Exploring Immersive Storytelling Customized to Guest Interactions

A Thesis Submitted to the Faculty of the Themed Entertainment Design Department in Partial Fulfillment of the Requirements for the Degree of Master of Fine Arts in Themed Entertainment Design at Savannah College of Art and Design

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Abstract- This thesis explores the next level of guest role in themed entertainment, specifically how an attraction can allow for guests to choose the direction of the story and make decisions that truly affect the outcome. Ragnarök will be showcased as an example of how these types of attractions can be designed, while addressing the challenges of having such an attraction in relation to guest flow, capacity, and immersion.

Keywords- Themed Entertainment; Attraction; Guest Agency; Norse Mythology; Choose-Your-Own Adventure; Interactive Storyline

Introduction

Within the themed entertainment industry, there is a sentiment that is repeated again and again: It's all about story. Every design project begins by creating a narrative, and that story is used to inform every decision made by the team, whether it be color palette, materials used, or even the master planning of walkways and facilities. It's what separates a theme park from an amusement park, or a museum display from an immersive exhibit. In his book Theme Park Design, David Younger states "A book tells stories through words on a page, a film tells stories through moving images on a screen, and a themed attraction tells stories with created environments. Through this approach a bar becomes a 1940s speakeasy, a roller coaster becomes a runaway mine train, and an entirely new mechanical contraption is engineered to provide the story experience of sailing a pirate ship over the edge of the world."[1] Themed Entertainment covers a wide variety of experiences ranging from museums to theme parks to haunted houses to themed restaurants. While each type of experience is different from the next, every experience has a story to tell and attempts to transport guests into that story through some level of immersion.

While the importance of story has always been important, the level of immersion and the guest's role is an continuously developing. Many experiences are passive experiences, where guests are observers and nothing more. More recently, guests are

[1] David Younger, *Theme Park Design* (Inklingwood Press, 2016), 1.

given a more active role in the story, even if they don't directly affect the outcome. This thesis will begin by showcasing the nature of guest participation in various themed entertainment, focusing on walk-through experiences. It will then proceed to showcase how a new attraction, Ragnarök, can take the next step in guest immersion, where guests are given agency to make decisions that change the story.

Trends of Guest Role in Walk Through Attractions

Passive Role:

The first level of guest role in a themed attraction is a passive role. Here, guests are placed inside the story world through the use of set design, screens, audio, etc. but never play an active role in the story itself. This doesn't necessarily mean that the audience isn't addressed by the characters in the story (though that can often be the case) but the only thing that guests need to do is walk through the experience as directed.

Halloween Horror Nights at Universal Studios, along with the majority of scare-type attractions, use this passive role. When the guest begins a walkthrough of an attraction, they are directed exactly where to go. Sets are designed in a way to where there is only one corridor-like passage for guests to follow. This simple layout allows for the design of the attraction to have controlled story beats that happen at very specific times and places throughout the journey. A scare actor might directly address

the audience, or they will act out their scene seemingly oblivious to the audience. This creates a movie-like storyline, following a linear path and seeing every key shot in sequential order. While this gives the designers a lot of control over the story, guests never feel like they have any control, so they take up a passive role.

Semi-Active Role:

While not a term commonly used in the industry, an attraction with a semi-active role has guest participation as a story-premise, but not actualized in execution. For example, the premise for the story could be that guests are here to help a character find the McGuffin, when in reality they only watch the characters around them find it. There is no direct interactivity between the guests and the story, even if the story claims there is. Attractions like these are an indicator that both guests and designers have a desire to move on from passive experiences into a more active role, so you really feel like you're a part of the story.

An example of this kind of attraction is Poseidon's Fury, formerly at Universal's Island of Adventure, had the premise that guests were to join an archeological expedition that goes wrong. To escape the temple, the team needs to return the trident to Poseidon to fight off an enemy. The attraction featured a live actor guide that brought the guests through the space, a highly detailed set, and quite a few theatrical effects that created a truly immersive setting. With some suspension of belief, guests can feel like

they're part of the story, but in reality all they are doing is walking where directed and watching a show.

Active Role:

The final category of guest roles in existing attractions is Active Role. As the themed entertainment industry has grown, the desire for more interactive experiences also developed. This is shown by the explosive popularity of active role attractions. These attractions can be characterized as an experience that requires guest input and involvement, and the environment has some form of response to these inputs.

A popular example of these types of experiences are escape rooms, where guests are brought into a themed space where they need to solve puzzles in order to complete an objective. There are clues and hidden spaces throughout the rooms that guests need to directly interact with in order to solve the story problem. While these games are highly immersive, there are inherit limitations. First of all, the only impact that guests have on the overall story is whether they succeed or not. A pass/fail sort of role. Secondly, the nature of escape rooms only allows for one group to participate at a time. This only allows a very limited capacity. Finally, once a group or individual or group has solved all the puzzles and completed the game, there is very little incentive for them to return to that game. There is one story and they already finished it.

Another type of attraction with an active role is point-system games. These are usually shooting-type games, where guests are taken through a space filled with targets

for them to shoot. The more targets they shoot, the more points they get. This allows for great re-rideability as guests want to get higher scores, regardless if the story is a repeat experience.

While these examples have proved successful, the trend in popularity of increasingly immersive and interactive experiences show that there is a need to consider the next step in guest role throughout themed entertainment. Despite story being an integral part of themed entertainment, guest involvement has been restricted so that even if they interact with the story, there is not real influence on the outcome of the story. The story either progresses or it doesn't, depending on if guests are able to complete the appropriate tasks. Or in the case of point games, the only real difference in outcome is the amount of points won.

The Challenges with Interactive Storytelling

There are some serious challenges to consider when attempting to create an "Choose your own adventure" type attraction in themed entertainment.

The first is guest flow. Themed entertainment tells stories through the built environment. If that story, and by extension that environment, is affected by one group of guests, it becomes difficult to have more than one group in a single space. So the challenge comes in regulating guest flow so interactions are still personal, but aren't ruined or cheapened by the presence of other groups.

