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Level design in open worlds
Should you think like an architect?

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Abstract
The focus of this thesis is to study a way to create deeper open world experiences. As our technology evolves and our computers, phones and consoles get more powerful, we now have the ability to create huge open worlds in digital games. The purpose is to gain insight how to make this open world interesting for the player to “play” in this world. For this study I want to study a game that uses an open world level design where the players can roam freely around without constraints stopping them. I to create part of this world and get the players to understand where they are without a map, and give them one experience that makes them want to come back.

Keywords: Open world, Digital Games, Level Design, Experience, Game Development

Abstrakt
Mitt fokus med detta kandidatarbete är att studera hur man kan skapa en djupare öppen värld upplevelse. Idag när våra datorer, telefoner och konsoler blir allt starkare så har vi nu möjligheten att skapa stora öppna världar i digitala spel. Syftet med detta är att få en insikt hur man göra en öppen värld intressant för att spelaren ska kunna ”spela” i denna värld. För denna studie vill jag använda ett spel som har en öppen värld bandesign där spelaren kan åka vart de vill utan något som stoppar dem. Sedan i denna värld skapa en del där spelaren ska hitta utan karta, och ge dem en upplevelse som gör att de vill komma tillbaka.

Nyckelord: Öppen värld, Digitala Spel, Bandesign, Upplevelse, Spelutveckling
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**Introduction**

As huge open worlds that allow the players to roam freely are becoming more popular in games, level designers need to develop new rules and new ways to direct the players. This also means that level designers need to find new strategies to make the player interested in different areas, and to give the players several ways of reaching each levels goal.

In this thesis, I will take architectural design, namely landscape architecture and amusement park design, and see if and how they can be used in level design for games.

Landscape architecture might be a useful reference when building a level since the level designer and the landscape architect both work with designing a certain area by structuring it and placing objects (for example trees). I will later elaborate on the principles that lie behind the design choices in landscape architecture and point out its weakness as a model for level design.

There are several reasons why the design behind amusement parks might also be applicable to level design for games. Amusement parks are popular worldwide, and they have an open design meaning that people can pick where they want to go in the park, and also what they want to ride. When going to Gothenburg’s Liseberg the visitors get the choice whether to ride everything or to stay in their comfort zone and only go on the rides that do not scare them. Not only do the parks have rides and areas that are thrilling or relaxing. They also have places to eat, places to rest and places to enter for example a fantasy world, and all of this needs to fit together for the creation of a complete experience where people can live in this fantasy world, as if it were the real world.

When I speak of experience in this thesis I mean the idea that people should be able to live in the world they are visiting as their own, as if it were the real world and not a digital world.

**Problem**

This thesis will examine whether level designers in game development can use amusement park design principles as help to develop deeper experiences for players when building open world games.
Background

As written in my introduction open worlds are becoming more popular in games. If we look The Guardian’s list of ten games to look forward to in 2014 (Stuart, 2014), there are five games that are defined as open world: Destiny, DriveClub, Eve Valkyrie, Metal Gear Solid V: Ground Zeroes and Project Spark.

In this chapter, I will explain what is meant by open world games and also explain different ways of designing them. Finally, I will state which approach I followed for my practical research in designing a part of an open world skiing game.

Open worlds

In Game Design Essentials: 20 Open World Games John Harris (Harris, 2007) explains open world as something that does not force the players to explore new areas, and where the players have the choice whenever they want to explore different areas of the world. “Once a place is seen for the first time, it cannot be unseen and seen again”.

The Giant Bomb Wiki over game development offers a definition of the design behind open worlds which complements Harris explanation: “Non-linear level design where the player is able to freely traverse the game world and choose where and when to visit certain areas in the game.” (Giant Bomb, 2013).

Some games that are famous for using an open world level design are: EA Skate series, Grand Theft Auto Series and The Legend of Zelda series.
Now that we know what open world is, we can go on to discuss two different ways of building and designing them.

**Procedural level design**

A common misunderstanding in level design is the belief that procedural level design is the same as random level design, which is not true. Random level design would indicate that there is no system rules for building the levels. This would mean that walls could end up as floors, or there could be a level that is impossible to finish since you cannot reach the end. Procedural level design on the other hand is, as written by Jamie Smith in the article *Design Lessons from Spelunky* (Smith, 2014), level design where layouts are defined automatically within a system and a set of rules in that system.

By using rules for a system, the level designer can make sure that problems that could arise with random level design cannot happen. If we take the example I just named, in which a random level system could create a level that cannot be completed, a procedural system would prevent this by setting rules that make sure that the player always could get to the end.
Games that use procedural level design and are open worlds are: *Minecraft*, *Don’t Starve* and the coming *No Man’s Sky*.

