Narrative, Design, and Modelling of a Game with High-Fidelity Graphics.

Versão final pós-defesa

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Relatório do projeto de estágio
Design e Desenvolvimento de Jogos Digitais
(2º ciclo de estudos)

Orientador: Prof. Doutor Frutuoso Gomes Mendes da Silva

Covilhã, Setembro de 2022

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Universidade da Beira Interior, Covilhã 01/09/2022

Acknowledgements

This work would not have been possible without the continuous help, support and availability throughout the project Professor Frutuoso Silva.

I would also like to thank my family, especially my mother and grandmother, for the unconditional love and support throughout my journey.

A huge thanks to all my close friends for always being supportive and helping me out when I needed some guidance, sharing feedback, and giving ideas.

And lastly, heartfelt thanks to , João Tinoco. Without him, this project would not have been possible. His skills played a huge part in getting Victims of Dead Stories a reality and obstacles that were only possible to overcome with his support.

Work developed at ”Instituto de Telecomunicações” under supervision of the Prof. Frutuoso Silva.

Resumo

Victims of Dead Stories é um jogo para um único jogador, na primeira pessoa, num ambiente 3D com gráficos que tentam assimilar a realidade, que aproveita as características da esquizofrenia para desenvolver a história da personagem principal e as mudanças drásticas que os ambientes jogáveis irão sofrer. Sendo assim um jogo de terror psicológico com um grande foco visual para contar a narrativa através de interações e eventos.

Este jogo começaria por introduzir a personagem principal a um ambiente relativamente familiar para o jogador. Uma casa onde é dividida em três secções jogáveis, o corredor, a sala de estar e por último a escadaria. Cada secção desempenhará um papel significativo na progressão do jogador. Enquanto que o corredor é onde se verificarão mais mudanças físicas no ambiente que rodeia o jogador, a sala de estar servirá como uma progressão da história e dos eventos que aí se desenrolam. Contudo, é na escadaria que o ponto principal deste projeto, a criação de loops, será descoberto. Sempre que a personagem principal passar pela última porta das escadas, encontrar-se-á na posição inicial do jogo. Ainda assim, o ambiente que o rodeia irá mudar, especialmente a nível visual. O objetivo de Victims of Dead Stories é avançar através de onze loops, onde o visual dos ambientes será progressivamente mais macabro, começando por uma casa vulgar, até finalmente as paredes estarem cobertas de sangue, tendo pistas visuais sobre a narrativa estão espalhadas à volta do mapa.

Este relatório sobre Victims of Dead Stories consiste na descrição dos elementos visuais gráficos, tendo como foco principal a criação de modelos 3D e texturas realistas, recorrendo ao uso do software de modelaçao 3D - Blender -, ao software de edição de images - Photoshop -, e ao software de criação e edição de texturas - Substance Pantier -. Esta criação de modelos 3D e texturas realistas visa aumentar a imersão do jogador no ambiente jogável. Após esta descrição inicial, será abordado o procedimento de desenvolvimento, mostrando o resultado visual final de Victims of Dead Stories. As características que determinam o que é a esquizofrenia e que foram escolhidas para serem implementadas em serão também abordadas.

Palavras-chave

Victims of Dead Stories, Gráficos de alta fidelidade, Video jogo, Horror psicológico, Esquizofrenia, Design de Jogos

Abstract

Victims of Dead Stories is a single-player, first-person game in a 3D environment with graphics that try to assimilate reality, that takes advantage of the characteristics of schizophrenia to develop the story of the main character and the drastic changes that the playable environments will undergo. Thus being a psychological horror game with a great visual focus to tell the narrative through interactions and events.

This game would start by introducing the main character to a relatively familiar environment to the player. A house where is divided into three playable sections, the hallway, the living room and lastly, the staircase. Each section will play a significant role in the player's progression. While the hallway is where the most physical changes to the player's surroundings will occur, the living room will serve as a progression of the story and the events that occur there. However, it is in the staircase that the main point of this project, the creation of loops, will be discovered. Whenever the main character passes through the last door of the staircase, he will find himself in the starting position of the game. Even so, the environment that surrounds him will change, especially on a visual level. The objective of Victims of Dead Stories is to advance through eleven loops, where the visuals of the environments will be progressively more macabre, starting with an ordinary house, until finally the walls are covered in blood, having visual clues about the narrative that are scattered around the map.

This report about Victims of Dead Stories consists of the description of the visual graphic elements, having as a main focus the creation of realistic 3D models and textures, resorting to the use of 3D modelling software - Blender -, image editing software - Photoshop -, and texture creation and editing software - Substance Pantier -. This creation of realistic 3D models and textures aims to increase the player's immersion in the playable environment. After this initial description, the development procedure will be approached, showing the final visual result of Victims of Dead Stories. The characteristics that determine what schizophrenia is and which ones were chosen to be implemented in Victims of Dead Stories will also be addressed.

Keywords

Victims of Dead Stories, High fidelity graphics, Video games, Psychologic horror, Esquizofrenia, Game design

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Acronyms List

URP Universal Render Pipeline

HDRP High Definition Render Pipeline

3D Three-Dimensional

2D Two-Dimensionall

AAA Triple A

ESRB Entertainment Software Rating Board

GDD Game Deisgn Document

Chapter 1

Introduction

The first chapter starts by introducing the project and its orientation, as it will be shown in section 1.1. The project motivation will be presented in section 1.2. The project's objective will be presented in 1.3, and to close the chapter, the report's structure is described in section 1.4 will be talked about.

1.1 Orientation of the Project

Creating a video game, especially the first of many, is a tedious and complicated process regarding its design, game-play, and story. For most indie developers creating a big-scale project will be hard to achieve, and some parts of that initial project will have to be thrown away. Eventually, the result will not look like what they had planned initially. Most indie companies stay away from large-scale projects because such large projects require a bigger team with different departments so they can focus on specific parts of the project. And we can see those bigger teams working on Triple A (AAA) games. Companies producing those AAA games have significantly more significant members of workers than indie companies. On that note, we could question why we don't have indie game companies with more workers, but we must realise a significant problem, money. The larger the team, the more money the company will require to have so it can pay the workers, and that is one of the significant reasons why indie companies exist. It's a start to producing video games so one day they can evolve into a more prominent company if they so desire.

Minecraft[8] for, by Markus Persson [9] in 2009, and it is the perfect example of how you can go from working on a project alone to an indie company and then being a AAA studio. When the game was released, it took some time to be praised and acknowledged by the online community. But from 2009 until today, Minecraft has sold two hundred thirty-eight million copies, being the most sold game ever until today and the most played as well. And was sold to Microsoft in September 2014 for two billion dollars.

It was inspired by these accomplishments, from a simple indie company created by only one person to a successful phenomenon that still is today. It shows the potential indie companies can have and their games not being underwhelmed. This project aims to design and develop a Three-Dimensional (3D) first-person horror game with realistic graphics, where a player finds himself inside a house with only hallways and a room, exploring its surroundings. This document will also discuss the difficulties that appear during its creation and development regarding the developer's approach to creating realist-looking textures and assets.

1.2 Motivation

In creating a highly realistic scenario that could describe the story to the player, the narrative design of schizophrenia in a first-person horror game can positively contribute to a rich and compelling environment. This project had a personal motivation to design and create a highly realistic environment, something that could show my dedication and effort in creating assets that resemble real life. The use of horror games as a genre opens more ways to display creativity on assets and hidden stories on them, using the narrative design of schizophrenia to enhance the user's immersion in the psychology area, creating insecurities and fears towards the player.

1.3 Objectives

The concept of this project is to design and develop a 3D horror game from the first-person perspective, focusing on the narrative and the game-play. The events that occur throughout the game will be represented in certain sections, such as the hallway, the living room, and the staircase. After travelling through these sceneries, the player will look around them constantly until the ending.

However, this project was created primarily to improve, develop, and learn new skills in 3D and textures. Breaking from the cartoonist and basic 3D modelling and texturing to tackle more realistic and complex modelling. This challenge showed how different both types of art are and is an excellent resource for future projects. To make these assets stand out and look the best way possible, it was required to use e High Definition Render Pipeline (HDRP) within Unity. However, the area of programming was handled by the co-developer of this project, João Tinoco. In short, this game was developed by two students, one dedicated to asset creation (i.e., modelling and texturing) and the other to game programming. This way, it was possible to develop a game with high-fidelity graphics.

1.4 Document Structure

The document was structured in the following order:

1. The first chapter – **Introduction** – starts by defining the orientation of the project, the motivation behind it, the objectives used to accomplish the goals of the project, and a brief description of the report's structure.

2. The second chapter – **Related Work** – lists several video games relevant to this project, and related studies behind schizophrenia as a mental illness.

3. The third chapter – **Design Concept** – talks about the thought process behind the design choices for this game, and the narrative design of the curtain's symptoms from schizophrenia.

4. The fourth chapter – **Design and Development** – describes the development process of the game after conceptualization, going in-depth into asset creation behind the current state of the game and its environment.
5. The fifth chapter – **Gameplay Test and Results** – presents the results of a survey and the gameplay that was tested by willing participants.
6. The sixth chapter – **Conclusions and Future Work** – describes the conclusions brought about by the development of this project, especially from the design and modeling point of view, listing some future improvements to be implemented in the project.

Chapter 2

Related Work

This chapter will present works already developed on the same theme as Victims of Dead Stories. The primary purpose of this chapter is to talk about those works individually and show how they served as an inspiration to Victims of Dead Stories either by their game design, events, or the lore behind them.

2.1 Related games

The research of finding related works that have a link between horror and schizophrenia revealed itself to be difficult. Although there are video games that play with mental problems and mess, they mostly only excuse themselves by being paranormal activities. This means that there is a way to develop this niche concept even further than the standard horror games we have on the market.

2.1.1 Visage

Visage [1] is a first-person psychological horror game developed and published by SadSquare Studios [10]. The developer portrays Visage as a game that utilises "the uncanny" to create a sense of dread and fear, inspired by P.T. [3] that, after being cancelled, just motivated the studio to finish Visage and release it to the public.

Inside Visage, the player can find himself in a never-ending loop of a mysterious e-changing house. Being a slow-paced game, the player is forced to explore the house and its details as it slowly starts to notice that the environment is never the same as it was at the beginning.

Eventually, the environment will start changing into a horrifyingly realistic environment, as shown in figure 2.1. The same concept will be implemented visually in Victims of Dead Stories.

Figure 2.1: Screenshot exemplifying the realistic environment.[1]

During its play-through, the player will find various objects that can be interacted with and looked at from different angles, as shown in figure 2.2, this same mechanic will be of use for Victims of Dead Stories, so hints of lore can be given to the player via this mechanic.

Figure 2.2: Screenshot exemplifying the examiner system.[1]

2.1.2 Phasmophobia

Phasmophobia [11] is a first-person online co-op horror game that can have up to four players at the same time, developed and published by Kinetic Games [] and it uses the game engine known as Unity. Phasmophobia is set in a closed space where the player needs either a haunted house (see figure 2.3), school, or hospital. It allows the player to interact with ghost hunting equipment such as CCTV cameras, motion sensors, recorders that will enable the players to hear ghostly voices, and other equipment.

Figure 2.3: Screenshot exemplifying the game-play.[2]

The primary purpose of addressing Phasmophobia is that it serves as an inspiration for Victims of Dead Stories to achieve the desired performance and optimisation while having realistic graphics within the Unity engine.

2.1.3 P.T. (Silent Hills)

P.T. [3] ("Playable Teaser") is an interactive teaser in a first-person psychological horror game developed and published by Konami []. The game was an intended playable teaser that would mark the re-instalment of the Silent Hill franchise, but it was cancelled shortly after by its publisher. The main feature of P.T was its game-play, where it all happened in an L-shaped hallway that would always be a loop. Eventually, the player would find himself at the start of the hallway again (see figure 2.4).

Figure 2.4: Screenshot exemplifying the game-play of P.T.[3]

As such, P.T is one of the main inspirations for Victims of Dead Stories. The way it's represented as simple gameplay, with many possibilities for developing rich and fulfilling lore behind it. It is one of the best ways for an indie developer to expose the potential of its work without over-complicated itself, having a linear, simple, and effortless gameplay with many ways to develop an interesting narrative without the need for cinematics or cutscenes. Therefore, having the concept of loops inside Victims of Dead Stories would be a great choice to tell the psychological horror story we intend based on schizophrenia symptoms. And to tell its story through a detailed environment.

2.1.4 Resident Evil 7: Biohazard

Resident Evil 7: Biohazard [12] is a first-person survival horror game developed and published by Capcom [13]. It's one of many instalments of the Resident Evil franchise and follows the same genre and game-play as the previous games. Resident Evil 7: Biohazard's main feature is how the player must survive throughout the game, via crafting materials

to restore health, finding clues and solving puzzles, and escaping certain events that occur during its game-play. This gets even more terrifying by having one of the most realistic environments in survival horror games, as shown in figure 2.5.

Figure 2.5: Screenshot exemplifying the graphics.[4]

The intent of mentioning Resident Evil 7: Biohazard is because the realistic graphical content it displays is an inspiration to Victims of Dead Stories, and the events during its game-play will also serve as inspiration without having to create a convoluted system for it to happen.

2.2 Related Studies

The main plot for our story is that our character suffers from a mental disorder. This section of the project will talk in detail about the mental disorder we have chosen to develop our main plot line for the story, which will be told via events and game-play.

2.2.1 Schizophrenia

The study created by the Mayo Clinic Staff [14] describes the symptoms, causes, and behaviours of the patient concerning schizophrenia as a mental disorder that makes those who suffer abnormally interpret reality. Some symptoms of schizophrenia are Hallucinations, Delusions, and many others. Our project will try to represent some of these symptoms from a horror video game perspective to develop its story, from the main character and the environment he is in. But also trying to represent some behaviours and actions towards its surroundings that some patients with this mental disorder have.

2.2.2 Symptoms of Schizophrenia

Studies around schizophrenia reveal that patients with this mental disorder have significantly greater difficulties with emotions, thinking, and other behaviours. The symptoms of schizophrenia can make it challenging to participate in usual, everyday activities, and some patients may show a loss of interest, like cleaning and taking care of the environment that surrounds them, having a messier house, and a lack of interest to store and take care of garbage and so on. This is important to note since it can tell a rich story to our players just by observing the playable map and its assets, being a versatile way to fill the playable area of the game and develop the story even more.

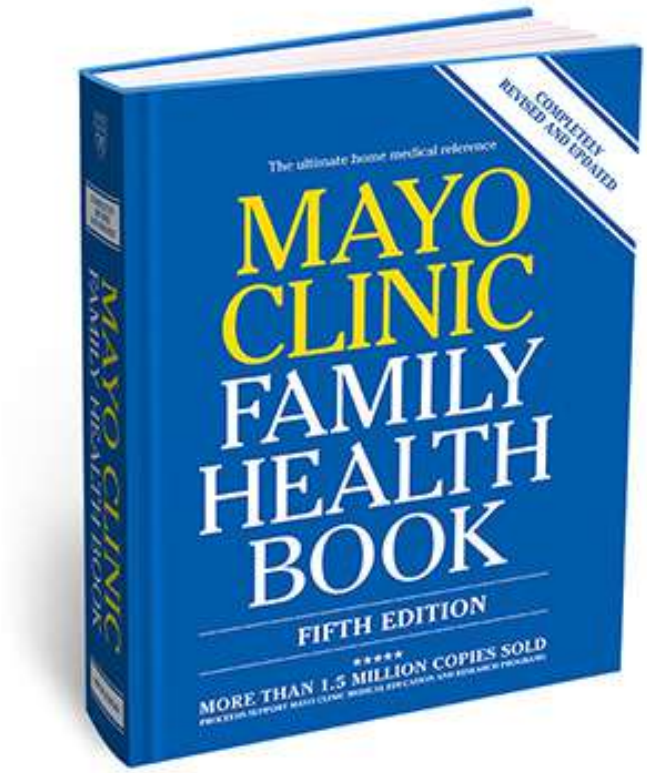


Figure 2.6: Mayo Clinic Family Health Book, taken from [5]

Signs and symptoms of this mental disorder may vary from patient to patient, and during the development of this project, we did not add all the symptoms this mental disorder can cause. The reasoning behind this decision was that we felt no need for them since our game is more based on visual and event storytelling. The chosen Symptoms that will be displayed in our project can be seen in section 3.2, meanwhile, the full symptoms of schizophrenia are:

1. **Delusions** – They normally occur when the patient believes in something that is not based on reality.
2. **Hallucinations** – The involvement of hearing and seeing things that don't exist,

seeing figures of monsters or distorted faces, and hearing voices and sounds close or far away from you.

3. **Disorganized thinking (speech)** – This mostly refers to disorganized speech, impaired communication, and difficulties in answering questions. Sometimes communications with this symptom can be known as a word salad.

4. **Extremely disorganized or abnormal motor behavior** – This can be shown in many ways, from acting childish and being unpredictable to showing a lot of resistance to instructions, inappropriate posture, and a complete lack of response.

5. **Negative symptoms** – The lack of ability to function normally, the neglect of personal hygiene, social withdrawal, and lack of emotion.

2.3 Conclusions

n this chapter, the studies on schizophrenia as a mental illness and how it affects its patients through its various symptoms were pinpointed. Some of these unfortunate symptoms can be used as the perfect foundation for this project and can build an environment that describes this narrative via its visuals and assets. In the future section 3.2, the narrative design of these symptoms will be talked about.

Chapter 3

Design Concept

This project aims to develop a visually realistic, psychological horror 3D single-player game in the first-person perspective, where the player takes control of a character that suffers from a mental disorder known as schizophrenia. Thus, seeing apparitions of ghostly figures, imagining things that aren't there, and hearing voices. Other events will also be played out, and the environment will change to progress the narrative. Victims of Dead Stories can be found and downloaded in .Itch.io.

The mechanics of this concept are straightforward, and the player can only interact and inspect particular objects that will further the narrative and explain how much this mental disorder affects our character. There is also a zoom feature, allowing the player to observe objects and the environment further and in more detail, revealing hidden messages. The main character can't die. Since there is also no fighting mechanics, the player won't be able to defend himself against any harm that comes his way.

In section 3.1 the narrative design of the chosen pathologies is defined and how it is identified. Section 3.2 will explain the game concept and every choice made to represent signs of schizophrenia in the 3D world, which will also affect the game mechanics and specific events. Section 3.3 talks about the conceptualisation process of the environment, its design, and development.

3.1 Narrative Design

The conceptualisation of how pathologies would be represented in the game could only happen after a thorough investigation of the symptoms of schizophrenia and how the patient acts and suffers. The identified in-game pathologies would be:

1. **Hallucinations** – These are normally about hearing and seeing something that does not exist. Yet the person who is suffering from them believes they do and can physically and mentally suffer from them. The most common ones are hearing voices, but they can be in any of the senses.Thus, during the game, the player will hear sounds and will have visions.
2. **Delusions** – These false beliefs are not based on reality. Thinking that you are being hurt, harassed, certain comments and gestures being directed at you, thinking you are famous, or that someone loves you, or that the world is about to end. Thus, the changes in the environment can make the player believes in some facts are not real.

3. **Extremely disorganized or abnormal motor behavior** – This can be shown in childlike behavior, unpredictable agitation, a complete lack of response, or useless and excessive movement. Which can affect the world around them, like randomly writing on walls, scratching furniture, and so on. Thus, the environment will show this kind of behaviour.

Based on these symptoms, some facts will be discarded either because we can't represent them inside the video game or purposely chose not to because it would not fit the narrative and game-play.

With the pathology identified above, they will be used as game-play elements, the next step was how they would be implemented and certain events look in the world.

3.2 Project Concept

Two students conceptualised this project with the same master's degree but different academic backgrounds. While one student is more skilled at graphic and 3D design, the other is more skilled at programming and computer science. The game Victims of Dead Stories title is a direct reference to its narrative and the events that will occur inside it. This project was developed inside Unity Game Engine, an all-in-one platform for video game development and other critical areas. However, other platforms were used to create the graphic design, 3D modelling, and other components.

3.2.1 Game Description

Victims of Dead Stories is a computer first-person, horror, thriller, and exploration game that focuses on realistic environments and events that will play throughout the different loops. The video game is heavily influenced by the concepts of old and modern horror games, where the player is immersed in the environment, making it an easy target to scare or achieve the pretended reactions.

In our video game, Victims of Dead Stories, the player will find themselves at the start of a corridor filled with paintings, lights, and other types of furniture that would fit the space. There will be no explanation immediately as to what is going on and why the main character is in a corridor. The player will start walking through the house and find himself in a modest home filled with modern and rustic furniture, giving it the feeling of a comfortable and familiar-looking environment, at first, making the player lower his guard and not feel afraid to proceed.

After completing the first loop, the player will be introduced to our first paranormal event. When the last door opens, our character will find itself at the start of the game. Everything will be the same with minor differences, either by adding a lot more assets that will push

the narrative of our character having a mental disturbance or by the environment looking slightly deteriorated. With these slight changes, we have the concept of the player realising that he is stuck in a loop that will always bring him back to the start of the game, but each time he does, the environment will change. In the second loop, we intend for the player to explore and notice those slight changes and repeat the same path he did the first time. In doing so, the same thing will happen, and he will find himself on the third loop where slight changes will happen again.

In further loops, some furniture looks deteriorated and filled with blood or scratches. The longer the player progresses, the more environment changes and events will happen. This kind of event will provoke some types of sensations like hallucinations and delusions

Victims of Dead Stories is not a self-explanatory video game, and once you start playing, there will be no introduction to why you are there and what is happening. The environment and events explain the lore during the game-play. This way, we pretend to achieve a more immersive experience and, simultaneously, engage the player into being more interested in what is happening to the character and why it's stuck in loops.

3.2.2 Game Concept

The game concept of Victims of Dead Stories is an immersive storytelling environment followed by the player´s actions and events that will happen:

1. **Goal** – Motivate the player to figure out how to progress throughout the loops and find out based on the environment and interactions what is happening and why they can't leave the loops.
2. **Immersive environment** – The environment will tell all the lore to the player, some of it will be straightforward in showing what is going on, meanwhile, other clues will be more difficult to decipher. This will create more interest in the player in figuring out who the character is, and why it's there.

3.2.3 Platform

Victims of Dead Stories will be released and played on a Personal Computer (PC), which will need to mean at least the minimal requirements to run correctly. It won't be a video game that will require low-end hardware and at least a more recent hardware that can handle its graphical requirements. It will also need a mouse and keyboard and will have an option to use a controller. Porting the video game into consoles and even VR was considered both did have a plausible reason for it, mainly the VR since it would place the player in a more immersed environment. However, due to the small team members and the short period of time we had to complete it, porting the video game was not a viable option.