The second problem is related to the first. If guest decisions are important to where the story will take them, this can allow for certain areas to remain unused if guests choice takes them another direction. The cost of unused space would be a major reason of a company to decide not to produce such an attraction. The challenge addressing this problem is how to create spaces that can tell multiple stories, depending on guest choices, in a way that is still meaningful.

A potential third problem (which can also be related to guests can be an increased choice paralysis. If decision making is left too open ended, guests could have a hard time figuring out what they're "supposed to do." This will require helpful direction to be available, but not forced, as guests get used to the story autonomy present in this new type of attraction.

With all of these problems in mind, the remainder of this thesis will showcase Ragnarök, a new walk-through themed gaming experience that allows guests to explore the world of Norse mythology and create their own personal stories in a "Choose your own adventure" format.

Figure 1. Palmer, "Ragnarök Façade Design" 2024

The Story of Ragnarök

The story within this attraction brings the guests into the world of Norse mythology. Ragnarök is a prophesied event where the gods go to war against giants, monsters, and other adversaries. It's been foretold that both sides are to wipe each other out at the end of the world to where there are essentially no survivors on either side. However during this telling of the story, a new prophesy has arisen in the final days before Ragnarök saying that a small group of mortals will be given the chance to change the fate of the end of the world, although it is unclear if this will be in favor of the gods

or of the monsters.

Figure 2. Palmer, "The Three Forces of Ragnarök" 2024

In order to fulfil this prophecy, these mortals must first confront the three Forces of Ragnarök: First is Jormungandr, the World Serpent destined to die at the hands of Thor, who will in turn die from Jormungandr's venom. He can be found deep within crystalline caverns seeping with his venom. Next is Fenrir, the giant wolf son of Loki, who is destined to kill Odin before succumbing to a mysterious illness. Venture into the dark forest at the base of Yggdrasil in order to find this beast, imprisoned for a crime he hasn't yet committed. Finally is the Hall of the dead, where warriors from both Valhalla and Helheim await the final battle.

Once face-to-face with these powers, mortals will be given choices that will ultimately determine the fate of the world. After completing their quests, the hour of Ragnarök begins. The mortals are escorted through the beginning of the battle to their own longship. As they set off on their final voyage, the events of Ragnarök (as determined by the choices they made) will unfold around them.

Story Structure and Programing

The story structure of this attraction hangs on the three "Powers of Ragnarök" (referred to as "Powers" for the purpose of this essay) as nodes making a story frame. Each Power has three quest options to choose from, all of which follows a unique storyline. These quests will take them through the entire attraction space finding clues, solving puzzles, and completing tasks. The story is nonlinear, so guests can choose the Powers in any order, and beginning a new quest is not dependent on finishing the quest for a Power that the guests have already started on. As seen in Figure 3, this story structure provides in several branching points, allowing for guests to create a nearly unique experience every time they visit, while Figure 4 gives a more detailed example of the questlines associated with Fenrir.

