

Environmental storytelling in dark rides: A research-creation on designing immersive attractions

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Abstract

This research focuses on the lack of theory on how to create attractions, especially the narrative environment in which guests are immersed (Lukas, 2016). As we wanted to focus on how environments convey stories, we imported a conceptual framework about environmental storytelling from game studies (Jenkins, 2007; Carson, 2000). We studied the four dimensions of this concept, namely: evocative spaces, enacted stories, embedded narratives and emergent narratives. Using research-creation, we explored those concepts by designing an attraction based on the movie 300 (Snyder, 2006). In a reflective way, we expose our practice as designers and how we use environmental storytelling. It allowed us to gain an understanding of the process of creating immersive attractions, specifically dark rides.

Keywords: *Theme Parks, dark rides, immersion, game studies, environmental storytelling*

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1. Introduction

In theme parks, people can get completely immersed inside the worlds that are created, thanks to the great care for details of their design, from the parking lot to the restrooms. Examples of such parks include Disney's and Universal Studios' theme parks, and their attendance number and revenue indicate their high popularity (AECOM, 2019): "What set the Disney theme parks apart from other earlier amusement parks such as Tivoli Gardens and Coney Island was the tighter integration of narrative with attraction." (Schweizer & Pearce, 2016, p.97).

Because of their fine-tuned formula between narrative, theming and attractions, these parks tell stories inside a complete imaginary world. There isn't a single area where you get taken out of the magical world that is built. Some other parks are also noteworthy for their storytelling: Europa-Park, Efteling, Toverland, Phantasialand or Busch Gardens. However, these miss the connection with the movies that Disney and Universal Parks are based on and that we wanted to explore in this study.

The literature fails to classify theme park design: is it level design or architecture or engineering, or something else entirely? It might be a combination; but today, in order for an industry or job to be recognized, it needs to be classified, and this lack of proper classification might explain why theme parks are understudied:

I suggest that there needs to be greater seriousness and attention given to the study of the nuances of themed and immersive spaces. These spaces have been relegated to the junk pile of social research in that they either are not studied at all or they are addressed through simplistic, reductionistic, and essentialist analyses. (Lukas, 2016, p.168)

In this paper we follow Lukas' suggestion that there should be more designers that conduct research: we study the creation of a theme park attraction, more specifically a dark ride based on the movie 300 (Snyder, 2006). The movie 300 is about the Greco-Persian war, where the Spartans try to defend Greece from

a Persian attack at Thermopylae. We wanted to understand how, as designers, we “infuse” the story into the environment, as Don Carson would say. To do so, we used Henry Jenkins and Don Carson’s concept of environmental storytelling (Jenkins, 2007; Carson, 2000).

Henry Jenkins is a game studies scholar that contributed a great deal to video game and transmedia theories, and who acknowledges the similarities between theme park design and video game design. His research allows us to have a fresh look at theme parks. Our research question is: how can environmental storytelling help design movie-based dark rides?

To begin, we will expose what a dark ride is, and what separates it from other types of attractions. We will next describe the created attraction and analyse it using the environmental storytelling framework and its four components: evocative spaces, enacted stories, embedded narratives and emergent narratives (Jenkins, 2007). The results show that environmental storytelling is indeed a fitting concept to use while designing theme park attractions, but that it does have some shortcomings. Which is why we will introduce the idea of kinetic storytelling, a concept that felt necessary to add, as Jenkins does not discuss the storytelling that happens because of movement through the environment.

2. Literature review

A theme park can be perceived as various things. Some would define a fair as a theme park, others might do the same for an amusement park. However, what makes theme parks stand out from those can be found in the name itself: theme. “Themed spaces have, in their foundation, an overarching narrative, symbolic complex, or story that drives the overall context of their environs” (Lukas, 2016, p.3). What gives theme parks an edge over fairs and amusement parks is that the whole park is themed with different areas ranging from wild west to pirates to science fiction to cartoons: “[Theme parks] feature recreations of historical civilizations, which are made accessible in the form of

traditional architecture, clothes, sounds, as well as through references to their culture, religion, mythology, and other forms.” (Carlà, 2016, p.19).

The feeling experienced by guests from the moment they arrive in the park. The guests are no longer the sad and stressed people from their daily life. They are transported inside this world where they can be whoever they want to be. At least the guests believe they can, but that’s what matters: believing.

