STUDENT SESSION

GAME DEVELOPMENT – HOW TO CREATE AN IMMERSIVE STORYTELLING EXPERIENCE

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Abstract:

Video games have seen steady growth in recent years. The market value of the industry was valued at more than 271 billion dollars and boasted an impressive 3.32 billion active player base. When talking about the gaming industry, there are two main types of genres: AAA (triple-A) games and Indie games. AAA is associated with the biggest corporations and budgets. Companies such as Ubisoft, Electronic Arts, Nintendo, and Valve fit the classification. Their games have huge budgets and are well-known in the industry. On the other end of the spectrum, indie games can be found, which are created by small companies or individuals. In recent years, the increased accessibility of game engines has allowed the indie genre to experience significant growth.

This paper is focused on creating an engaging experience in the video game medium.

Keywords:

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INTRODUCTION

Video games carry the possibility to immerse a player in ways many other mediums cannot. The potential in certain combinations of world-building, level design, and gameplay offers a unique experience that otherwise could not be recreated. Most games we see today have their roots in indie development. Indie games are a derivative of independent video games or games made by individuals or a small team. A lot of popular games we see today started as a hobby led by enthusiasts. For example, Minecraft, which is now owned by Microsoft and is one of the most popular games out there, started as an indie game. Thirty years ago, the people responsible for electronic entertainment were not yet game professionals; they were dedicated hobbyists [1]. A simple hobby has led to a multimillion-dollar industry with an ever-growing consumer base.

One of the more interesting ways to create a story inside of a game is to utilize dreams. Dreams are a highly subjective phenomenon, subject to a plethora of interpretations, coming from both formal schools of psychology and popular, folkloric interpretations.

This creates opportunities in level design that would not make sense otherwise. Along with level design, items that occur in dreams can be used gameplay-wise to create an interesting narrative and fun mechanics. Sigmund Freud theorized that all material making up the content of dreams is in some way derived from experience [2]. Items that occur in said dreams could relate to something that happens in real life. For example, a jar full of teeth could symbolize the loss of a loved one or something you hold precious. This can be used to create a narrative about the main character based on what items are put inside the game. *Heaven Valley* uses this and furthers it by creating a dream journal that keeps track of all picked-up items and their descriptions. Along with this, some items give the player a power-up that will help him in his journey. This adds an RPG (*role-playing game*) element to *Heaven Valley*.

The concept of an RPG consists of a game in which players assume the roles of characters in a fictional setting. The original term comes from the Dungeons and Dragons tabletop *role-playing game* (*TTRPG or TRPG*). The way this translates into a game is by having a role-playing aspect (characters you meet and play), while the focus is on the storytelling element and character progression system.

2. WHAT IS A GAME?

A Game is a system of rules in which agents compete by making ambiguous decisions [3]. The system of rules means a guideline on how the game is supposed to be played and how the agents refer to the players. There is another definition that closely correlates with the first one. A game is a problem-solving activity approached with a playful attitude [4].

2.1. DESIGNING WITH UNITY

Game engines are software platforms that allow developers to create games efficiently. Popular examples include Unreal Engine, Unity, and Godot. This paper will focus on the Unity game engine. Unity supports a variety of platforms, like desktop, mobile, console, augmented reality, and virtual reality. Its main source code is C# (C sharp). Unity is a game development ecosystem: a powerful rendering engine fully integrated with a complete set of intuitive tools and rapid workflows to create interactive 3D content; easy multiplatform publishing; thousands of quality, ready-made assets in the Asset Store; and a knowledge-sharing Community [5].

2.2. STORY IMPLEMENTATION

All complete stories have three different phases [6].

- Beginning: Setup;
- Middle: Confrontation; and
- End: Resolution.

The beginning serves as an introductory point to the game. The way it is established is important to keep the player hooked to the game. If conveyed properly, the overall tone and atmosphere can be felt from the very beginning to the end. The goal of the first phase is to immerse the player and guide him towards the end of the game.

The middle phase is where most of the conflict and story will occur. Its goal is to pay off what has happened in the beginning and to set up the finale. Given that is the biggest part of the game, it is very easy for a developer to lose track and progression, which will lead to an unsatisfactory gameplay experience.

The end serves as the peak and the resolution of the game. It is here where the player can encounter the final boss or the last piece of the puzzle of the story. It can be accompanied by multiple endings based on what the player did throughout the game. The developer can make the first two phases perfect, but if he does not do the last phase correctly, it can lead the player to have a bitter experience after completing the game.

2.3. COMBINING STORY WITH GAMEPLAY MECHANICS

When developing a game story, you will find there are three different types of people in your audience.

- Players that are partially invested in the story;
- Players who are fully invested in the story; and
- Players that are not interested in the story.

The best rule of thumb is to always make the story in service of the gameplay, not the other way around [7].