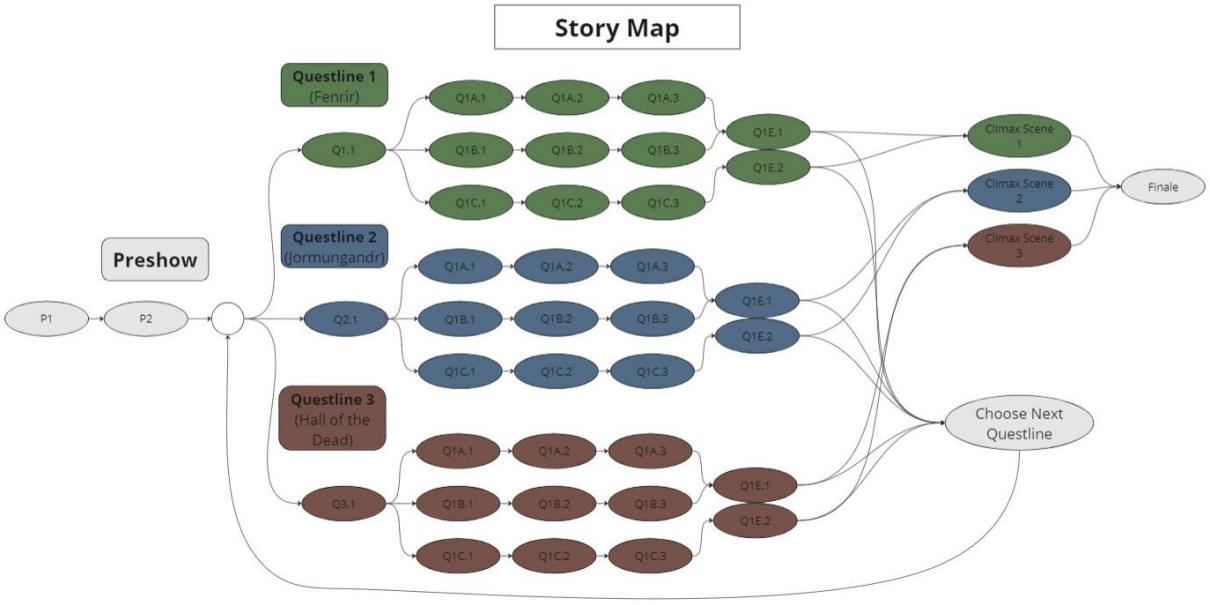

Figure 3. Palmer, Ragnarök Story Structure, 2024

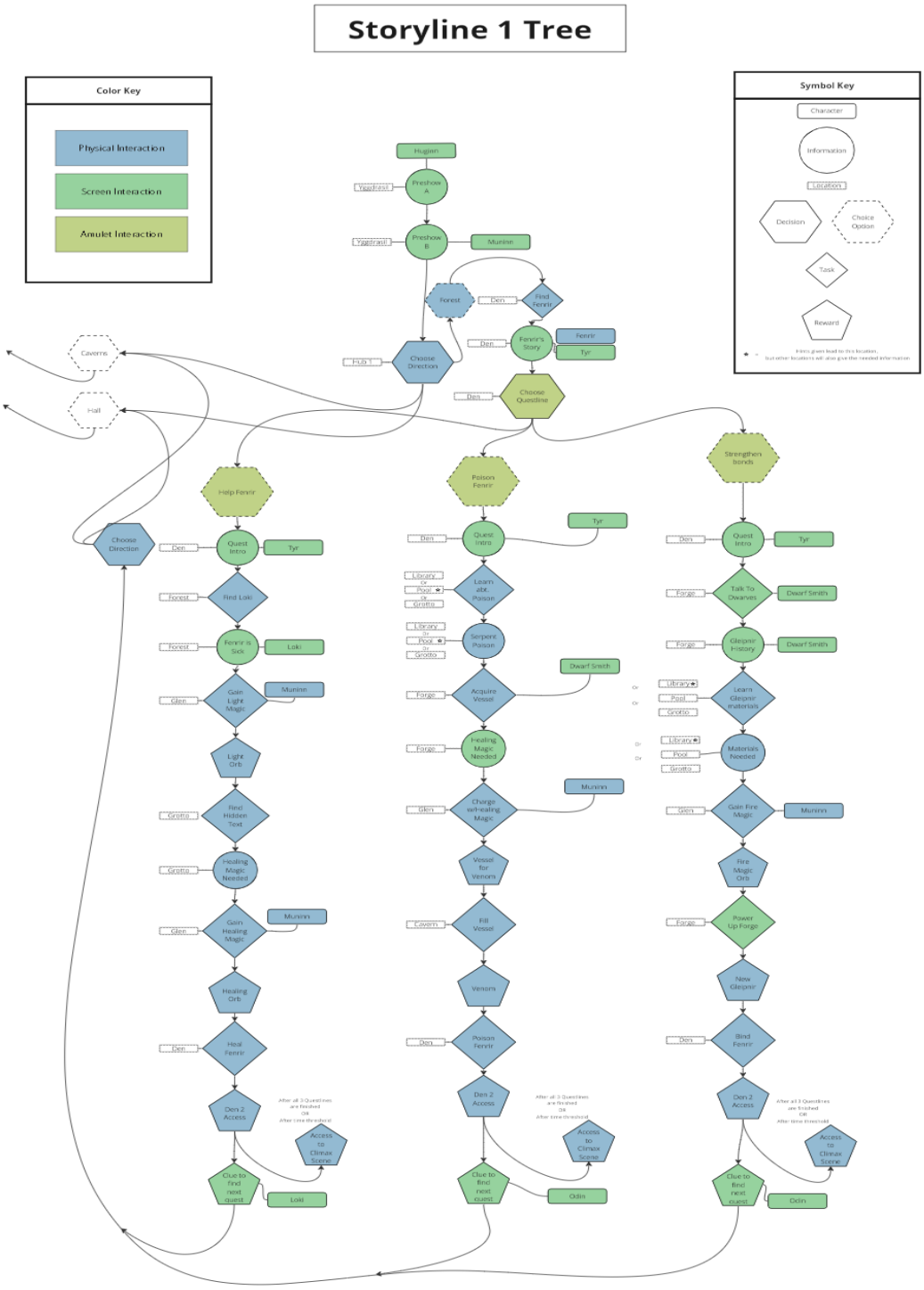

Figure 4. Palmer, Fenrir Quest Storylines Structure, 2024

After the completion of a quest storyline, guests will be given access to a new room where they can see immediate effects of their choices as well as allusions to future consequences. After completing a questline for all three Powers, guests are granted even further access to the next area, where Ragnarök has begun. After waiting in this space for a short amount of time, guests are brought onto the finale ride, a boat ride that will show the consequences of the group's specific decisions, offering a unique show every time.

