*.

¹³ Tassi, "Activision".

Progression through Narrative

Video games encourage players to move by providing them with various motivations. The most prominent tool in motivating players is narrative. Examples of narrative drivers include saving innocent people, making friends, being financially successful, and beating one's enemy. All of these narratives provide reasons for the player to act. How that narrative is presented varies from game to game.

Older games used text to advance the narrative, for example "Congratulations! You have slayed the dragon! Now you must save the princess!" More recent games use short animated scenes (cutscenes) to advance the narrative, perhaps a showing a dragon lying dead on the ground while a prince waves from a faraway tower. Other games simply use rewards to motivate the player to keep searching for narrative. Modern games have sought to maximize immersion in the game by minimizing moments that break the player's suspension of disbelief. A screen of text fully acknowledges the artificiality of the game experience. Cutscenes reduce the player to a passive observer until the scene is finished. Even cutscenes that allow the player to move aren't fully immersive, since the player's actions won't affect the NPCs acting out the scene.

Perhaps the most immersive method of storytelling in games is environmental storytelling. It can supplement cutscenes or replace them entirely. Environmental storytelling is the use of environment to tell a story. It can be anything from using faded brick to imply a building is historic, to even more specific events. For example, an open jail cell with blast marks around the door. Instead of using a cutscene to show someone blasting through their jail cell, the player encounters the cell and is allowed to deduce what happened themselves. Involving the player in the interpretation of what happens, creates a stronger sense of immersion and investment in the game.

Video Games in the Real World

There are several examples of attempts to use video game ideas, concepts, and structures in the real world. Most of these examples fall into a genre called ubiquitous games. Ubiquitous games are an emerging game type that involves a game that takes place in the physical world, inspired by video games, and played by large groups of people. According to Jane McGonigal, “ubiquitous gaming seeks to make everything in real-life environments as satisfyingly interactive as the objects and characters encountered in virtual gameworlds.”¹⁴ Sometimes called ‘pervasive games’ and ‘alternate reality games’, these games allow players to gather in person and bring the gaming experience into their everyday lives. Often, players are forced to question how the real world differs from virtual worlds and rethink how we use objects and spaces in the physical realm.

Several very successful ubiquitous games have set a precedent for video game thinking co-opting physical space. *I Love Bees*¹⁵ premiered in 2004 as part of the marketing campaign for the launch of the widely anticipated video game *Halo 2*¹⁶. *I Love Bees* was announced by flashing a url during the *Halo 2* trailer. Dedicated fans followed the url to a seemingly hacked website about bees. From there players found real-world coordinates that lead them to phone booths, where they would receive phone calls at specific times, from characters in *Halo 2*. Over three months, players received pre-recorded and live phone calls that provided pieces of a story about the alien invasion that led up to *Halo 2*. Over 600,000 players participated.¹⁷ Throughout the course of *I Love Bees*, a vibrant community formed, of people willing to travel around the country and work together to put solve this narrative puzzle.

¹⁴ McGonigal, “Ubiquitous Gaming”, 236.

¹⁵ “I Love Bees”.

¹⁶ *Halo 2*.

¹⁷ Maher, “Scaling Up”.

Perhaps the most famous example of ubiquitous gaming is the phenomenon known as *Pokémon Go*¹⁸. *Pokémon Go* was released by Niantic Labs in 2016 as a mobile phone app that allows players to hunt and capture virtual pokémon (fictional creatures) in the real world. One of the remarkable things about the game was its use of smartphone cameras and maps to place pokémon into the real world. Players see nearby pokémon on a GPS map of their location and have to physically go to that place in order to capture the pokémon. Once at the place, the app uses the phones camera to superimpose an animation of the pokémon onto the physical space. The game continues to be a critical hit and has since been downloaded over 650 million times worldwide.¹⁹

While *I Love Bees* organized people to perform game-like activities in real space, *Pokémon Go* mapped their game spatially onto the physical world. *Pokémon Go* is a relatively recent game, so emerging scholarship on the effects of the game are still forthcoming. However, several academic papers and many news articles have already claimed its positive health effects through encouraging players to walk around outside.²⁰ Players on social media platforms, such as Twitter, claim to have made new friends, discovered parks, and engaged in exercise all because of *Pokémon Go*.²¹

Another method of game design in the real world, is the relatively new phenomenon of escape rooms. Though I hesitate to categorize escape rooms as ubiquitous games, they overlap in several ways. Escape rooms require small teams to complete a set of challenging puzzles in order to get out of a locked

¹⁸ *Pokémon Go*.

¹⁹ Sarkar, “Pokémon Go”.

²⁰ Watanabe, “Psychological Distress”.

²¹ Grohol, “Mental Health”.

room. Typically rooms have themes and accompanying narratives describing how the players became trapped, for example archeologists who get trapped in an egyptian tomb. The escape room concept originated in online video games where a single player was ‘locked’ in a virtual room and must click on objects to search for clues or keys. Now, real escape rooms offer players small, surmountable, challenges in a collaborative environment, with a fun narrative premise, in a fully interactive room.

Ubiquitous games cater to almost all player-types. They cater to explorer-types by enabling them to explore for rewards. Achiever-types can gain ranks in *Pokémon Go* or contribute to puzzle solving in *I Love Bees* and escape rooms. Socializer-types organize team efforts, revel in community building, and can gather with other players at pokémon hotspots. Killer-types can engage in battle against other players in order to control pokémon gyms. Though ubiquitous games have been critiqued for their lack of accessibility, sustainability, and replayability, this emerging genre is just starting to explore the realm where video games and public space intersect.

Glossary

Video game culture is one replete with slang, acronyms, and buzzwords. For those without familiarity with video game language, I have provided a brief glossary of terms used in this thesis.

Alternate Reality: Sometimes called AR or Ubiquitous Gaming, alternate reality games take traditional video game frameworks and apply them to real world spaces. They range from simple scavenger hunts to complex games where players network with others, in order to complete tasks, and specific locations and times, to finish the game.

A well-known example is *I Love Bees*

Exploration: Games where a key component is exploration and immersion in the game environments. In exploration-centered games there is often hidden content in the game for the player to find.

A well-known example is *Myst*²².

First-person: Refers to the first-person perspective, meaning as the player, you see out of your character’s eyes rather than watching yourself from above (second-person).

Level Designer: The industry title for someone who designs video game environments. Level design can include creating quests, scenes, maps, and environments. Level designers sculpt the player’s experience in game environments.

²² *Myst*.

Linear Game: In linear games the player is required to complete objectives and explore areas in a certain order. Objectives must be completed in order for the player to progress in the game.

A well-known example is *Tomb Raider*.

MMORPG: Stands for “massively multi-player online role-playing game”. Role-playing games refer to games in which the player plays as a character in the virtual world. Typically a player is always the same character and will play as a part of a group, or team, of other characters. In MMORPGs, multiple of these players meet online in an open world and can play individually or in groups.

NPC: NPC stands for non-player-characters. This refers to game characters who are controlled by the game, not human players.

Open world: A game where the player is at large in a world, able to roam as they please and approach missions freely, as opposed to a linear game.

A well-known example is *Grand Theft Auto*²³.

Player agency: Player agency is a common theme in level design. It represents the player’s ability to make meaningful decisions. True agency means that decisions can affect the outcome of the game. Decisions become more important, creating legitimate challenge for the player. When the player’s decisions don’t influence the outcome, or the player has no choices, the player lacks agency.