The way *Heaven Valley* goes about this is by creating an inventory system labeled as a "dream log". The purpose of the dream log is to give the player pieces of the story by collecting items on various levels. All picked-up items will have a description that will sometimes hint at what the story may be about. Some items have a negative impact and affect the outcome of the game. Some items are hidden, and they serve as a mechanic to reward the player for going out of his way to search for such items. Along with this, the character will comment on anything unusual they notice. Earlier games like *Penumbra* used to have the main character give comments on almost

any item that could be interacted with. *Half-life* had *non-playable characters* (*NPCs*) that would comment on what the player was doing during the gameplay or if the NPC interacted with. Such small details can immerse the player further and make the world feel more alive.

2.4. AUDIO DESIGN

Audio Design refers to the creation of sound elements inside the game. For instance, if the developer wants to have his characters speak, it would be good practice to hire professional voice actors. A good voice actor can elevate and better present the personality of any character he voices. Creating a soundtrack for each level or sequence will set the tone and atmosphere of the game. Audio soundtracks help establish and embellish the narrative setting [8]. Ambient noises like wind, water, and animals contribute to the atmosphere, making the world feel more alive. Audio design is essential for creating an engaging and immersive experience.

2.5. LEVEL DESIGN

The primary function of a game environment is to guide the player's movement [9].

Level Design is the process of creating the environment of the game. It is a crucial part of game development because it is here where everything about the game will be shown. The visual design needs to correlate with the theme of the game. It is important to make sure that the theme is reflected throughout several areas of the level, or it will not have the impact it should have [10]. Lighting the environment can add depth to any level. It can hide objects in the background to blend in more with the level, or it can increase the effects of details. Lights can be employed to indicate a goal, a path towards an exit, or a point of interest [11].

Visual design is usually accompanied by audio design. Likewise, audio design needs to follow a certain theme to further the visual impact presented before the player.

Figure 1. Example of interactive storytelling in *Penumbra*: *Black Plague*

Figure 2. Example of interactive storytelling in *Heaven Valley*

3. HEAVEN VALLEY LEVEL DESIGN AND HOW THE THREE PHASES ARE INCORPORATED

The first level in *Heaven Valley* is called the "Forest" level. It serves as an introductory level to get the player used to the controls and initial mechanics. The player starts at a bus station. The main character comments on how her mother asked her to go get the groceries across the road. This gives the player the first task he needs to fulfill to progress. After reaching the store, the player discovers that it has been abandoned for a long time, and the main character comments on this. This creates intrigue in the environment and will prompt the player to explore his surroundings to help him understand the mystery behind what is happening. The world will start making less sense, and eventually, it will be obvious that the main character is no longer in the real world but in a dream.

The conclusion of the initial phase comes after the player finishes the first level and enters the second level called "Throne room". In this level, the player will meet an NPC that will give him the end goal of collecting 3 different items and the end destination where the player will be "judged". Upon exiting the Throne room, the player will enter the "Hills" level and will thus finish the initial phase and go towards the middle phase.

The middle phase utilizes dreams in level design to a greater extent. After exploring the "Hills" level, you will find that there is a locked brutalist building. After finding the key and entering the building, the player will enter the next level called "Brutalist Verticality".

The world that had some sense before now loses all of it. The player will find himself surrounded by concrete with rusted rebar sticking out of it. The surrounding area is covered with fog, and the atmosphere is claustrophobic. This level features a platforming section that is made easier if the player has collected the "bike" item that gives him a speed boost. In the distance,
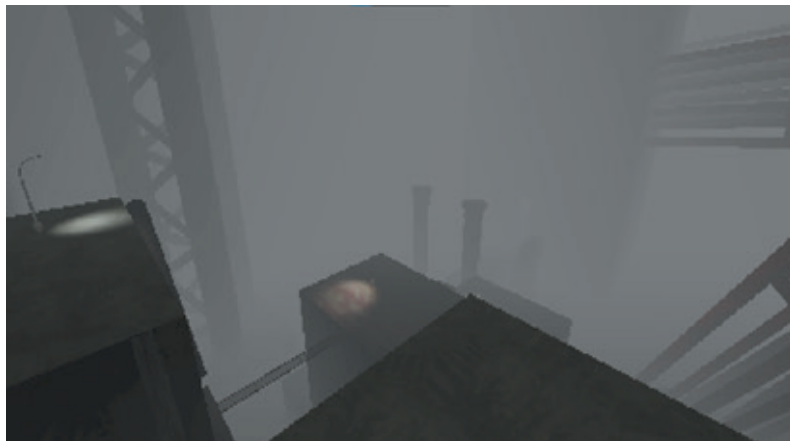

Figure 3. Brutalist Verticality Level

Figure 4. Good ending level

a huge building can be seen. This is the end destination the NPC at the "Throne room" level was referencing. After completing the platforming section and reaching the building. The player will enter the next level called "Tower". This is where the player will be "judged". Depending on the player's actions and what items he collected, he will receive one of the two endings.