3.2.4 Target Demographic

Horror and Thriller video games are designed for a more mature demographic, knowing that blood, screams, and other terrifying events will happen. Therefore, Victims of Dead Stories would be rated Mature 17+, as it's used by Entertainment Software Rating Board (ESRB).

3.2.5 First Person

Most horror video games take advantage of the first-person perspective, being the best example of how we Humans see the world daily. This perspective benefits the player experience and helps the elevators hide some flaws that could happen if it was from another perspective.

3.2.6 Style

Since the early development stages, Victims of Dead Stories aimed to be a realistic 3D video game. Some problems had to be taken care of, and hardware limitations had to be considered. Obtaining a heavily realistic 3D world just by looks alone was a difficult task since most 3D assets that are highly realistic require a high polygon count compared to simpler ones. Having a high polygon count in every asset would result in a highly undesirable performance, so having a good balance between manually fine-tuning is a meticulous task for achieving the 3D realistic design desired performance. Some assets have been automatically decimated using software, and the more complex and realistic ones would require manual attention so that the mesh and UV Mapping would not be destroyed, which will be described in Chapter 4. As such, Victims of Dead Stories is a realistic-looking game using real-time lighting rendering techniques and high-quality textures and models.

3.2.7 Genre

The various genres combined in the Victims of Dead Stories are:

1. **Exploration** – The player can explore the world environment and interact with certain aspects of it.

2. **Horror** – During the game-play and progression, the player will start to notice the environment-changing, sound that seems abnormal will appear, to induce some hallucinations and delusions, all of which lead to a horror look.

3. **Single player** – The player will play alone, with no internet or cooperative connections, the game is meant to be for a solo player.

3.2.8 Main Character

Players usually infuse their personality into the character they are currently playing. Sometimes creating a link between themselves, having a completely immersed mental state that will influence the character's behaviours, choices, and looks to what the player desires.

Sometimes to achieve this level of immersion, one would think the more we see of our character, the more immersed we would feel. Seeing our character's clothes, behaviours, and even how they walk could make the player feel more engaged. To achieve this in a video game, using a third-person perspective would facilitate the player to observe everything about the character, from the looks to interactions. However, this does not mean that a third-person perspective is the only way to achieve this level of immersion. The first-person perspective can also greatly immerse the player, creating a bond of empathy with the character and the events it's going through, trying its hardest to stay far away from harmful actions and feelings, empathy, forgetting that it's a virtual character that the player is controlling, will result on a more immersive environment and story.

Thus, the main character does not have voice covers or physical traits that would guarantee their genre and looks. Only by playing the game and noticing the different changes throughout the map and slight hints to our main character's mental will the player start empathising and being affected.

3.2.9 Key Elements

A certain number of characteristics must be included in a video game to differentiate itself from others. However, almost every video game has certain parts of others in itself, for example, the creation of puzzles, wall-running, double jumping, skill trees, and many other characteristics. It is how they intercalate themselves and create a unique experience that separates video games from one another. The key elements that compose Victims of Dead Stories are:

1. **Loops** – Each time the player proceeds to the last remaining door, once it opens it will find itself in the same position as it did when it started playing, it some small changes to the environment, and these changes will escalate each time the player opens that last remaining door.
2. **Environment** – During the game-play and progression, the player will start to notice the environment-changing, sound that seems abnormal will appear, to induce some hallucinations and delusions, all of which lead to a horror look.
3. **Events** – Certain types of events will also play out in correlation with the environment and the loops. The player will be exposed to ghostly apparitions and voices from the radio, cassette player and telephone. This further develops the narrative of Victims of Dead Stories and contributes to the hallucinations and delusions.

3.2.10 First Person

One of many benefits this first-person perspective has compared to other views is that it can hide flaws from animation or its lack. If, for example, we are playing a single-player first-person shooter, we usually don't see our character's body, some games do allow us to customise our character body and so on, but usually, during game-play, we don't know what we are hearing, how our character is moving and interacting with the environment. In most cases, the player mostly sees what is happening in front of him and the character's arms and hands. As mentioned, this can help developers who don't have the time or skills to animate the player's body.

Another benefit is that Victims of the Dead stories are in the first-person perspective. It is due to immersion and easier interactions with the game world. Since this project heavily revolves around the graphical capabilities that were developed and its story being told by the game world assets scattered around. A more accessible and precise way to control and observe the game environment will encourage the player to explore every corner and feel more immersed.

Also, not having a character customisation function is, in a way, the developers trying to have the player project themselves into the main character, forgetting they are controlling a virtual avatar. This way, a more immersive and horrifying experience can be achieved as desired. Figure 3.1 shows an example of a first-person perspective on a single-player game.

Figure 3.1: First-person perspective in a single-player game.[6]

However, the first-person perspective has some downsides as well. Most action-packed games, for example, Doom Eternal, as shown in Figure 3.1. It is known for being nausea-inducing and causing motion sickness. The players suffering from this downside won't be

able to play, rendering it inaccessible. Although Victims of Dead Stories is not an action-packed game or fast passed for that matter, the possibility of some players experiencing these downsides is always possible.

Another element that can be somewhat called a downside is the cinematics. Cinematics that presents themselves from the player's perspective, in this case, first-person perspective, mostly don't show the surroundings and can be in some way jarring for the player. And if the cinematic takes another view from what the player is used to, it can break the game's immersion completely, especially if it's a horror video game.

Consequently, in Victims of Dead Stories, this choice was to benefit the player to observe in more detail its surroundings, have a better and easier way to interact with certain assets, experience the events that occur, and feel more immersed in its ambience.

Finally, the first-person perspective helped the developer regarding animations, either too complex to develop or not needed in general, thus saving resources and time during its development.

3.3 Game Mechanics

The mechanics of a video game are the rules by which the player act. These rules determine what the player can and cannot do and the outcome of those actions. When creating specific game mechanics, the developer needs to be wary of how they will be presented and if they are coherent with the style, genre, and story in-game. They also need to be supported by the game engine and have a cohesive vision for ease of use.

In Victims of Dead Stories, the chosen game mechanics that were created are:

1. Character movement.
2. Camera movement.
3. Camera Zoom.
4. Interaction with predefined objects.
5. Examination of assets.

3.3.1 Character Movement

Character movement is the essential basic game mechanic that every game also builds upon. It is crucial to have it in every video game. Without it, how could the player control the avatar, where it should go, and interact. Although the contents of this section seem apparent, it still deserves to be mentioned, and as such, Victims of Dead Stories will have within the 3D environment the player moving forwards, backward, and from side to side.

3.3.2 Camera Movement

One of the essential basic game mechanics is present in every video game. Is the camera movement. The camera is what the player controls to see, basically being the player's eyes. Specific topics must be planned before developing them. For example, is the player able to control it or not, or will the player lose the ability to hold it in certain parts of the game.

Being a first-person video game, Victims of Dead Stories allows the player to control it freely but never leave the avatar's head since the camera represents the eyes. The player can control it by tilting it and rotating it up and down at 90^{0} degrees and from side to side at 360^{0} degrees. This way, it will provide further immersion while playing.

3.3.3 Camera Zoom

Camera Zoom is a mechanic implemented to further increase the level of observation by the player of the detail presented in the environment. This mechanic will further the narrative and visual progression of the project. Being able to observe and read described messages hidden throughout the game will captivate the player to watch and have the advantage of this mechanic, as can be shown in Figure 3.2 and Figure 3.3.

Figure 3.2: Camera without the zoom effect.

Figure 3.3: Camera with the zoom effect.

3.3.4 Interactions with Predefined Objects

Players can also find the possibility of interacting with particular objects. This will further the narrative, allowing players to progress and play out certain events. A visual prompt will appear when the player is in range of an interactive object, leaving the player annotated with that mechanic. As shown in Figure 3.4.

Figure 3.4: Interacting with objects.

3.3.5 Examination of Assets

During the brainstorming of ideas for Victims of Dead Stories, the concept of being able to see and rotate particular objects could open a new way to explain the narrative and improve the visual and interactive side of the game. Creating assets for close-up visualisation would require more meticulous care when developing since it was meant to portray some lore in those assets. Thus, interacting with objects throughout the environment was a good mechanic that would increase the player's immersion and allow our project to observe even better high-fidelity graphical capabilities. Figure 3.5 shows the examination mechanic in action.

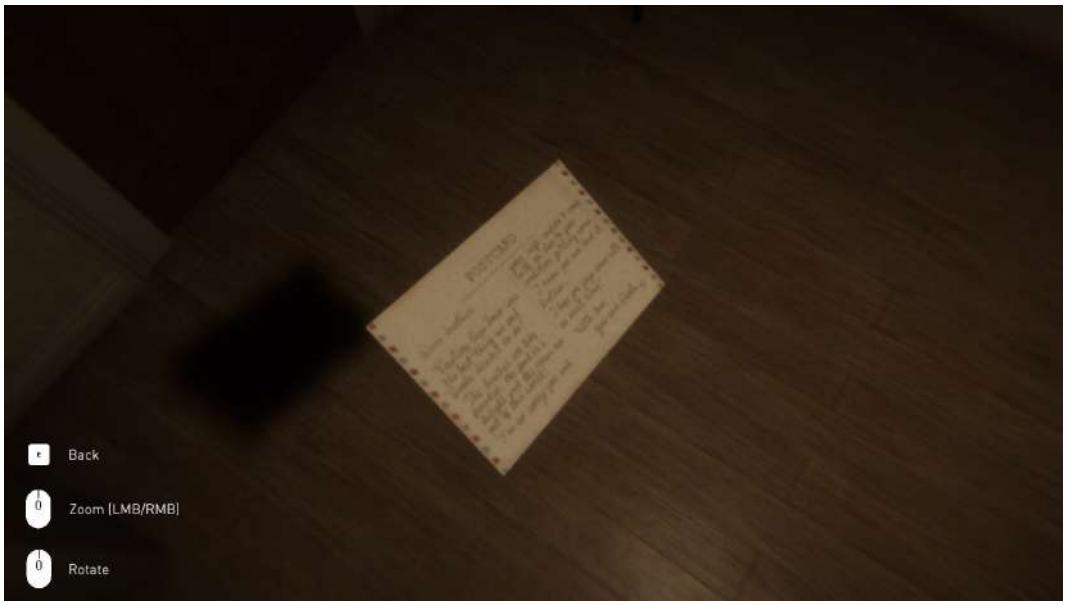


Figure 3.5: Inspection of Objects

3.4 Level Design - Loop System

This mechanic is why we created this game. The development of the loops system allows us as indie developers to create immersive and expandable lore and a world without using too many resources and creating an open-world system.

This way, the development of assets and the progressive state of decay could be created, developing a lore-based game by its visuals and creating an intriguing game-play experience for the player while keeping the horror genre of the game on point with the lore structured around the character, and also giving more reason for the player to explore the environment changes and observe the assets that were created for specific loops.

Victims of Dead Stories has eleven loops that go as follows:

1. **Loop one** – The player can only explore the hallway and a broadcast can be heard on the radio, the staircase door opens;

2. **Loop two** – The player can only explore the hallway and the staircase door closes, after noticing it when the player goes back a loud banging can be heard on the door that leads to the living room, after some time and when the banging stops, the staircase door opens;

3. **Loop three** – The player can only explore the hallway, during the exploration when the player reaches the living room door three loud bangs can be heard, followed by the sound of a woman crying, the background music changes to an unsettling one, followed by the staircase door opening;

4. **Loop four** – The player can only explore the hallway, the outline of a ghostly apparition can be seen in the middle of the hallway floating, while it cries, when the player gets closer the lights go out, and after a short time they come back again, and the staircase door opens;

5. **Loop five** – The player can explore the hallway and the living room, at the start of the hallway the player will hear some creepy and unsettling noises behind him from a woman, when the player tries to reach the staircase door, the door will close in front of him, going back to the hallway the living room door will open, and inside the player will have to interact with a cassette tape, after the recording is done, the staircase door will open again;

6. **Loop six** – Loop six can be fully explored just like loop five, and an unsettling soundtrack will be playing for a few minutes, the living room door can be seen open, meanwhile the staircase door is closed, inside the living room, a flickering flashlight can be picked up, upon picking it up the door behind the player will close and a series of events will be played, from creepy sounds and the light of the flashlight going out to the TV showing a series of ominous messages, once the video playing on the TV ends, both doors will open;

7. **Loop seven** – The player can only explore the hallway, and changes to the environment can be seen compared to previously loops, once the player reaches the living room, sounds of a baby crying and gore can be heard, and the radio will start to broadcast ominous static sounds, and the staircase door is open;

8. **Loop eight** – The player can only explore the hallway, same as the previous loop six, the only noticeable differences are the gasping sounds of a woman behind the player constantly, the radio starting to talk to the player directly, and the staircase door is open;

9. **Loop nine** – The player can only explore the hallway, the environment looks the same as previously in loops seven and eight, while the player is exploring the hallway an ominous red light can be seen at the end of the hallway, and an ominous presence can be noticed starting at the player, upon getting close it disappears, followed by an unsettling sound when the player reached the staircase, near its end a window drops from above, revealing a creepy presence staring back at us with a knife;

10. **Loop ten** – The player can explore the whole environment, near the end of the hallway the radio is playing an ominous sound, and the staircase door is locked, to progress the player must find the ghostly apparition near the beginning of the loop, once it does the player can progress to the ending loop;

11. **Loop eleven** – The player can explore the environment completely, and it will notice that everything is back to normal as it was on loop one, as the player progresses a phone can be heard ringing, picking up the phone a voice can be heard talking to

the player, once the call ends the staircase door is open, leading the player to the end credits.

3.5 Environment Concept and Development

At the beginning of early concepts for the playable environment, the first stages of development were mainly based on creating the walls and their structure, followed by creating divisions throughout the house. Being a horror video game, creating a home and its antique and slightly more modern environment seems the best for this type of genre and to create a familiar environment that would make the player even more uncomfortable. Figure 3.6 shows the different stages of environment development.

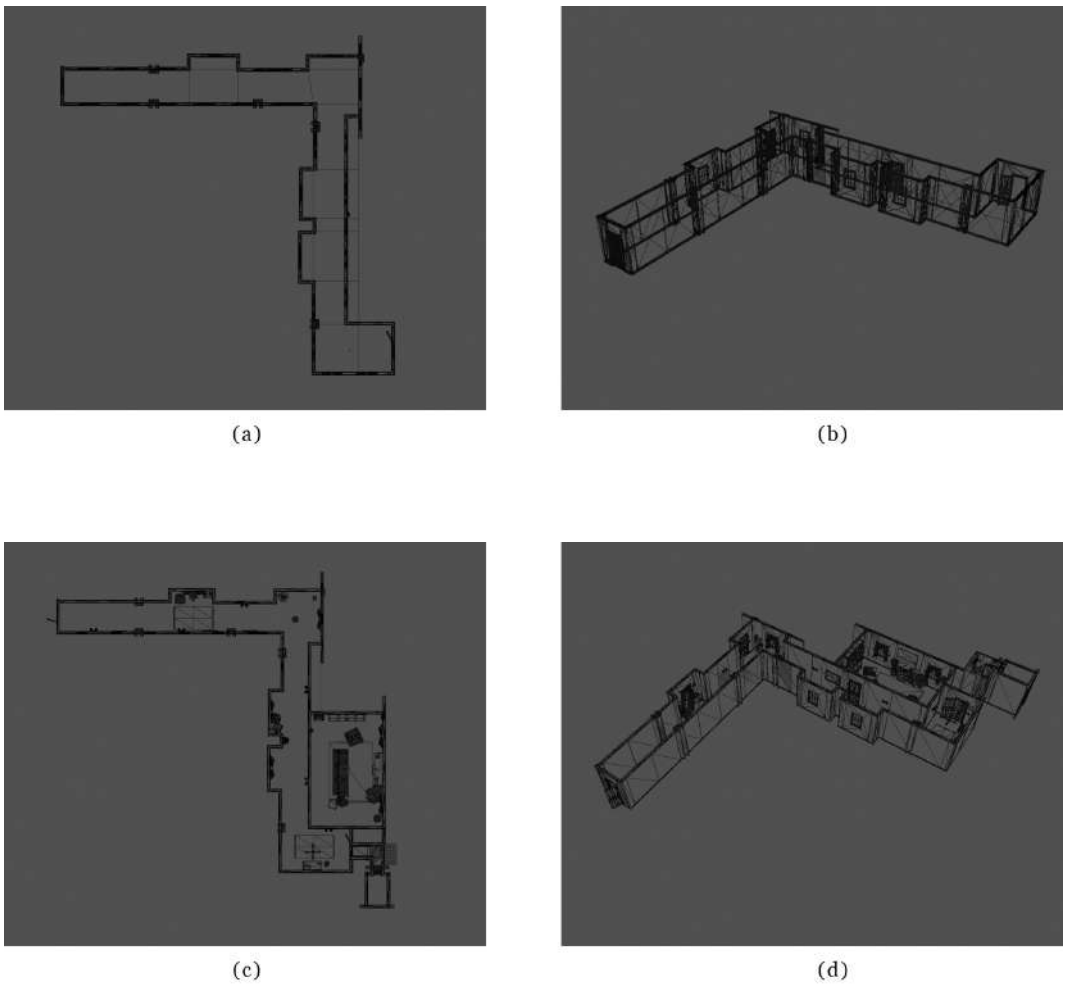


Figure 3.6: Different stages of Environment Development.

3.5.1 Hallway

The hallway is where most of the events and exploration will happen. When the player starts the game, he will be located at the start of the hallway. During its exploration and progression, the player will find a multitude of events, specific assets that are only used in certain loops, and ghostly apparitions.

It wouldn't be wrong to describe this hallway as the main playable area. This concept is to captivate the player further and make him feel more comfortable with his surroundings and consequently lower their guard, also giving subtle hits early on, on how to inspect and interact with objects as can be seen in figures 3.4 and 3.5. The payer will also have audible logs played by the radio to further the lore being the main character. Section 4.5 will show the playable areas fully assembled and finished.

3.5.2 Living Room

The Living room will be an unlockable playable area further down the loops. Once the player reaches loop six, as described in section 3.4, this playable area will be unlocked. Inside of it, the player will find more interactable objects and specific assets that will only appear inside the living room.

This room's primary purpose is to show how the main character struggles with his mental disorder. In contrast, at the start, it will only appear like someone that is disorganised, consumes a lot of medicine, and has a severe drinking problem, to then being complete upside down and serve as a space in his memory where something horrible happens. This can be further explained via the cassette recorder that will start talking to the player like it was his conscious. Section 4.5 will show the playable areas fully assembled and finished.

3.5.3 Staircase

The staircase has two primary purposes. It serves as a save room, where certain events will happen, but none of which will harm the character in any way, shape or form. And the last purpose it serves is as a loop progression. The central part of this project had the game not require loading screens and keep the transitions between loops flawless. Without it, the immersion could be broken, and the result of our video game would not be able to achieve the desired form. Section 4.5 will show the playable areas fully assembled and finished.

3.6 Conclusion

The early stages of development were delved into in this chapter, taking the time to justify and explain the meaning behind certain design features and the motivation behind this project. Certain possible events were discussed, and the environment's conceptualisation process was described. The description of the game was presented alongside its process and the ideas behind it. They were defining the genre of Victims of Dead Stories, explaining the loops and what happens between them, furthering the lore of the game, and explaining briefly the environment conceptualisation that will further be presented in a more graphically appealing manner in section 4.5.

Chapter 4

Design and Development

4.1 Introduction

During the development of this project, adaptation was necessary, and finding new ways and learning how to use new software was necessary at every step. This chapter will detail what was settled on and developed. Section 4.2 delves into the development tools used in this project, justifying the choice behind each one. Section 4.3 presents the Game Deisgn Document (GDD). In Section 4.4 an in-depth look into the Game Environment Design is presented, detailing its construction. And Section 4.5 will talk more in-depth about certain parts of the Environment composition.

4.2 Development Tools

This section details the design tools and programs that have been used in the making of this project, justifying the choices made when picking them.

4.2.1 Unity Game Engine

Unity [7] is a game engine created by Unity Technologies. This engine allows developers either indie or AAA, to create a variety of systems for video game development and other key areas such as cinema. Being free to use the development platform, it's the perfect choice for indie developers, especially with the enormous support it provides. It was with the use of this game engine that it was possible to create Victims of Dead Stories. Unity also has the ability to function as a cross-platform game development tool, which saves the developer's time and budget when developing for multiple platforms. Some of Unity's most prominent features are:

1. **Editor** – Unity editor includes a multitude of user-friendly tools so developers can get an easier time editing the basics and begin developing their games;

2. **User Interface** – Unity makes use of a UI that is appealing, simplified, and easy to understand, making new developers feel more welcome to the software they have not used before as shown in figure 4.1;

3. **Asset-Store** – The Unity Asset store is a growing library of assets, published by members of the community and Unity developers themselves, most of these assets

can be bought with micro-transactions and used freely by the customer, while developing the project. These assets can be textures, 3D models, animations, or entire projects already coded and full with assets;

4. **Path-finding AI** – It includes a navigation system that can be used to create a Non-Playable Character (NPC). They can move freely in the game world, or a pre-defined path using the navigation meshes created from the scene's geometry and can react or interact with objects in real-time;

5. **Physics Engine** – Unity supports NVIDIA PhysX [15], being one of the three most used, and acknowledged 3D physic engines currently in the market, the others being Havok [16] and Bullet [17] for a realistic and high-performance game, meanwhile the interaction between objects don't create a considerable impact on performance.

6. **2D and 3D** – Supports the development of many genres of projects in both dimensions.