23 *Grand Theft Auto.*

Sandbox: Style of game where the player can deconstruct and reconstruct the world at will.

A well-known example is *Minecraft*.

Sidequests: Many games have additional (side) quests and stories to supplement their main quest or storyline. Sidequests can reward the player with money or loot, reputation, items, skills, or entertaining side stories. For many gamers, sidequests can be more rewarding than the main storyline in the game.

Walking Simulator: Games in which the main activity is walking (as opposed to shooting, fighting, climbing, racing). Most walking simulators focus on story.

A well-known example is *Myst*

METHODS

The lack of literature on video game studies and its relationship to landscape architecture required me to seek other avenues for research. I consulted a broad range of literature, media, and other resources. In the process, I learned that most information on video game design is shared through non-print methods, for example word of mouth, playing games, design blogs, youtube videos, and video game design conferences.

Interviews

I started my research with a series of informal interviews. My goals for the interviews were to discover what existing connections they found might connect video game design and landscape architecture and what intrigued them in a comparison of the two fields. I interviewed nine people, four of whom had backgrounds in landscape architecture or architecture, three were full-time level designers, one was a product manager for a video game company, and one was a user experience designer. All were avid video game players. The resulting conversations helped me form a basis of inquiry upon which I developed my research. Interviews were mostly unstructured conversations which I taped for future reference. Though conversations flowed freely, I prepared a number of questions in advance.

Overarching Questions

Though interviews were tailored to the interviewee’s background and interests, I asked all of the interviewees the following questions:

- What interests you about video games?
- What’s different about exploring a game world versus the real world?
- What are some memorable, place-based, experiences you’ve had in the virtual and real world?
- Have you ever experienced a real world place that reminded you of a video game environment?

INTERVIEWS			
	NAME	PROFESSION	PLACE OF WORK
1	David Fletcher	Landscape Architect	Fletcher Studio
2	Matt Slemon	Product Manager for Pokemon Go	Niantic
3	Annie Bai	User Experience Designer	Microsoft
4	Alex Pagliere	Gamer/Studied Architecture	Product Designer
5	Luke Hegeman	Landscape Architect	Founder of MODUS collective
6	Steve Messick	Game Designer	Hidden Path Entertainment
7	Eric Nevala	Game Designer	Wobbly Duck
8	Daniel Grafstrom	Game Designer	Bungie
9	Monica Taylor	BLA Student	UW

Figure 1. Matrix of interviewees

Game Designers

During interviews with game designers I was primarily interested in understanding the video game design process to see how it was similar or different to design in landscape architecture. I focused these interviews on the following questions:

- What is your design process?
- Where do you draw inspiration from?
- What tools do you use?
- How much instruction are you given by your supervisor?
- How do you use environment to manipulate players to go where you want them to go, notice what you want them to notice, and do what you want them to do?
- How do you tell the story using the environment?
- How do you design for different audiences?

Architects/Landscape Architects

In interviews with architects and landscape architects I asked them to compare their experiences in real world landscapes and virtual landscapes. I hoped to be able to deconstruct what virtual and real environments each offer uniquely. I was lucky to interview David Fletcher of Fletcher Studio in San Francisco, who has designed and built real world landscapes as well as video game landscapes. I focused interviews with architects and landscape architects on the following questions:

- How do game designers design differently than landscape architects?
- What can landscape architecture learn from video game design?
- Is there a way of reading the landscape in games that encourages engagement that is absent in the real world?
- How could this thesis be interesting to landscape architects who don't play games?

Results

Several themes recurred throughout the interviews, such as the role of environmental storytelling, safety and anonymity, types of movement, beauty, agency/decision-making, motivation, reward, affordances, and expectations. Among my interviewees, their experiences and opinions were remarkably similar. Among their answers to my questions there were no contradictions, suggesting that the experiences afforded by video games are consistent across players.

Multi-media Research

Whilst researching game design topics I made an effort to play highly rated open world games, especially those that were known for exploration or storytelling. Games that influenced me during research and writing include *Firewatch*²⁴, *The Witness*²⁵, *Gone Home*²⁶, and *The Witcher 3*²⁷. I observed even more gameplay by watching videos of players recording their own video gaming experiences on youtube. Other media I consulted include game trailers, professional game reviews, game analysis videos, game design blogs, video tutorials, TED talks, and game design conference proceedings.

Two specific youtube channels were particularly insightful. An incredibly enlightening source is the youtube channel of Mark Brown, a former games journalist, who now makes youtube videos analyzing and discussing various video games. He has a series called “Game Maker’s Toolkit” that discusses how games are made. I highly recommend them to anyone curious about video game design. Another fruitful resource was the Game Developers Conference youtube channel. Since there are few textbooks on game design, information is often shared through word of mouth. The Game Developers Conference is a rich source of information on game design and has an extensive collection of their talks available to watch online. Being able to tap into the professional community of game developers through these recordings was invaluable.

24 *Firewatch.*

25 *The Witness.*

26 *Gone Home.*

27 *The Witcher 3.*

Literature Review

The remainder of my research was focused on literature comparing landscape architecture to video games, play theory, environmental psychology, and political theory. I consulted academic papers, books, theses, and magazine and journal articles. To narrow down searches I paired the keywords “video games” with architecture, environmental storytelling, open world, exploration, and wayfinding. Though I did find a few written works that touched on the periphery of landscape architecture and video game design, only one book focused entirely on comparing the built environment and video games. *Space Time Play: Computer Games, Architecture and Urbanism: The Next Level* provided me with several critical perspectives. It is a collection of short essays addressing how video games affect our perception and experience of cities, the blurred line between city and game spaces, and how games help us visualize the future of cities. Authors include video game designers, game researchers, game consultants, architects, historians, and communications researchers among others.

THEORETICAL BACKGROUND

Many key concepts in video game design have been studied before in real world contexts. For example, curiosity-driven wandering has been extensively described by a Marxist organization, the Situationist International. Manipulating visitor attention to draw them through space has been written about at length by environmental psychologists. To better understand how video game experiences can relate to the real world, I conducted a literature review to see how video game design techniques fit into existing scholarship. The literature consulted strongly supported the effectiveness of video game design concepts, affirming their utility in the realm of the built environment.

Environmental Psychology

During my interviews, several individuals discussed the psychological prerequisites for being engaged in one's environment in the real world. In video games, the player enters the virtual world with an expectation that they will engage, interact, and be an active participant in the space. Emboldened by their anonymity and the physical safety of their homes, players are more willing to take risks. The different expectations associated with video game environments cause players to act differently there than they would in the real world. One interviewee compared this effect to being a tourist in Las Vegas.²⁸ The expectation upon entering Vegas is that the visitor will have an interpretation of a 'wild' time, take risks, perhaps act irresponsibly, etc. This atmosphere of play and risk is fostered through marketing, from movies like *The Hangover*²⁹, to slogans such as "What Happens in Vegas Stays in Vegas". Visitors are coached

²⁸ Alexander Pagliere (product designer) in discussion with the author, November 2017.

²⁹ Phillips, *The Hangover*.

to engage their environment in a specific way, much like the video game format coaches players to behave playfully. Many of my interviewees expressed a need to understand the psychological requirements for people to engage their environment playfully. It's likely that a certain frame of reference or set of expectations is necessary for pedestrians to engage in the real world the way players so easily do in video game worlds.

