



Phantom Maternal: An Immersive Hybrid Novel

Interactive Media Individual Design Project

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INTRODUCTION

Problem Space

An article by Penguin Random House called ‘The Unexpected Joy Of Pairing Books With Video Games’ (2020) brings attention to the ‘symbiotic experience’ that one can have when reading and playing games simultaneously, highlighting that children who prefer to play on their Playstations rather than read a book is an opportunity, not a tragedy. The article states that using two mediums in conjunction creates a ‘multifaceted immersion’ and through the author’s solo investigation, concludes that these art forms, once seen as separate, are not derivative of each other but instead complementary. In their investigation, the author notes that while playing ‘The Last Of Us’ (Naughty Dog, 2013) they suddenly desired to read ‘The Road’ (McCarthy, 2006). Both titles are of a similar post-apocalyptic genre and storyline, however, the author specifies that it was the moments of “unresting beauty” seen in both titles which heavily complemented each other. As the author exemplifies: “The moment the unnamed father in The Road stumbles over a can of Coke, and the one in which Joel and Ellie find a horde of giraffes still wandering around an abandoned zoo, were just as melancholic and beautiful as each other.”

This, and the author’s further example of playing ‘Stranded Deep’ (Beam Team Games, 2015) alongside reading ‘Robinson Crusoe’ (Defoe, 1719) poses evidence for an interesting concept of heightening immersion by utilising both book and game format in one product. Additionally, the author aggregates their evidence for increased immersion by explaining how playing ‘Assassin’s Creed: Odyssey’ (Ubisoft, 2018) set them down a new reading path altogether to contextualise the ubiquitous game world, environment and characters, set in Ancient Greece, by reading works of Homer and Plato. While these texts are challenging to read, the author defines that “with the game as a reprieve, I dipped in and out happily like I was on [a] turquoise bay in Mykonos.”

This extrapolates that reading and playing may not only give an increased and multifaceted sense of immersion for an individual but also provide a helpful and intellectual context for them to conceptualize while either reading or playing an experience symbiotically. The author concludes their hypothesis by stating that 73.1% of young people who don’t enjoy reading instead enjoy video games (National Literacy Trust, 2020). This suggests that there is a significant market for those seeking to experience immersive storylines, while not particularly engaging in heavy reading as a dominant format. This study by the National Literacy Trust further states that 35.3% of young people believe that playing video games makes them a better reader, with 79.4% stating that they read materials relating to video games monthly. If playing video games creates engagement with forms of text, how else can playing video games enhance further aspects of young lives?

According to the study, 65% of participants also say that playing video games helps them imagine being someone else, implying that this immersion in a ‘second life’ can enhance imaginative, empathetic and literacy skills. However, while these skills can be ordinarily gained from reading or playing video games separately, there is one factor which has significant importance pertaining to why exploring multi-faceted immersion is an important venture. As depicted in this quote by a participant: “It’s a way for me to escape all my sadness ... I think it helps my mental health”, playing video games can be a strong relief for those with personal issues, which could, in consequence, be enhanced by using a multifaceted approach of both playing and reading to increase both enjoyment and mental growth.

Proposed Solution

The proposed prototype solution to this problem space is a hybrid novel experience: incorporating both written text and 3D interactive environments to increase immersion and reading skills through a linear narrative structure in alternating format. By using a cross-multimedia experience, the target audience of those who either read but don't play or those who play but don't read can enjoy a symbiotic experience that will open up their interest to both formats of storytelling. To create accessibility for both types of users, the prototype should be created with portability in mind to mimic the experience of reading a book no matter the location.

Existing Product Review

Three existing products were researched and analysed to gain a holistic understanding of what features are included in products that contain identified traits of both the problem space and current methods of storytelling. The first is a visual novel: a genre described by the website ‘Game Rant’ as “interactive story games, usually accompanied by anime-inspired visuals” (Cottone, 2023). ‘Scarlett Hollow’ (Black Tabby Games, 2021) follows an episodic horror story surrounding a quiet town and its many disturbances of a coal mine collapse, livestock-eating monsters and vengeful spirits as the main character visits distant relatives for a funeral (Valve Corporation, 2024).