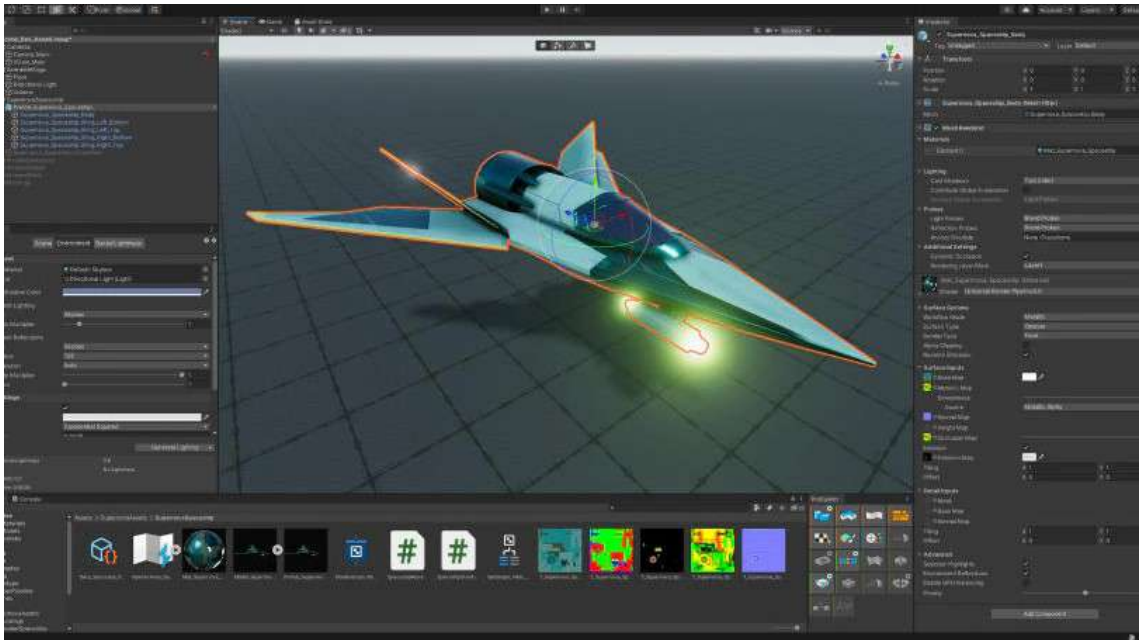


Figure 4.1: Unity User Interface, taken from [7]

4.2.2 Blender

Blender [18] is a free open 3D source creative software, it allows its users to create animations, models, textures, rigging, simulations, renderings, motion tracking, and video editing. Blender also allows users that have a more advanced understanding of Python, can use Blender API to customize the software and create their own tools. Blender is released under the General Public License, giving the user free reign on what they want to do with the application and the models made in it. This made for a great tool to build the game's 3D models. This application was used to create the structure of the house and its assets that can be seen during the game-play, some textures were also made inside Blender.

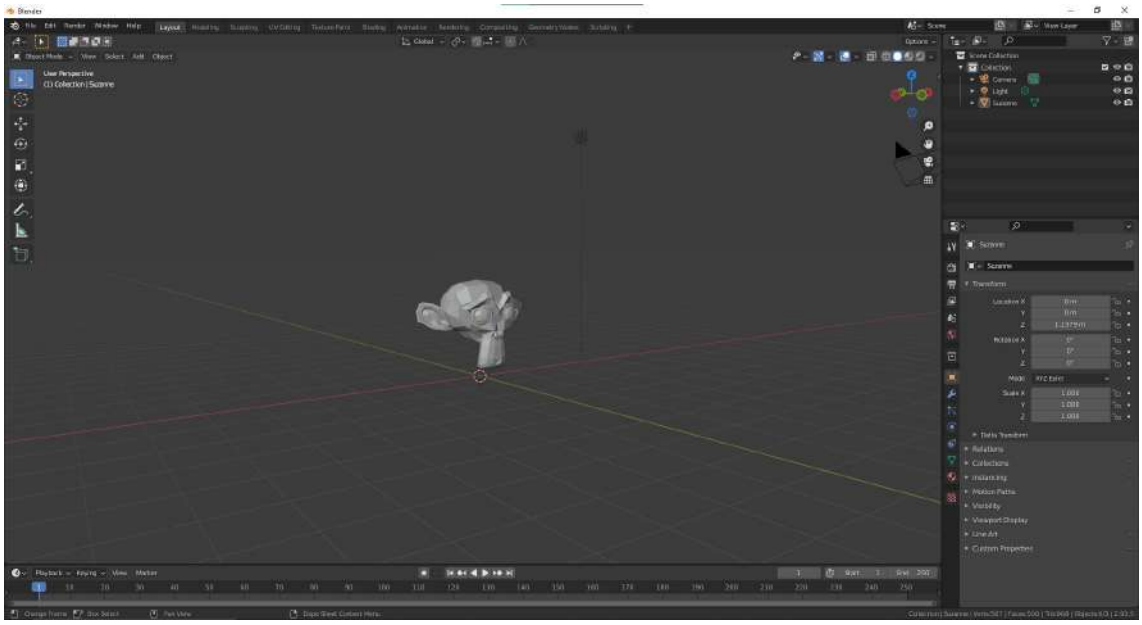


Figure 4.2: Blender User Interface

4.2.3 Adobe Photoshop

Adobe Photoshop [19] is the industry-standard software for editing digital graphics. This software seems to be limitless due to being used in a fast array of applications in the real world. Adobe Photoshop was chosen for tweaking and editing texture files of materials to correct imperfections and so on. It supports a vast array of tools, from brushes, color and gradient, and image-editing fundamentals, to animation and basic 3D.

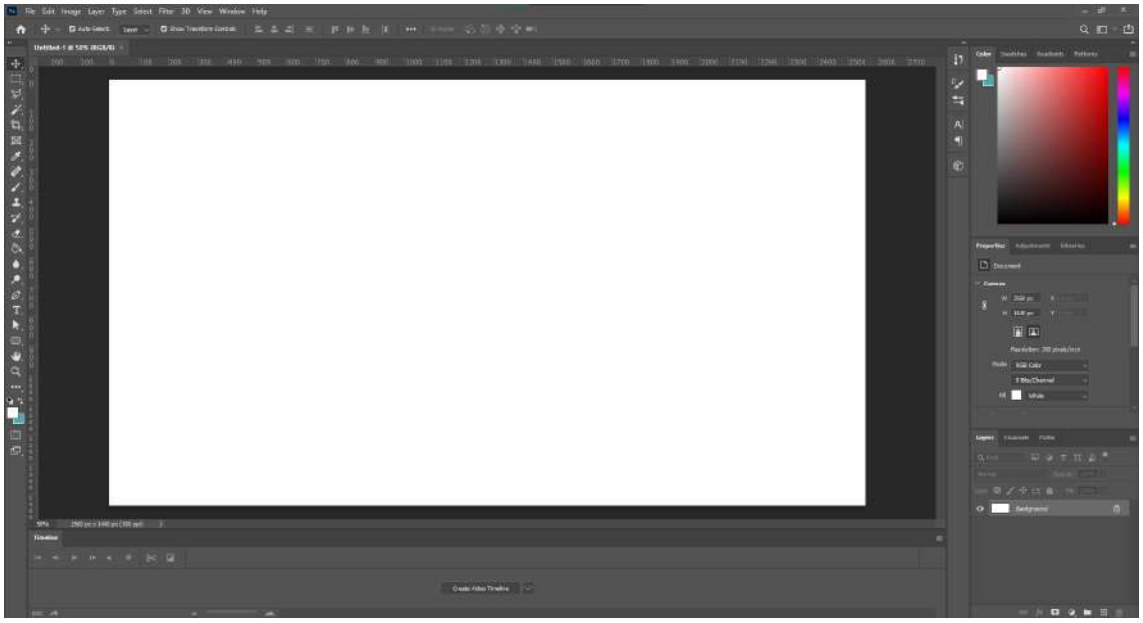


Figure 4.3: Adobe Photoshop User Interface.

4.2.4 Substance Painter

Substance Painter [20], can be called the 3D version of Adobe's Photoshop for digital painting work. The main purpose of Substance Painter is to texture 3D models using layers and masks. This means that progress can be seen in real-time, which allows for a more detailed result. This software was used to create more detailed textures, mainly in furniture.

4.2.5 Substance Designer

Substance Designer [21] is used by plenty of AAA video game industries, mostly as a reference material creation tool. It is reported that 95 percent of AAA video game projects currently in development use this tool. Substance Designer is used has a vast library of free and paid assets, textures, and materials, some of which were used as the basis to create specific models and materials for Victims of Dead Stories.

4.2.6 Instant Mesh

Instant Meshses [22] is a retopology tool that automatically replaces the original high polygon model with the same version of that model but with lower polygons. Normally Retopology can be done manually but when using a higher polygon count model, Instant Mesh will save time since it's automatic. This software was used in certain assets such as the couch to lower its polygon count and increase performance in-game.

4.2.7 Google Forms

Google Forms [23] is a free-to-use online software that allows the creation of forms, surveys, and quizzes, as well to see the results and a summarizing tool. It was used to create the survey and gather feedback on the prototype.

4.3 Game Design Document

During the development of this project, a GDD as it can be seen in Appendix A, was formalized, in the early stages of concepts, where it was registered every change to the prototype. A GDD is an important document when working with a team of developers, it helps communicate the key parts of a game design together and records the main ideas, helping improve the game-play by describing it in an organized manner.

The GDD helped the developers of this project to:

1. During the conceptualization of the project, every brainstorming idea was listed and detailed;

2. Structure the game-play mechanic, controls, interactions, events, and the style of the game;

3. Create a list of primary assets, such as the ones that interact and have hidden messages or tell a narrative, and fillers, being the secondary assets that just serve to fill the room and increase the immersion;

4. Document necessary sounds and animations.

5. Register all the metrics and their changes throughout the development of this project.

The GDD served as an anchor during the constant changes and swaps that were almost implemented and could have caused adverse outcomes during the game creation.

4.4 Environment Design

Being a horror game with highly details graphics, it was settled between the developers that a non-invasive and familiar environment was required, this way the player would feel more at ease playing and lower his guard until certain predefined events happen, this way those events would be more impactful giving it a higher chance to scare the player. So, the environment that was set to develop this project was inside a house, where the player could feel safer. This section describes the components used to create the game world.

4.4.1 Rendering Pipeline

In Unity, we can choose from a variety of rendering pipelines. The Build-in Render pipeline is the default pipeline in Unity, it serves as a general-purpose render pipeline with limited customization. Universal Render Pipeline (URP) is a scriptable render pipeline, with ease of use customization, that allows the user to create his own graphical optimization on a variety of platforms. And finally, the chosen render pipeline for this project was the HDRP, being a scriptable render pipeline that let us create the highly detailed and high-fidelity graphics that were planned for this project.

4.4.2 Playable area Development

In order to assemble a playable area for the prototype, Blender was used to create the house foundations. This software helped the developer effortlessly create and shape the structural desired environment, which was then used for testing. The development of this process is extremely important since it allows the developer to focus on the most important aspects of game design, such as the core game mechanics, user interactions, and predetermined events while still having a reference to the boundaries and play area of the game. The method used in this process can be compared to architecture planning, where a reference blueprint is used to build the desired structure.

As shown in Figure 4.4 (a), the creation of every structural asset was made in Blender, the different types of walls, corners, and pillars that can be seen during game-play. Figure 4.4 (b) represents the desired path and structural blueprint of the house. This first stage allowed the developers to then export the assets to Unity so they could build the prototype to test early movement and collision mechanics.

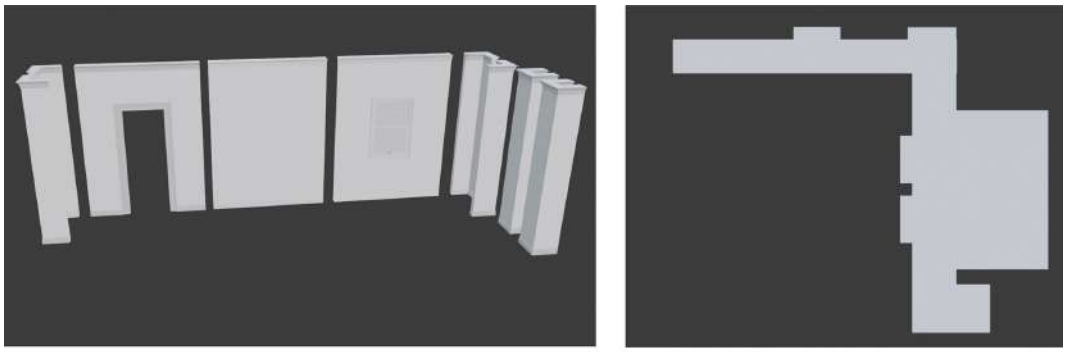


Figure 4.4: Prototype first steps.

With further development of assets, the next step is to implement them inside the playable area. This development extended itself for two months, during this time game-play mechanics, interactions and events were also made alongside asset creation. Primary assets that were described as the most important ones, for interactions and events got prioritized and finalized first before any game-play mechanic, beyond walking, was made.

Figure 4.5 shows the overview of one out of eleven finalized loops, some loops have different assets that are only specific for them due to story and game-play progression.

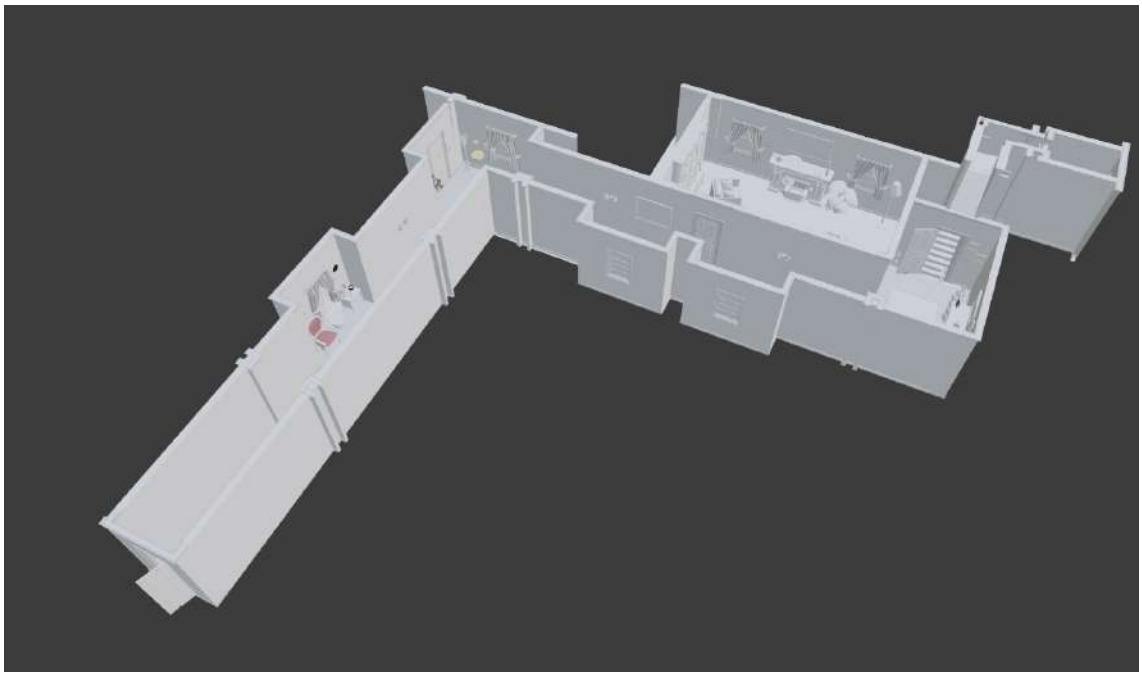


Figure 4.5: Overview of loop five finalized.

4.4.3 Asset Creation

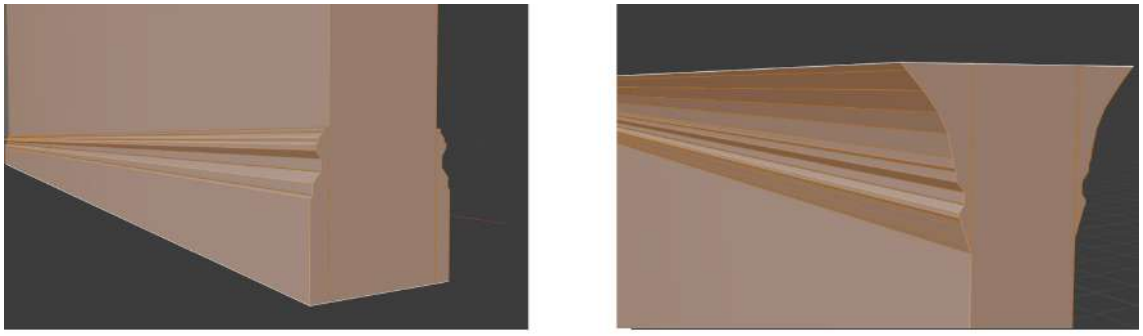
This section will go into detail about some assets that were created, talk about how they were made, show the UV mapping, describe certain software that was used to help achieve a more desired look and optimization, and so on. Some of the more complex assets and textures can be seen in Appendix B.

Using Blender to create the structural assets and keeping in mind that this was meant to be a high-fidelity project with realistic assets and textures, certain details even in walls, were made so that it could feel more realistic and represent the best way the developers could the inside of a house. Figure 4.6 (a) represents the crown modeling of the wall, and 4.6 (b) represents the baseboard.

(a) (b)

Figure 4.6: Overview of the wall details.

After creating these separated assets it was necessary to snap them to the wall and merge them without having conflicted meshes interfering with each other. Figure 4.7 shows the merging of these assets.



(a) (b)

Figure 4.7: Merging of assets.

Having three types of walls, one with a door frame, another with a window frame, and a regular one with nothing in the middle of it in terms of 3D assets, figure 4.8 represent the remaining walls that were not shown in detail until now.

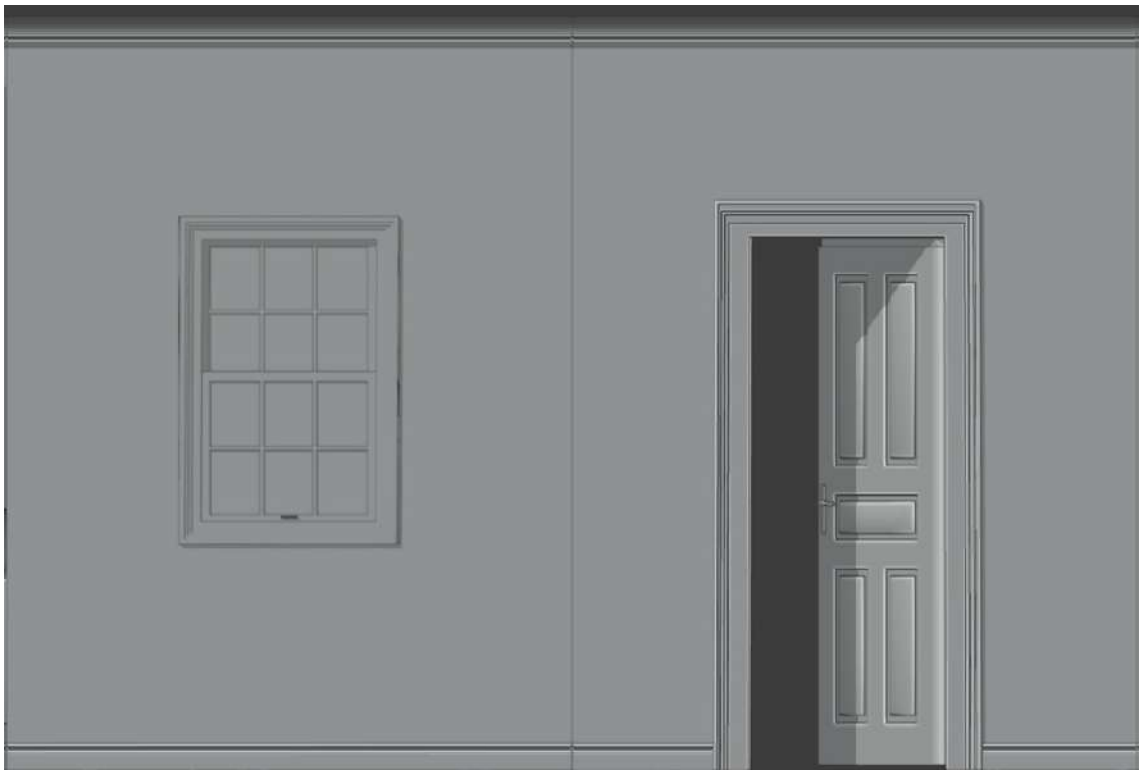


Figure 4.8: Overview of the window and door frame.

After exporting the structural assets from Blend to unity the basic game-play mechanics such as walking could start to be developed, during this time the creation of new assets started. For example, the creation of the sofa pillows was achieved by simulating a cloth material, turning the gravity of that object to zero, and then waiting for the object to achieve the desired aspect. Image 4.9shows the physical properties of this simulation, and the pressure required to achieve the desired form.

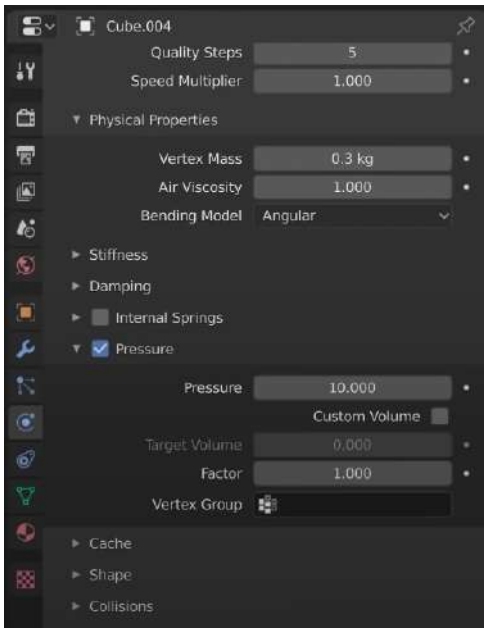


Figure 4.9: Physical properties.

After assembling the desired proprieties towards the asset, to achieve a realistic-looking pillow, the next step was to let the simulation run and chose a frame with the wanted result. Figure 4.10 will show the before and after, the simulation, and chosen frame happen.

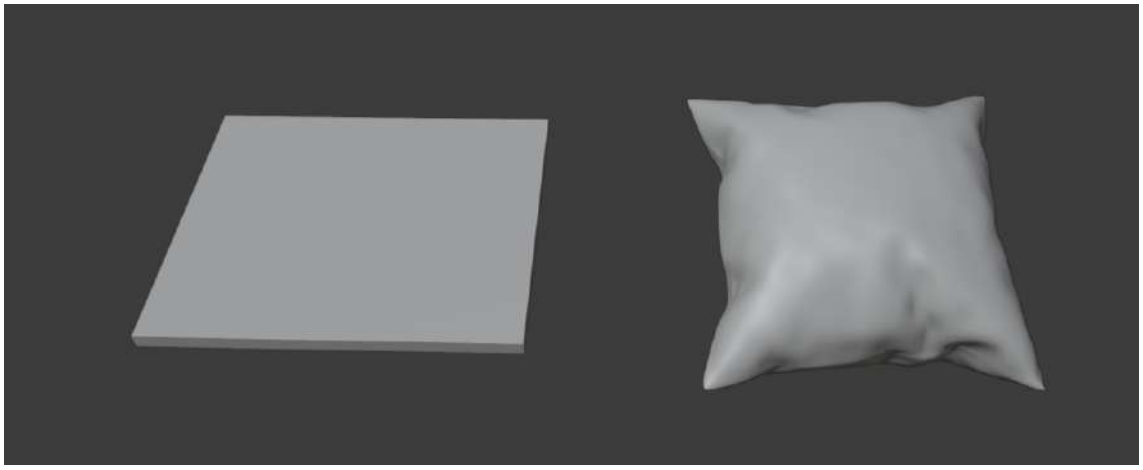


Figure 4.10: The before and after the cloth simulation.

