The design of a new genre game based on virtual reality

Yudong He [1,*,†], Wuji Li [2,†], Zhongsheng Li [3,†]

[1] School of Software, Huazhong University of Science and Technology, Wuhan, China

[2] School of Art, University of California, Irvine, Irvine, CA, United States

[3] College of Art & Design, Beijing University of Technology, Beijing, China

* Corresponding Author Email: heyudong02@outlook.com

[†] These authors contributed equally.

Abstract. Virtual reality game always provides the player the most verisimilitude experience and with the advancement of the VR hardware, it may become the mainstream about how people feel and attach the world online. The paper is aimed to discuss a possible solution finding a better balance between the two classical genre of VR games, the sensory stimulation and the story telling. To this end, we design a game named "Bury Me Here" in which players can find out an emotional bond between the game protagonist and themselves. The game includes 4 sections, the departure from the hometown, the travel on the train, the work in the office and the life in the penthouse. At the end of the game, the protagonist goes back to his country yard and spend the rest of his life there. All the sections are designed to tell a stranger's life story to the player, making them to experience the life path of someone else, bonding an emotion connection between the player and the protagonist through story telling. Results show that the game not only provides an immersive visual experience but having the emotive sparks echoes in players' mind.

Keywords: Game design; VR game; story telling; storytelling.

1. Introduction

In a highly commercialized gaming industry nowadays, many big title games are focusing on flashy graphics and fast-paced gameplay. They are prone to marketing smokescreens and hype trains instead of thought-provoking emotional connections with the audience. For that reason, it is hard to associate those games with the idea of art.

According to a well-acclaimed film critic Roger Ebert, games will never be considered as an art form because games have rules and goals and they need to be won, and if a game doesn't have those then it cannot be considered as a game but rather a representation of a story [1]. The artist Yang Yongliang has an art piece titled Eternal Landscape that depicts an authentic Song-Yuan Mountain landscape. The art piece requires a Virtual Reality (VR) headset to function and it was created through 3d modeling and 3D animations [2]. The audience can observe the landscape and even walk in it wearing the VR headset. This art piece technically utilizes the same methods of game development and it is considered not to be a game if we follow Ebert's ideology. However, by definition, video game refers to images being manipulated and interacted with through an electronic display. And for the fact that Eternal Landscape, an art piece which also technically counts as a video game [3], was exhibited in several different official art galleries, it is enough to disprove Ebert's claim on video games not being an art form.

In this work, titled "Bury Me Here", we wish to explore how games can be used as an impactful medium for storytelling and convey thoughtful emotions the same way that art, film, photography, and many other similar mediums do. Since VR is being developed and implemented more and more thoroughly, we decided to put our project in VR as well. We intend to utilize environments, props, visuals, sounds, interaction, and reactions to induce provoking thoughts and emotions in our participants. The genre of our project would be described as a walking simulator, exploration, and visual novel. It is not a brand-new thing in the realm of video games but fully utilize the capabilities of VR and we wish to push the depth and length of emotional storytelling in VR as much as possible.

The project also aims to work as a persuasion letter to people who think video games are less valuable in comparison to art and other similar floats.

2. Related works

After the resurgence of the VR devices, more and more VR products, games and videos have been put on the stage, all of which are claimed to present new experience to the costumers and audiences. Among all the user experiences they mentioned, what's the most important is the immersive experience, which is also a key word to catalog the previous work from the prior better [3]. Immersive experience in VR can be separated into two parts, the immersive storytelling and immersive sensory stimulation.

For the immersive storytelling, a game called What Remains of Edith Finch shows how to use the first-person version to simulate the perspective of human walking. Walking simulation games often put 'narrative experience' before 'playing' [4]. Some people criticize this kind of work as being too monotonous and lacking in challenges at the interactive level [5]. It is hardly a game, more like a novel presented in the form of a game. Also, in the game called The Vanishing of Ethan Carter, various superb cross-narrative techniques, foreshadowing's and metaphors were presented to the players, and various contradictions and doubts are intertwined, which also provides the possibility for further multiple interpretations and in-depth exploration. Besides the game, there is another genre of the immersive storytelling, is called immersive journalism [6]. A VR journal [7-8] produced by emblematic group shows tough social problem towards their audiences, which includes domestic violence, police brutality, homophobia and other political issues. Although the game is made in low-poly scene, it still keeps it spirits. The genre like immersive storytelling lacks of interaction between the project and the player, could not take fully advantage of the VR devices.