Concepts in environmental psychology are often applied in video games, to persuade the player to emulate certain behaviors or navigate in a particular direction. In Brett Nisbett's thesis on wayfinding in video games, he describes design interventions that "increase the player's willingness to investigate", investigation being the motivation for exploration and play.³⁰ The idea of the environment to encourage specific behavior is not new in video game design. Often, video game designers have a specific experience in mind that they want for the player. They use environment to manipulate the player into having that experience. In the following quote, landscape architect David Fletcher described how the landscape encouraged behavior from the player by drawing their attention and framing certain viewpoints in *The Witness*:

A strangely shaped stone or plant, might be placed in a certain location, to encourage a player to desire one path over another, or draw them to an area in order to view a symbolically significant object. Near the entry, for example, a red bush was placed so that the player would be drawn towards a knoll. From that view, framed with a stone, the player sees the Mountain, which represents the "End" and more specifically death.³¹

³⁰ Nisbet, "Immersive Wayfinding," 18.

³¹ David Fletcher, from an unpublished essay, in the possession of the author.

The importance of attention in guiding people spatially is elucidated in the work of Stephen Bitgood, a professor of psychology who studies visitor attention in museum spaces. Bitgood claims the usefulness of his research is important not only for museums but also for zoo's, science centers, and other exhibition centers.³² His research is applicable to any curated spatial experience, from a video game to a historic river walk. Bitgood's research in attention is intended to cause museum visitors to pay "engaged or deeply involved attention to something in the environment".³³ The experience of being 'engaged or deeply involved' resonates strongly with the experience of being in a video game. It is, in fact, part of what makes video games fun, and even addictive.

For someone to have such an experience, according to Bitgood, the object of their attention must stand out from other objects competing for their attention. Most importantly, it must have some perceived value such as satisfaction, benefit, or reward. Bitgood calls this his 'attention-value model'. Attention is given if there is a perceived value. Perceived value is weighed against perceived costs, such as the amount of time and effort it would take to investigate. Between the visual draw of the object, the perceived reward, and perceived costs of investigating that object, a museum curator or video game designer can anticipate what objects will draw the visitor or player. Objects may draw attention more by increasing their contrast against their surroundings either through "size, colour, shape, isolation from other objects...movement or some other form of multi-sensory stimulation."³⁴ Reward and contrast are the two most common ways video game designers grab players' attention and efforts.

³² Bitgood, Attention and Value, 10.

³³ Bitgood, Attention and Value, 77.

³⁴ Bitgood, Attention and Value, 67.

Bitgood refers to items of high contrast with their environment as items of high 'saliency.'³⁵ According to Bitgood, humans are naturally motivated to investigate stimuli of high saliency first, and then investigate subsequent stimuli of decreasing saliency. He associates the response to strong stimuli with human survival instincts, requiring investigation of all possible threats.³⁶ Bitgood's inquiries into using attention to draw people through space, supports popular video game design strategies. However, some of his suggestions such as self-guided tours and large signs with audio and text, might be considered hand-holding by video game designers. Video game designers are always concerned with maximizing player agency and immersion, which often means eschewing signs, text, and guided tours so that the player may figure things out on their own.

Much of Bitgood's writing references the research of Stephen R. Kaplan, who studied attention and preference in landscape. Kaplan, an environmental psychologist, was motivated by the concept that physical space can support human health. Several themes in Kaplan's work reflect design strategies used in video games. Kaplan's work strongly emphasized that humans prefer scenes of natural elements to man-made or indoor scenes.³⁷ Edward Wilson's book *Biophilia* similarly describes an innate tendency for humans to seek scenes of nature.³⁸ Video game designers often use scenes of nature and natural elements to attract the player's attention and lead them in a certain direction. Kaplan asserts that humans are also attracted to scenes of mystery and complexity.³⁹ For example, a path rounding a corner or a brightly lit area that is partially

³⁵ Bitgood, Attention, 35.

³⁶ Bitgood, Attention Value Model, 5.

³⁷ Kaplan, Preference, 1-2.

³⁸ Wilson, Biophilia.

³⁹ Kaplan, Perception, 50.

obscured. Both are scenes in which some information is obscured, providing an element of mystery.

Kaplan's assertion that humans are attracted to scenes of mystery supports Bitgood's claim that humans are motivated to investigate all significant stimuli in an environment. While Bitgood attributes this behavior to survival instincts, according to Kaplan, humans investigate scenes of mystery due to a need to confirm information. When something is mysterious, humans consciously or subconsciously make guesses as to what that something is. To Kaplan, the appeal of uncovering environmental information comes from the excitement of confirming what lies beyond our sight through exploration.⁴⁰ One could consider the experience of uncovering information as a reward, returning to Bitgood's attention-value model. Mystery is a tool frequently used in video game design to entice players to follow the unknown path, where investigation could lead to reward.

Another assertion of Kaplan's is that humans are innately attracted to scenes with visual complexity.⁴¹ He implies that a scene with a large amount of diverse stimuli makes for more viewing pleasure. However using visual complexity to draw attention is more nuanced in practice. In Bitgood's book, *Attention and Value: Keys to Understanding Museum Visitors*, Bitgood conducted a review of studies related to attention in museum settings. Several of the studies focused specifically on 'museum fatigue' or 'attention fatigue', which can actually result from too much variety or scenes with too much visual complexity. The majority of studies referenced by Bitgood in this review are from the first half of the last

40 Kaplan, Perception, 50.

41 Kaplan, Perception, 48.

century. They were highly specific to museums and not particularly comprehensive. However, their findings can be distilled to an understanding that some variety increases attention, too much variety decreases attention, and that similar objects presented close to each other decrease attention.⁴²

Kaplan discusses the nuances of increasing complexity by offering the terms 'legibility' and 'coherence'. Kaplan defines legibility as the ease with which one can understand an environment and its contents. Easy-to-interpret scenes are legible. 'Coherence' describes scenes that are easy to organize. Coherence can be increased by using repeating elements, clear spatial dividers, or symmetry that structures the scene. Within that organization, high salience objects are highlighted as the central object of attention. According to Kaplan, humans prefer scenes with high legibility and coherence because they can understand these scenes quickly, which frees them to focus on potentially threatening stimuli.⁴³

During Bitgood's literature review he questions the views of previous researchers on attention, noting that it exists on a continuum. One of the strongest interpretations of the attention continuum comes from a study by Harris Shettel. Shettel describes attention as a continuum of three stages. The first stage, *attracting power*, captures people's attention. The second stage, *holding power*, maintains that attraction and includes viewing time to interpret the object of attention. The third stage, *learning power*, allows the person to become fully engaged in discovery and exploration of the object.⁴⁴ I would add that that the attention-value model probably takes place during the second

42 Bitgood, Attention, 27.

43 Kaplan, Preference, 4.

44 Shettel, "Strategies," 153.

stage. This interpretation of attention resonates with video game design, which has an important temporal aspect. Video games often have to balance the time it takes to engage all three stages of attention, with the time it takes for a person to become bored or disinterested.

While none of the authors discussed have directly related their work to video game design, the number of direct connections imply that the psychology of how people experience environments is applicable from real to virtual space and vice versa. Many video game experiences require specific behavior (namely curiosity and willingness to engage) that comes from pre-existing expectations or cues from the environment. Environmental psychologists and video game designers alike understand that the environment can influence these behaviors. It is the combination and arrangement of attention-grabbing, holding, and interpreting techniques that constitute much of game design, as well as museum design.