To display an asset with the proper realistic textures, every model needed to be UV unwrapped. The “U” and “V” are a direct connection to the axes of Two-Dimensionall (2D) textures, the projected faces of the model will be displayed on a flat plane as shown in figure 4.11. This step can vary in difficulty since some objects don’t require separating and structuring the unwrapped faces meticulously, but more detailed models do need some time to organize those unwrapped faces since a poorly unwrapped model can ruin the way its texture is visualized.

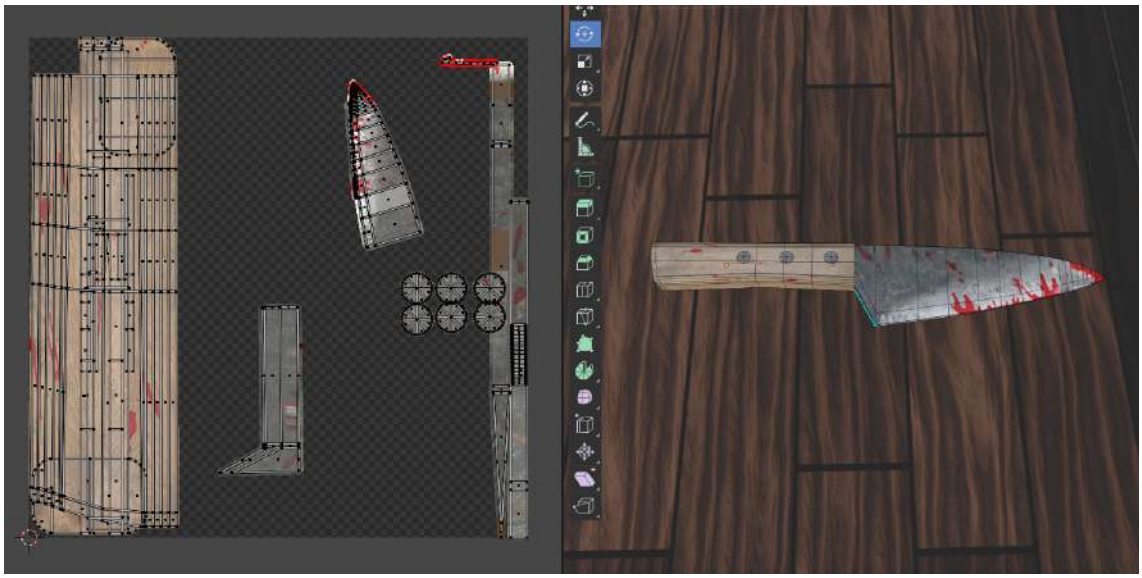


Figure 4.11: Bloody Knife UV map

The creation of assets is something that requires time and dedication. As mentioned previously this project aims to achieve high fidelity graphics, in a certain way to achieve this requires the creation of high polygon models. But this would impact the overall performance of the project.

To maintain an acceptable level of performance while playing the prototype, models with a higher polygon count had to be decimated, although using Blender build-in software to decimate them, could achieve the optimal levels of polygons, the overall look of the model would suffer. So, Instant Meshes was used to achieve the preferred polygon count while maintaining the same overall look of the model. Figure 4.12 shows the high polygon model of the couch, meanwhile, Figure 4.13 shows the same model but with a low polygon count after being exported out of Instant Meshes into Blender again.

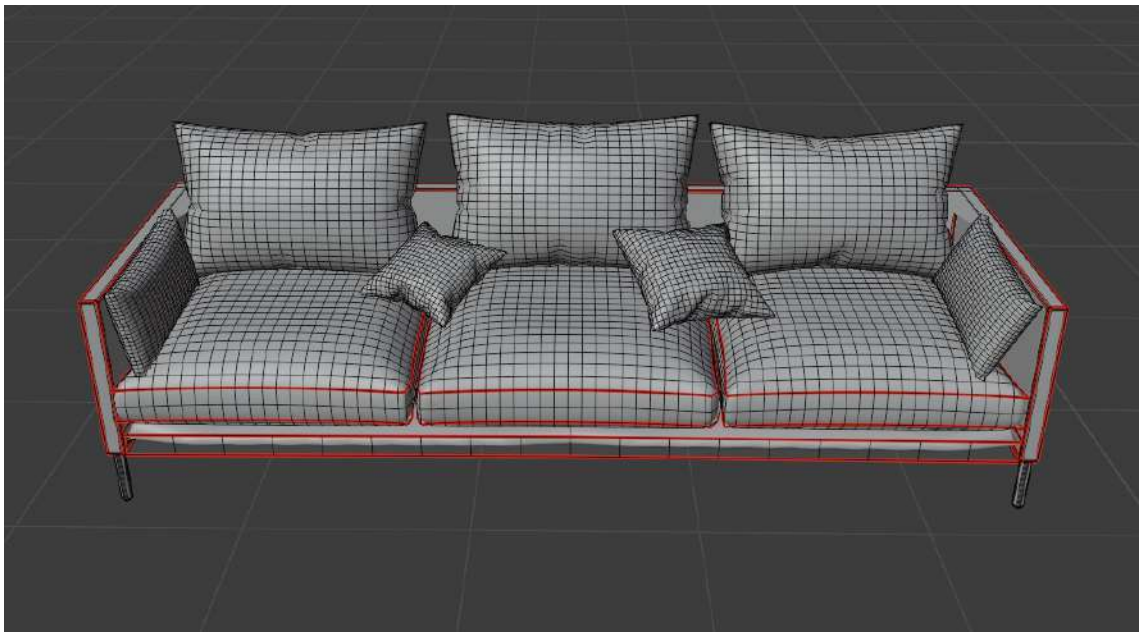


Figure 4.12: Example of the Couch with high polygons.

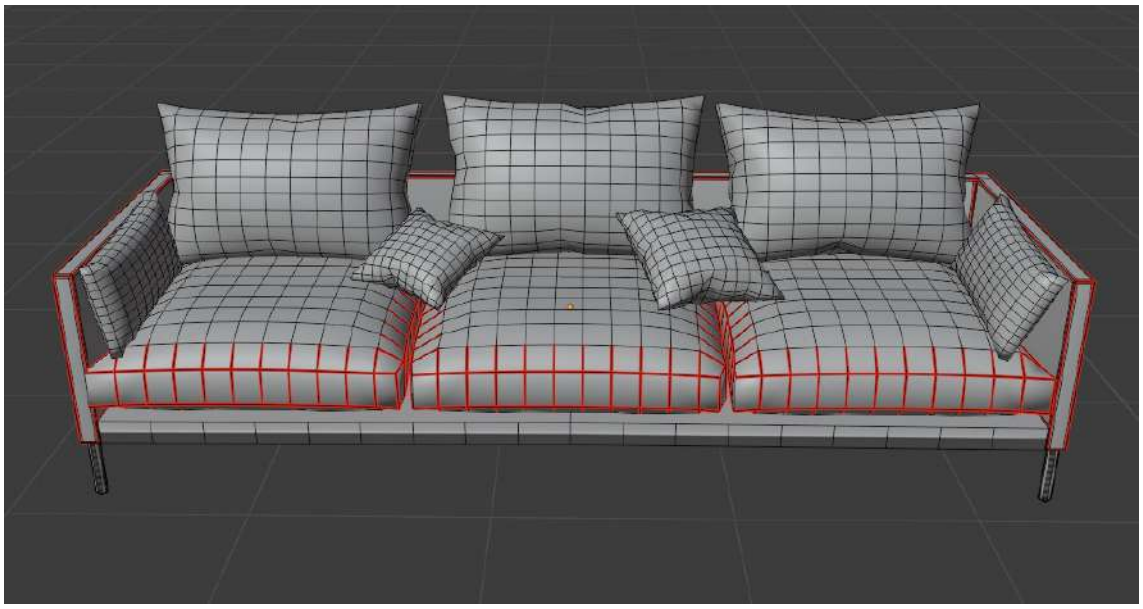


Figure 4.13: Example of the Couch with lower polygons.

This process is important, so the result of the project won't be affected by poor model optimization. The next step was texturing and baking, since most of the textures were created inside Blender, and Substance Painter and adjusted in Adobe Photoshop, some were made using Procedural Textures. This process is the creation of a texture using mathematical algorithms, meanwhile the computer process and generates them we can achieve an unlimited texture resolution to our liking and easy texture mapping. Normally this process is used to create metal, stones, granite, and other surfaces, in this case, it was used to create wooden textures, fabric textures, and glass textures. Figure 4.14 represent the creation of procedural texturing for a wooden texture, and figure 4.15 shows the result.

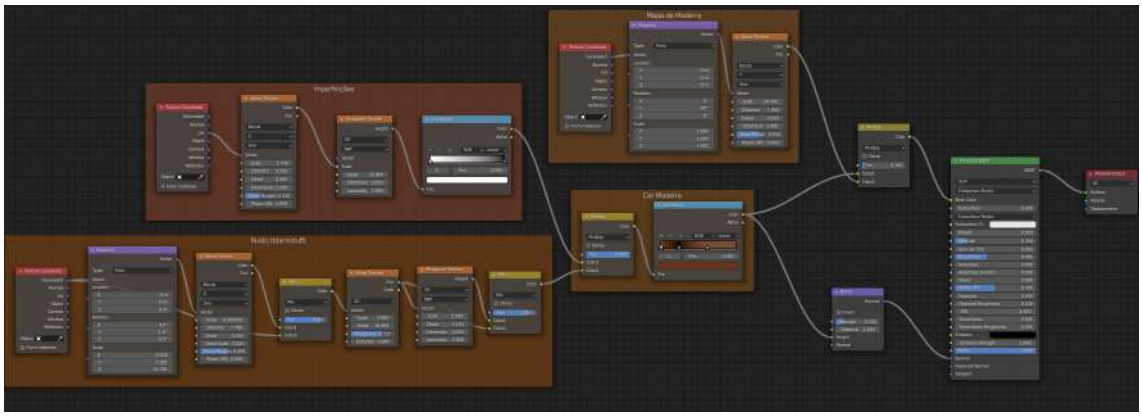


Figure 4.14: Procedural Texturing.

Figure 4.15: Result of Procedural Texturing.

The combination of optimized models, with a lower polygon count and procedural texturing, would assure a higher graphic fidelity of the game while keeping the game from using unnecessary resources and having a stable optimization. Although this was the initial idea, unfortunately, Blender could not export the procedural textures directly into Unity.

So texturing baking was necessary, inside Blender there is a way to bake textures. This process is normally used to bake textures of high polygon models into lower polygon models. In this project, it was used to bake the procedural textures that were created for multiple assets and bake them on an image with the right coordinates, so the object would not have a different look from its original concept.

Figure 4.16 shows the Image Texture layer that was selected to bake the wood texture, while image 4.17 (a) shows the Color map of the same texture, and 4.17 (b) shows the Normal map.

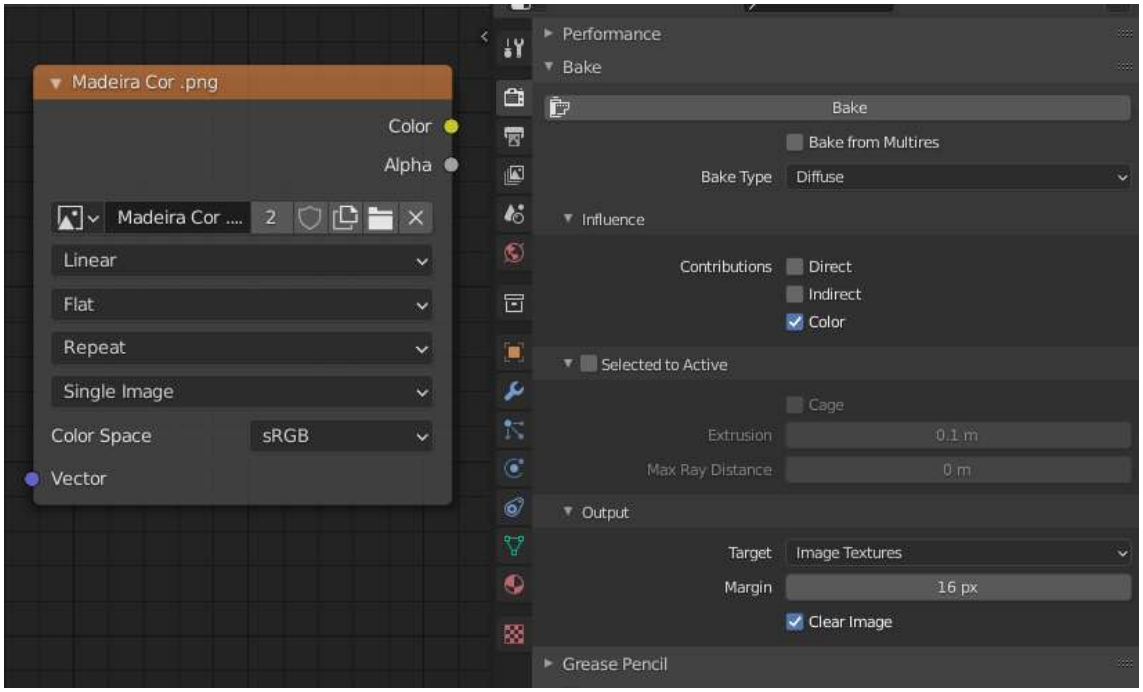


Figure 4.16: Texture Bake process.

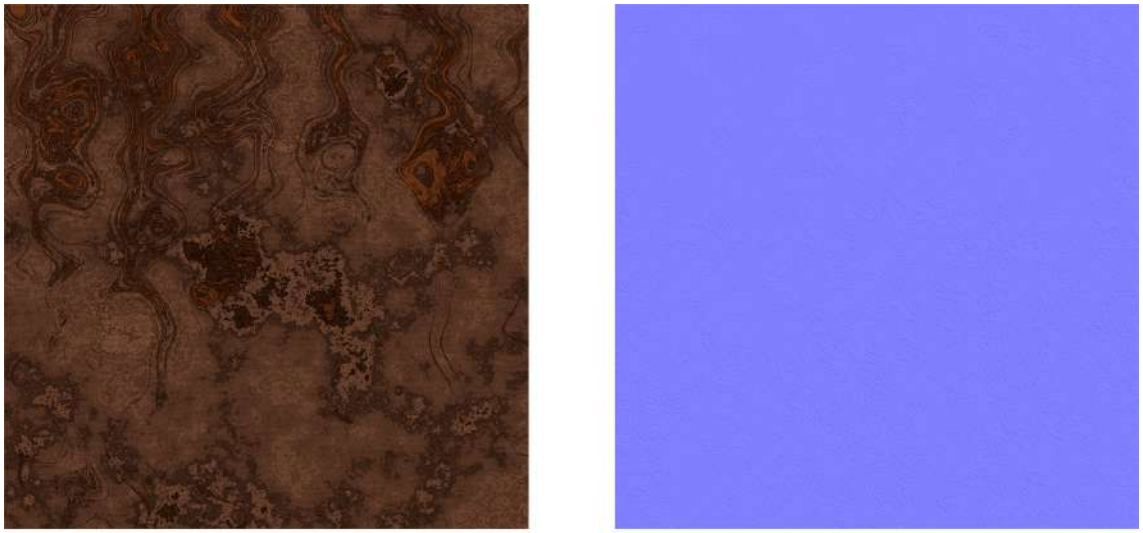


Figure 4.17: Color and Normal map after texture bake.

The creation of more detailed texture, such as blood was done by using Substance Painter, with the use of preexisting brushed and adjusting its values to the desired look. The way textures are painted in Substance Painter is very similar to how Photoshop works. Each

layer is painted, as depicted in Figure 4.18, overlapping each other, and creating effects such as darker blood, dry and wet blood, and dust particles effects all with the use of masks that create seamless transitions. And figure 4.19 shows the rendered result.

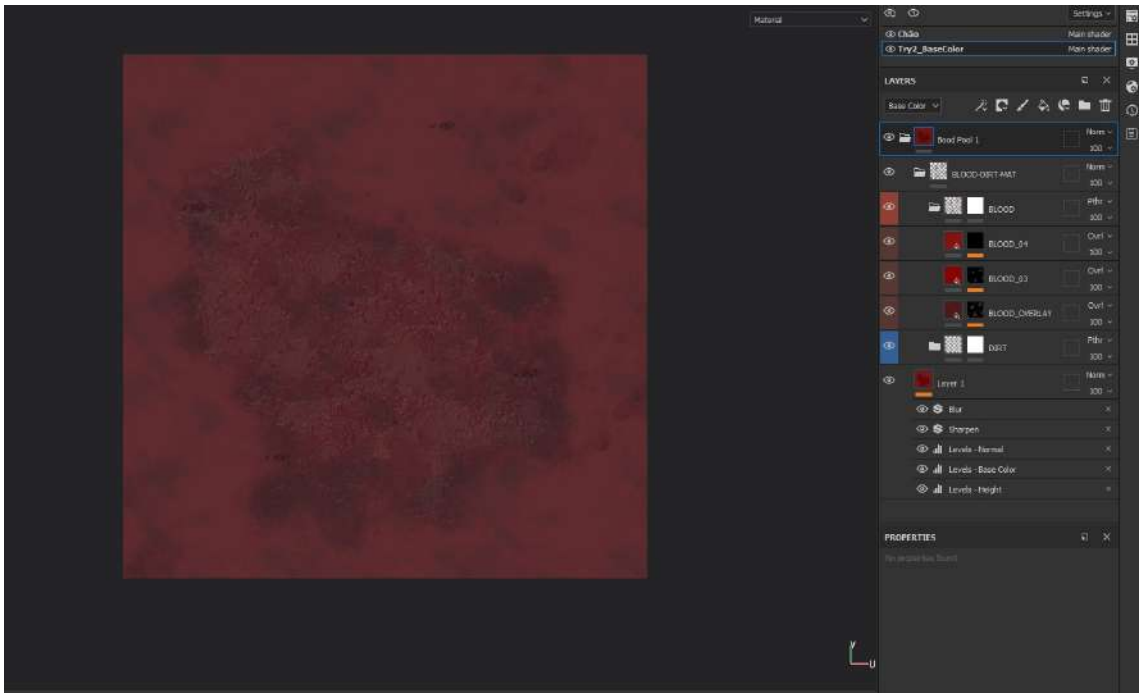


Figure 4.18: Substance painter blood texture creation.

Figure 4.19: Blood texture render.

After completing every step previously mentioned to the remaining assets that would be required, the finalized 3D assets would be exported from Blender in a .FBX file that would

keep all the required information about its textures and world coordinates, and then imported to the Unity game engine, where a material layer would be created with all the textures previously generated and applied to it.

4.5 Game World composition

During the early stages of the development of Victims of Dead Stories, it was settled between the developers that a non-invasive and familiar environment was required. This way, the player would feel more at ease playing and lower his guard until certain predefined events happen. Consequently, those events would be more impactful, giving it a higher chance of scaring the player. So, the environment set to develop this project was inside a house, where the player could feel safer.

The hallway is described in section 3.5 as the main playable area, and as such the creation of assets and special attention was dedicated to its creation. Figures 4.20, 4.21, 4.22, 4.23, and 4.24 will present the final composition of the hallway.

Figure 4.20: Start of the hallway.

Figure 4.21: Certain specific assets for the hallway.

Figure 4.22: Continuation of the hallway that leads to the living room and staircase.

Figure 4.23: Living room entrance.

Figure 4.24: Staircase entrance.

The images above represent the hallway in the game, this representation is the final product so far of Victims of Dead Stories. As can be seen, high-fidelity graphics are one of the requirements for the development of this game. Giving it the most realistic assets and texture that the developer can achieve at the present.

The living room as it was described in section 3.5 is a progression area that will be unlocked in loop six and will open to the player a whole new environment to explore and progress the narrative even further. Figures 4.25, 4.26, and 4.27, will present the final composition of the living room and the assets inside of it.

Figure 4.25: Living room entrance.

Figure 4.26: Inside of the living room.

Figure 4.27: Living room representation of assets and interactions.

The images above represent the living room and the assets that the player can interact with and observe to further develop the lore in the game, this representation is the final product so far of Victims of Dead Stories. The staircase as it was described in section 3.5 serves as the safe area for the player where certain events will still happen, but nothing that harms him in anyway shape, or form. And serves as a loop progression mechanism. Figures 4.28, 4.29, 4.30, and 4.31 will present the final composition of the staircase.

Figure 4.28: Staircase entrance.

Figure 4.29: Inside of the staircase.

Figure 4.30: Door leading to the next loop.

Figure 4.31: Transition to the next loop.

The images above represent the staircase are the finalized look for Victims of Dead stories.

The next presented figures from figure 4.32, 4.33, 4.34, 4.35, 4.36, 4.37, 4.38, to 4.39 will show certain details and changes throughout the game environment. The purpose of showing them is to visually document the changes that happened and how affected the environment got, due to the player progression, describing the lore of our main character behind these changes and new events.

Figure 4.32: Lights start to go out, at the start of loop seven.

Figure 4.33: Living room completely dark with only a flashlight providing light.

Figure 4.34: New events happen to further progress the lore.

Figure 4.35: First ghostly apparition.

Figure 4.36: First indications of environment changes.

Figure 4.37: Environment changes inside the living room.

Figure 4.38: The player being watched.

Figure 4.39: More ghostly apparitions.

4.6 Conclusion

This chapter delved into the tools that were used and how they were used in the early stages of the prototype, describing the parts of the process and reasoning on why certain assets and aspects were created, that would influence the narrative of our story. A detailed presentation of figures was presented, showing the early stages of environment building and the progression it suffered, figures describing how certain assets were created and the values that were used to achieve them, into a finalized presentation of Victims of Dead Stories final look and environment changes followed by, the possible actions and interactions.

Chapter 5

Game-play test and Result

5.1 Introduction

Chapter five will document the game-play test. This testing methodology consisted in gathering a large variety of volunteers. In our case, we gathered ten university students who were willing to help. Each volunteer was given the necessary equipment to complete the game-play test, and this equipment consisted of one laptop, headphones, and a controller.

After completing the game-play testing, each volunteer was asked to complete a survey. This way, the developers could have a more accurate and documented file on what the player felt during this test, what was not evident during it, and other topics such as:

1. Motivation
2. Clarity
3. Achievability
4. Control
5. Immersion
6. Interest
7. Purpose

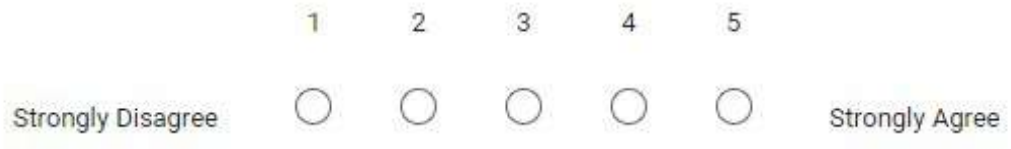


Figure 5.1: Rating system of the survey.