For the immersive sensory stimulation, various games like rollercoaster simulator and tree simulator, taking advantage of the parallax effect and 360 degrees sounds effect provided by the VR devices, trying their best to provide the players an immersive environment physically. Another fraction of the sensory stimulation is called visceral embodiment. In the VR video called The Extraordinary Honey Bee, users shrink down to the size of a bee for a guided VR experience where they learn of the risk's bee colonies face and solutions currently being implemented to offset their decline [9-10]. The virtual-reality project Tree transforms the player into a rainforest tree. With the players' arms as branches and the body as the trunk, the player could experience the tree's growth from a seedling into its fullest form and witness its fate firsthand [11-12]. The genre like immersive sensory stimulation focuses more providing the player a vivid and verisimilitude experience, short of being educational and meaningful at the same time. This trend makes most of the immersive sensory stimulation game leaning to the violence, brutal subject or a stimulation game just for fun.

No matter which type of the game it is, the key of those the writer mentioned above is offering an immersive and verisimilitude experience, creating empathy or mental stimulation.

3. Methods

This section will introduce the design concept of this project and demonstrate its design methods in details. The game "Bury Me Here" is an immersive game about a period of ordinary but shining life. It would like to describe five stages of the protagonist's ordinary but shining life, from his childhood to his mature, who left the countryside to the big city for a better life. And finally, he found peace from the original humble life instead of wealth and fame, which is why he "bury me here" in the last stage. This paper mainly describes three kinds of design methods: scene design, plot design and interaction design. The specific contents are as follows.

3.1. Scene Design

The scene design is the main external pattern of manifestation in the game, especially in the visual storytelling game like this project. What players feel, operate and interact with is conveyed through various forms of visual design. Therefore, it is the scene design that the game designers make efforts to fully utilize to complete a perfect game and provide players the best experience. According to the wonderful books on game design [13-15], the formulation and establishment of this project benefits a lot. In this paper, three sorts of scene design will be mainly involved and introduced below: visual effect, sounds effect and details design.

3.1.1 Visual effect

This project mainly applies visual effect in the farm scene. The techniques like Semi realism, Ambient Occlusion, Bloom and Color Grading are implemented in modeling, rendering and special visual effect, which highly improves the immersion of the game. For example, what players can see in this stage is in the figure.1 that the plants and trees in the farm sway in the wind and they will be surprised to find that the environment can be interacted, which is just one of the details in this game but also consists of the harmonious environment.

Figure 1. Object interaction in the scene

What's more, to make the second train scene like a speeding train, a revolve function is applied to turn the train into a child of an empty object and then it's related to a parent object, which revolves around the center of the terrain. The planform of the whole scene is demonstrated in the figure 2, which shows that such design can save more space and work. To make the style of all the scene unified, this game implements the same rendering method that is adjusted several times.

Figure 2. Top view of the second scene

In brief, such visual effects can directly convey the game content to the players. In the visual narrative game, the visual effects will be paid more attention and act a more important role in the immersion design.

3.1.2 Sounds effect

The sounds effect is usually considered as an auxiliary tool in the game design. Although the sound is not applied to act as a main way of gameplay in this game, it also highly contributes to the immersion design in some specific stages. In the farm scene, a guitar and corresponding sound effect is set in front of the hut, and the feature of the design is that the volume of the sound players hear varies with the distance so that players will surprisedly feel like they are moving in the reality.

3.1.3 Details design

The detail of the scene is the least impressive but the most indispensable part of the game. Players often pay less attention to those details when they are playing the game but if some details were designed inappropriately, they might notice them quickly, which would extremely break the experience designers create for players. Hence, the design of all the scenes lays much emphasis on the details of the interior and exterior scene. For instance, the interior and furniture design of the penthouse scene(figure.3) is designed to keep with the theme, which demonstrates the lifestyle of the protagonist and helps players immerse in the story better.