2.1 Dark rides

A theme park’s goal is to immerse guests inside worlds that are connected by stories that they would normally never be able to visit, and often use historical themes to portray these immersive worlds. Yet inside these parks, the themed areas need to attract guests, they are not merely movie studios where the decorations and environments are static. What these themes add - that any other type of park doesn’t - is that the attractions which can be found inside the themed areas are so well incorporated that most of the time we cannot see them from the outside. We only get to experience them while on the attraction. This is a characteristic trait of Disney and Universal Studios parks.

Disneyland’s slogan is “The Happiest Place on Earth”, and this does not stray far from reality. Why do people go to theme parks? They might go to experience this “magic”.

Dark rides excel because as guests are immersed in a closed environment because of the narrative immersion (Adams, 2004), they think about the theme park and not about their everyday life and daily struggles. The guests can escape and feel happy. Some minor setbacks can be tolerated, like an overrun park and long wait times, because guests crave to know the continuation of the story and want to know what’s to come. This is because a dark ride is not a simple attraction, it is a whole experience in which guests are immersed.

Dark rides are heavily themed attractions that are story-driven and use their indoor setting to their full advantage to contain

the environment so that the riders are not distracted by anything outside off the attraction: “[...] theme parks began to distinguish themselves from the amusement park and cement their identities through a set of narrative attractions, many of which still exist. The dark ride emerged as a chief facilitator of narrative though other genres were present.” (Baker, 2018, p.3)

According to Zika (2009) a dark ride attraction features a combination of elements such as an enclosed structure, lighting effects, reliance on scenography and animatronics, a powered ride system with a passenger vehicle and sound effects.

Baker (2012) describes a dark ride as an indoor ride that uses the environment to interact with projectors, animatronics, computers and other decorative elements to immerse the riders in a story by using cinematic theories.

Dark rides are characterized by their immersion inside a story and this story starts from the moment you enter the queue line. Not only is the attraction itself a narrative journey, but the guests are already immersed - in what is called the pre-show - to get ready for the attraction.

2.2 Transmedia

Several authors (Freitag, 2016 and Baker, 2012) label theme parks as transmedia. According to Baker (2012), the original theme park attractions were created by movie crews. The first ones were designed by movie directors, editors and writers. Both cinema and theme parks were created at roughly the same time (19th century), and this allowed the two industries to grow woven together. “Both theme parks and one of their historic predecessors, namely, amusement parks, have been closely linked to the cinema from their very beginnings.” (Freitag, 2016). For example, theme parks already used cinema projectors and screens at that time and some dark rides utilized 3D glasses. That is why the theme park industry is referred to as transmedia by Freitag.

Furthermore, Freitag (2016) writes that critics identify elements of theme parks as derived from movies, but they are

not simply “borrowed”: those elements are fully used in both media and that is the reason why they are transmedial. These days it is hard to picture theme parks without their cinematic influences. Therefore, it seems interesting to use concepts coming from media studies, cinema studies or even game studies to better understand the richness of theme parks.

3. Method

The originality of this research is the use of research-creation methodology. Research-creation is a form of research through design, a type of research widely accepted in the arts and in design. (Godin & Zahedi, 2014). It rests upon the epistemological assumption that some knowledge can only be accessed through creation, through actual practice. It aims to reveal implicit professional knowledge. (Bruneau et al., 2007; Schön, 1983). It is especially developed in [country redacted for evaluation], as exposed by its research council:

“An approach to research that combines creative and academic research practices, and supports the development of knowledge and innovation through artistic expression, scholarly investigation, and experimentation.” (Social Sciences and Humanities Research Council, 2018, online). While doing a research creation (Bruneau & Villeneuve, 2007), one must become a reflective practitioner: “The process of learning through and from experience towards gaining new insights of self and/or practice.” (Finlay, 2008, p.1)

It allows researchers to recapture design experiences so that they may acquire new comprehensions about what they are exploring. This was possible for us as researchers as we are both designers, and one of us is a specialist of theme parks: he worked on several projects, and he masters the technical skills (2D and 3D software) needed to make detailed documentation of the proposed dark ride.

The creation focused on the 2D and 3D digital design of the attraction. To design the attraction we used Photoshop, Maya and No Limits 2. Being reflective practitioners, we designed the attraction and continuously analysed our work while looking at

what we wrote in our logbook, in a back and forth between creation and analysis.

The dark ride we ended up designing is a Gerstlauer Infinity Coaster based on the movie 300 (Snyder, 2006). The guests are Greek soldiers who have to save a village from destruction by the Persians. They are recruited at the local theater, which is transformed into barracks. First the guests enter a big auditorium where the captain of the army gives them information on what is going to happen. The auditorium is attacked and starts to burn, so the guests have to exit and arrive in an open court, where they find Leonidas next to a tree that is full of hanging dead Greek villagers. The guests get a motivational speech about fighting the Persians responsible for this crime, and are directed towards the loading station. The train acts as war chariot to transport the guests through the environment and battles.