This survey answers will be rated as Figure 5.1 shows. From one is the option where the user strongly disagrees with the question, meanwhile number five the user strongly agrees with the question.

5.2 Motivation

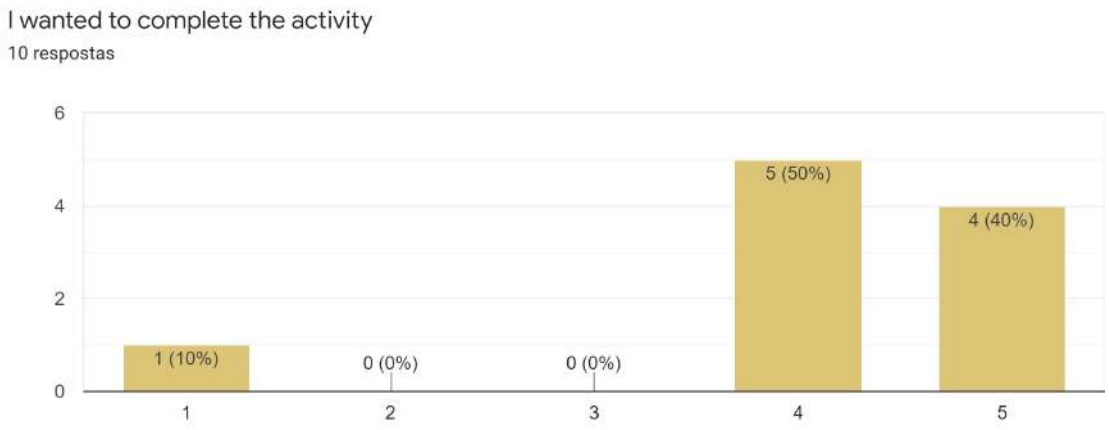


Figure 5.2: I wanted to complete the activity.

Breaking down the answers to the first question, as represented in Figure 5.2, it is visible that a large portion of our testers wanted to complete meanwhile only a small number didn't want to. This shows that we could captivate the interests of the majority of our testers during the game-play test, presenting a positive outcome for our project.

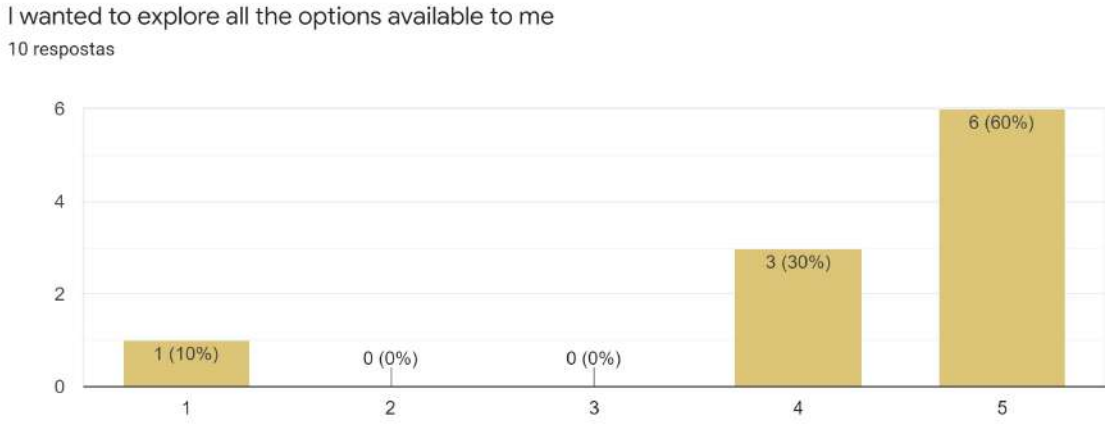


Figure 5.3: I wanted to explore all the options available to me.

Similar to Figure 5.2 Figure 5.3 also shows promising results about the exploration of every mechanic available, and environment exploration. Since most of our narrative is based on visuals, this is a positive outcome for that concept. Allowing us to develop more mechanics that can expand this concept and improve the player experience.

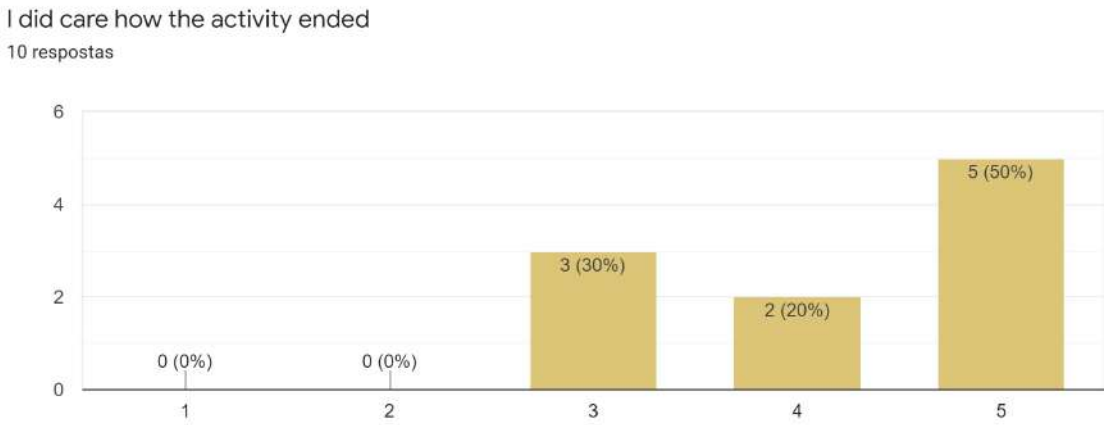


Figure 5.4: I did care how the activity ended.

Even though only being a prototype, most of the answers the developers' got to this question were positive. This data indicates that the volunteers showed interest in seeing how the first chapter would end. Knowing this, we can conclude that some improvements can be made to improve the motivation of future players.

5.3 Clarity

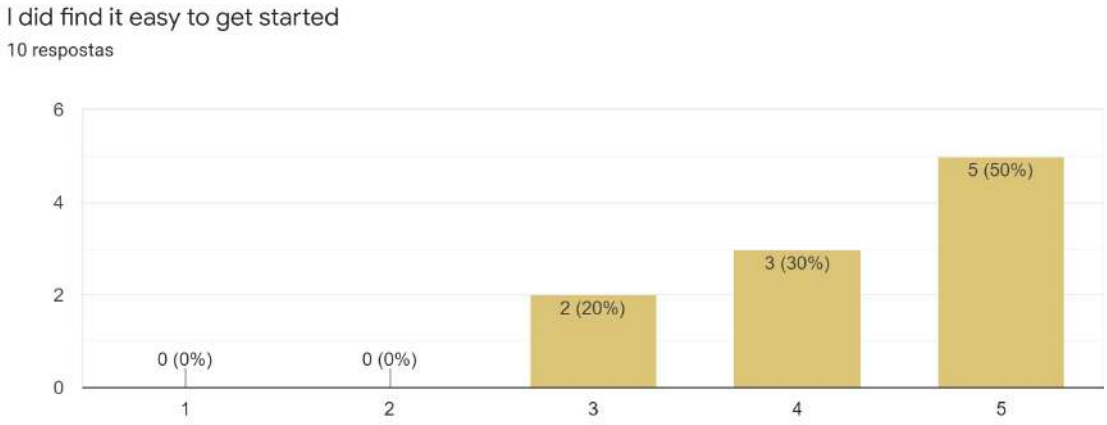


Figure 5.5: I did find it easy to get started.

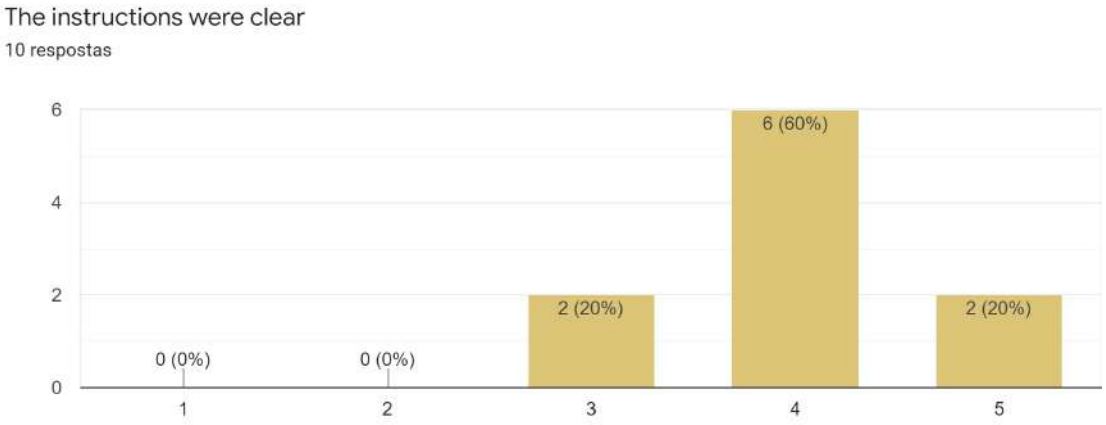


Figure 5.6: The instructions were clear.

This section, as it can be seen in both Figure 5.5 and 5.6 do not show any negative results. But certain comments about improving the overall instructions and what is available to interact were noted. Based on these comments' further development of Victims of Dead Stories, implemented near the start with interactable objects with a higher interaction hit-box, this way the player would be presented right away with interactable objects, having an idea of what can and can't be interactable.

5.4 Achievability

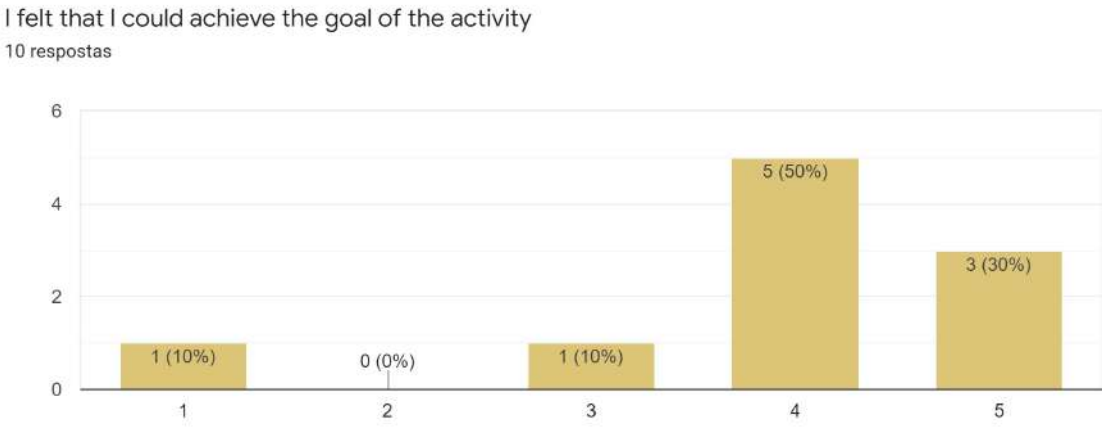


Figure 5.7: I felt that I could achieve the goal of the activity.

On the topic of achievability as shown in Figure 5.7, 5.8, and 5.9 the participants were inquired about the level of being able to feel they could achieve the task that was presented to them, and if they felt in any way frustrated during the testing of Victims of Dead Stories. This section showed more distinct answers, when questioned about it most users explained that there was a lack of what they were supposed to do after an event happened. For example, if the door that was leading towards the staircase was closed, and the player just came from the start of the hallway like always and didn't see or hear anything, what was he supposed to do? It was with this lack of information that most players struggled to progress initially and started to be frustrated. This was solved in future builds by adding audible hints and cues to where the player should go or do in these certain cases. If the player ever reached the staircase door and it was closed, an audible cue would be played behind him, indicating another door was open or something appeared behind him so he could progress.

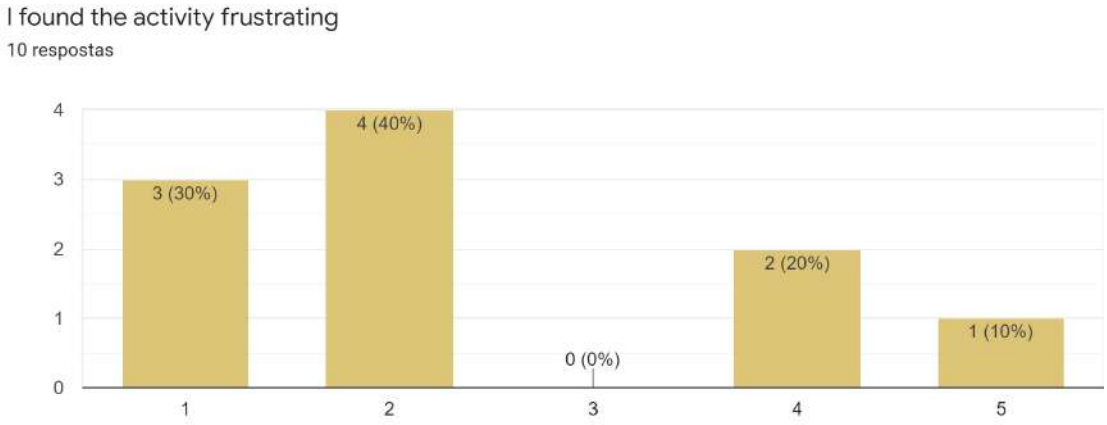


Figure 5.8: I found the activity frustrating.

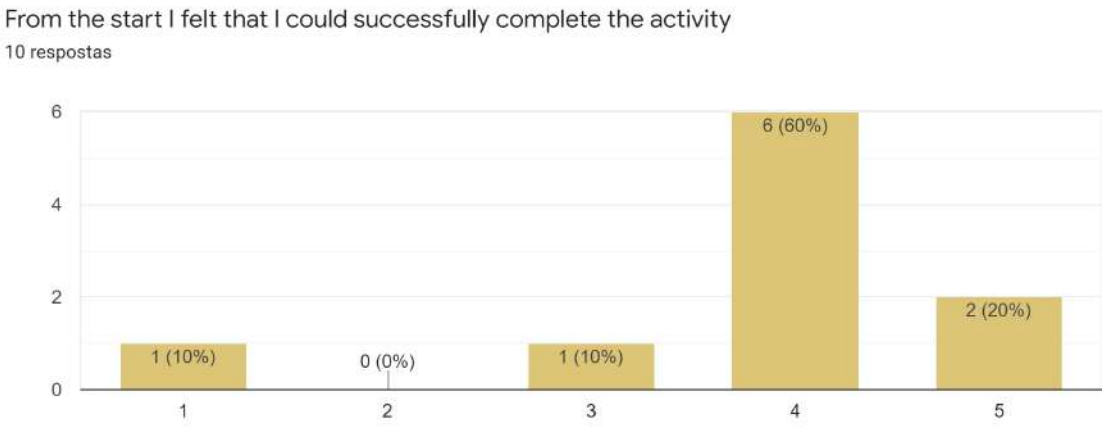


Figure 5.9: From the start, I felt that I could successfully complete the activity.

5.5 Control

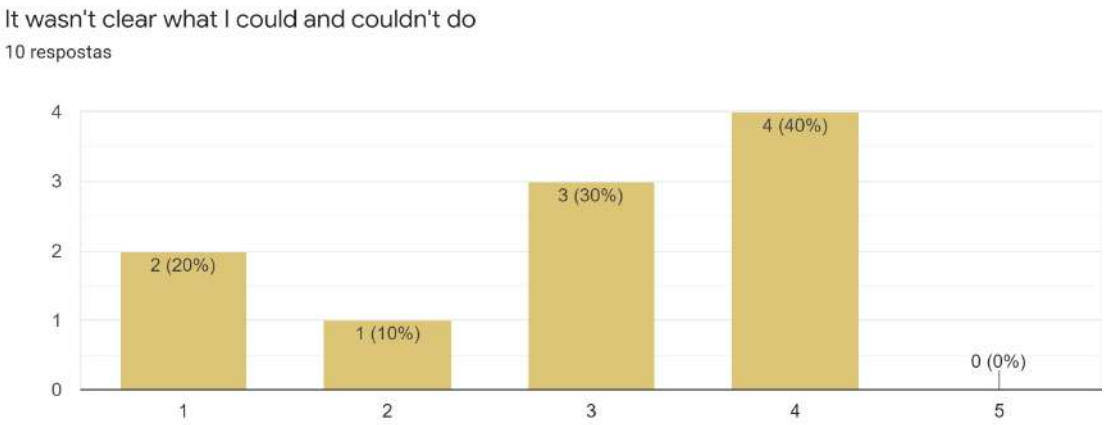


Figure 5.10: It wasn't clear what I could and couldn't do.

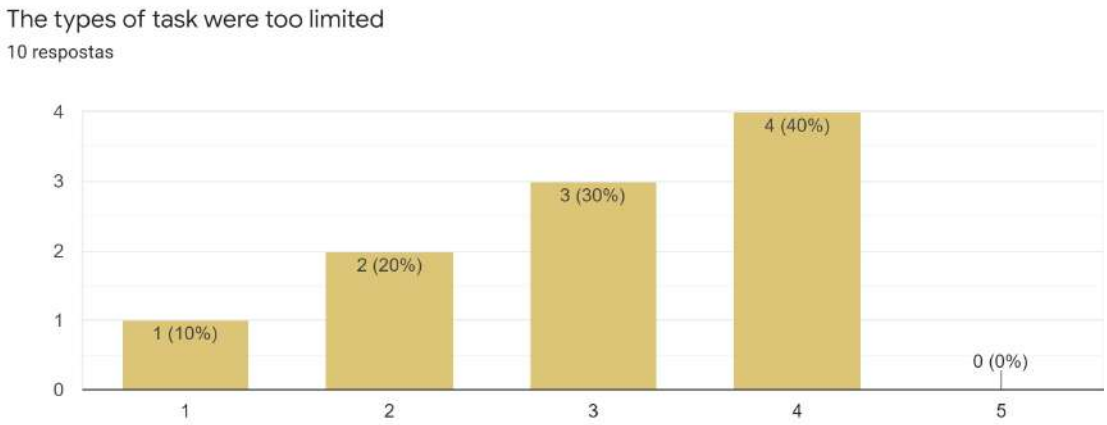


Figure 5.11: The types of tasks were too limited.

Similar to Section 5.3, during the game-play test most of our users didn't know what they could interact with and do. The lack of instructions during the beginning was something that we improved upon in recent builds and are already planning to develop new mechanics to further improve the experience for our users, one of which is creating puzzles as can be seen in Section 6.2.

5.6 Immersion

This section as it can been seen by the figures 5.12, 5.13, 5.14, 5.15, 5.16, 5.17 they show how the user's felt during the game-play test, on an emotional level, being a horror game, it was important to know this topic if even during our prototype we couldn't make the users feel terrified or absorbed towards this narrative, visuals, and mechanics, the whole project would need a remake.

It was concluded that the majority showed high levels of emotions towards this prototype, leaving only a few that were most used to horror games feeling a bit less terrified towards the evens and environment changes. Being complimented on the visuals of Victims of Dead stories it was noted that achieving these high-fidelity graphics helped greatly in accomplishing an immersive environment, resulting in the players feeling absorbed during the game-play test. The only complaint that was noted was the prototype being too short, at the time it was only possible to play four loops. Now chapter one is completed with eleven loops making it longer and with more content to explore.

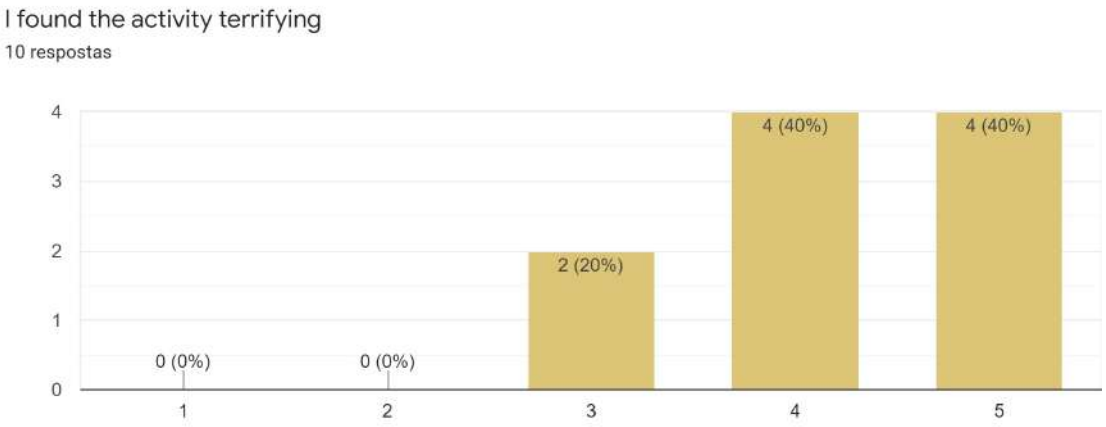


Figure 5.12: I found the activity terrifying.

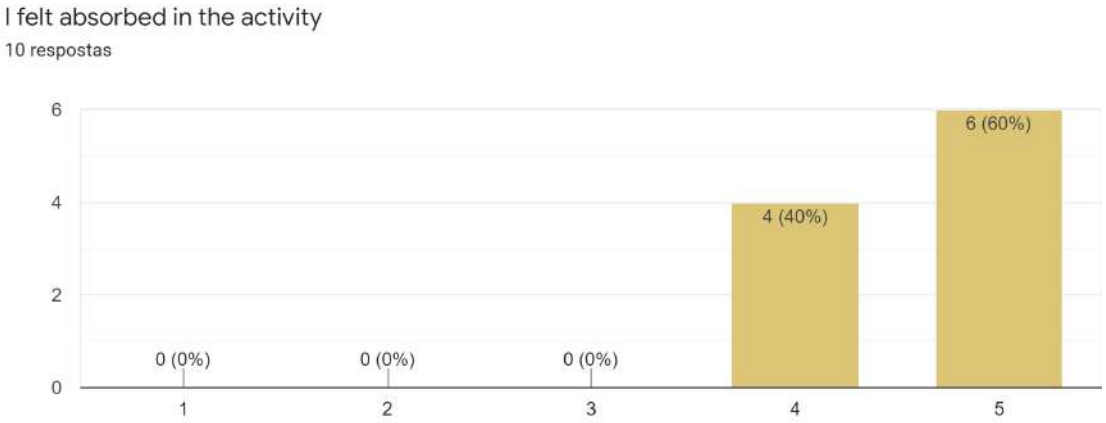


Figure 5.13: I felt absorbed in the activity.