Figure 3. Interior of the fourth scene

3.2. Plot design

This project is meant to connect with its audience on a deep emotional level, therefore the story needs to be as approachable as possible. For that reason, it is decided that it would be best if the protagonist of the story is just an ordinary person. The players are visiting/revisiting the scenes in the protagonist's memories, and there are pieces of memories imbued in different objects inside each scene. To better demonstrate it, here's the table of progression (Table 1).

Table 1. The five PLOTS of our game

Plots	**1**	**2**	**3**	**4**	**5**
Scenes	***Farm***	***Carriage***	***Office***	***Penthouse***	***Farm***
Emotion Satges	Eager to explore the world.	Being on the road alone but still hopeful.	Stuck in an endless loop of hell and can't see hope.	Wealth and fame but felt empty inside.	Going back to a humble life and finally found peace.

It is up to the players to collect all pieces of memories and push along the narrative. When the players collect one memory, a background audio monologue will start to play as the way to tell the specific memory relating to the object. Since there is no explanation for who the protagonist is or who the player is supposed to be, it is also up to the players to decide whether they are the protagonist or simply just an observer. The full story covers our protagonist's entire life, from childhood to death. So, with each scene forward, the player will follow along with the protagonist's story in chronological

order. However, other than the transition in time, it is also intended that players notice the different stages of the protagonist's emotions.

For the first stage on the farm, the protagonist would be in his childhood stage of yearning for adventures and explorations. As the plot goes on, the players would find themselves on a train carriage. This is the second stage which tells a story of the protagonist feeling lonely and adrift but still hopeful for a brighter future. Then the scene would transit into a more depressing environment, a confined office space, a cubicle of hell, which represents the stage of our protagonist feeling stuck in life and feeling hopeless. Nevertheless, life then takes a better turn for our protagonist, and he becomes wealthy and famous. The players would find themselves in the protagonist's luxurious penthouse and see how let-loose he has become and how this material life has made him emptier inside than ever. Finally, the journey ends where it begins, and our protagonist goes back to the old farm to find peace and the mundane in life and that's where his story ultimately ends, just a normal guy, who finally gets his humble ending.

3.3. Interaction design

The team is aimed to design a game in which players can find out an emotional bond between the game protagonist and themselves. Although some plots may seem too dramatic, it is still a reflection of our real world. The project, bury me here, is a game in which a player could freely interact with the game object to enjoy the protagonist's story in the game. For example, after collecting the objects from one scene, the player could get into another journey to explore the next stage of the protagonist's life. There are also some game object players that can freely interact with. it will provide 360 sound tracks which give the player a more immersive experience. The backstory of the interacting object and the main storyline creating the whole immersive story telling mechanism.

4. Results & Discussion

This part aims to demonstrate the final results of this game and fully verify the impressive experience of it. The overall plot, the details of each scene and the feedback of the game would be further discussed as follows.

4.1. Storyline

This game would like to describe five stages of the protagonist's ordinary but shining life, from his childhood to his mature, who left the countryside to the big city for a better life. And finally, he found inner peace from the original humble life instead of wealth and fame.

The protagonist grew up at a plain farm in the countryside, where he spent an unforgettable childhood. With his gradual mature, the player desired to explore the outside world. When he was on the train to the city, the anxiety about his uncertain future and imagination of a better life intertwines in his mind. Fortunately, his diligence resulted in his success but also his indulgence in wealth and fame. He moved into a better house but he was lost in this luxurious life. When he recalled his innocent experience in the countryside after he found his precious collection, he felt like he came back to where he bore in mind and the story comes to the end.

The project aims to connect with the audience on a deep emotional level, so the story needs to be as approachable as possible. Therefore, it is best to decide that the protagonist of the story is just an ordinary person. The player is visiting and revisiting scenes in the protagonist's memory, and each scene contains a section of memory in different objects. Players need to collect all the memory fragments and drive the narrative. When the player collects a memory fragment, a background audio monologue will begin to inform the specific memory associated with the object. As each scene progresses, players will follow the protagonist's story in chronological order. However, in addition to the transition in time, it is also intended to make the player notice the different stages of the protagonist's emotions.

4.2. First stage: Childhood Farm

In the first scene of this game, the protagonist comes back to a farm in the countryside, where carries his childhood memory with the family. This scene is supposed to be an introduction to the game, which can help players initially understand the basics and the following storyline. In the process of gameplay, players are guided to operate the protagonist to walk around to find a specific portal that transfers the protagonist to the next stage.