In *Minecraft*, as seen in the image above, you never see the whole world from the beginning. Instead, the environment is procedurally created within a set of rules as the player walks in the world.

Let us now move to the next way of building an open world.

**Manual design**

The other popular way that is common when building open worlds is manually designing them. This means that a level designer or usually several level designers are there to place all the assets for the game in the world. This is something that the *Grand Theft Auto* series is famous for doing (Gamespot, 2002).

**The difference between procedural and manual**

The biggest difference between procedural level design and open world design is the control that the level designer has over the world. In a procedural level system the level designer sets up rules for how to build a town, but the system takes care of actually building the town. This means that it would be hard for the level designer to say exactly where an important building
will end up and thus the level designer needs to find another way of showing the player the important building. One example could be that the level designer makes the important building stand out by making it bright pink while the rest of the houses could have different variations of brown.

With manual design the level designer has more control. In an open world game that is not procedurally built, a level designer would go in and both design and build the city. By doing this the level designer can make sure that the building the player need to find is easily seen and have a clear path to it.

It is true for both manual and procedural design that either the set of rules or the design of the open world still need to have design rules to help the player. How do you lead the player in a procedural game? *Spelunky* (Mossmouth, 2012) led the player by teaching the player that the goal always was at the bottom of the level. In *Grand Theft Auto IV (GTAIV)* (Rockstar North, 2008) the players either could use an in-game minimap that showed them where to go, or a GPS navigation system.

What these two games did was not making a special area more interesting but instead they used different means that told the player where the goals of the game where. In *GTAIV* it was possible to ignore what the minimap showed or what the GPS said, but then the players could not progress through the story. However, even if players did not progress in the story, they could still enjoy the world that was designed in the game.

With, as I wrote in the beginning, open worlds becoming more common in games I, as a level designer, need to find new ways how to lead the player, or build areas for the player to use freely like in *GTAIV*. While it is still possible to use the old “give them a corridor and only one way to go”-practice, it – according to me – seriously limits the player’s experience. In the real world we have nothing really stopping us from going anywhere we want except for the laws of physics. Nothing, for example, is actually stopping me from going into an “employees only”-area other than the rule that I am not allowed to do it.
How can I develop a better experience in an open world

Now we know the two popular ways to build and design an open world. What I want to research in this paper is how I can build an open world and make sure that the whole world is an experience. It does not matter if I do it with procedural, manual or a mix of both but I want to make sure that the whole world is an experience.

After discussing this with Joakim Setterberg, lead level designer at Fatshark AB (personal communication, 18 February 2014), he recommended reading and looking at amusement park design principles. Amusement parks are built to attract all ages, and also to give the guests a sense of being in another world. At the same time, they need to be easy to navigate and have everything a family would need to have a great day.

Question

How can level designers use principles from amusement park design and landscape architecture to create different experiences in open worlds?

Purpose

The purpose behind this paper is to help level designers designing an open world, turning it into a complete experience. Using the principles behind designing an amusement park where the designers have to think of the whole place as an experience might help level designers in connecting each part of the world and making each part interesting, integrating everything
into one experience. Landscape architecture might help level designers through its ideas of weaving together different elements, built and natural, into a wonderful landscape.

**Earlier research**

**What is a level designer?**

Let us take a look at a quote from Phil Co (Co, 2006): “*Level designers create the space and environments that you move through and experience as you play video games*”. This does tell us that a level designer is a person that in a sense is an architect, carpenter and painter. As we can see, a level designer needs a variety of different skills and must have an understanding for a range of fields. He might need to design the layout of a forest, a children’s bedroom or a highway. Together with the graphical artists, he decides on colors, textures and shapes.

In the first section of chapter 8 in *Game Design Complete* (O’Luanaigh, 2006) O’Luanaigh writes that the level designer is hired to create the layout and implementation of the level, usually in a level design tool. A level design tool is a software that allows the level designer to build the world, place objects in it and test how it looks and functions just as it will for the player later on. Examples of such tools are UDK (Unreal Engine, 2014) and CRYENGINE 3 (CRYENGINE, 2014).

Joakim Setterberg (personal communication, 28 February 2014) argues that this does not give the whole picture of what a level designer does. He thinks that the focus for a level designer is to create an experience and a challenge for the player. How the layout and the design actually look, for example the children’s room, is not the focus of the work of the level designer. The focus is to create an experience and the layout and design of certain areas or objects are means to achieve this. Joakim Setterberg says that the level designer has to be able to use the tools given to him by the software in order to create the experience, to make the world the player are visiting feel alive. While a level artist just designs certain objects (graphics, such as chairs or trees), a level designer has to have a guiding vision about how the art, gameplay and lights are all going to interplay and create the final experience.