The roller coaster starts by taking the guests through the village before the attack, then the train climbs the mountain to reach the temple of the Ephors (a group of beings that can give the blessings of the gods) to ask for their blessing to fight the Persians. The chariot then plunges down underneath the village square(Figure 1) and proceeds to enter the library.



Figure 1. Temple drop scene from our attraction
(Source: author)

While the chariot makes a halt, the attacks start outside, the room catches on fire, and the chariot has to quickly accelerate to escape. The chariot then proceeds to take the guests through the battle, surrounded by attackers and burning neighborhoods, and arrives in front of a war elephant. The trail then drops down and the environment evokes hell and the death of the brave soldiers in the battle, but the chariot speeds up through the mouth of a god which is filled with light. The chariot then twists and turns in a paradise-like environment(Figure 2) and ends up in a slow rise to reach heaven, where the guests are treated as war heroes, and then exit the vehicle.



Figure 2. Shot from the Paradise area from our attraction
(Source: author)

4. Results and discussion

4.1 Results

As stressed earlier, Jenkins suggests four different types of environmental storytelling in video games: evocative spaces, enacted stories, embedded narratives and emergent narratives.

The last two were seldom present in our design process. Indeed, embedded narratives are underlying stories that get discovered by the audience by advancing through a game. They

are common in detective stories, where the players lead an investigation and discover the underlying, true story of what happened. This is not the type of narrative we chose for our attraction, as we wanted the guest to live the battle, not get a recollection of it. Emergent narratives are built around the “sandbox” aspect of video games where players can create their own worlds and stories, thus it is hardly found in theme parks and is not included in this design either. The guests are following a directed pathway.

However, evocative spaces and enacted stories are of great interest to describe the immersive environment we created.

4.1.1 Evocative spaces

Evocative spaces base themselves on audiences’ previous knowledge from fairy tales, classic novels, movies, etc. This knowledge is evoked through the environment (Jenkins, 2007) and helps to tell the story. *Revenge of the Mummy* is an example of an attraction that uses evocative spaces, as it is based on the movie *The Mummy* (Sommers, 1999) as well as history and mythology. We relied on a variety of evocative spaces during the creation of our attraction: films, games, history, mythology and sounds.

The basis of the dark ride is the world of the movie *300* (Snyder, 2006). It is central that the ride evokes the movie, therefore we chose varied elements coming from it such as the architecture and color palette. For example, the cliff drop on the roller coaster is set to evoke the temple scene in the movie where Leonidas seeks the blessing of the Ephors.

We also added a second pre-show to evoke the scene where the Spartans stumble across a tree with dead villagers pinned on. It is a pivotal scene where the Spartans get even more lust for revenge against the Persians. We recreated this scene right before the guests go on the roller coaster by having a moody court area full of ruins and where they find the tree from the movie.

The movie *300* has a specific washed-out colour palette that is very recognizable, and it largely impacts its atmosphere, giving a

dark and gritty feeling to the viewers. The sole standout colour of the movie is red. By designing the coaster indoors, we have complete control over the colour palette and lighting, and we were able to reuse this distinctive colour scheme.

Besides the movie 300, we looked at video game references to have a more complete board of props and assets to evoke. Therefore, we also decided to examine the video game Assassin's Creed Odyssey (Ubisoft, 2018), as the game is set in roughly the same time period and has a vast variety of buildings that we reused.

Finally, we obviously also looked at Greek history and archaeological sites to complement the movie architecture, with elements such as Greek theaters, temples and libraries. Greece has such a deep-rooted connection to mythology that we decided to include it in the ride. Hence, the trains are each dedicated to a god. The red train is dedicated to Zeus as it is shown by the lightning bolts (as seen in figure 3). The green train is dedicated to Athena who is evoked through the olive tree and owls. Due to the widespread education about Greek mythology, it is a type of space that is easily evoked.

This combination of pre-existing film, game and tradition, stresses how important evocative spaces are for telling a story in dark rides. Evocative spaces were the most used type of environmental storytelling in designing this attraction as they are present in each scene.