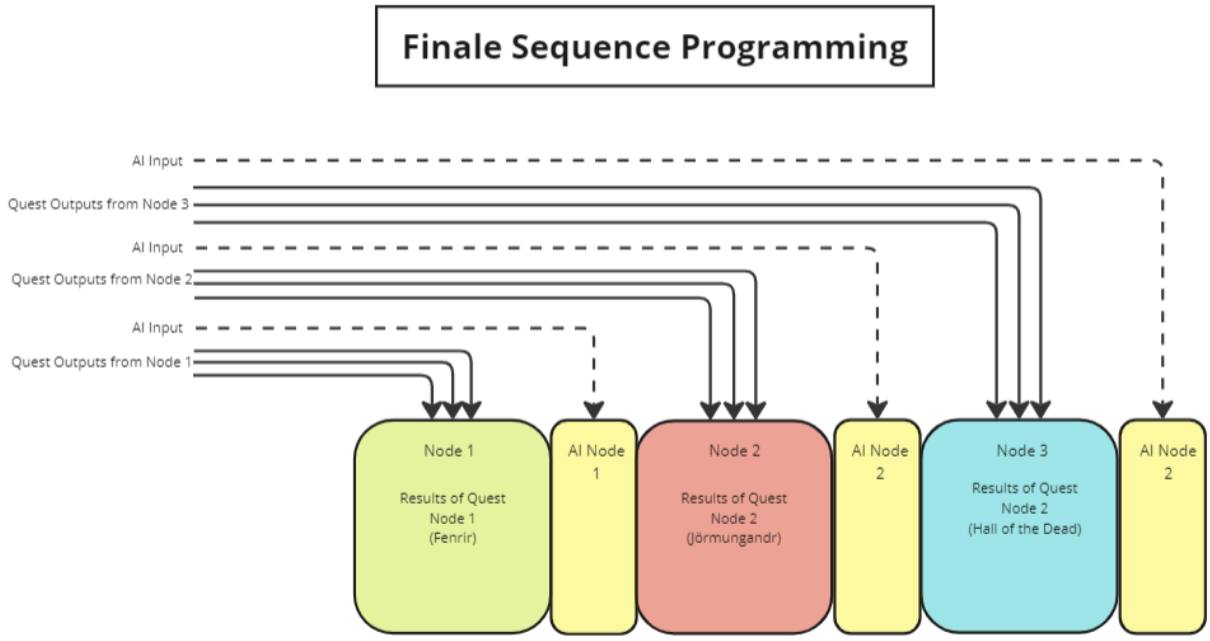

Figure 5. Palmer, Finale Sequence Programming Diagram, 2024

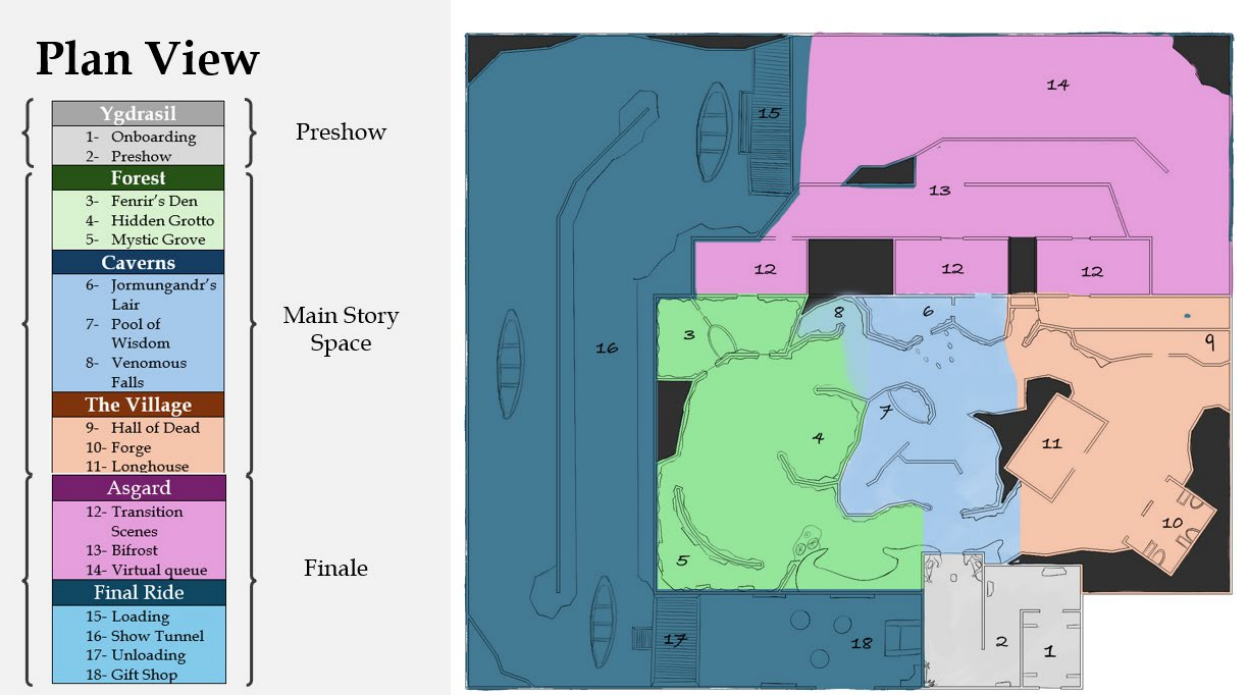

Figure 6. Palmer, Plan View, 2024

In order for the show system to keep track of guest activity, as well as providing an interface to certain interactives, every group of guests is given a tablet in the form of The Amulet. Guests will receive this device during onboarding and it will remain with them until the finale show. This Amulet will serve as the guest's key to the experience, and it is vital to the gameplay and interactions throughout the experience in several ways:

1) The Amulet contains RFID technology that allows players to activate areas specific to their group.
2) The Amulet uses touch screen to allow players to make important quest decisions.
3) Interactions throughout the space will also include puzzles to be solved on screen that will cause show effects to happen on set.

4) The Amulet can also contain maps of previously explored areas, as well as reminders on where to go next in their quest.
5) Contains hepatic and light effects that sync up with show elements throughout the experience, providing a more immersive experience.
6) Acts as a key to open private interactions and allows the scene to be presented specific to the guest's quest progress.