Figure 4. Beautiful environment

Involving the players in the narrative of game instead of making them spectators in the story can provide them with immersive experience. To improve the immersion of the scene, most design methods including visual effect, detail design and interaction design are implemented properly, accomplishing wonderful progress. For example, in the figure 4 above, the plants and trees in the farm are set to sway in the wind, which is just one of the details in this game but also consists of the harmonious environment. And the beautiful environment is created by complex design and foundation of scenario. In terms of object interaction, there is a swing interacting with players, which will play an interesting animation after players touch it. The figure 5 shows that a guitar and corresponding sound effect varying with the distance are set in front of the hut, so players can interact with it by VR equipment, experiencing the narrative more deeply. As a result, the emphasis we put on the environment details greatly improves the perfection of players' experience.

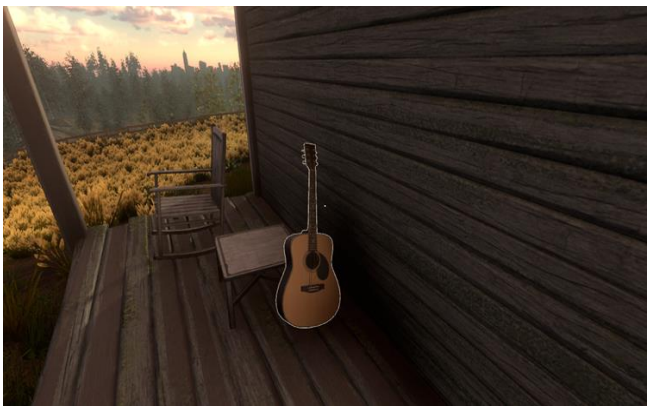

Figure 5. A guitar set to be played

4.3. Second stage: Confusing Train Journey

The train scene, is a transition between the farm towards the big city for our protagonist (Figure 6). He imagined his new life and threw all the troubles behind on this train. The game quoted some sentences from 'On the Road', like 'What is that feeling when you're driving away from people and they recede on the plain till you see their specks dispersing? — It's the too-huge world vaulting us, and its goodbye', hoping the narrative lines will help the player to have a better understanding of the current feeling of the game protagonist.

Figure 6. Interior of the train

In the second stage, the scene of train has abundant details in the interior of carriage, which shows the protagonist's experience and his mixed feelings when departing from the farm to the big city for a better life. As a result, the elaborate scene design can indicate the corresponding plot and background story, which improves players' immersion and provides them with memorable gameplay experience with less work and space.

4.4. Fourth stage: Luxurious Penthouse

In the fourth scene, the protagonist comes to his luxurious penthouse which indicates his success after hard work and struggle (Figure 7). But it also resulted in his indulgence in wealth and fame, which should be an important turn before his disenchantment of his life. Additionally, the obvious change of decorative style also symbolizes the transition of time and the new emotional state of the protagonist.

In the process of designing game, echoing each other in front and behind is included to realize scene recall. In the fourth scene, the protagonist found his old guitar, which brings back his memory of the innocent childhood. Then, this game comes back to the previous farm that he bore in mind in these years, which echoes the theme of the game. This structure would be strong feedback to the players' experience in the previous stages, which means they can be more immersive in the presentation of a stranger's life.

Figure 7. The old guitar hidden in the house

5. Conclusion

The purpose of this paper is to discover how to apply visual narrative game to VR as an art form. We want to explore how games can be used as an impactful medium for storytelling and convey thoughtful emotions in the same way art, film, photography and many other similar mediums do. The initial formulation of this project is to design an immersive game about a period of ordinary but shining life. It would like to describe five stages of the protagonist's ordinary but shining life, from his childhood to his mature, who left the countryside to the big city for a better life. And finally, he

found peace from the original humble life instead of wealth and fame, which is why he “bury me here” in the last stage. The genre of our project would be described as a walking simulator, exploration, and visual novel. The elements of environments, props, visuals, sounds, interaction, and reactions are applied to stimulate thoughts and emotions of our participants. This essay aims to fully utilize the capabilities of VR and push the depth and length of emotional storytelling as much as possible. Although the finished project lacks ample selective events or open world, this paper specifies future development direction in the practical operation, exploring further developing space of this kind of game.

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