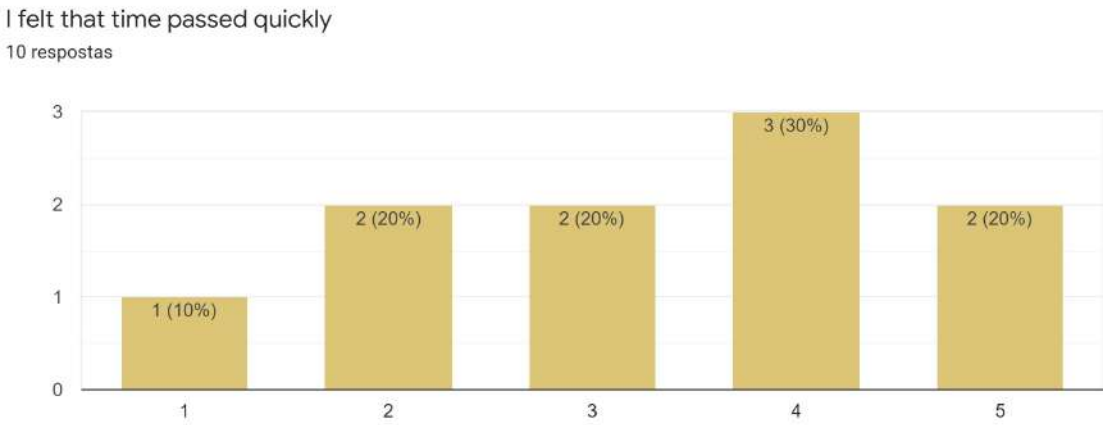


Figure 5.14: I felt that time passed quickly.

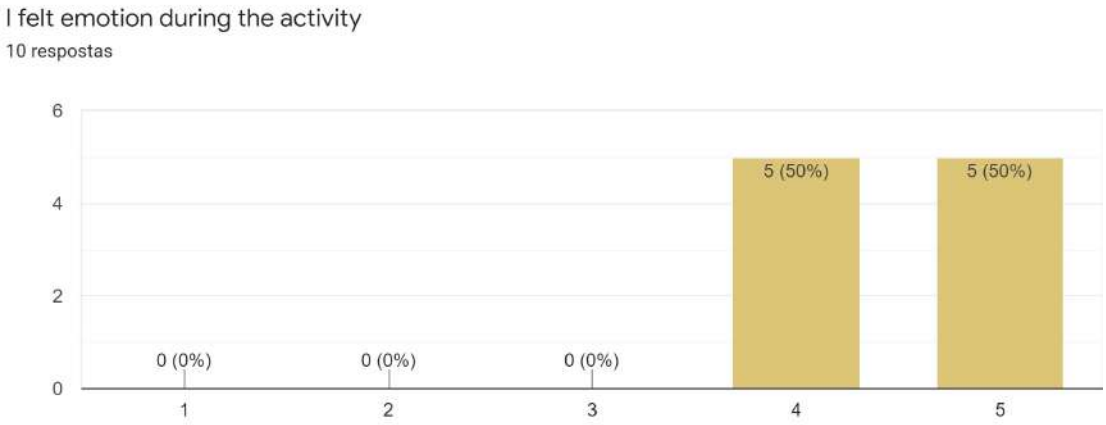


Figure 5.15: I felt emotion during the activity.

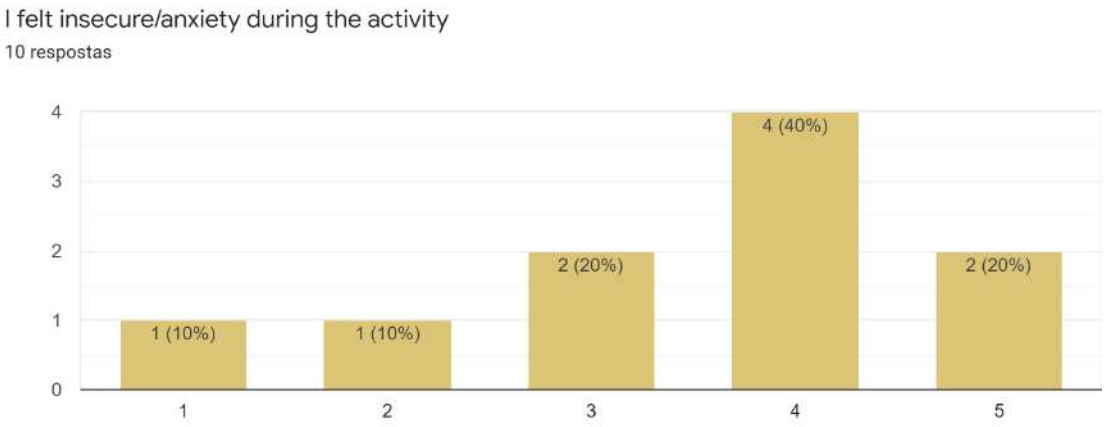


Figure 5.16: I felt insecure/anxiety during the activity.

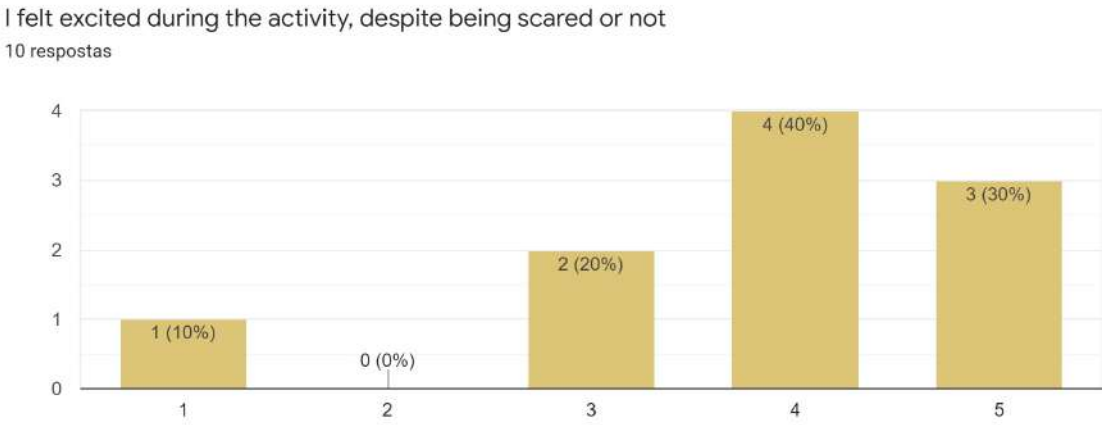


Figure 5.17: I felt excited during the activity, despite being scared or not.

5.7 Interest

This section of the survey helped the developers in knowing how the user's felt about the visuals, and narrative of Victims of Dead Stories. As it was pointed out in Section 5.6, the visuals of this project were something that captivated the interests of users at the start and helped develop the narrative. Both points are shown to achieve a great impact on all ten of the volunteers, as shown in Figures 5.18, 5.19, 5.20, 5.21, 5.22, 5.23, and 5.24.

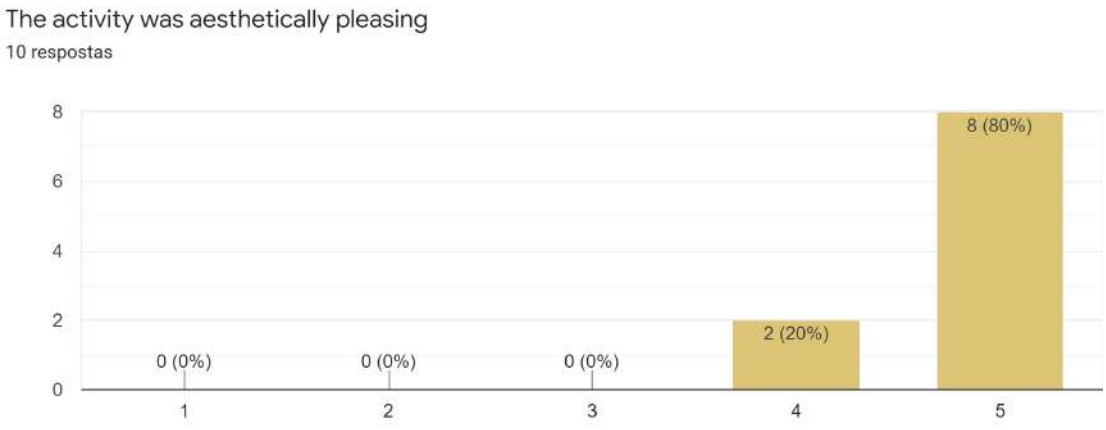


Figure 5.18: The activity was aesthetically pleasing.

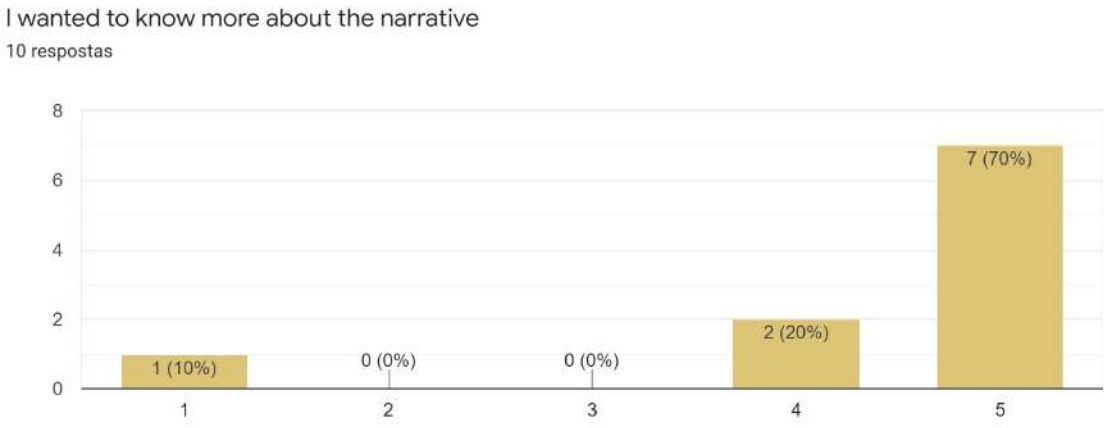


Figure 5.19: I wanted to know more about the narrative.

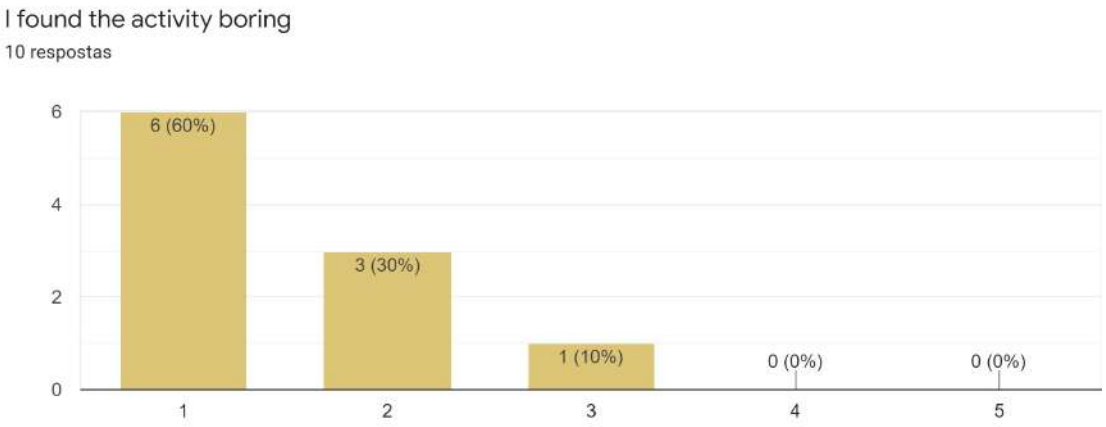


Figure 5.20: I found the activity boring.

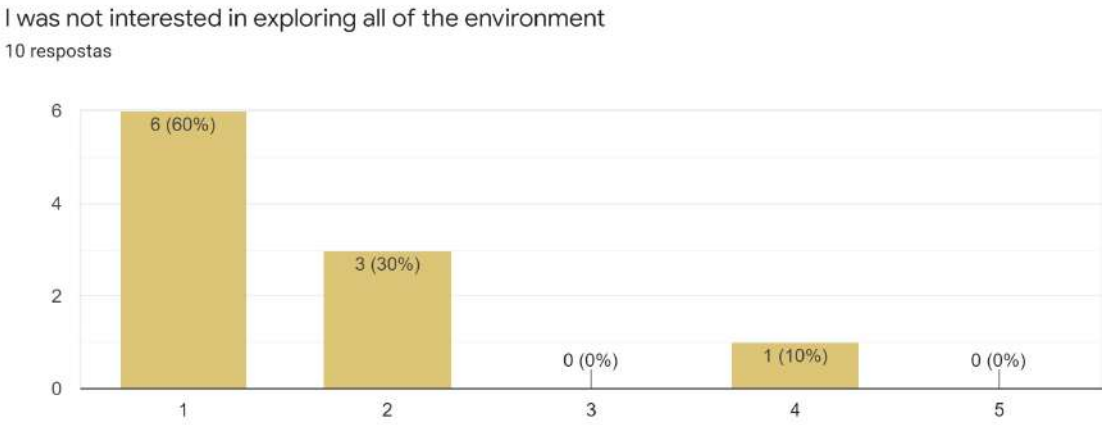


Figure 5.21: I was not interested in exploring all of the environment.

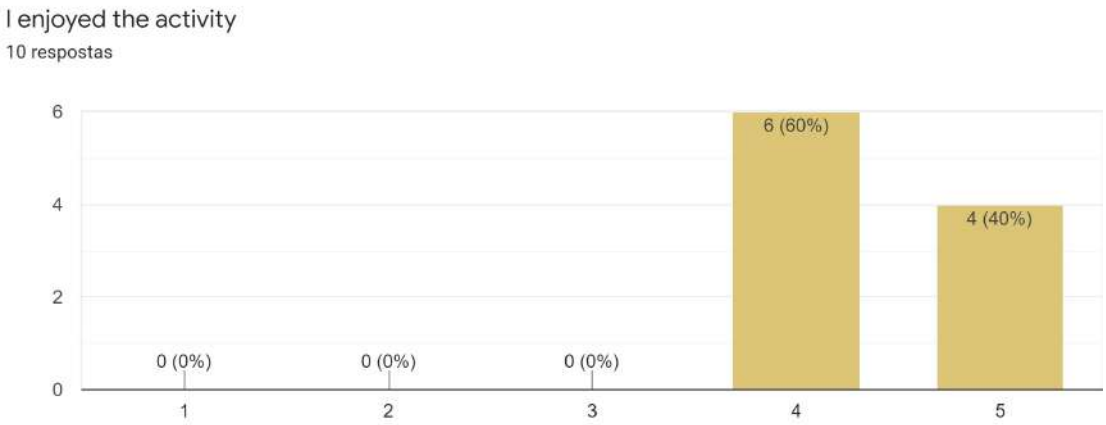


Figure 5.22: I enjoyed the activity.

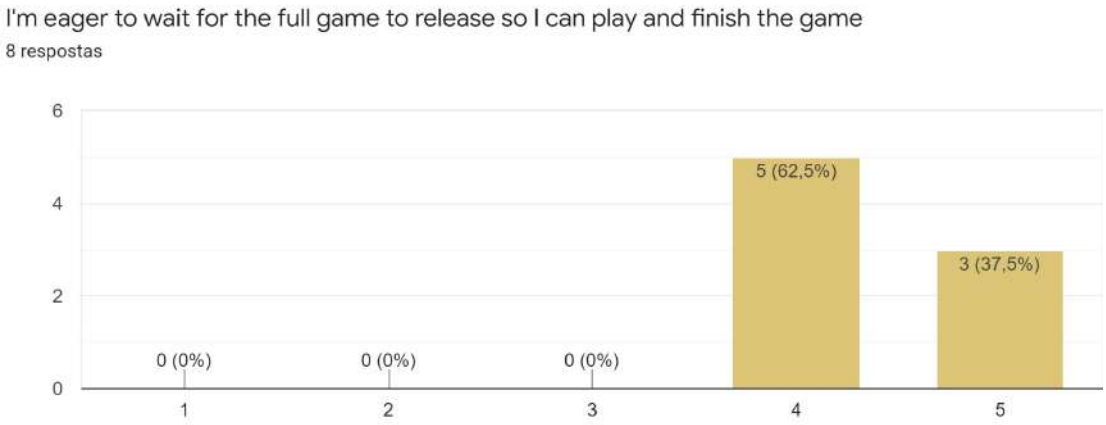


Figure 5.23: I'm eager to wait for the full game to release so I can play and finish the game.

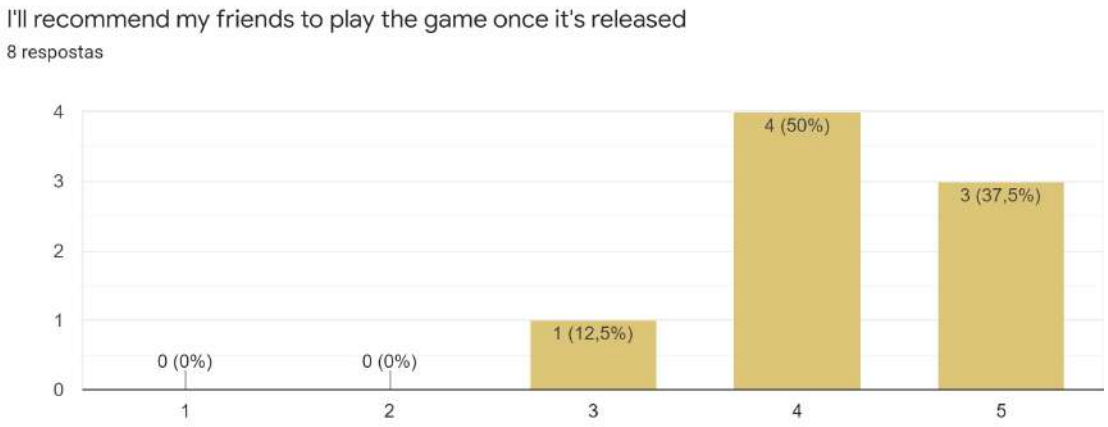


Figure 5.24: I'll recommend my friends to play the game once it's released.

5.8 Purpose

The last section of the survey served as a way to document if any interactions that the developers had during the game-play test, with the volunteers, served useful in any way shape, or form. This way the feedback that was given to the volunteers if it was impactful and useful, we could point that as changes that would be made in the next build of Victims of Dead Stories. But as shown in Figures 5.25, 5.26, and 5.27 the users consider the activity useful and the feedback positive.

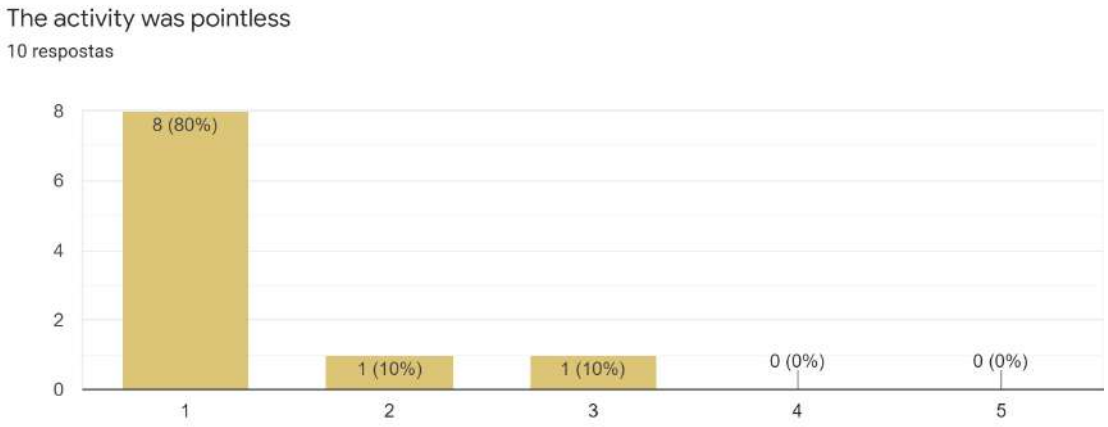


Figure 5.25: The activity was pointless.

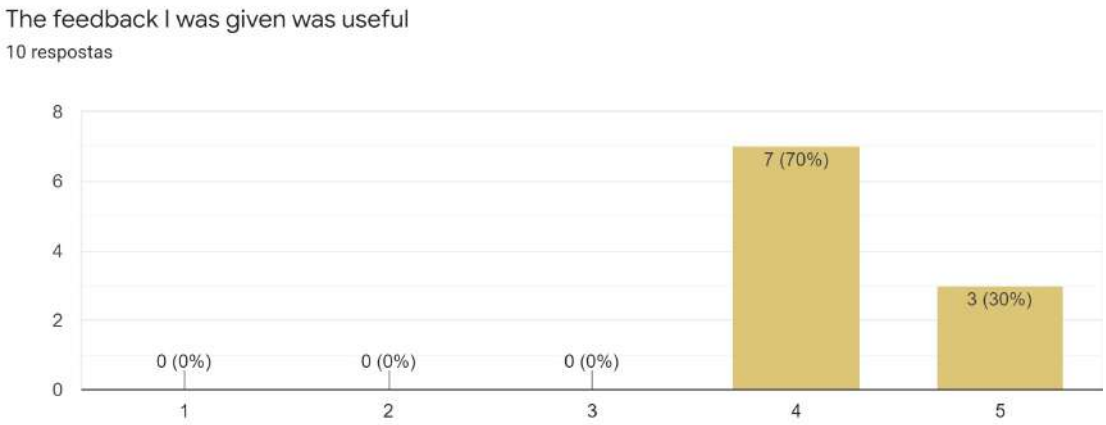


Figure 5.26: The feedback I was given was useful.

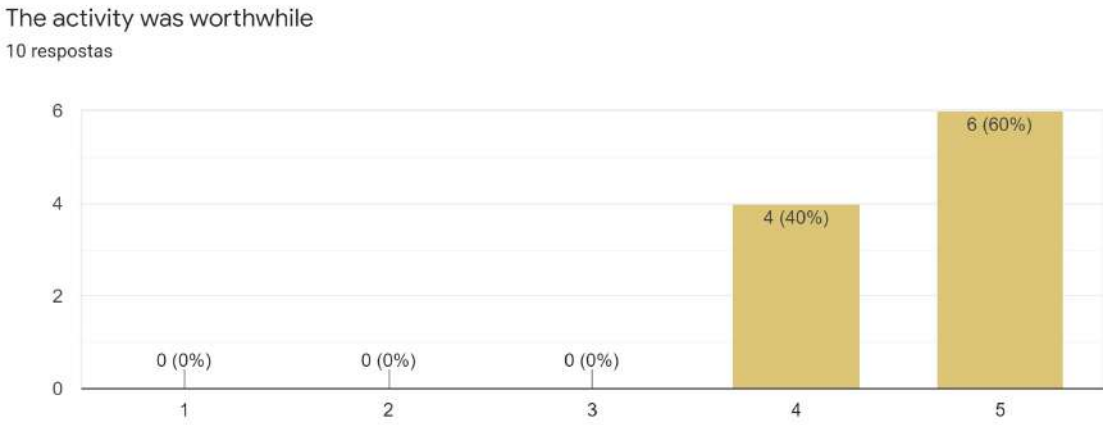


Figure 5.27: The activity was worthwhile.