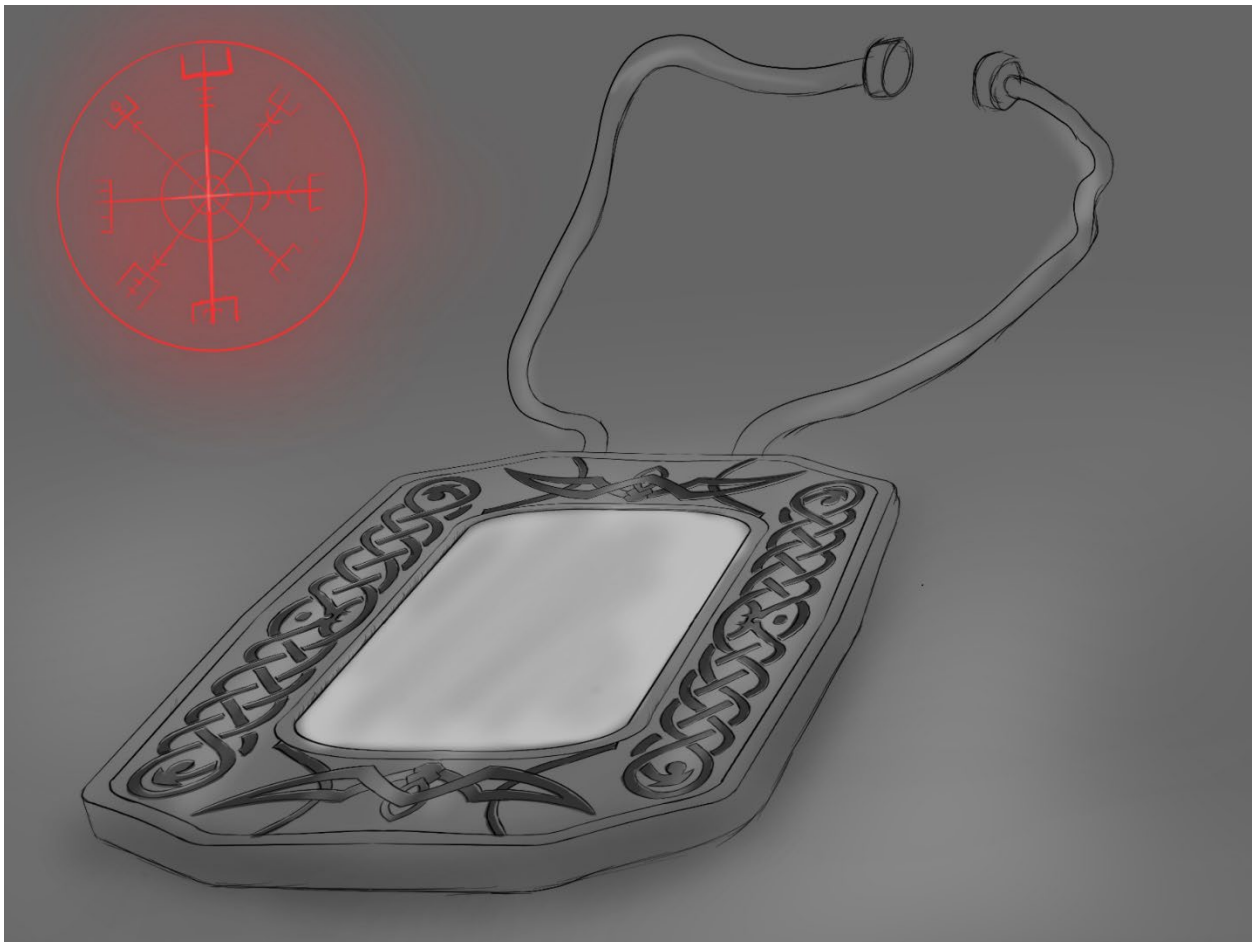

Figure 7. Palmer, Interface Amulet Design, 2024

Experience Walkthrough

When guests arrive to Ragnarök, they are immediately brought into the story world with a façade based on traditional Viking longhouses, though enhanced with a sense of magic and intrigue. Entering inside, they will find themselves in a celebratory atmosphere, as other guests are feasting from the attached restaurant serving hearty Viking meals. Having registered for their time slot beforehand, there is no line to wait in, though a lounge is available for guests who arrive early or as a waiting area if needed.

After checking in, the group is brought through some doors into an onboarding area, where a docent explains the rules of the game, as well as giving the group their Amulet. The lights dim and a corridor that was previously darkened lights up, revealing a runestone. The docent gestures toward the corridor and tells them to "Follow the lights." As the guests approach the runestone, the symbols start to move and a voiceover begins. The story of the origins of the gods is given, and then the lights start to fade. Further down the corridor, another runestone is illuminated, beckoning the guests onward. This time, however, there are the beginnings of roots and overgrowth that starts to transport the guests into another world. They are directed to a small series of runestones that tell the backstory of the gods, especially in regards to the prophesied Ragnarök, while more and more roots start dominating the scene. They are finally brought to the base of Yggdrasil, the World Tree itself.

Here the guests are introduced to Huginn and Muninn, two ravens who serve the roles of narrators, observers, and sources of hints or clues. In synchronized voices,

they tell of the new prophecy and that these guests are to change the fate of Ragnarök. They then give the task of finding the three Forces of Ragnarök, as well as the general areas where they can be found: Fenrir in The Forest, Jormungandr in The Caverns, and the Hall of the Dead within The Village. A shadowy figure appears on screen, claiming to be Odin. He prompts the guests to present their amulet on the podium in front of them. After doing so, the screen opens into a doorway and their adventure begins.

Figure 8. Palmer, Ragnarök Preshow Render, 2024

When guests enter the story world, they are immediately given their first decision: Which area will they explore first? The entrance to the Forest, Cavern, and Village are all open to them. In this scenario, the guests go left into the forest. The roots of Yggdrasil surround them as they enter into the dark woods. The abundancy of roots,

vines, and rock structures give the feeling that the forest is ready to grab the guests and not let go. As they approach a certain rock formation, the amulet lights up, indicating that the great wolf is near. Upon inspection, a large symbol indicating the presence of a Force of Ragnarök is etched into the rock, as well as the compass symbol indicating an amulet interaction.

When activated, a figure on a screen introducing himself as Tyr, Fenrir's guard and caretaker. A door is then opened up to the guests, bringing them into Fenrir's Den. Inside this rock formation there's another screen interaction with Tyr, as well as an animatronic of Fenrir himself, bound by a golden chain that is starting to show signs of breaking. Tyr begins to give guests the backstory of Fenrir; how he is the son of Loki and was bound up while he was still a pup due to his exponential growth. As he's spent centuries in chains, he's fallen ill to a mysterious disease that will kill him in the end, though not before breaking free and killing Odin for imprisoning him in the first place.

After this backstory, the amulet lights up again, revealing three quest options for guests to choose from: Find a way to strengthen his bonds in hopes that will hold him during Ragnarök, find a way to kill the wolf to be sure Odin is saved, or find a way to heal his sickness and so save Fenrir's life. In this example the guests use the screen interface to select the first option. Tyr then tells the guests that the dwarven smiths were responsible for the original bindings, and so they would be the ones to find to learn more on how to complete your quest. He mentions a forge withing the village that is the easiest place to find them. On top of the screen on the Amulet, the quest goal of finding

the smiths at the forge appears. A door opens and guests are brought out back into the story world.

After some more exploration, guests find the village and the forge within it. Inside are multiple forge stations, all of which has a different dwarf working. These characters (on screens) interact with the guests when approached with their Amulet. When a dwarf sees that the guests are looking to further bind Fenrir, he gives the guests two tasks: find the ingredients used to create the original bindings, and obtain an offering of fire magic to give the forge enough power to create a new magic binding. Both these tasks appear on the top of the Amulet screen, along with locations to find.