Political Theory

The experience of being totally immersed in one's surroundings, which I have used to describe my experience in Berlin and in open world games, was described by political groups in the early 1900's. The concept of the flâneur, meaning "idle man-about-town", was a popular French literary trope, popularized by Walter Benjamin.⁴⁵ Rather than referring to specific person, it described a lifestyle that centered on carefree strolling about cities. "The flâneur is defined as a constant seeker of impressions and stimuli ...But he does so in a spirit of idle curiosity, without any object of learning anything or reaching understanding."⁴⁶ For the flâneur, wandering through a city was a type of play. Their lack of directed purpose allowed them to focus on being completely present in their environment. This type of spatial engagement begins to describe the act of playful exploration encouraged by video games, as well as the affordances that enable such experiences. In games, the player's physical being and identity is protected through the anonymity of the virtual world. Safety in anonymity is an affordance that allows the player to act freely. Similarly, the flâneur was only able to afford such a detached lifestyle through other safety nets such as financial security, social standing, class, gender, and race (a flâneur was typically a white male aristocrat).

Building upon the character of the flâneur, a new type of lifestyle persona emerged. Traceur can be translated to 'tracer' in English, derived from French for 'tracing a path'. A traceur is someone who participates in parkour, an athletic discipline with origins in military training. Parkour, derived from the French words for obstacle course, requires a skillset of running, climbing, jumping, swinging, vaulting, rolling, to traverse all the surfaces of an environment. Like the flâneur, a traceur is someone who must be physically present. They take in every detail

⁴⁵ "Flaneur."

⁴⁶ Stevens, *Ludic City*, 32.

in their environment, from materials and construction joints, to proportions. Traceurs interpret the landscape in terms of how they can use it for play.

Whatever its origins may be, the movement of the traceur is clearly very different from the detached and observant mode of spatial engagement of the flâneur, who drifted through the boulevards and arcades of late 19th century cities. Instead, the newly emerging urban figure of the traceur embodies a more active and intimate urban engagement and situational positioning of the individual as an active performer on the ever-changing city stage.⁴⁷

The traceur adds an interactive and performative element to the engagement of the flâneur. Together, they challenge the status quo of how we interact with our environment, asking is the urban landscape a place for work, play, or both?

Ideologically aligned with the character of the flâneur and traceur is the study of psychogeography, or the consideration of how our environment affects the psyche. Psychogeography is associated with a political movement, involving several groups such as the Situationist International and the Letterists. These groups were active in the 1950's, and consisted of "artists and social theorists who adopted the playful-serious agenda of the Dadaists and surrealists in an effort to break through the crust of post-war conformity".⁴⁸ Both groups attempted to reimagine cities in the name of a new urbanism, which would reject purely functional architectures for ones that blur the line between function and play. An outcome of 'psychogeography', was the concept of *dérive*, which describes a way of traveling in the city that encourages people

⁴⁷ Feireiss, "Urban Free Flow," 280.

⁴⁸ Hart, "A New Way".

to explore their environments in an intentionally playful way, paying close attention to how the environment affects one's experience.

One of the significant intentions behind psychogeography, as Debord described it, was to be mindful of space in the method's open-ended, deliberately vague mission of encouraging people to explore their environment, usually the streets of the city. Psychogeography provided a means for participants to open themselves up to play and chance in context. It was a method of studying the world, combining compelling, inventive proposals with 'the long-term aim of transforming' the whole life into an exciting game - the play principle before the work principle.⁴⁹

Dérive translates to 'drifting', which describes a method of travel. It encourages the drifter to view traveling on foot as a journey through the landscape. Drifters are expected to allow themselves be drawn to things around them and follow those intuitions. Much like how I 'played urban explorer' in Berlin, these journeys are unplanned and allow drifters to experience and pursue concepts described by Bitgood, Kaplan, and Wilson such as attention-value and biophilia.

The Situationist International, which shared several members with the Letterists, further developed the concept of *dérive*, leveraging it as a tool through which people could rebel and become free of capitalist thinking and the capitalist city. Key elements of the Situationists' concept of *dérive* was 'the spectacle' and 'détournement'. The spectacle referred to the idea that authentic relationships were being replaced by symbols proliferated by mass media,

⁴⁹ Flanagan, *Critical Play*, 196.

commodification, and consumerism. The remedy to the spectacle was through ‘détournement’ which roughly translates to hijacking. Hannah Nicklin, who wrote “A Psychogeography of Games”, describes ‘détournement’ as “a playful reclaiming of the edifices of capitalism, ways of joyfully re-making the world around us on our own terms. Play that asks ‘who says this is how we should do things?’ That recognizes the absurdity that we accept as every day, [and] offers new absurdities.”⁵⁰ In his book *The Ludic City*, Quentin Stevens describes ‘détournement’ as a “hijacking of commodities (that carry with them a prescribed reading or utility) into heavily coded unfamiliar context....reterritorialisation of the object.”⁵¹ The philosopher Jean Baudrillard argued that the media and capitalism replaces our sense of ‘what actually is’, with simply ‘what it seems’, effectively causing people to forget what things authentically are.⁵²

One way to find authentic situations was through *dérive*. For the situationists, the act of drifting was a *détournement* of the capitalist way of travel, as efficiently as possible from A to B. *Dérive* further enabled *détournement* by allowing drifters to rediscover their environment, and through doing so reclaim it. The Situationists reasoned that rediscovering ‘what actually is’ could be achieved by experiencing authentic situations. According to Quentin Stevens, the Situationists believed that the capitalist city prioritized amenity, function, practical behaviors, and that the act of zoning segregated spaces for work, residence, and consumption. The resulting capitalist city forced urban life into structured and repetitive routines, creating isolation. Mary Flanagan, author of *Critical Play: Radical game Design*, agrees that “Cities are principally planned to optimize work and other practical, rational, preconceived objectives.”⁵³

50 Nicklin, “Psychogeography of Games.”

51 Stevens, *Ludic City*, 16.

52 Nicklin, “Psychogeography of Games.”

53 Flanagan, *Critical Play*, 5.

An aspect of games that many gamers appreciate is the ability to deviate from structured and repetitive routines. Games allow players to rebel against a representation of the capitalist city.

Optimized travel, between point A and point B, supports the capitalist city’s pursuit of efficient, practical, rational, preconceived objectives. The resulting routine can be seen in what many call their ‘mindless commute’. When that routine is disrupted, the traveler must become an active part of their environment. That disruption is the result the Situationists and Letterists hoped to achieve through *dérive* and *détournement*. A disrupted commute forces the traveler to reengage their brain, use wayfinding skills, and start moving intentionally. In video games, players are given the option to experience several trajectories between point A and point B. Gamers can sometimes be curious and excited enough to try every path or even create new ones. Video game designers will often encourage this behavior by ensuring each possible path offers rewards, even hiding rewards in all the nooks and crannies off-path. While many things about the real world are taken for granted as ‘what it seems’, video game designers work hard to make sure nothing is taken for granted in a game.

In the 1960’s, the Dutch artist/architect Constant Nieuwenhuys created a theoretical city directly inspired by psychogeography and the Situationists. Known professionally as Constant, he originally named his conceptual, anti-capitalist, city the *Ville Dérivée*. However, it was eventually renamed *New Babylon*. The city was a work of conceptual art, meant to challenge and inspire. The architecture was intended to encourage undirected playfulness through

interconnected megastructures that literally, through elevation, left behind the toils of work and responsibility. Constant described the inhabitants of New Babylon as all participating in *dérive*. “They wander through the sectors of New Babylon seeking new experiences, as yet unknown ambiances. Without the passivity of tourists, but fully aware of the power they have to act upon the world, to transform it, recreate it.”⁵⁴ Nieuwenhuys’ description describes the wandering, seeking, and playfulness found in *dérive* as well as in video games. His description of the citizen’s awareness of their ability to act upon and change the world evokes the primary quality of sandbox games, the ability to transform and recreate the world at will. A city built to promote *dérive* would not be unlike a video game, however I was unable to find many illustrative documents demonstrating New Babylon’s playful planning.