The finale of *Heaven Valley* is concluded in the "Dream Library" level. If the player collects every item and completes every quest, he will get a good ending. Failure to do so will result in a bad ending.

4. DISCUSSION

The main inspiration for *Heaven Valley* is a game called *Yume Nikki*. *Yume Nikki* is a two-dimensional (2D) RPG game made in the RPG Maker engine. It is one of the most well-known indie games that came out of Japan. It is an exploration game in which the player can explore a set of bizarre and dreamlike worlds. In Heaven Valley, you can see a full 3D environment [12]. This allows for more implementation of mechanics, level details such as fog and rain, and real-time lighting for realistic shadows. Compared to *Yume Nikki*, such features are not possible because of its 2D nature.

4.1. STORYTELLING IN COMPARATIVE GAMES

The way *Thief: The Dark Project* does its storytelling is through intro cutscenes, mission briefings, and environmental storytelling. You play as Garrett, and your first mission is stealing a priceless trinket from Lord Bafford's Manor. Along with the trinket, you are tasked with stealing as many valuable items as possible. The realistic way Manor is designed adds immersion to the game. You have your dining room, kitchen, sleeping quarters, and guest rooms. The upper floors are filled with luxurious pools, lavish bedrooms, and the lords' quarters. Lower areas do not contain a lot of valuable items. You can find an occasional coin pouch and silver cups, but to progress, the player will need to go to the upper level where the nobles reside. This adds an aspect of realism to the environmental storytelling. We do not expect the servants to possess much wealth. On the other hand, the nobles leave their coins and valuables wherever they please, making it easier to steal. This gives us a glimpse of how the societal hierarchy is structured inside of the game.

Heaven Valley is a dream-like world that has a semblance of reality. For instance, if the player enters the store in the "Forest" level, he can expect to find a bottle that has a blue label on it with the description saying it is cold to the touch. This could be a reference to anything the store was selling before it was abandoned. The resemblance to *Thief* becomes more apparent on later levels of the game, where Garrett is tasked with breaking into the mansion of the nobleman Constantine to steal a unique sword. The way the level is designed is supposed to lure the player into a false sense of security, thinking he is only stealing from a normal mansion. The moment the player starts exploring more, he will realize that the rooms make no sense. Most of them will be turned upside down, resemble miniature versions of existing rooms, or lead to completely unexpected rooms like a garden or a tomb. This unexpected transition happens in *Heaven Valley*, too. Most notably, when the player in the "Hills" level enters a brutalist building, and ends up inside a vast concrete landscape with huge buildings surrounding him, as shown in Figure 3.

Another inspiration for *Heaven Valley* comes from a game called Fatum Betula. The introductory sequence begins at the church level, where the player is guided to ascend the staircase and see a tree attached to a pool of water, with a vast hallway leading into darkness. Upon staring into the darkness, the player will notice an NPC approaching. The NPC explains that the tree represents life, and tainting the water beneath it will transform the world into a new one. The middle phase of Fatum Betula involves completing various quests given by other NPCs to collect as many different liquids as possible. The ending is achieved by tainting the water with the gathered liquids. The resemblance to *Heaven Valley* appears in various forms. The first similarity is with the main quest giver: in *Fatum Betula*, it is a monster-like NPC in the first level, while in Heaven Valley, it is the "Headless Statue" NPC in the second level. Another similarity lies in level design, where both games feature dream-like worlds and states. Inside *Fatum Betula*, the player can poison the sea to eliminate the vines guarding the deeper levels. Upon venturing deeper into a newly unlocked area, the player will find themselves in a new level resembling an American suburban area. Further exploration leads to a house reminiscent of the main character's childhood home. This sudden transition from the deep sea to a completely different area indicates that we, as players, are diving deeper into the psyche of the main character, further represented by a childhood memory encountered upon entering the house. Similarly, in *Heaven Valley*, the player can discover buildings and

items that evoke memories for the main character. The "Tower" level, where the player is to be judged, symbolizes that the main character is ready for a resolution, which, depending on the player's choices, will be fully resolved or not at all.

5. CONCLUSION

Game development is a very taxing process that can quickly stir a game away from its goal if taken lightly. Technological advancements in game engine software have allowed people to create games with relative ease. This has come with a downside in that a lot of indie games that are released are below players' expectations. The purpose of this research is to help future developers understand what makes games enjoyable and apply that to their work. *Heaven Valley* is one example of how to use thematic and environmental storytelling. It is included because playing the game should further drive the previously presented points, and it can be downloaded from GitHub [13]. Video games are a relatively new concept, and people are still adapting to the possibility of it being an art form. With continuous innovation and quality releases, this mentality is bound to change.

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