To learn the ingredients needed for the bindings, the group is prompted to find the Pool of Wisdom within the Caverns. Once they find it, guests will encounter a still pool of water, with large glowing crystals illuminating the surface. At the center, what appears to be the statue of a large head stares blankly ahead. When after presenting their Amulet, guests hear a voice from the statue asking what knowledge they seek. At the same time, the same words appear on the screen of the Amulet. The group responds either by speaking back, or selecting on the Amulet what they're looking for. The voice then asks for some knowledge in return, something about the story world they've learned. After giving a response, the voice tells them the original ingredients of the bindings: the noise of a cat's footfall, mountain roots, the sinews of a bear, a fish's breath, and the spittle of a bird.

Figure 10. Palmer, Magic Grove Render, 2024

The next task of obtaining fire magic takes place back in the forest, in the Magic Grove. Here the roots of Yggdrasil pump magic into the land itself, creating runes of power that are give of different kinds of magic. Muninn is present ready to give hints on how to access the magic. The central runestone serves as a decipher key, indicating the meaning behind several runes tied to different types of magic. This center runestone also will dispense an orb when activated by the amulet. After receiving the orb, the group searches the grove in order to find the symbol correlating to fire magic, as described by the central runestone. Once found, the guests are able to charge their orb with fire magic by completing a puzzle on their Amulet and then tracing the rune via the Amulet touchscreen, which will in turn light up the rune on set. At the same time, the orb will begin to glow orange, indicating a charge of fire magic.

After finishing these tasks, the guests will be prompted via the Amulet to return to the forge, and present their findings. After depositing the orb in a metal chute in the forge set and telling the dwarves of the original ingredients, the dwarven smith gets to work on creating a new binding for Fenrir. Throughout the process, guests are prompted to work the bellows and complete other tasks to assist the process. As a final step, the dwarf sticks the glowing hot chain into the slack tub on his end on screen, at the same time the physical slack tub in front of the guests starts hissing and bubbling as the bindings are deposited for guests to reach in and pick up. The chain is in a condensed form, but the guests are informed that they will grow to bind Fenrir when activated. With this task done, the Amulet prompts the guests to return to Fenrir's Den to complete their quest.

Figure 11. Palmer, Forge Render, 2024

Upon return to Fenrir's Den, guests present the bindings to Tyr via another metal chute. On screen, Tyr activates the chain. The chain starts glowing and expanding, then start moving on their own off screen in the direction of the Fenrir animatronic. New chains appear to wind themselves around the wolf, with Fenrir struggling against the chain and growling at the guests. Once this sequence finishes, a new door opens, bringing guests into a new area of the Den. Inside there's a screen where guests encounter Loki, the god of mischief and father to Fenrir. He thanks the guests for sparing the wolf when they had the chance to poison him. As a reward, he gives hints on extra backstory and information about Jormungandr, another Force of Ragnarök. The guests are then released back into the story world to continue their adventure.

Figure 12. Palmer, Jormungandr's Lair Render, 2024

Guests will then choose the next area to explore and Force to find. In either order, guests will encounter the great serpent Jormungandr and Thor, as well as Heimdall at the Hall of the Dead. In both cases they will be given additional quest lines to choose from and continue solving puzzles throughout their journey following a similar story structure as the Fenrir example given. Once they complete the third power, a new scene becomes available signaling the beginning of Ragnarök, depending on which Force was their last quest.

For example, the guests proceed from Fenrir to the Hall of the Dead, then end with their Jormungandr quest. In this case, after the completion scene in the secondary room within Jormungandr's lair, a door would open to the transition scene rather than a door opening back up to the previous story space. In this room, sound and light effects give the impression of the giant serpent moving through the earth around them. They hear a horn in the distance and hear the deep telepathic voice of Jormungandr say "It is time." The door opens up revealing a rainbow bridge to a new space. A countdown appears on the Amulet, letting guests know that their finale ride will be ready to begin when the timer hits zero. In the meantime, they are free to explore Asgard, the home of the gods that acts as a virtual queue area.

Once their finale is ready, guests are brought to the docks, where they enter a longboat and head into a dark tunnel. Once inside, scenery bursts into life around them. Throughout the ride, the events of Ragnarök happen all around them all according to the decisions that they made throughout their journey. Animatronics will use different

movement programming, different dialogue will be used, and media such as screens and projections will be specific to guest input throughout the experience. In the example used of guests choosing to further bind Fenrir, guests will come to see that Fenrir was able to escape anyways. The large wolf, somehow grown even larger, would overshadow the guests, growling aggressively; only to be stopped by Loki who commands the wolf to spare the mortals as they spared him.

Figure 13. Palmer, Finale Show Render, 2024

Upon finishing the Finale ride, the guests dock at the gift shop, where they can purchase merchandise that can be customized to their specific journey. Guests will then have the opportunity to join the feast in their own celebration of surviving Ragnarök.

Addressing Guest Flow

As previously mentioned, when creating an experience like this, there needs to be serious consideration on the logistics of guest flow and capacity within the experience. Capacity is defined as, "The number of people who can theoretically ride the attraction in one (1) hour."[2] This is a number that is needed in order to create a successful business model for an attraction. The lower the capacity the attraction has, the more expensive individual tickets would need to be in order to sustain operations and create profit. Having too expensive of tickets, however, makes the attraction impossible to experience for a large percentage of potential guests, which can also make an attraction fail financially. In order to combat these challenges, three main principles should be implemented into the build of the attraction: Double redundancy of information and space experience throughout the attraction, strategic combination of private and public interactions, and adaptability of the show system to time limits and high traffic areas.