**Landscape architecture**

One need to look no further than the Oxford Advanced American Dictionary to find a good explanation of what a landscape architect does: “*A person whose job is planning and
“designing the environment, especially so that roads, buildings, etc. combine with the landscape in an attractive way”. (Oxford Advanced American Dictionary, 2014)

However, this definition does not tell us anything about the design principles behind the choices a landscape architect makes. It only gives a rough description of what the work consists of and the desired end result.

To use one example of great landscape architecture, I have looked at Central Park in New York. Central Park is one of the few completely man made parks, since even the dirt had to be brought from another city to make it fertile for trees and grass. (Central Park Conservancy, 2014)

When reading why the National Register of Historic Places nominated Central Park to become an internationally recognized historic place, one of the reasons is that the park design was created from a carefully laid-out plan. This carefully laid-out plan envisaged roads, buildings and bridges blending in harmoniously with the nature of the park. Everything had to blend with nature so that – even though the park is built in the middle of a huge city – it would be a place to come and feel the nature. (Landmark, 2014)

This idea of creating one coherent, flawless design that is man-made but feels natural is the principle that I wanted to adopt for level design as well. Having a plan and laying out carefully in advance what you want to do is also a characteristic that landscape architecture as described in the case of Central Park shares with level design.
Amusement park design

In an amusement park the architect has to think of all the assets to make it an enjoyable experience for a whole family. They think about color, light, landmarks, food and much more. However, the biggest difference is that amusement park designers have to think about the experience more than other architects.

If we look at Disneyland, Florida (most visited amusement park in 2012 with more than 17 million visitors (Kelleher, 2012)), they even thought that an architect was not enough to create an amusement park. Instead, Walt Disney created a group of designers, which he called “the imagination engineers” (Hench & Pelt, 2008). Their job was to design Disneyland as a show. They had to not only think about the size, shape and color, they also had to include time and space to create a full experience for the “guests”. Like I wrote under what is a level designer, Joakim Setterberg has the same idea of a level designer. It is not enough to know how to use the assets, you also need to know how they will affect the end result when everything is put together.

To summarize what I’m going to take from the different architectures I will use:

From landscape architecture:
  • The idea of building from a feeling
  • The idea of finding what already is there and build from that

From Amusement park:
  • Create an experience
  • Create landmarks so people find and know where they are. (In Designing Disney Imagineering and The Art of the Show, read on page 50 called a Wienie (Hench & Pelt, 2008))

How to go into my production

As a level designer I am always looking for ways to enhance the player experiences in the world I am part of creating. I want to create an illusionary world that is so perfectly designed that it feels real so that players in the best case forget that they are playing a game.

It is really hard to make an experience for one person, and even more challenging to create an experience that should fit as many people as possible. This is where I thought about the tip
that Joakim Setterberg gave me about looking into amusement parks. I remembered how my
friends would come home from them with stories about how they felt different experiences
during different rides, how they got terrified in the Haunted House even though it was the
middle of the day and sunlight. This made me think that the design ideas and the design
“rules” that architects use when building an amusement park must be a good rule of thumb on
how to build different experiences for people. Like games, amusement parks are built with an
international audience in mind and therefore they both need to create an experience that works
for number of different people.

For my production I will study these design principles and apply them to my workflow when
building an experience. I will use my research in a free roam skiing game called SNOW,
developed by Poppermost Productions, where I will build part of a mountain that the players
will ski on.

Approach

Introduction

Why build on SNOW and not on something new by myself

The reason I choose to build on an existing brand instead of my building my own from scratch
was first and foremost time. I wanted to write about level design since I think this is the best
part of game development. Before it is possible to work with level design however, you need
a game and you need all the different components of making a game, like a core mechanic, for
example shooting, and you need to have graphics so the player will not run around in an
empty world shooting at nothing. For a game this can take months. The first version of the
first commercial game I worked on, Epigenesis (Dead Shark Triplepunch, 2013), had been in
development for about two months - and Epigenesis was a small game. As my research was
limited in terms of time, I decided to skip the ground work that it takes to build the base of a
game, and instead look for a game that already had the base. This made me look at games that
I thought would fit with my research (which meant the game needed to have an open world
and already the base components to play the game), and a game where I could conduct my
research and still talk about it publicly. This game ended up being SNOW as it fit with what I
needed to be able to do my research. It had an open world, and it already had the base
components of skiing in in the game, which made it playable, and last but not least, they
would let me show my work and talk about it publicly.
Focus of production

For my production I have decided to focus on one section of Sialia. Sialia is the current level that exists in SNOW. At the moment, about 20% of the mountain has been built, and with the mountain being about 8km^3 I can almost completely freely pick an area where I can try my theory of using amusement park principle to enhance the player’s experience.