The Situationists and Letterists encouraged playful disruption and disorientation in order to experience authentic situations. The act of disruption was a direct rebellion against the capitalist city, which is designed for order and optimization. In contrast, video game cities often appear to be structured (to mimic the real world), but are actually designed for playful disruption and disorientation. In this way, level designers engineer the authentic situations sought by the Situationists and Letterists. Olivier Azema, who was an architect but now designs video game environments, has said of his job that “as a level designer, I have to build maps of the game and create game situations...”⁵⁵ Regardless if his reference to the Situationists is intentional, level designers create (authentic) situations by encouraging the player to engage in *dérive* behaviors. This behavior is often rewarded with (in-game) money or items, but players are also rewarded with memorable experiences as sought by the Situationists.

⁵⁴ Nieuwenhuys, “New Babylon”, 220.

⁵⁵ Azema, *Form Follows Fun*, 132.

Play Theory

This thesis supports incorporating more playful experiences into the built environment. Though literature is sparse that recommends this be done through video game tools, ample literature exists promoting more play in the city. The play theory consulted for this research depends on a well-rounded definition of play that goes beyond colloquial associations of toys, children, and distraction. Several authors I read emphasized their definition of play, to distance it from the casual meaning of the term. Quentin Stevens defines play as “a voluntary departure from the mundane world of involuntary routinization.”⁵⁶ British architect and theorist Neil Leach warned that, “‘Game’ should be perceived not simply as a leisure-time distraction, but as a logic of engagement that lies behind social life in general and capitalistic enterprise in particular.”⁵⁷ The field of game studies, ludology, escapes trivialization by using the latin word for games, *ludus*.⁵⁸ Similarly, Quentin Stevens uses a denomination of *ludus*, *ludic*, in the title of his book *Ludic City*. The term *Ludic*, is a surprisingly apt description of the type of activity video games engage, meaning “showing spontaneous and undirected playfulness.”⁵⁹

Play, as Stevens and Leach define it, can have several beneficial functions in the city. To Stevens, playful behaviors test and expand boundaries and limits, of which the city has no shortage. He argues, perhaps echoing the Situationists, that the city has become a platform for serving predetermined, practical functions, but has the potential to “provide new experiences and produce new social relations which are often non-instrumental, active, unexpected and risky.”⁶⁰ In *Ludic City*, he describes the many functions of playful behavior

⁵⁶ Stevens, *Ludic City*, 33.

⁵⁷ Leach, “Play Stations,” 328.

⁵⁸ Sicart, *Play Matters*, ix.

⁵⁹ “Ludic”.

⁶⁰ Stevens, *Ludic City*, 196.

as rediscovering and redefining cultural mythology, transforming work into play, calling attention to delight in ambiguity, mystery, surprise, and disorder, and re-enchanting adults with their world. Many of the functions Stevens recommends for cities are primary functions afforded by video games. Video games provide a platform for people to act playfully, have new experiences, create new social relations, and experience risk and delight. Video game worlds affords players the opportunity to engage playfully in their surroundings in a way that is lacking in the real world.

Recommendations on how to bring play into cities are few. Constant Nieuwenhuys' vision for a playful city, involved complicated, tiered, megastructures that theoretically encouraged playful behaviors. Others have suggested more moderate interventions along the lines of anticipating and supporting story-generation as play. One such example was presented by urban planner Keith Lynch in his book *The Image of the City*. Lynch urges urban designers to consider "the narrative potentials" of city spaces, describing city planning as "the deliberate manipulation of the world for sensuous ends."⁶¹ Though Lynch advocates for story creation within the city, he recognizes that it would be undesirable to do so by predetermining (programming) the uses and meanings for all spaces. "A landscape whose every rock tells a story may make difficult the creation of fresh stories."⁶² Instead, he offers the philosophy that each space should be endowed with poetic and symbolic potential through placemaking: "such a sense of place in itself enhances every human activity that occurs there, and encourages the deposit of a memory trace."⁶³ The

61 Jenkins, "Narrative Spaces," 56.

62 Jenkins, "Narrative Spaces," 60.

63 Jenkins, "Narrative Spaces," 60.

environment's capacity to support old and new stories is an aspect common in open world games. Games like *World of Warcraft*, which has millions of players, often create emergent storylines as different players make different decisions, with those decisions often affecting the outcome of the game.

Architectural historian Iain Borden argued that playful cities should contain a diverse variety of architectures, objects, and spaces, in order to evoke a diverse variety of practices, ideas, and emotions. In his essay "Tactics for a Playful City" he outlines five important characteristics necessary for a playful city:

Performance: Places should encourage performative activities which increase narrative potential.

Uncertainty & Risk: Anything strange or unfamiliar, as well as not knowing what comes next, encourages playful behavior in the city. This supports Kaplan's theory that humans are drawn to mystery.

Fluidity: Boundaries in the city should be never be obstacles. They can be perforated or porous, creating a sense of mystery by partially obscuring information and inviting people to investigate.

Interventions: Cities need "architectures of impermanent and temporary nature", implying that change and variation promote playfulness.

Emotions: Emotions must be nurtured and cultivated by urban architecture through spaces that make people feel.⁶⁴

64 Borden, "Tactics," 332.

Existing scholarship examining play in cities emphasizes that play means more than simple distraction, but is a way of approaching urban design that acknowledges a need for diverse spaces and emergent activities. The literature makes it clear that architecture and landscape architecture can catalyze these diverse spaces and activities, though the solutions offered are vague at best. From here, we can look to video games to see how they have used spatial design to increase narrative potentials and opportunities for play.

DESIGN PROCESSES

Video game designers and landscape architects have much in common, starting with their motivations. Many video game designers enter the field for the similar reasons to landscape architects. Daniel Grafstrom, a level designer at Bungee, entered video game design because of a desire to be creative and design experiences for others. His motivation comes from a conviction “that these types of experiential stories not only tell a story about a living virtual world, but also tell us a bit about ourselves and help us discover a little more about who we are.”⁶⁵ Throughout my research and interviews I found that level designers, like landscape architects, enter the field with the desire to create places for others to enjoy.

I discovered more similarities between the two fields while reading video game reviews. Video game reviewers tend to use the same buzzwords to describe things they like or are looking for in a game. The qualities video game reviewers look for can be seen as a proxy for what level designers aspire to. These aspirations are not unlike the types of goals landscape architects pursue when designing. Buzzwords I came across repeatedly while reading video game reviews are defined below:

⁶⁵ Eric Nevala (level designer) in discussion with the author, October 2017.

Compelling Graphics: beautiful environments

Environmental Storytelling: representation of story in the landscape

Immersive: sense of place and the power of ‘being there’

Player Agency: the opportunity to make meaningful decisions and experience different outcomes

Replayability: the ability to return to a game/level/place and continue to have meaningful experiences

Though the buzzwords themselves are intended to describe video game qualities, they have just as much meaning when applied in a landscape architecture context. Like video game designers, landscape architects want to design beautiful places that tell stories, have a strong sense of place, empower users to have meaningful experiences, and that visitors would like to revisit again and again.