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[2] Theparkdb, "Theme Park Signatures," The Park DB. Accessed May 10, 2024. https://www.theparkdb.com/blog/theme-park-signatures/#:~:text=This%20goes%20by%20various%20names,to%20guests%20in%20one%20hour

Double Redundancy

The spaces and story system will have double redundancy throughout the entire design. The first redundancy is that information needed for quests can be found in multiple locations. This can allow for the show system to send guests to different locations in order to complete the same quest. From an experience viewpoint, this allows for guests to have even more of a unique experience every playthrough, as even choosing the same quest options every time can still lead to different playthrough experiences. From an operational perspective, this also serves as a way to prevent overcrowding of one particular space at a time. Since guest activity is heavily tracked, primarily through the Amulet interacting with the environment, the show system will be able to tell what areas are the most busy at any given time. This will allow the game to give guests different hints, directing them to less busy areas in order to achieve the same story beats. For example, every quest line has a story beat that requires the guests to find specific information in order to progress. Three areas throughout the attraction are geared to giving information, albeit in different ways. These areas are the Hidden Grotto in the Forest, Pool of Wisdom in the Cavern, and the Longhouse within the Village. When guests get to a point in a quest line where they need to find information, the show system will analyze which area has the least traffic at that point in time, and direct them to that location.

The second redundancy will be every given area will have multiple uses within the same space. This will make sure that no built space within the attraction goes

unused for the majority of the game. Unused space can be seen as a waste of money by attraction developers and operators, and so making sure every space and asset built is used for as much time as possible is a must when designing this attraction. For example, the Magic Grove is a location that allows guests to obtain sources of magic to use in a variety of ways throughout their quests. The space has multiple types of magic tied to different locations within the Grove, and much of the interactions needed to activate the area are tied to the individual group's Amulet. This allows for not only multiple groups to be interacting at one time, but also for guests to return multiple times throughout their quests, assuring the space is mostly likely being used at any given time.

Private and Public Interactions

This attraction is dependent on having many different types of interactions throughout the story space. While all interactions need to be relatively simple and intuitive, no two experiences should feel exactly the same. One categorization of some of these interactions related to guest flow is dividing them into private and public interactions.

Private interactions will be spaces that will only allow one group at a time. These are story beats that require a more in depth show experience relative to the specific choices guests make. These have the highest potential to become choke points, or places where crowds form, waiting to get in. Due to this, these interactions need to constitute the minority of experiences. Special care must be given into the experience design of

these spaces as well to intentionally facilitate movement through the space. For example, all of the rooms where guests encounter a Force of Ragnarök will be cases of private interactions. In order to facilitate higher guest traffic, background information can be given outside the main interaction space, in a more public interaction. Then when brought inside, the private interaction will be set to a specific time limit so as to not cause heavy traffic. These spaces can also be segmented, allowing for the interactions to happen as a series of events in different compartments of the room, allowing for more guests to be in a private interaction at a time.

Public interactions will make up a majority of the story beats within the attraction. These are interactions that will be out in the main story space that are always open, meaning the interaction won't lose value or immersion even if there are other groups present. In order to accomplish this, most of these spaces need to have multiple interaction stations wherever thematically possible. For example, the Forge will have multiple interaction stations that are all nearly identical. Thematically this will fit the story as it creates a larger workspace that feels a part of a real story world.

Adaptability of the Show System

The final strategy for guest flow is a variety of ways the show system can adapt the experience using several factors. It was previously mentioned how the show system could adapt to high traffic areas, giving guests different hints or directions depending on what areas are more full than others. In addition to this, the system should also be

programmed to adapt to time spent in the experience. While there won't be a hard time cutoff where guests are just forced to leave, there will be a time system built in. As guests get closer to a certain time threshold, hints and directions given them will become easier and more direct. If the guests solve a quest line for one of the Forces after a certain time threshold, even if they haven't completed all three, they will be brought to the transition scene and then onward to the finale. One option for each of the questlines will be set as default options for if guests don't make it to that section of the story. The show system can also have the potential to adapt to different combinations of story elements within the main story space as well, which would be developed by show writers. For example, if guests complete a quest in a way that angers Loki, there can be potential for him to sabotage future quests by giving false leads and hints.

Conclusion

Finding the next step of guest immersion in themed entertainment is always at the forefront of the minds of designers, producers, and directors within the industry. Being able to take part in a story that allows for guests to feel in control of their own experience has the potential to be that next step in guest immersion in experiences all over the world. Ragnarök is designed as an example of how this type of attraction can function in a way that fits the overall theme and story of the experience. Versions of this model can be adapted to fit other types of experiences in the future and give way for

guests to truly have the personal experience that they crave at a themed entertainment venue.