Technique

Since this bachelor thesis is integrated with Poppermost Productions and their product SNOW, some of the technique choices have not been mine to make. However, after talking to them about these choices I know there is a reason for them.

Why CRYENGINE for SNOW

The reason that SNOW uses CRYENGINE (CRYENGINE, 2014) and not Unity3D (Unity3d, 2014) or Unreal Engine (Unreal Engine, 2014) is simply due to its superior software properties for this type of game. When they compared the engines, the one with the most advanced landscape tools (the tools to shape, change and build a realistic terrain) this was CRYENGINE.

Method

Design

The design method I will use for this project is applying the principles made to design amusement parks. I will mostly base these on the book Designing Disney – Imagineering and the art of the show (Hench & Pelt, 2008). I will also use the principles behind landscape architecture. This will mostly be based around my interview with the landscape architect, Bengt Isling (See Appendix B: Interview with Bengt Isling). I will use these principles according to my research question: How can level designers use principles from amusement park design and landscape architecture to create different experiences in open worlds?

Project

As I used Scrum, an agile project method to handle bigger software projects (Scrum Alliance, 2014), before in my personal project and also in my earlier work with Dead Shark
Triplepunch (Dead Shark Triplepunch, 2014) on Epigenesis, I will use this method during this project. The reason for this is that I feel like it is a good way of working on a project, and I do not feel like taking time from my thesis having to learn a new project method.

**Brainstorming**

Brainstorming is part of almost any creative process (although there are people speaking against it as well (Furnham, 2014)). I had good experiences with brainstorming from my work at Dead Shark Triplepunch for Epigenesis. The problem for me now was that I needed to have a brainstorming process that worked for me, even when I was by myself. Therefore, I decided to use a brainstorming method called *Free Writing* (Nordquist, 2014) for this project. Free writing means that one takes a certain amount of time each day, for example 30 minutes, in which one writes down continuously whatever comes to mind without pausing. Other game designers use this method as well, for example Tim Schafer (Charles, 2014), the man behind older adventure games like Day of Tentacle (LucasArts, 1993) and Grim Fandango (LucasArts, 1998). For my process I used free-writing to come up with ideas for the stories for the different sections, for example the idea of having a summer hiking trail that is now covered in snow so that the stairs can be used to slide on.

**Process**

My process was made up of four different phases. I started with doing research about the general feeling I wanted the level to have. Then I designed the part of the level that I was working with on paper. After I was satisfied with the solution I had on paper, I would do a rough design in the level design tool software (so-called blocking out). Last, I tested my blocked out area by letting others play and give me feedback.

**Research**

One of the most important parts of game design is research, research and research (as written on page 15 in Game Design Complete (O’Luanaigh, 2006)). It is also equally important when designing an amusement park as I understand it. In Designing Disney (page 114), John Hench writes how he always painted a four by four foot wallboard to research and see the color sample on location (Hench & Pelt, 2008). After reading and thinking about this my natural first step in my process was to do research about skiing, why it is fun to ski and why people like it. What type of feeling do they get from it?
This is a hard one, and I did not want to spend too much time on this particular research since in the end I wanted to control the feeling they got from an area. However, I could not skip this research completely since I needed to know what type of feeling I should aim for with my levels. Especially since the game is for skiers by skiers as Poppermost Productions themselves write about the game (Poppermost Productions, 2014).

My first task was contacting people I know who ski and ask them to tell me what skiing is for them in one word or sentence. One example I got from Alexander Bergendahl (Game Director at Poppermost Productions) was “Skiing is the freedom to express and challenge yourself in a completely unique way”. This really stuck with me since this it summed up what most people said in one way or another. It was almost always about freedom and expression. I also found a good video on Youtube Lifted – Why Do You Ski? (North 40, 2014), that also sums up skiing as being a feeling in one way or another. I concluded my research with this finding. As I wrote earlier in the text I did not want to spend too much time on this research, and getting the answer that the main reason for people to ski is the feeling of freedom made me realize that I’m not going to be able to build one area that will please everyone. This is due to the fact that the word freedom had a different meaning for each and every one of the people I talked too. For some it meant finding the best jump, being able to fly high in the air. Others talked about going from the top of the mountain to the bottom and feeling like they had no worries in the world. This is both freedom, but for me as a level designer it makes a huge difference as to how I should build a level for skiers.