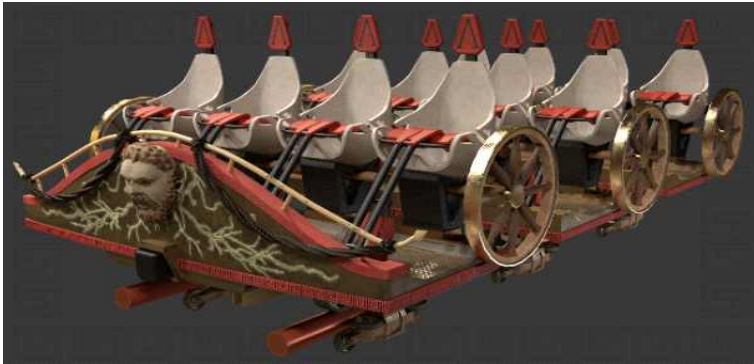


Figure 3: The Zeus train from our attraction (Source: author)

4.1.2 Enacting Stories

This type of environmental storytelling might not be crucial to the dark ride itself, but we decided to use it as we feel it is necessary to complete the theme park experience.

Enacting stories is a type of environmental storytelling where someone has to progress physically through the story, overcoming pitfall and discovering new paths: “They are stories that respond to alternative aesthetic principles, privileging spatial exploration over plot development” (Jenkins, 2007). This is how classic video game level design works, with the character having to get through carefully designed levels. However, this makes telling a story difficult in the classical sense: it is more about going through an “adventure” between point A and point B than discovering a philosophical meaning:

“Once again, we are back to principles of environmental storytelling: organizing the plot becomes a matter of designing the geography of imaginary worlds so that obstacles thwart and affordances facilitate the protagonist’s forward movement towards resolution.” (Jenkins, 2007, p.58)

Jenkins writes that the guests and players need to have elements that guide them towards the next objective. We achieved this at the beginning of the attraction by having a layout where the guests follow a continuous staircase that leads straight up towards the monumental ride entrance that is designed to look like a theater (as seen in figure 4).

In front of the theater stand two big columns that have coloured water to look like blood running out of them as well as a shield with the name of the ride. The guests then walk through the queue line and the two pre-shows. Once the guests are in the train, they are guided by the trail from point A to point B and discover the story along the way. However, they can’t choose their path (as can be the case in some video games). Still, we think that by putting the guests at the center of the action, the attraction offers a form of enacted storytelling.



Figure 4: Overview of the themed area around the attraction
(Source: author)

4.2 Discussion

All in all, evocative spaces proved to be the most useful type of environment in our creative process. However, we did notice that the model of Jenkins does not explain how environmental storytelling works for a new kind of environment that isn't based on anything pre-existing. Another missing aspect in Jenkins' model is sound design.

During the design of the environments, we noticed the difficulty of designing an environmental storytelling experience solely through visual art. The ride missed sound, which is a big aspect in experiencing a theme park. Sound is needed to play on the emotions so that our immersion in the story gets amplified. Therefore, we also decided to tackle some sound design to include on the ride. The movement of the train also has an impact on the sound. The music is dramatic as the train speeds up and more relaxed as the train slows down.

Another Form of Environmental Storytelling in Theme Parks: Kinetic Narratives

We noticed that despite talking about enacted storytelling where the protagonist goes from point A to B, the pace is not really mentioned in the environmental storytelling model

(Jenkins, 2007). But during our creation process we focused a lot on the layout of the track along with the track elements. If the train moves slowly, the focus of the environment is to tell a story so that the riders can look around. If the train moves fast, the focus lies more on the physical forces than on the environment, and these parts can have less detailed environments.

Moreover, what defines a roller coaster is the track, it determines who the target audience is and thus what the height and speed of the attraction will be. The track also depends on the type and manufacturer. Not all track types can include the same elements, such as inversions, and type of trains. For this project we chose a Gerstlauer Infinity Coaster for multiple reasons: the trains are short and nimble and include lap bars instead of over the shoulder which allows the guests to look around thus immersing themselves in the environment more than if there were over the shoulder bars. The short trains allow for a more compact build that saves space and allows for more intense, tighter turns. Our goal was to design a ride that is family-friendly but also includes intense and frightful elements, like in a real battle. Inversions are part of the storytelling: We have one inversion in the paradise section of the ride, the train makes a barrel roll over the glowing water so that the guests can be closer to it and almost “feel” that this is a magical moment.

Jenkins’ model of environmental storytelling doesn’t focus on the movement through environments. The speed of a roller coaster could be interpreted as the speed with which a character in a video game moves. We therefore suggest adding the kinetic narratives dimension to Jenkins’ model: a form of environmental storytelling based upon the speed and movement through space.