5.9 Conclusion

After analyzing the survey data, and the notes that were taken during the game-play testing, it was concluded that the prototype of Victims of Dead Stories achieved a positive response, that supported the main focus both developers had. Creating immersive with realistic-looking graphics and assets that would be able to tell a narrative via its visuals. This survey helped in improving certain aspects that were missing or not well implemented for future build of Victims of Dead Stories.

Chapter 6

Conclusion

The purpose of this chapter is to present the conclusions taken from this project, from the design, development, and game-play testing point of view in section 6.1. Section 6.2 will present a list of future planned changes and improvements for Victims of Dead Stories

6.1 Conclusions

Victims of Dead Stories is an ambitious project since its early stages both developers had two main goals to achieve. The creation of the loop system, in a flawless way where no loading screens would be presented, and high-fidelity graphics. Both of these tasks were time-consuming, and a lot of mistakes and errors did appear during their progress.

During the first build of Victims of Dead Stories, it was noticeable that the graphical capabilities were not desired. Comparing the prototype graphical capabilities at the time with the assets renders from Blender, it was noticeable different, and as such something had to be done. The render pipeline changed from URP, which was being used during the first prototypes, to HDRP. This change proved to be the best choice for Victims of Dead Stories since it could achieve the desired graphical capabilities. This was one step back that both developers had since it would require to re-build the prototypes again. Only after being assured that the looping system was working as intended and it could sustain high fidelity graphics without compromising the optimization, did the story start to take shape. Initially, the main character was supposed to be in a coma, and the player would re-live his daily life over and over, with changes to the environment suggesting that his condition was worsening until his impending death. But after further discussion and brainstorming, that narrative was scrapped and a new one was created. Despite this, a new narrative was created using the previous idea of environmental changes and implementing a narrative where the use of schizophrenia being a mental disorder was implemented. This way the events and environmental changes could develop the narrative even further and explain to the player with subtle hints of what's going on. Thus the development of realistic assets was done and presented in the game with high-fidelity graphics as planned. Taking advantage of software such as Blender for creating the displayed assets and procedural texturing. Intending to create realistic assets, some of those had too many high polygons, so using Instant Meshes helped significantly to improve that problem and increase performance. Substance Painter further improved the realism of the assets that those textures would be placed upon, and Substance Designer served as a pillar of ideas for assets and helped create them. Lastly, Adobe Photoshop is used to correct specific details n textures or fix them more easily.

Realizing the game-play test in person and presenting a questionnaire at the end, presented positive results, showing that certain changes that appeared during development didn't backfire, and most players that participated liked what they saw and experienced. Some left helpful reviews and help both developers with certain aspects of improving the overall game-play experience.

In conclusion, Victims of Dead Stories is a project developed alongside another student, João Tinoco, who was mainly focused on the programming side of things but also helped extensively in designing the game environment and planning the structural architecture of the playable area. Working alongside João Tinoco improved my views on working within a team, respecting others and knowing a middle ground when certain aspects cannot be implemented, hearing feedback and working upon it to improve the project further. All of those things contributed to Victims of Dead Stories. Thus this project aimed to show both developers' capabilities in their areas, a project slowly evolving into a fully completed game with hopes of the future being used to show what two indie developers can achieve.

6.2 Future Work

After concluding the first chapter of Victims of Dead Stories, and with the experience that was earned during its development, the following future work was devised:

1. Creation of more interactive objects to further the story;
2. Diversity on events that occur and create puzzle mechanics to further improve the game-play experience;
3. Variety of different locations that the loop system can take us, not only being restricted to one environment;
4. Implementing audible feedback of the main character's emotional and physical status;
5. Development of an AI that will eventually follow the player to further the horror experience.

The goal of Victims of Dead Stories is to further expand upon what is already done and finish multiple chapters, where every character involved can tell their own story, just like the game title suggests. Furthermore, if everything goes smoothly, release the game to the public.

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Appendix A

Game Design Document

This Appendix presents the Game Design Document created during the prototype development to record the game's main components.

Victims of Death Stories

Game Design Document

Dev: João Tinoco

Designer: João Garcia

QA: João Tinoco, João Garcia

Title: Victims of Death Stories

Written By: João Tinoco, João Garcia

Game Logo:

Game Icon:

Team Logo:

Team Roles:

- João Tinoco- Game Design and Game Programming
- João Garcia- Game Design, 3D Modelling and Texturing

Game Objectives: The main objective of the project was to develop and design a highly realistic looking, psychological horror game, based on certain aspects of schizophrenia and how does that are affected by this mental disorder may see the world.

Genre: Psychological Horror, First-person, Single-player, Exploration

The Big Idea: The main goal is to create a highly realistic-looking game with textures and assets that support that desire, where the narrative will be explained via its visuals. And have a flawless looping system that will gradually change the environment.

- **Game storyline**: The main character suffers from a mental disorder called schizophrenia, starting to hallucinate and hear voices the player will start to see the ghostly apparition of who once was the main character's wife. Forced to have these hallucinations and delusions the player will travel throughout the house only to find himself coming to the start again and again. The further the player progresses, he will find out that the main character killed his wife one day when he was hallucinating.
- **Target Audience:** Players that enjoy horror-style video games, Mature
- **Hooks:** The looping system that will gradually show the mental state of our main character getting worse with each loop will be represented in the environment and events that will occur.

Platform: Windows PC, Xbox, PlayStation.

The game was developed on a machine with the following specs:

- Processor: Intel i7-7700 HQ 2.80Ghz;
- Graphics Card: NVIDIA GTX 1050 Ti 4GB VRAM;
- Memory: 16GB RAM;
- OS: Windows 10.

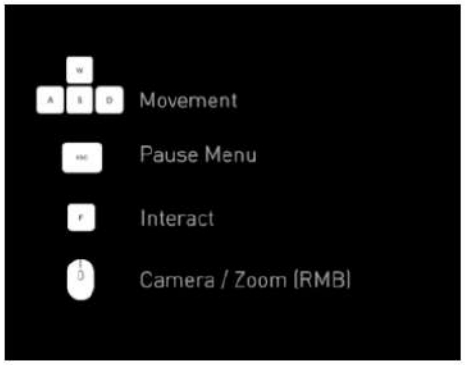
Start the game: The player can choose which chapter to play on the main menu screen, further chapters will be unlocked after the previous ones are completed.

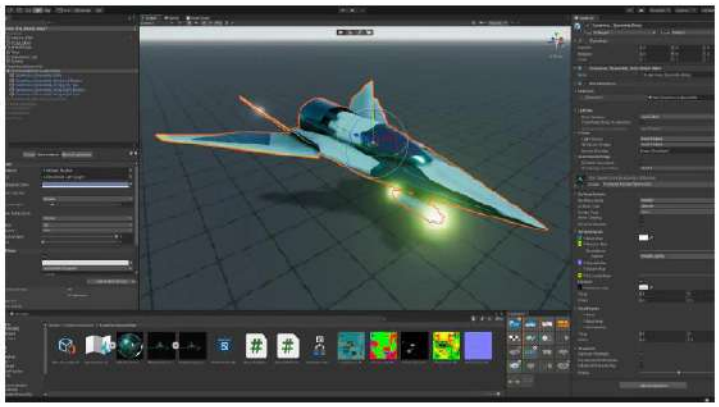
Player movements: The player can walk and interact with certain objects, his movement controls will be explained further down the GDD.

Ending: Every chapter has one end, either by concluding what the main character is going through or leaving it upon for further chapters.

Exposition: The player will be introduced to in-game mechanics during its gameplay, right at the start the player can interact with a postcard that will teach the player how to observe and interact with specific objects.

Controls: Victims of Death stories can be played with a mouse and keyboard or a controller, as shown in the images below.





Software Used:

- Required to Use Unity as the game engine (João Tinoco);
- Unity Packages (João Tinoco);
- Unity Libraries (João Tinoco);
- Unity Asset Store (João Tinoco);
- Source control tool: GitHub Unity Collaborate (João Tinoco, João Garcia);
- Blender (João Garcia);
- Adobe Photoshop (João Garcia);
- Substance Designer (João Garcia);
- Substance Painter (João Garcia);
- Instant Mesh (João Garcia);
- Google Forms (João Tinoco, João Garcia).

Camera: First Person

Main Menu Screen:

- Chapters
- Options
- Quit

Chapters Screen:

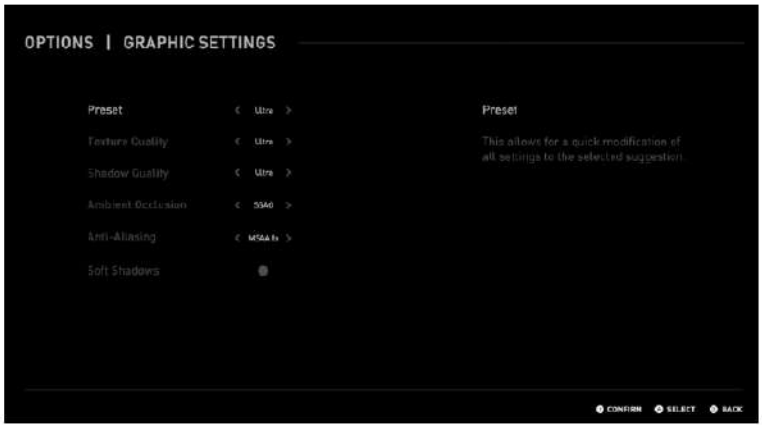
- Chapter I: The Never-Ending Thoughts;
- Chapter II: What to father Kythic;
- Chapter II: Enter Madness.

Option Menu Screen:

- Display;
- Graphic Settings;
- Audio;
- Controls.

Display Settings:

- Resolution;
- Display Mode;
- Brightness;
- Vertical Sync;
- Subtitles;
- Motion Blur;
- Bloom;
- Film Grain;
- Chromatic Aberration.



Graphic Settings:

- Preset;
- Texture Quality;
- Shadow Quality;
- Ambient Occlusion;
- Anti-Aliasing;
- Soft Shadows.

Graphic Settings:

- Music Volume;
- SFX Volume;
- Dialogue Volume.

Interactions: During the gameplay, the player will find certain objects that can interact with.

Inspecting Objects: Part of the interactable objects can also be available for inspection, to further develop the narrative.

Events: While exploring the game environment the player will be exposed to events, this can be from ghostly apparitions to flashing words on the TV screen.

Environment Design:

- House with only one floor, divided into three, the living room, the hallway, and the staircase

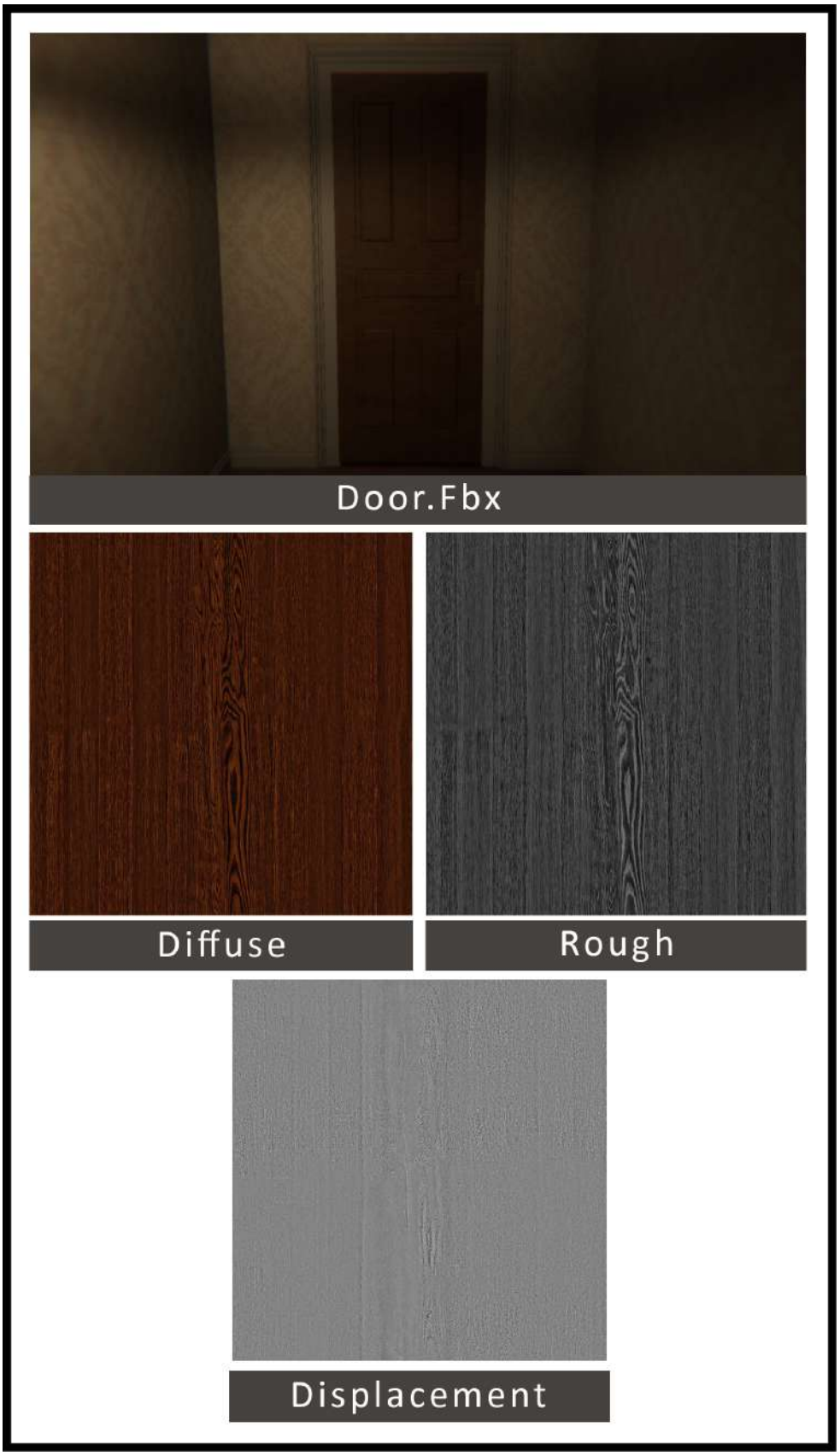
Player progression: The player will explore mostly the hallway since it will be their more popular play area, after a certain number of loops have been completed and events, the living room will be unlocked. The staircase will serve as a save area and progression mechanism.

Appendix B

3D Assets and Textures

This appendix will present some of the final 3D assets and textures developed and presented in Victims of Dead Stories.