The result I got from this is that the freedom I should offer on Sialia is different types of freedom. I now knew that some people liked the idea of riding down the mountain making turns, spreading the snow all around. Others preferred the feeling of getting that perfect height in the air from a jump either in a park on something shaped by nature itself.

To be able to do this I decided to map out Sialia and split the mountain into several smaller pieces. I did this for two big reasons.

1. Sialia is a huge area, as I have written earlier in the text. For myself to comprehend this huge mountain I needed to look at it in smaller parts.
2. This made it easier for me to design one section on paper and build on that, rather than randomly picking a place and start placing rocks and hope it turns into the experience I wanted to give.
During this phase I followed ideas and thoughts read on page 5 in *Designing Disney* (Hench & Pelt, 2008). I used these main questions:

1. Where will the space be?
2. How big will it be?
3. How much time will it take to give the guest an experience, and what other experience might come precede or follow it?
4. How does one form affect another?

The first split I did was breaking the whole mountain into four different faces as seen on the image above. I did this since I felt when starting to split the mountain into smaller areas that just covering the whole mountain in small pieces was going to end up being a lot of smaller sections. I could not see any way of remembering all of them, or how they would fit together. This made me first split the mountain into four big splits and then move on and split each face into smaller sections.
As seen in the image above I have each of the four faces split into smaller sections marked with letters. This made it a lot easier to see how big one section would be, and which sections would precede and follow that section. Now technically I could answer question, one (Where is the area?), two (How big is it?) and three (What comes before and after?). The problem with the answer for question three was that for most of the faces the adjoining sections were not designed yet or needed to be re-designed. So while I knew that in Face One, Section B was preceded by A and C and followed only by C I could not tell what type of experiences they were yet.

For dividing the mountain into the sections I simply followed the natural shapes (elevations and narrow valleys) of the mountain while also keeping them small enough to work with.

**Starting with one section**

I figured that to be able to answer question three and four (How does one form affect another?) I needed to start by designing at least one section on one face. I would use this section as the main design for all areas. The experience could be different, but in the end all the areas had to fit together. Let us take a look at one example on how I did this.
The two slides above are taken from a Power Point document I created to design the different sections of the different faces on paper before I went into the software we use to build our levels for SNOW.

I created this document for several reasons. Let’s start with those.

• To be able to present my ideas to my co-workers so everyone would know what is to be expected and needed for each area.

• For myself to be able to go back to this document as I started building the different sections so I would keep the sections consistent and as one experience.

• Creating levels on paper is always a good way to start according to me. This way you can usually find a lot of problems before you start to actually build the level and have to go back and change. Different level designers do this in different ways, but most do this according to Phil Co at page 129 in *Level design for games creating compelling game experiences* (Co, 2006). (He does call it a level diagram; I usually go with the name blueprint).
For the creation of this I used a combination of ideas from *Designing Disney* and the information I got from my interview with landscape architect Bengt Isling (see appendix B: Interview with Bengt Isling). I will now go through the different aspects of the slides and explain their function.

**Name:**
At the top left corner of each slide you see a name. In this example slide it is just called Stream. For this *Power Point* to work, I do not need the final name for my location and experience yet. However, I do need something that defines the area when speaking of it, and that for me is a clearly defined goal.

**Landmark:**
Landmarks are crucial in games, they help the player to remember a location and they could also be used to guide players where to go (see page 101 in *Level design for games creating a compelling game experience* (Co, 2006)). In SNOW I made the choice not to use the landmarks to guide the player, but instead help the player to remember the locations and be able to mention them to their friends. This was a choice I made since I did not want to guide the players here. The game is all about the exploration and free roaming on the mountain, and the landmarks should therefore not be used as guides to get the player to this location. I still designed most of them to be seen from afar so that players could use them as guides, if they wanted to come back to a certain spot.

**Position:**
This is the sections location on our internal map. For this example it says 1C, which means Face 1, in section C.

**Look / Desc:**
As read on page 67 in *Designing Disney*, John Hench writes “theme park design is a three-dimensional storytelling art that places guests in the story environment” (Hench & Pelt, 2008). As I understood this, each location in my world needs to have a story. The player should be put in this story as opposed to being told the story. This the reason that for each
area I wrote a short description that would remind me and tell other team members how the section will look, and if there is anything special with the story.