Similarities in Design Processes

Level design involves artistry and problem-solving in much the same way as landscape design. Discussing his work as a landscape architect designing the island for *The Witness*, David Fletcher emphasized the relatability of his skills as a landscape architect on video game environments. “The design of the Island required thinking across scales, both spatial and temporal. It also blends the rigors of science with artistic expression. It is a task for which Landscape Architecture is specially qualified.”⁶⁶

The design process for both level designers and landscape architects often starts with an investigation into history of the site, usually fiction for video games. History informs the design concept, which inspires interventions meant to achieve a goal.⁶⁷ The process is guided by the design concept. Whether it be visual, emotional, spatial, formal, or functional, designers look to the concept for guidance when making important decisions about their design. Both level designers and landscape designers seek design inspiration from a variety of sources. “Inspiration can really come from anywhere. It can come from the real world via walking around, looking at photos, or even interactions with people. Media is hugely influential; books, magazines, TV, film, video games, music.”⁶⁸ In both fields designers further develop concepts using sketches and models, input from their peers, and several rounds of iteration.⁶⁹ While designing an environment, they consider the experience of moving through that space, viewsheds, aesthetics, and light.⁷⁰

⁶⁶ David Fletcher, from an unpublished essay, in the possession of the author.
⁶⁷ David Fletcher (landscape architect) in discussion with the author, October 2017.
⁶⁸ Grafstrom, Interview.
⁶⁹ Oxland, *Gameplay and Design*, 2004.
⁷⁰ Steve Messick (level designer) in discussion with the author, November 2017.

Differences in Design Processes

More interesting than the processes they have in common, are the ones that set them apart. The video game design process is specified to give designers an advantage for designing experience. Different aspects of that process can be grouped by design thinking, practice, and strategies.

Design Thinking

Design thinking refers to the beliefs and goals with which level designers approach design. Landscape architects are often limited by professional goals. They must work within city codes, pursue clients' goals, stay within a certain budget, plan for change over time, and consider how various stakeholders will be affected. Level designers are primarily concerned with the experience of the player in the space they are designing.

Level designers must consider how each environment contributes to the game as a whole, thematically, stylistically, and narratively. While working on *The Witness*, architect Deanna Van Buren of FOURM design studio and DJ+DS had to grapple with the importance of designing buildings to fit into the overarching purpose of the game. In the following quote she discusses having to change her design thinking in order to achieve the specific experience the game developer was looking for:

We were going in like, “Oh we have this concept, look at this great building, isn't it beautiful?” and [the game developer] would be like, “So what? It ruins gameplay, now the player can see too far or they're confused, you've confused them, there are too many spaces for them.” We had to really step back a lot and think about: does this architecture, do these spaces, support the gameplay objectives of this particular puzzle or this particular environment? Once you start to think like game developers, and less like traditional architects—once we got over that hurdle—it was much smoother.⁷¹

71 Korody, “Behind the Scenes of ‘The Witness’.”

The equivalent in landscape architecture would be if the landscape architect intensely prioritized how well their design fits into the overall themes, goals, and experience of a neighborhood, above all else.

Games are experiences that play out over time, making consideration of time another important aspect of level design. Level designers must constantly ask themselves, how long it will take for the player to achieve their objective, and how they can influence that experience using environment. If too much time passes between engaging moments, the player will get bored.⁷² Level designers plan for moments of engagement in carefully timed succession. When a level designer wants to build anticipation for a goal, they use several small interventions to maintain the player's attention as they pursue that goal. Small interventions consist of multiple smaller moments of engagement, or interesting visual stimuli on their way to their goal. Level designers typically will not use the same type of engagement in rapid succession.

Echoing Bitgood's findings on using variety to increase attention, level designers use a variety of stimuli and types of engagement to keep the player from losing interest. Variety of stimuli and activity ensures that multiple player-types will be engaged. With multiple stimuli in place, level designers must be vigilant about attention hierarchy. Each space should have a clear hierarchy of what the player pays attention to first, second, third, etc. This ordering, helps structure the player's exploration of space. The equivalent of this practice in landscape architecture would be if landscape architects designed to avert boredom, ensuring that within a given space/time there is always a clear hierarchy of multiple interventions to interest and engage the visitor.

⁷² Grafstrom, interview.

Through different stimuli, experiences, and challenges, level designers ensure that the player is consistently engaged. Maintaining interest over time, requires level designers must to be deliberate about scale. Because most video games are experienced as pedestrians, many games choose small scale environments such as islands or medieval cities, for their locations. Games where players drive tend to be set in sprawling American cities. The *Grand Theft Auto* series, where driving is the main mode of travel, has been set in proxy cities for Las Vegas, Los Angeles, and Miami. The *Assassin's Creed* series, which utilize parkour as a way of traversing space, are mostly set in older more condensed cities such as Jerusalem, Rome, and London. Another game played on foot, *Deus Ex: Mankind Divided*⁷³, is set in a futuristic Prague. Hubert Corriveau, the environment director for *Deus Ex* has said of their choice to set the game in Prague:

Because game design requires us to be of a certain pace, we do a smallish city environment that is very dense. You have a lot of interior next to the other. We don't want the player to walk for eight blocks of vanilla buildings that have nothing interesting to them, and then get to their mission. We just wanted people to walk into the city and always have something to find, so there's always something around you.⁷⁴

This resonates with the design philosophy of Jan Gehl of Gehl Architects in Copenhagen. Gehl spent years researching what he called "public life", publishing several books on the topic. His research provides evidence that vibrant public spaces are supported by smaller, walkable spaces, with more

⁷³ *Deus Ex: Mankind Divided*.

⁷⁴ Mark Brown, "Deus Ex: Mankind Divided's Amazing Open World | Game Maker's Toolkit".

visual diversity, and scales of details. These environments are more engaging to pedestrians than larger spaces with homogenous facades.⁷⁵

It is hard to overemphasize the importance of player agency in video game design. The ability for players to make decisions that affect their game experience is a key affordance that makes video games unique. One of the primary responsibilities of a level designer is to provide the player with opportunities to exercise agency. Where are opportunities for the player to interact with their environment? What opportunities do they have to make meaningful decisions? How will different decisions cause them to have different experiences? Presenting the player with decision-making points, forces them to actively engage in their environment. A common way to use environment to provide opportunities to exercise agency is through navigation. Level designers can present the player with multiple paths, requiring them to choose. As level designers lay out a level, they constantly look for and create opportunities for the player to exercise agency.

The simplified level design process enables level designers to focus more of their attention on the player's experience. Level designers typically don't work with constituents, stakeholders, or consultants. Similarly, they don't create construction documents to hand over to a third party to build. They have control over the process from start to finish. Even the leadership hierarchy for video game design allows the designer more control. The director and creative director oversee the big picture, making sure all the parts of the game

⁷⁵ Gemzøe, "How to Study Public Life?"

fit together – not unlike the role of project manager in a design firm. However, individual level designers have relative creative freedom regarding their level, and often work alone.