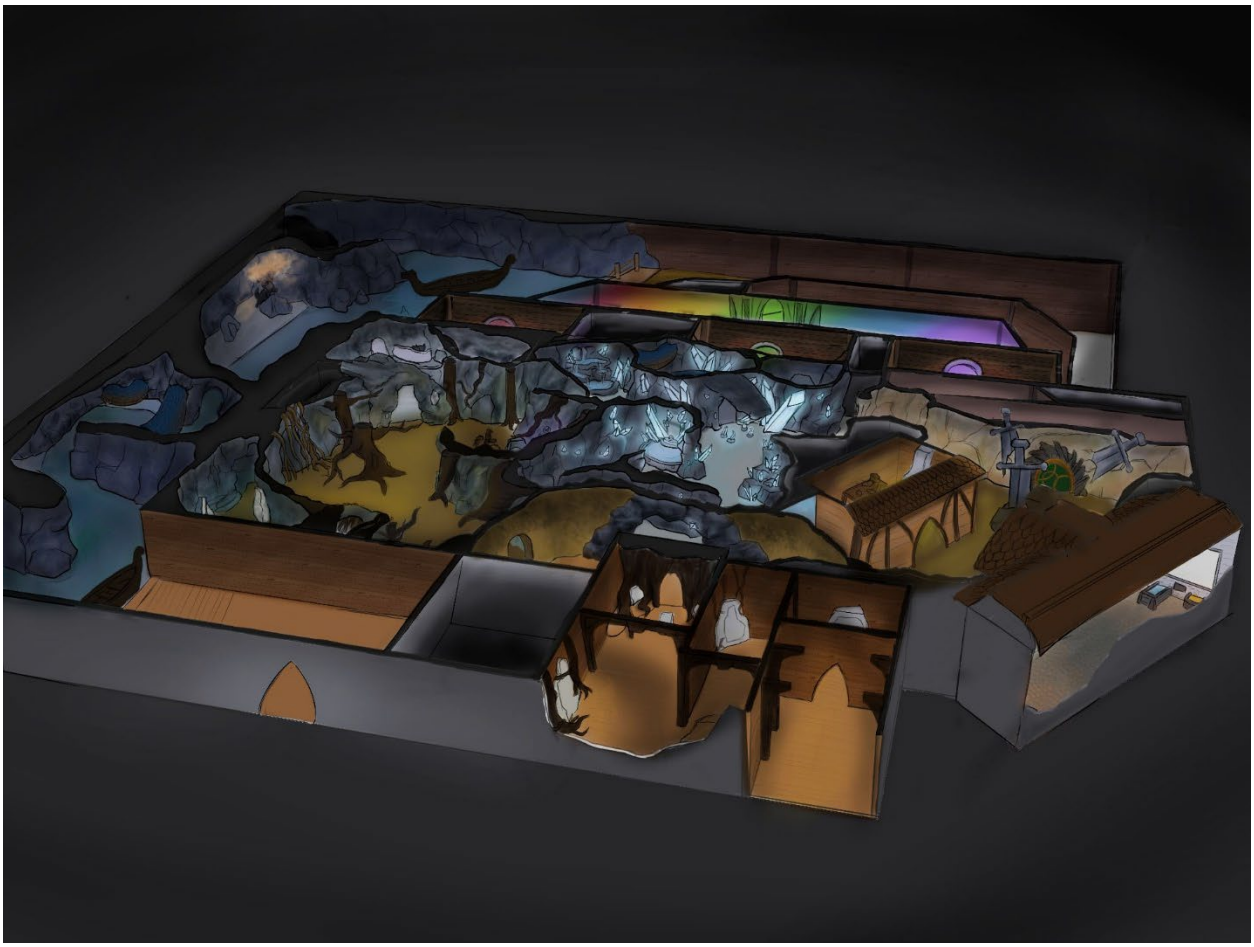

Figure 14. Palmer, Bird's Eye Render, 2024

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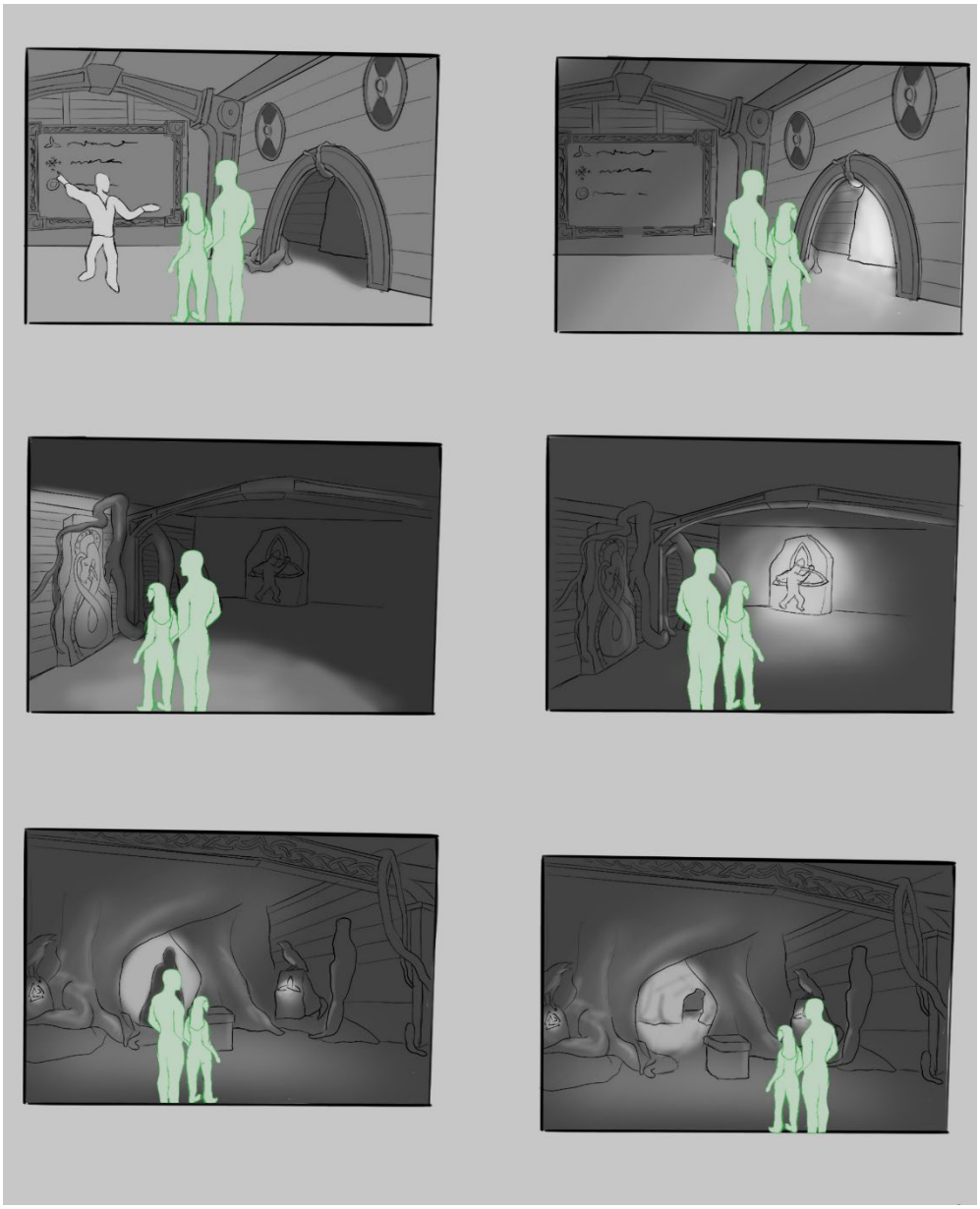

Figure A.1. Palmer, Preshow Storyboard, 2024

Figure A.2. Palmer, At a Glance Page, 2024

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