**Gameplay:**

Right next to gameplay in the first slide it says: Speed and trick. This is the experience I want to give the player in this area. I made four different experiences that I used as my main descriptions for design.

*Trick:* Means that an area will have jumps and grindable objects. Tricks are different from parks (explained below) as they are using natural objects. We could have human built jumps but they would not look like they do in a ski-park where the jumps are perfectly shaped. (See appendix C: image #1)

*Park:* Will have a lot of jumps and grindable objects. Other than tricks, these jumps and rails are definitely built for skiers. The slopes are well aligned and even if the park is built by kids in a backyard it will still have jumps that are placed perfectly for hitting a rail or jump over something.

*Speed:* This description tells me that an area will have a speed element to it. This means that this area will have at least a minimum speed of 40 to 50 km/hour in most locations.

*Turning:* Is when an area has a lot of obstacles that the player cannot jump over or get past by any other way then turning. This is for players that do not enjoy jumping but love the feeling of riding close to obstacles and make great turns. One can think of it as a real world slalom course.

Underneath this I also wrote down ideas that could help this experience.

**Images:**

For each location I did two slides, one with textual information and one with reference pictures. In the example above this would be the slide in the bottom.

**From paper to software: blocking out**

My first step in building a level is a quick block-out. I do this without real graphical assets. Instead of using that where I would have to think a lot about how it looks and so on I just different sizes on cubes. I consider this to be an easy and quick way to try the gameplay experience in one area. It does not look pretty when doing this:
Section 1B, see appendix A: Power Point for Face 1 for a full description

As you can see in the image it is basically just big blocks covering the section. In this section I wanted to try and combine *trick* and *turning*. What I did in this example was to create this area to feel tight but not big for the player. That is the reason why most of the rocks on the image aren’t so high, but it has rocks (cubes at the moment) placed all over. This made this section harder to navigate, hence having to turn, and at the same time I designed hard jumps at different locations so the player could get, if done right, this feeling of being really amazing at the game if they would hit the jumps just right.

*Testing: Seeing the problems*

As I kept working on this section I encountered one big problem. I could not control from where the player would enter a section. As it says on the SNOW store page: “giving player the chance to freely explore a massive mountain environment on skis…” (Poppermost Productions, 2014). For me this meant that I could not make each section to work by itself, I needed to create several ways in and out of each section. The problem with this was that I needed to tip the player about the experience they would get from each section at several entrances, and this two times. Say that a player goes from section B into C at entrance one, then I need to tip the player about the experience that would come when they enter section C. However, the next time the player goes to this location they could instead go from section C and enter B through the same entrance, then I would need to tip them about the experience that would come in section B. This also had to feel like a natural change, since players otherwise would feel that they enter a new area and break the immersion in the game (and breaking the immersion in a game, tells the player that they are playing a game, and this means that I have failed. (The Game Station, 2014)).
At first when I tested this on friends that I wanted to play the game without doing anything more than giving them the controller everyone one of them said something in the style of “I’m not sure what is wrong but it feels really different” as soon as they switched between locations. This for me was a huge problem since that broke the immersion of the game.

To solve this problem I tried to imagine how I could tell a story of these areas together. With story I mean the type of area it is, for example a path through the woods or a field covered by snow during winter or a specially built skiing park. Thus I created small hints of what was to come in both locations, which still fit with their own story. When trying this new design on players none of them mentioned a big difference in experience between the areas. Even though one area consisted mostly of human-created items and another of rocks (supposed to look like they were not placed by a human) none of them told me that they felt the change in experience as not fitting. For them it was natural with this progression now that the stories were told almost as two chapters of the same book.

The image above presents the entrance and exit between two sections. As you can see in this image I already tease the player with what is to be expected from this area. They already see the human elements with rails and parts. (All this stuff is still in its blocked out forms since this was not the area I put my full focus on for this production). And if we look at this same entrance and exit from the other angle it looks like this:
As you can see in this image the player still sees some of the human elements when going towards this location. At the same time I still hint of what is going to in this area with all the small rocks close together. (Also just boxes in this image).

**Result and discussion**

I will first discuss the results of using amusement park design and landscape architecture in creating an experience in a gaming world. After going through my results I’m going to discuss what I think could have been done different, and what I would have needed more time for.

**Result**

For me it was completely new to design something that was meant to be part of an open world experience. That was a completely new challenge by itself since I could no longer use the same methods I had used for all my previous games and projects where the player usually only had one place to go. It was a challenge to design an experience that led the player without me forcing them there (by giving them no other option). To be fair as I start talking about how using these design principle has helped me to work towards a better experience I should also add that this is just the tip of an iceberg. There is so much more a level designer could use from these principles, and there is so much more we should focus on as we want to
give players these open world experiences where they have full control over where they want to go.