Emilia Schatz, a designer at Naughty Dog, says the directors for her projects give her general goals and allow her freedom to meet those goals as she wishes. "[They] break it down to this particular level and tell us, 'okay, this is the story we're going for, these are the emotional beats.' We go over the process, the flow of the level, and what they're thinking, then they give it to me and I run with it."⁷⁶ Daniel Grafstrom describes having relative freedom to come up with designs on his own:

For much of the time we are not given much instruction or direction, but we are consistently given feedback...Acting on feedback is generally optional and up to the content creator to come up with a solution. On occasion, leadership will give direction, where they intend to change direction on the experience, the pacing, or the narrative. Examples for this might be a particular part of the game is too slow and needs to grab the player's interest more, or the purpose of a particular character has changed, or players are getting lost or confused at a particular moment. These are typically presented as issues and, again, the content creator often comes up with the right solution on how to address it.⁷⁷

⁷⁶ Schatz, Interview.

⁷⁷ Grafstrom, Interview.

Practice

As with landscape architects, level designers typically start with sketches and models (digital and physical).⁷⁸ Grafstrom’s process includes collaboration with others, such as artists, on concepts. He will then support his concept with research, ask for feedback, and begin iteration.⁷⁹ Level designers primary tool is the level editor, 3D modeling software created specifically for making video game environments. These engines allow the designer the unique ability to experience the environment as they create it. The iterative process starts with a rough design. The designer can then experience the design the way a player would, change things, and then experience the environment again. Schatz emphasized the importance of the iterative process and the fact that a design is never really finished. “You make a design, have people play it, then you iterate more; you keep doing it. So at what point does it actually become shippable... you can’t schedule design.”⁸⁰

The level editor is a powerful tool with many advantages. Level editors, such as Unreal Engine and Unity, can model a space, render it, animate it, and allow players to experience the environment at any point. Being able to walk around the environment enables a more comprehensive iterative process. By walking around in the level editor, game designers experience space, scale, hierarchy of attention, progression, timing, rewards, and more, in exactly the way the player will experience the final product. Landscape architects often use 3D modeling programs to experience their designs with a sense of scale and mass, however they cannot experience the final built version through modeling software.

⁷⁸ Oxland, *Gameplay and Design*.

⁷⁹ Grafstrom, Interview.

⁸⁰ Schatz, Interview.

The process of building an environment begins with ‘greyboxing’. Greyboxing is the practice of modeling a rough iteration of the environment using rough, grey, boxy shapes. This allows them to isolate qualities, such as mass, scale, or ease of navigation, for study during the first few rounds of iterations.⁸¹ Video games also go through an exhaustive testing process. When the game has progressed to near completion, game developers will allow a few gamers (beta testers) to test the game and provide feedback. Game developers will sometimes run several rounds of tests, making edits and iterations at each round. This is also a way of sourcing extra eyes to find bugs or parts of the game that aren’t working the way they should. The testing process can be compared to sharing designs at community meetings – if it was possible for community members to walk through a physical mockup of the space. After working on *The Witness*, David Fletcher switched his landscape architecture firm into working exclusively in level editor, valuing the ability to experience the environment before building. “We don’t design two-dimensionally; we always design three-dimensionally,” he says. “I don’t trust flat things.”⁸²

⁸¹ Steve Messick (level designer) in conversation with the author, October 2017.

⁸² Hudson, “These Architects”.

Strategies

The strategies are grouped and presented as tools for designers in the accompanying handbook. Here, I provide further background and detail to the tools presented in the handbook. Video game environments perform several key functions for a game. At a talk at the 2010 Game Designer's Conference, Harvey Smith and Matthias Worch presented the functions as:

1. To constrain and guide player movement through physical properties and ecology
2. To communicate simulation (game) boundaries and affordances to the player
3. To reinforce and shape the player's identity
4. To provide narrative context⁸³

These functions are broadly applicable to the design of the built environment as well. A built environment must guide people through physical properties and ecology, communicate boundaries and affordance (what can the player do there), reinforce the visitor's identity, and provide narrative context. During my interviews, David Fletcher proposed the thought question: is the High Line (the linear park in New York City) a game? Given that it fulfills Smith and Worch's four functions of a game environment, distinguishing from a game is not a simple task. To Fletcher it fits several other qualities he enjoys about games including episodic progression, multiple paths, leading to resources (such as food) and rewards (such as views), a social aspect, and simply being entertained.⁸⁴ The following strategies conform to and support these functions. For more in-depth examples, consult the handbook portion of this thesis.

⁸³ Smith and Worch, "What Happened Here".

⁸⁴ David Fletcher, Interview, October 2017.

Wayfinding Tools

Wayfinding in games is an art of subtle manipulation. Level designers manipulate the player to go certain places, do certain things, in a certain order, all while maintaining the illusion that the player is making these decisions on their own. To do this, level designers employ an arsenal of wayfinding interventions. Wayfinding can be defined as the process of finding a way from one's location to one's desired location. In the past, floating arrows, glowing paths, and GPS-like maps were popular ways to define a path for the player. This type of obvious wayfinding enables players to disengage from navigation and allows the game to show them where to go. A recent trend in video games is to use a more realistic approach. Subtle wayfinding interventions, such as attractive plants as breadcrumbs, allow the designer to guide the player through space without breaking the illusion that the player must make these navigational decisions alone. For many, the challenge of wayfinding is part of the fun. Level designer Eric Nevala, spoke of the process as akin to walking a tightrope:

We're trying to get the player to behave in a particular way when they have complete agency and can pay attention to anything they want. The main trick is to narrow the players focus down to something. The artistic trick is to figure out a way to subtly attract a player's attention to a point of interest without being too obvious, but obvious enough that people can figure it out, but not so over the top that it breaks immersion. It's kind of like walking a tightrope⁸⁵

Level designers use a mixture of tools, including immersive wayfinding tools, partially completed maps, and GPS, to aid the player's navigation. Partial maps are maps that provide some navigational information, but leave room for the player to discover certain details on their own. These maps might be crudely

⁸⁵ Eric Nevala (level designer) in discussion with the author, November, 2017.

drawn, partially destroyed, or show only areas the player has already visited. The player must explore the blank spaces on the map, for those areas of the maps to be filled in.

Many video games use fine arts techniques to draw the viewer's gaze. In Brett Nisbet's thesis, "Immersive Wayfinding Cues for 3D Video Games" he lists light, breadcrumbs and landmarks, physical barriers and choke points, color, high ground, motion and sound as techniques for attracting the attention of the player. These attention-drawing techniques are often used in sequence to lure players in certain directions. Because video games are played on screens, level designers can anticipate certain views they are sure the player will encounter (high points, thresholds, nodes). By treating these views as still images, designers can use a fine arts perspective to evaluate how the player will interpret the scene.

Art historians consider light, value, motion, lines, color, texture, and the gaze, when interpreting a painting. Video game designers use the same tools to manipulate the player's attention. For example, if a designer knows the player will exit through a particular door and they want the player to head southwest to the next mission, they can tweak the environment so that the player will be drawn southwest from the doorway. They could use lighting to make the southwest much brighter than other areas, create paving patterns that draw lines pointing to the southwest, place a very colorful building to the southwest, or put a prominent land form to the southwest. These techniques are supported by concepts in environmental psychology. The use of high ground, for example, can be traced to Appleton's prospect-refuge theory, describing the human desire for observation of the surrounding area.⁸⁶ Bitgood describes using light and color to draw visitor's attention in museum settings.

⁸⁶ Appleton, 1996.