5. Conclusion

Our answer to the question “How can the concepts of environmental storytelling help design movie-based theme park attractions?”, is that environmental storytelling (Jenkins, 2007) is

a great way to tell a story in a theme park, especially through evocative spaces. Moreover, the techniques used in video games and movies are pertinent for theme park design and thus further solidifies that theme parks are transmedia. Using the concept of environmental storytelling while designing an attraction allows us to tell a story that immerses guests inside the created worlds without being distracted by the outside of the environment.

The attraction cannot be allowed to lose the immersion of the guest. Indeed, Jenkins wrote that “Any contradictory element may shatter the sense of immersion in the narrative universe.” (Jenkins, 2007, p.57). This aspect was the most troublesome, but it is necessary to pay attention that all the elements of the design are cohesive.

However, environmental storytelling comes with some limits and needs to be complementary to a traditional narrative; otherwise, the story will not be understood by the guests who had not previously seen or played the movie or video game on which the attraction is based.

During this research, we realized that an important part of environmental storytelling in theme parks was missing, thus we concluded that Jenkins’ model should be augmented. More specifically, it could be complemented by another dimension for theme parks, namely kinetic narratives, a form of environmental storytelling based upon speed and movement through space. We hope this dimension will help the readers recognize that more research on theme parks is needed as it brings significant importance to theme park environmental storytelling.

It was crucial for our art-related research to be able to draw our thoughts and have visual results, which is why having research-creation as our methodology was valuable, even though this approach depends heavily on the researcher’s or designer’s point of view.

For the future we are hoping that more people will explore themed entertainment design further. This would allow the industry to rely on scientific knowledge and thus allow impressive creations that immerse the guests. We also want to show how complex the work that gets put into theme parks is.

We hope that our research will not only aid the theme park industry but will also help for video game and movie production design, as these industries are closely related due to their transmedia techniques. Designers from all three industries can see how we can tell stories using the environment and how the environment and narrative are complementary.

References

Adams, E. (2004). Postmodernism and the three types of immersion, Gamasutra, 1. http://designersnotebook.com/Columns/063_Postmodernism/063_postmodernism.htm

2018 Theme index and museum index: The global attractions attendance report. (2018). Themed Entertainment Association. <http://aecom.com/content/wp-content/uploads/2019/05/Theme-Index-2018-5-1.pdf>

Baker, C. (2018). Exploring a three-dimensional narrative medium: The theme park as "De Sprookjessprokkelaar," The gatherer and teller of stories [Doctoral thesis, University of Central Florida].

Baker, G. S. (2012). Archaeology of a dark ride: A prehistory of 'Transformers: The Ride 3D' [Master's thesis, The University of Melbourne].

Bruneau, M. & Villeneuve, A. (2007). Traiter de recherche création en art : Entre la quête d'un territoire et la singularité des parcours. Québec, Canada: Presses de l'Université du Québec

Carson, D. (2000). Environmental storytelling: Creating immersive 3D worlds using lessons learned from the theme park industry. Gamasutra, https://www.gamasutra.com/view/feature/131594/environmental_storytelling_.php

Carlà, F. (2016). The uses of history in themed spaces. In Scott A. Lukas (Eds.), A reader in themed and immersive spaces. Pittsburgh, PA.

Finlay, L. (2008). Reflecting on reflective practice. <http://www.open.ac.uk/opencetl/sites/www.open.ac.uk/opencetl/files/fil>

es/ecms/web-content/Finlay-(2008)-Reflecting-on-reflective-practice-P
BPL-paper-52.pdf

Freitag, F. (2016). Movies, rides, immersion. In Scott A. Lukas (Eds.), *A reader in themed and immersive spaces*. Pittsburgh, PA.

Godin, D., & Zahedi, M. (2014). Aspects of research through design. *Proceedings of DRS 2014: Design's Big Debates*, 1667-1680.

Jenkins, H. (2007). Narrative spaces. In F. von Borries, S. P. Walz, & M. Böttger (Eds.), *Space time play: Computer games, architecture and urbanism: The next level*. Basel: Birkhäuser.

Lukas, S. A. (2008). *Theme park*. London, UK: Reaktion Books Ltd.

Lukas, S. A. (2016). *A reader in themed and immersive Spaces*. Pittsburgh, PA: ETC Press.

Schön, D. A. (1983). *The reflective practitioner: How professionals think in action*. New York, NY: Basic Books.

Schweizer, B. & Pearce, C. (2016). Remediation on the high seas: A pirates of the Caribbean Odyssey. In Scott A. Lukas (Eds.), *A reader in themed and immersive spaces*. Pittsburgh, PA.

Zika, J. (2009). *The dark ride: The translation of cinema into spatial experience* [Bachelor's thesis, Monash University].