As I have written in the section about my process, I used different techniques to create one experience. The experience I was working towards was creating was a skiing experience of freedom. The freedom experience I wanted to create with this section was one for the skiers that loved jumping and skiing in tight areas where the jumps were almost impossible to hit.

My end result of this ended up looking like this as my production time ran out:

![Image of skiing area]

As you probably can see from this image I did not have time to completely finish this section. However, I had time to try the experience and see that the ideas I used and the ways I have talked about was on the right track. Play-testing this area on different people almost every one of them said that this area was hard to use, but wonderful when you managed to hit a jump perfectly. (One guy even tried hitting one of the jumps perfectly for about one hour before he managed to hit it).

For this area I thought about what was already there when I started and how could I use that as base for my section. I did this since Bengt Isling in my interview with him (see Appendix B: Interview with Bengt Isling) told me to start from what was there and find an experience
that would fit with this location. I needed to tell the story of this area, of what was already
there, but not told yet.

I combined this with the main idea proposed by John Hench in *Designing Disney* that
everything should be a show, and everything should have a story to be told.

There are several ways of finding that story. The method I used most often for this was to use
the free writing technique that I wrote about earlier in this paper. I used this technique since
none of my research was about how to write a story. Everything I read was the idea that
everything should tell a story, and for an open world all the stories must fit together like they
are different chapters in one book.

**Discussion**

Using amusement park design principles with the ideas and thoughts behind landmarks,
experiences and how to make the player/guest feel like your creation is “real” has been hard.
Even when using the principles behind building an experience for an amusement park, I have
noticed that first and foremost this is not a complete guide how to make an experience in a
game. Reading page 67 of *Designing Disney* (Hench & Pelt, 2008) it says “theme-park design
is a three-dimensional storytelling art that places guests in the story environment”. As I now
after all this work have understood this seems to be true, but the problem for me was that I
had no story from the beginning. Using any of these ideas is close to impossible without
having a story to tell in the first place.

For me this took up more time of my production than I hoped since before I could design an
experience I had to come up with a story for each location and after that I had to think about
the rest of the problems, like: How do I tell this experience?

**One does not work without the other**

What amusement park design seems to be missing is the real world laws when doing a design,
it is all about the experience. I’m not saying that amusement park design can break the laws of
physics. My point is rather that amusement park design does not include the idea that the
whole park should feel like one real world. When running from the haunted house to the fairy
princess house you notice the big change of experience. This breaks the experience created in
one of the places and pulls the visitor out of the carefully designed illusionary world. While each area is designed to feel real and offer a closed experience, the different experience do not fit or flow together (unless I really scared of the fairy princess house as well). This is why I think that a level designer also needs to keep the ideals behind landscape architecture in mind: To use what is already there and create something that fits with it to create one integrated new experience.

As I wrote in my summary from the interview with landscape architect Bengt Isling (see appendix B: Interview with Bengt Isling), most often landscape architects have to start working from something that is already there. What they design has to fit in with the rest of the town, or area. This is so that people do not move from one experience to another all the time. As a level designer, I want to keep players in the one core experience that I want to give them without breaking that reality. Breaking the experience created by the design would make the player aware of the fact that they are actually playing a game. Maybe one could compare this to a Hollywood movie that had microphones and cameras in the picture, showing part of how it was shot, like is sometimes done in documentary films. This would break the illusion of the story being shown. I think that players are more likely to return to a game when they can dive into the experience fully.

**Ending the paper**

As my final part of this thesis I want to say that using architecture as a base for a level design is productive. I would even go as far as saying that all level designers should have read *Designing Disney Imagineering and the Art of Show* before designing their first level. Even though I encountered problems and even though I could not finish all I wanted to test during my production, I can with almost 100% certainty say that it will help level designers become even better. At the same time I must also add that, even though this might be true, level design, and even digital games, are still really young and there is much to learn yet.
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Appendices
Appendix A: Power Point for Face 1

Statue – Top of the hiking

Landmark: Statue
Position: 1A
Look/Desc: A big statue at the top of the hiking path.
Gameplay: Speed and navigation, some tricks
  • This area will be a normal "rocky" areas. Except for the statue.
  • The statue will have a fence around that is grindable
  • Should not be to big, players should be able to jump over.
  • Idea for Statue: Bird

Rock Piles

Landmark: Big at the begining and small through out the path
Position: 1B
Look/Desc: The idea is that we have a huge rockpile when you enter the section. After that inside we have smaller that the player can jump over.
Gameplay: Speed and trick
  • Player will be able to place jumps at locations to jump over the piles.
  • Area already blocked out, should be several ways.
Rock Piles

Huge one as the entrance piece

Several smaller ones at the locations

Stream

**Landmark:** Stream

**Position:** 1C

**Look/Desc:** Stream going down into the lake. Has a hiking road following it with several gameplay options for the players.