Environmental Storytelling

Narrative is what provides cohesion to video game environments. It's how designers create motivation within a character to explore and to give places meaning. Many level designers describe the environment as one of the main characters in the story. Environmental storytelling typically manifests in one of two ways, embedded narrative, and emergent narrative. Embedded narratives refers to when narrative details are embedded in an environment. Materials, layout, props, colors, etc. can be used to tell the player about a place. For example, a courtyard of weathered stone (material), with a moss-covered statue of the Virgin Mary at the center (props & layout), can quickly tell the player they are in an ancient religious space. The second manifestation of environmental storytelling, emergent narratives, refers to when the player/s, through their actions, create a narrative in/using the environment. For example, in the game *Red Dead Redemption* NPC's often approach the player asking for help, providing an opportunity for the player to act out how they want their story to unfold.⁸⁷ The player can be benevolent and help the NPC, they can ignore them, or they can shoot them. Their actions create their own narrative.

Environmental storytelling has origins in the world of theme park design. In theme parks, it is used to describe the use of props and materials to evoke narrative associations in the visitor (for example using metal surfaces and geometric shapes to evoke futuristic environments).⁸⁸ Historical environments and touristic towns have long provided the inspiration for theme park environments. Celia Pearce, a professor of game design at Northeastern University, argues that early examples of environmental storytelling can be found in environments of secular function, such as temples, tombs, and other places of worship. This can be applied to historic architecture in general. Structures of importance were often decorated with symbolic ornamentation, reliefs, and

⁸⁷ *Red Dead Redemption*.

⁸⁸ Jenkins, "Narrative Spaces", 56.

other details. Structures like the Taj Mahal use inlaid carvings, geometric forms, gateways, minarets, and other embedded details to tell the story of the building's commissioner, time period, place, and function of the building. Video game designers learned environmental storytelling from theme parks, which were inspired by historic buildings.⁸⁹

An entire subset of games is based on discovering, "what happened here?" These games focus on uncovering embedded narratives, allowing the player to embody the role of detective. *Gone Home* was widely praised for its environmental storytelling. In the game, the player searches an old house for clues as to where its inhabitants have gone and what caused them to leave. The only actions the player can pursue in the game, are to open and close things (doors, cabinets, drawers), pick up things, and examine them. Through these simple actions, the player investigates as much as they can about their environment, taking nothing for granted. The clues eventually build up an emotional coming of age story. *Gone Home* reflects the first type of environmental storytelling, embedded narrative. The entire narrative exists, embedded in the environment, and the player is tasked with uncovering the story themselves.

In their book *Landscape Narratives*, Matthew Potteiger and Jamie Purinton argue that theme parks present 'closed narratives', or environments that are controlled and scripted. They counter with the concept of, 'open narratives', accumulated layers of history that acknowledge multiple authors and engender new stories.⁹⁰ To illustrate this concept, they use the Pinacote Interpretive Center of the Crosby Arboretum as an example. This design tells the story of the region's ecology by taking visitors on a series of 'journeys' weaving through different ecological zones, effectively structuring a narrative sequence.

89 Pearce, "Narrative Environment: From Disneyland to World of Warcraft," pg 200.

90 Potteiger and Purinton, *Landscape Narratives*, 136.

Potteiger and Purinton's emphasis on environments that engender new stories, reflects the second type of environmental storytelling, emergent narratives. 'Open narratives' resist the control, scripting, closure, single authorship, and storyline model of 'closed narratives'. Instead, they encourage the creation of multiple stories through deliberately unprogrammed, ambiguous, and indeterminate space.⁹¹

Games rich in narrative detail encourage players to play along with their own narratives. "Gamespaces are designed to be rich with narrative potential, thereby enabling the story-constructing activity of players...it makes sense to think of game designers less as storytellers and more as narrative architects."⁹² A combination of psychological conditioning, premise, props, and environment can encourage players to act out narratives. These emergent narratives are most often found in multi-player games, since the presence of other players can encourage different narratives to emerge. The emergent narratives concept evokes public space theories such as performative space⁹³ and looseness⁹⁴. Both encourage urban design that allows and encourages unplanned activities. In his book *The Image of the City*, planner Kevin Lynch argues that planners can support the 'narrative potentials' of urban spaces by exercising restraint when defining uses and meanings for spaces they create, "a landscape whose every rock tells a story may make difficult the creation of fresh stories".⁹⁵ Lynch argues that spaces can be endowed with poetic and symbolic potential, 'such a sense of place in itself enhances every human activity that occurs there, and encourages the deposit of a memory trace'.⁹⁶

91 Potteiger and Purinton, *Landscape Narratives*, 143

92 Jenkins, "Narrative Spaces", 60.

93 Kirshenblatt-Gimblett, "Performing the City".

94 Franck and Stevens, "Tying Down Loose Space".

95 Lynch, Kevin, *The Image of the City*, 6.

96 Lynch, *The Image of the City*, 119.

IMPLICATIONS

Over the course of this research, I've been inspired by the range of tools, strategies, and processes that enable level designers to shape players' experiences. These tools and processes are extremely relevant to landscape architecture, and other design fields, in a variety of ways. Something as banal as navigation can be transformed into an immersive adventure. A purely functional space could become a place where people discover embedded narratives and act out their own. Level design tools could completely change the way landscape architects design. Using level editors, instead of standard modeling software, could deepen the iteration process and enhance designers' ability to design experience. David Fletcher's firm is the first to design real landscapes using video game design tools, proving that this transfer of tools and skills is already happening. To design more like level designers requires an interest in designing and thinking experientially, and investing in new tools.

It goes without saying that video games are only increasing in popularity. As they develop, they are becoming more and more intuitive a medium, increasing their ability to reach a wider audience. Besides expanding landscape architects design abilities, video games can be a tool through which communities can understand and communicate landscape architectural ideas.

The design studio and consultancy Blockworks uses Minecraft as a community participation tool at design charrettes. Because the game is easy to learn, it is an ideal tool for participants to build and share their design ideas. Blockworks often uses Minecraft to imagine possible futures and as learning tools. Their portfolio includes sustainable cities, futuristic environments (space, deep sea), and recreations of historic cities, all built in Minecraft.⁹⁷ Video game technology clearly has huge potential for expanding our capacity to design for experience, design iteratively, imagine possible futures, and share those ideas with others.

Rapid technological advancements and the soaring popularity of augmented reality games such as Pokémon Go, suggest that a future isn't far off where landscape architects may work in augmented virtual/physical spaces. Many in the gaming community anticipate the day when a set of "smart" glasses will have the power to visually transform a city street into an alien environment or beautiful seascape. Perhaps one day landscape architects will be designing planting plans using extinct plant species, for Jurassic landscapes. This thesis is a small foray into the relationship between video games and landscape architecture, as they are now. It seems inevitable that this relationship will progress, and I am excited to see where it goes.

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"Portfolio", Blockworks.uk

CONCLUSION

I began by asking what landscape architecture could learn from video games because I was interested in the feeling of playful exploration I had experienced in Berlin and in open world video games. Through interviews, a literature review, multi-media sources, and my experiences playing games, I narrowed the question into two parts: what video game design tools are applicable to landscape architecture (the handbook) and what is the relationship between the two fields (the literature review)? To support my findings from interviews, I examined concepts from environmental psychology, political theory, and play theory that support both video game and real world design strategies. By comparing the design processes of the two fields, I learned that the level design process has a stronger focus on experiential iteration, fitting environments into an overarching context, attention, pacing, scale, and agency. I strongly believe the tools presented in this thesis can elevate the built environment towards a more ludic understanding of space and a stronger focus on user experience. Hopefully the ideas presented in this thesis can broaden the capacities of the design fields and prepare us for a future where the boundaries between game spaces and physical spaces become blurred.

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