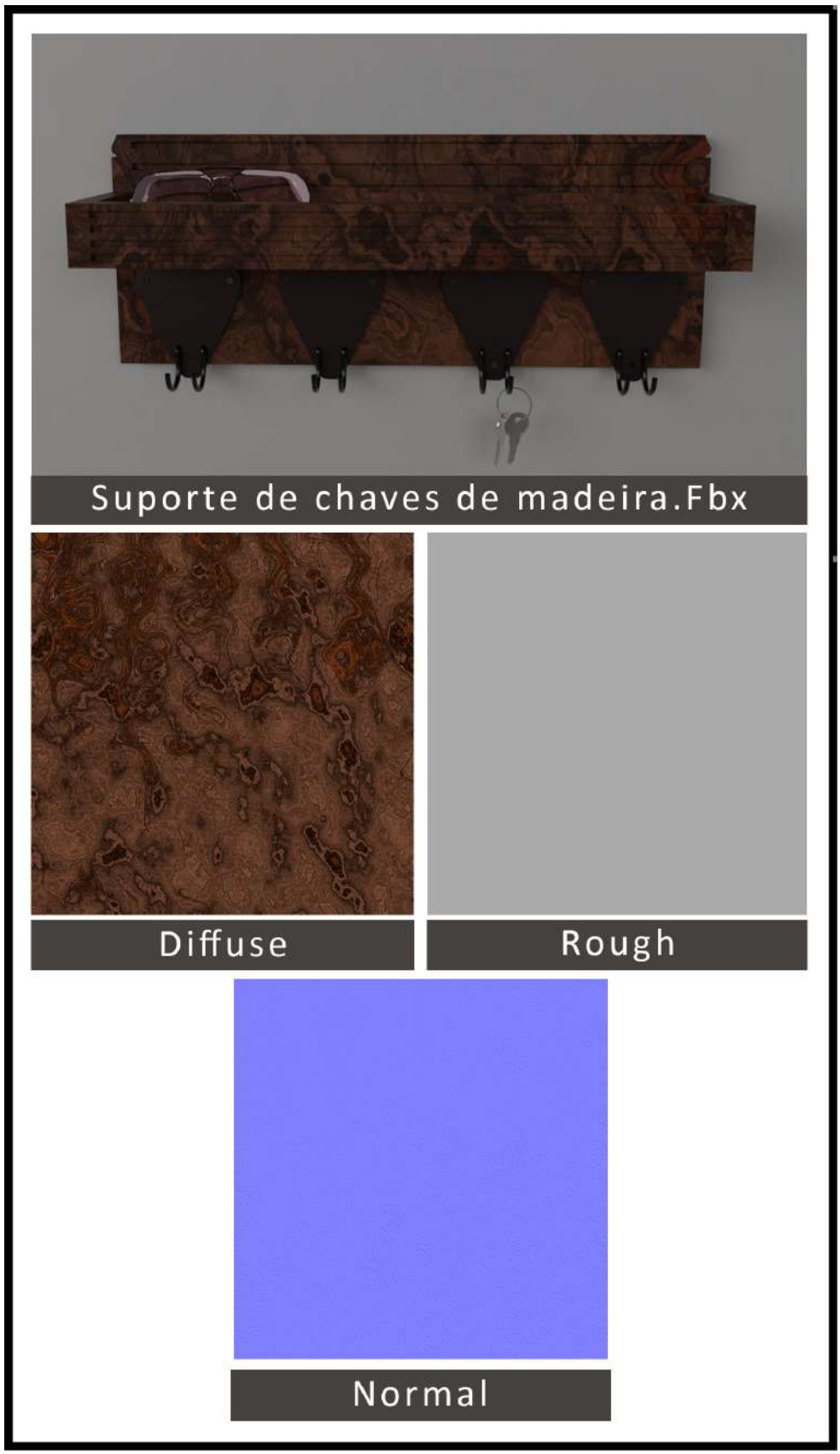
B.1 Door



B.2 Curtains

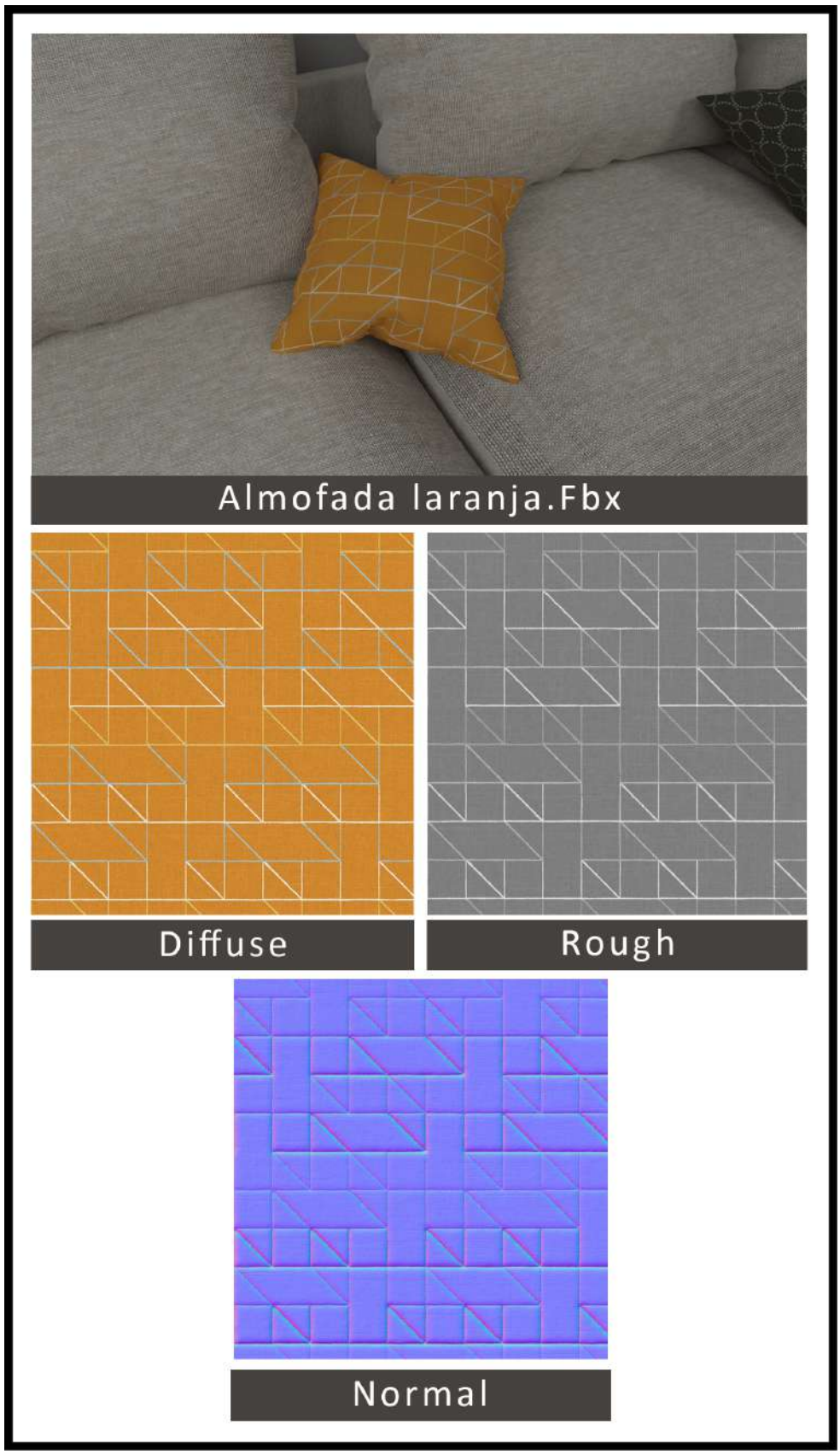
B.3 Fabric Curtains Support

B.4 Front Door Key Holder

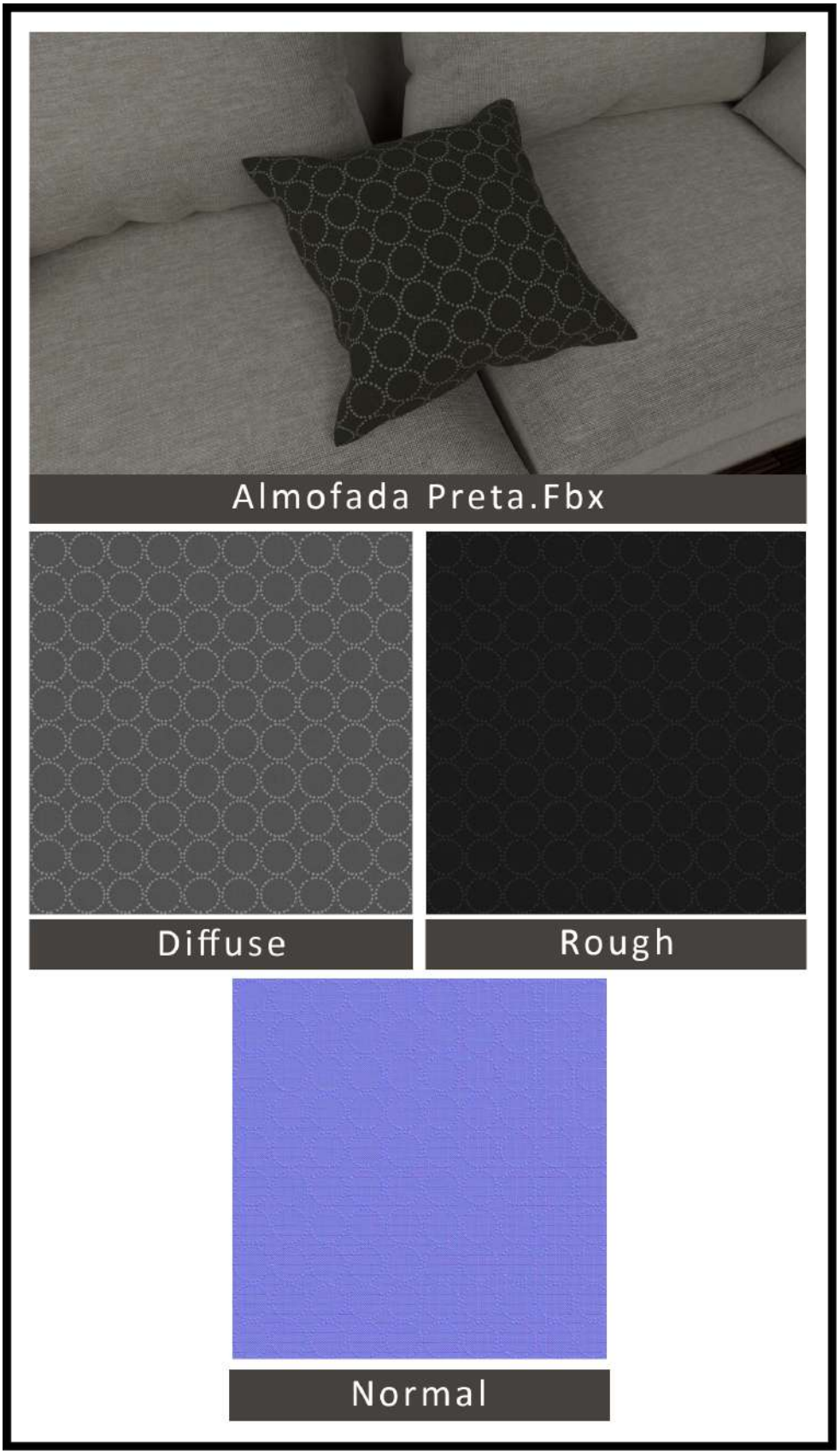


B.5 Couch

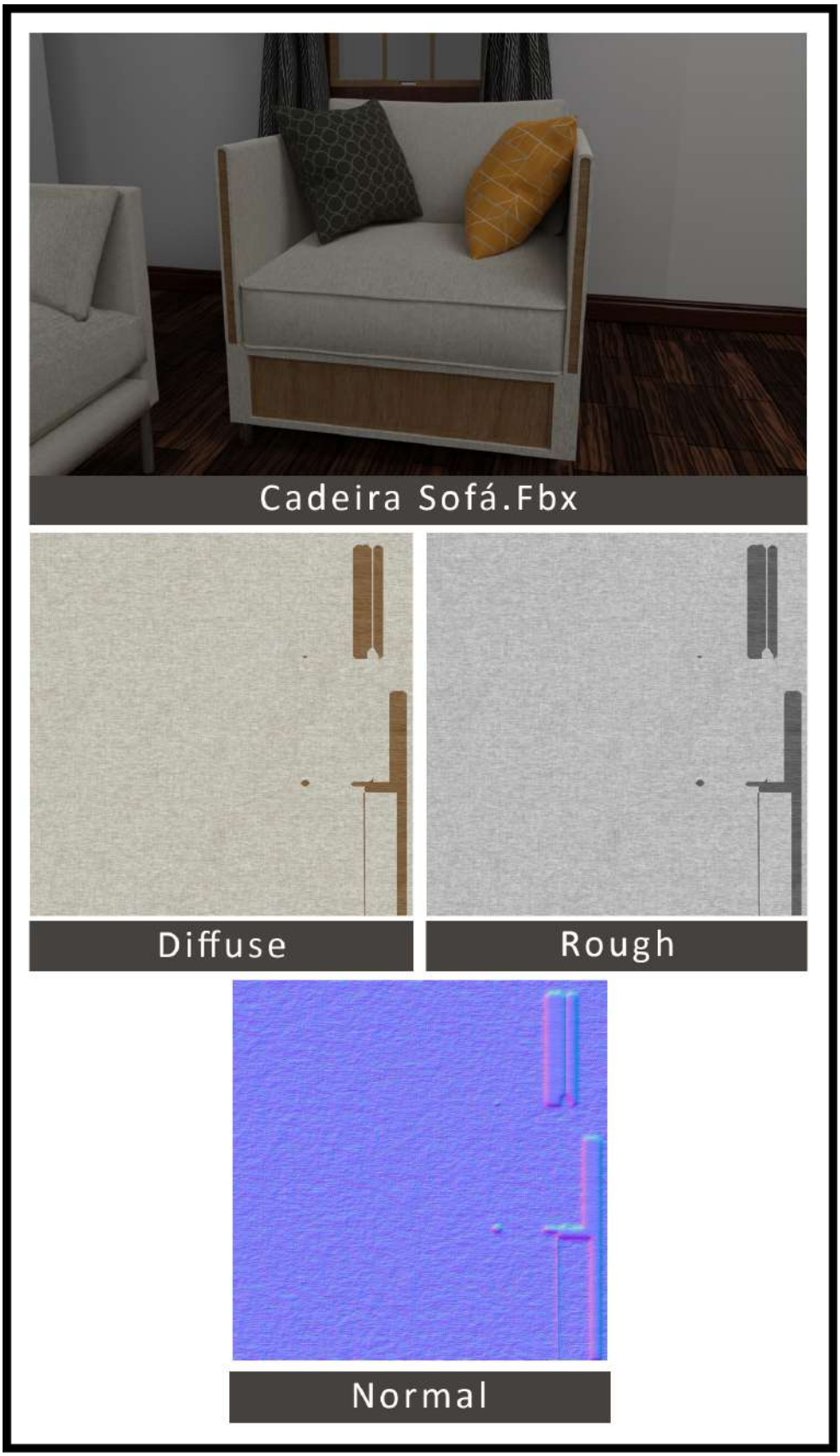
B.6 Orange Pillow



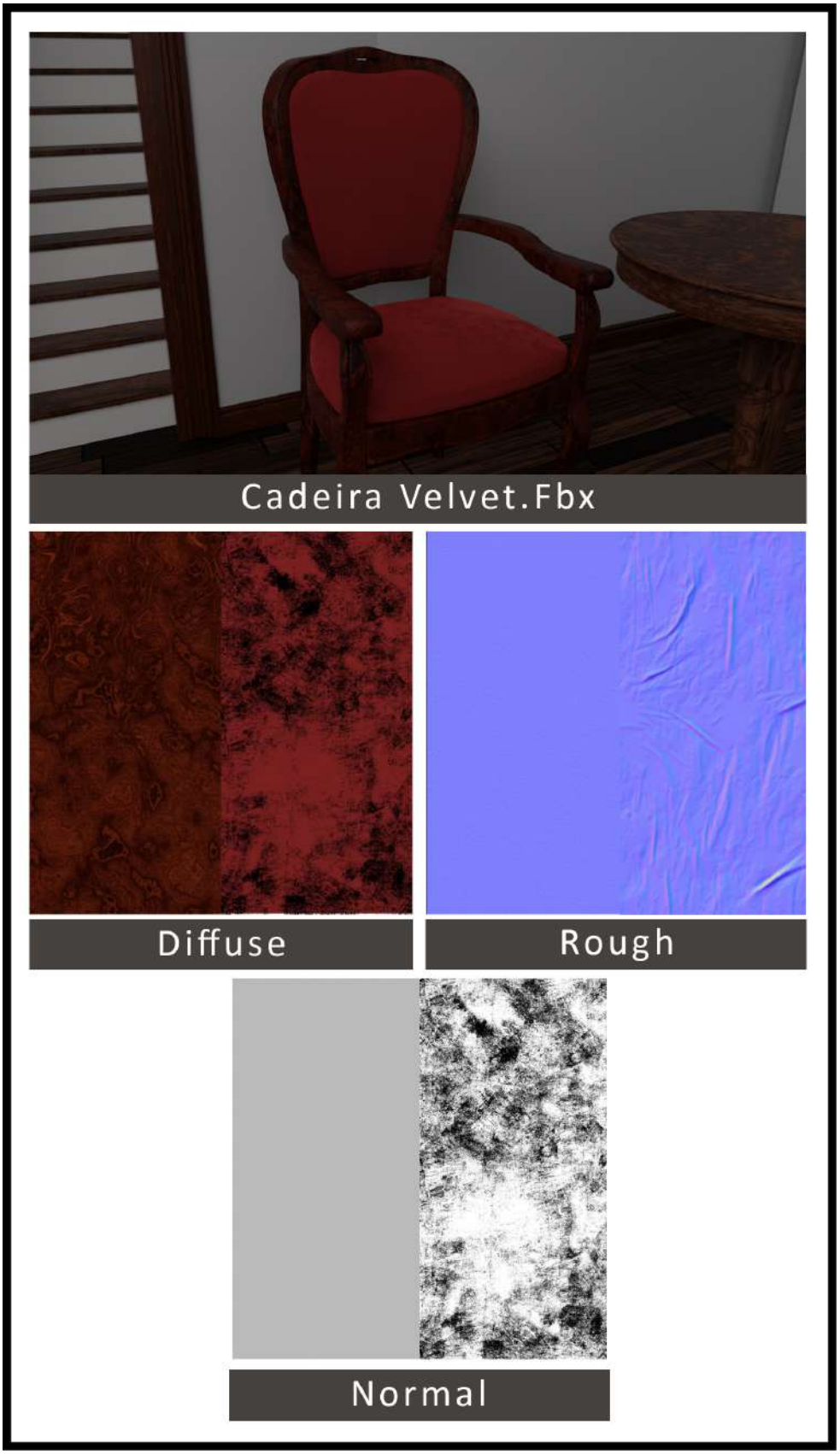
B.7 Black Pillow



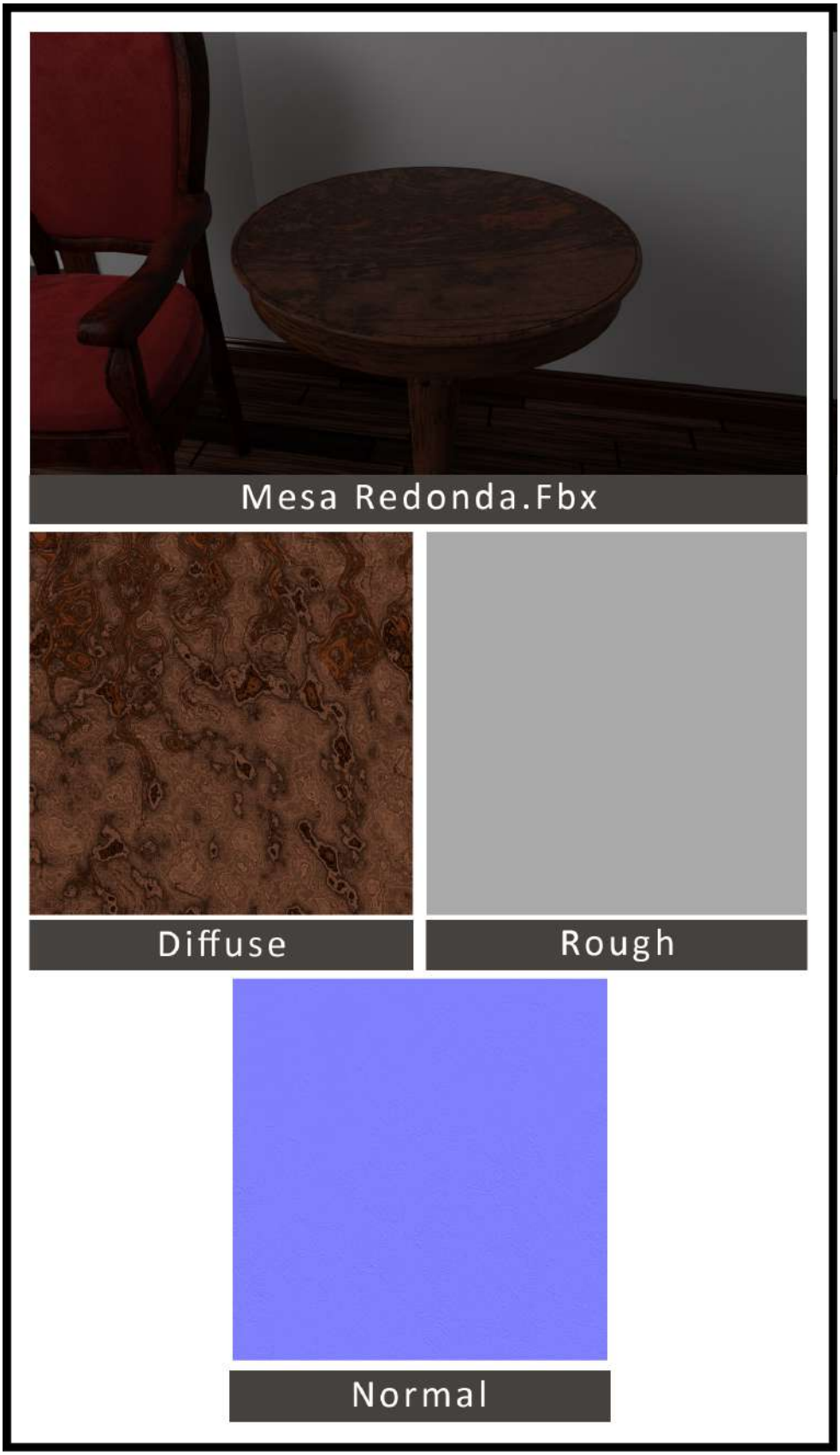
B.8 Chair Couch



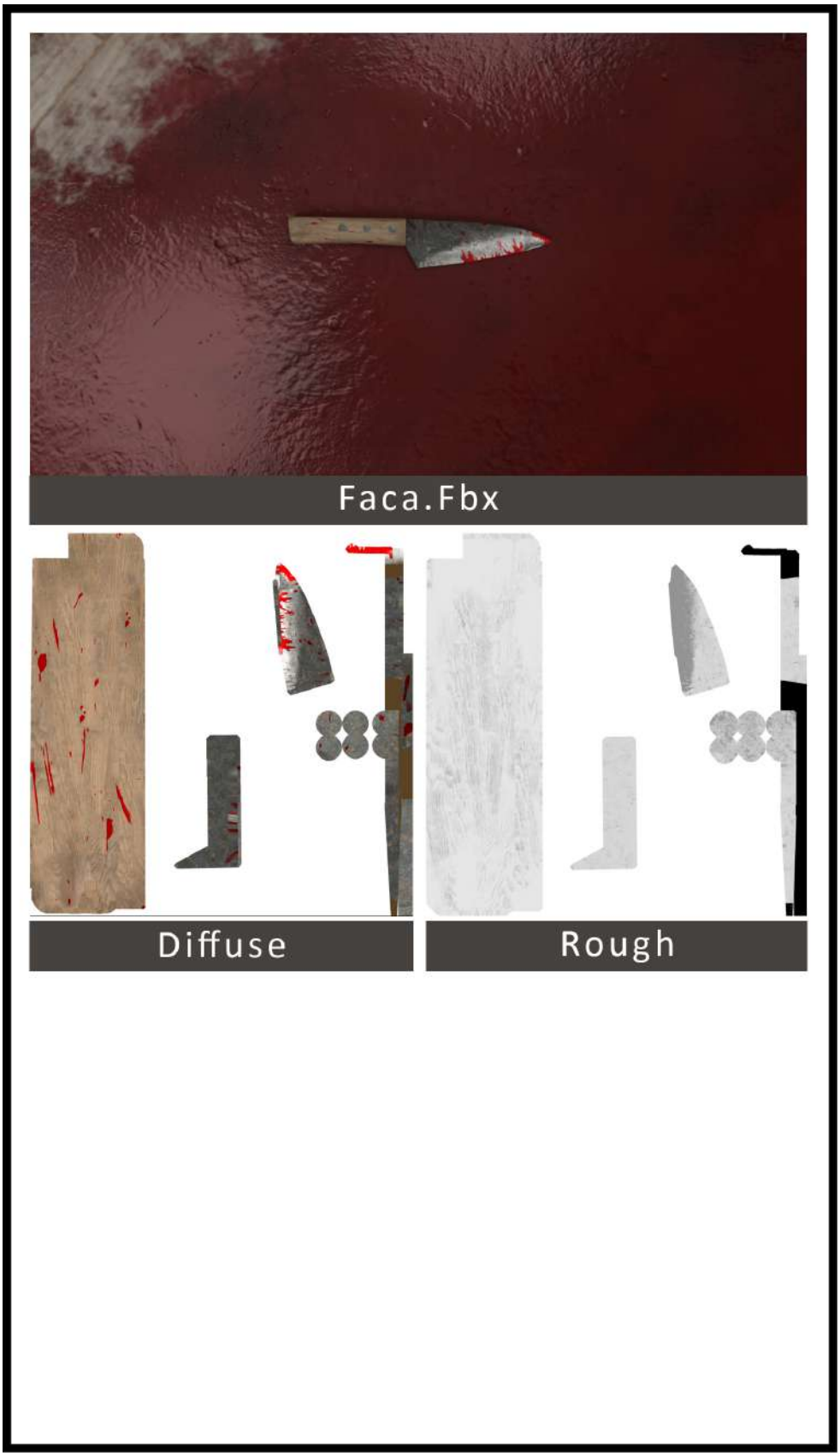
B.9 Velvet Chair



B.10 Round Table

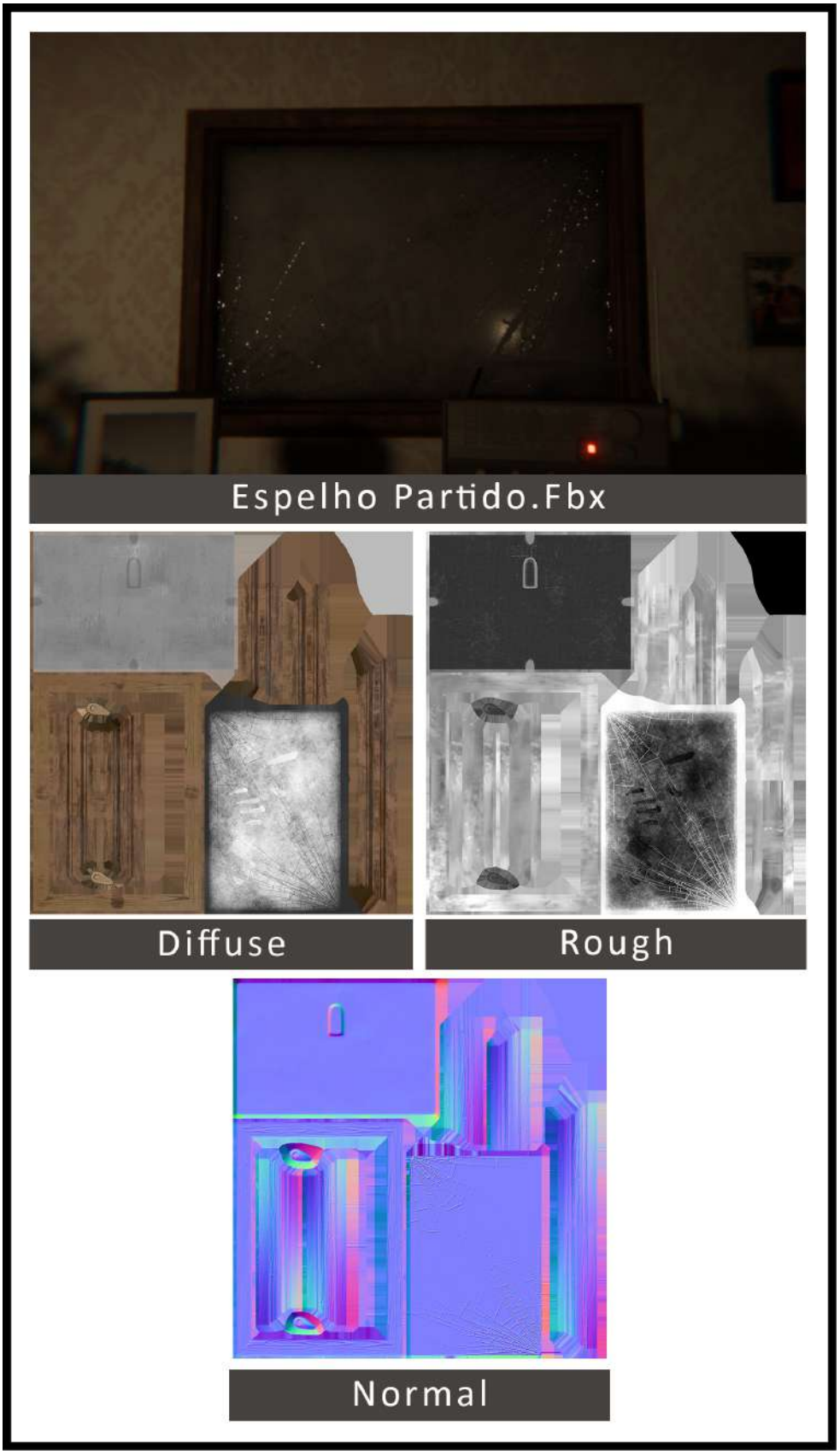


B.11 Knife



B.12 Cigarette Box

B.13 Broken Mirror



B.14 Coat Hanger

B.15 Garbage Bags