**Gameplay:** Speed and trick

- Stairs for the player to jump or grind the rails
- Bridges the player can use as jump (leaning) or grind over them.
- Can jump in the lake (on frozen waterfall)
Stream

Grindable bridges, different kinds

Logs used as stairs

For steep areas, stairs

Close quarters

**Landmark:** High cliffs and rocks

**Position:** 1D

**Look/Desc:** Big cliffs and rocks that feels huge to player. Should also be really narrow so we force the player to not go full speed.

**Gameplay:** Navigation and Speed
- Narrow paths where the player has to turn
- At least two ways during the ride down
- Path over the cliffs tight and hard to navigate, can jump over them
Close quarters

Tight areas with high cliffs

Magic Mountain Hotel Huilo Huilo Chile

**Landmark:** Special Expensive hotel, close to the top

**Position:** 1E

**Look/Desc:** The special hotel is the landmark, and it has several gameplay objects to it. However for the bottom part of the area there will be a "normal" rock area. The hiking path might continue this way.

**Gameplay:**
- Ride up on the side of the mountain using it like a half-pipe
- Grind on fences.
- Road from 1f to 1e
Magic Mountain Hotel Huilo Huilo Chile

Forest - Pine

**Landmark:** Trees

**Position:** 1F

**Look/Desc:** Big forest area close to the lake village. Should only contain Pine trees.

**Gameplay:** Navigation
- Mostly trees to navigate between.
- Some fallen trees that the player can jump over or ride under (leaning against other tree)
- Some of the grindable.
- Less obvious jumps, but players can place jumps at locations.
- After discussion – We should add picnic tables and such inside the forest as smaller landmarks.
Appendix B: Interview with Bengt Isling (Summary)

Summary of interview with Bengt Isling

Bengt Isling is a landscape architect at Nyréns Arkitektkontor in Stockholm. And I was fortunate enough to get an interview with him during my project phase and talk about his and his colleague’s way of working when it is time for a new project. This document contains a summary about that interview along with his contact details if needed.

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Bengt Isling

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http://www.nyrens.se/medarbetare/bengt-isling

Summary

Sadly as we could not sit at one location during this interview I was not able to record the interview. However as it is I have summarized the interview below.

After my presentation of this interview, why I’m doing it and who I was we directly began to talk about how he began on new projects. Bengt told me it depends on the project, most of the time the first thing they do is look at the area and see how it looks today. They also take a lot of pictures and think about how the surroundings. This since most of the time when he design
something it should fit with what already is there. An example he said was “if everything is split into squares in this part of town, the park should also fit into this and be square shaped”. This since you usually do not want it to stick out, you want the new stuff you add to fit with what’s already there.

However, he also said that just recently he had been part of a team that designed a Hornsbergs Strandpark (Nyréns Arkitektkontor, 2014) and for this park they wanted to try something different. Instead of following the shapes of the area they decided to give the park a more round shape. As you can see on the image below.

Image from Nyréns Arkitektkontor

This was something new they tried and that ended up being really popular for this. However, he said that it is not something that they will do for all their projects. You should still start with what you got and work towards making each area fit together and not make one that sticks out too much from the other ones.

He told me that he never worked on any games. I told him unless you are working on a real world location you start with nothing and need to come up with design and ideas yourself. His main tip hearing this for a ski and snowboard game was to travel to real world mountains and see what made them fun. Or if I’m not able to go to a real mountain google images and see how the slopes and such are shaped. This to give me inspiration and a better idea how I could shape my level.
However, the most interesting I got from this interview was something I was not able to find in books. I’ve been trying for a long time to see if a landscape architect design a park as an experience. Bengt told me that this is the case. You should always shape or build everything in architecture to be some kind of experience. He told me that some of his colleagues had won a competition to design a new hospital in Stockholm. For that competition they designed the hospital to be pleasant for both patients and the people working there.

After this my hour of interview was almost at the end so we mostly discussed my plan to get the split the mountain into several pieces and design them on paper first. Which he said is the same way they do when building something bigger. They split it into different sections and design them one by one, while making sure that they all fit together.

Appendix C: Image #1