Scarlett Hollow delivers its horror narrative through on-screen text and 2D animated graphics, with user decisions influencing the story using a branching narrative structure. Additionally, the audio effects give depth to the 2D environment and enhance its features, giving players fully engineered soundtracks between episode releases. While visual novels such as Scarlett Hollow feature mostly 2D graphics, the use of written text and audio engineering inspires this project, by emphasising that surrounding factors of immersion such as audio, animation and writing quality can greatly impact the success and immersion of a product and shouldn't be disregarded in development. Furthermore, Scarlett Hollow showcases how visual novels can differ greatly in mechanics and art style according to their genre. Compared to romance visual novels, a highly popular sub-genre within the industry, Scarlett Hollow features a sketch-like art style with desaturated colours to convey the mood of the narrative while the audio effects give spatial immersion and tension. This example conveys that the visuals of a narrative need to match the tone and content of the writing in a complementary way to increase the effectiveness of the story.

The second product analysed is called ‘Solo Levelling’ (Chugong, 2016), a highly popular manhwa (South Korean term for a comic), which has crossed different interactive platforms since its serialization as a web novel in 2016. Since its creation, the web novel has been published, translated into English, illustrated as a webtoon (digital comic), published globally, adapted into an anime and will soon be released as an action RPG for multiple platforms. While this narrative has crossed many different formats both interactive and linear, it has remained close to the source material as well as engaged digitally diverse fans through its expanse of multimedia.

Fans of the franchise will commonly engage with multiple formats of the narrative to gain different variants of the story, this can be seen to eliminate the repetitiveness of ‘re-reading’ or ‘re-watching’ and will instead foster increased engagement with the franchise as a whole. This inspires this project by considering how to adapt a cross-platform narrative effectively, by not changing the core narrative, but altering small details or action pace to suit which

format is being used at the time. For example, in the manhwa, characters are introduced to the story as they become prevalent in situations, whereas in the anime, characters are introduced near the beginning of the story to bridge future plot connections and build the story world faster. Both approaches suit the format they are inhabiting and neither alter the main plotline or damage important sequences of events. I can use this example to inform decision-making when iterating through prototype development to make sure the narrative remains sequential and enhanced through its adaptive chapters.

The third product analysed is called ‘Disco Elysium’ (ZA/UM, 2016), a detective RPG, set in a fictional city recovering from a decades-old revolution. Contrary to most RPGs, Disco Elysium features little to no combat, and players instead resolve events through dialogue trees and a comprehensive skill system. This game is hailed as one of the best made because of its outstanding art style based on oil paintings and complex, dialogue-heavy narrative. Games forecasting website PCGamesN described it as “brilliantly written” and stated that it “set new genre standards for exploration and conversation systems” (Scott-Jones, 2019) which infers that it is an important product example to analyse when considering narrative decisions within 3D environments. Despite the legal controversy surrounding this game, it remains a cornerstone of modern game development because of its innovation. In regards to this project, the oil painting art style of Disco Elysium inspires the thought of how different art and graphic styles can influence the originality of a product, as well as influence the overall mood and tone of the narrative.

Hardware Research

To evaluate which platform would be the most effective to use in alignment with the proposed product solution, two types of portable gaming devices were researched and compared: The Nintendo Switch and Steam Deck.

The Nintendo Switch, released in 2017, is classed as a ‘hybrid console’, which can be docked to a monitor or used as a portable device. This allows for increased accessibility within the user’s daily life and is convenient for a wider range of demographics. Furthermore, the controller design conforms to a standard range of action buttons including two joysticks which makes it easy to use for those new to gaming. The Steam Deck, similar to the Nintendo Switch, is a hybrid console released by Valve Corporation in 2022. It uses Valve’s proton compatibility layer to allow users to run games made for the Windows Operating System on the device. It also embodies the widely used Steam storefront as a means to purchase and play games, offering an extensive library of products.

Compared to the Switch, The Deck does not have removable controllers, meaning an external controller or keyboard would be used in conjunction with the monitor if the user docked the Deck. This hinders the hybrid activity of the device, as those new to gaming would have to get used to two physical methods of play when docking their device instead of one, which the Switch upholds. Despite having a range of award-winning titles available to players, the Switch’s developer accessibility is low compared to the Deck, in which players can access any title uploaded to Steam. Furthermore, developers do not have to transfer their game build to the Deck system thanks to Proton, while they do for the Switch. For an early prototype, developing with the Steam Deck in mind would be the best choice for the portable gaming device intended for this project.

NARRATIVE DEVELOPMENT

Ideation

When deciding on the themes and concepts for the narrative, I considered the following factors: capability of visual representation, target audience and genre. When creating the narrative, I had to consider the level of visual implementation so that no unachievable standards would be set when it came to 3D modelling and implementation. This was enacted by constraining the story to a realistic world setting with a subdued level of fantastical ideas. Furthermore, I considered what concepts and emotional themes would suit a broad audience to allow for maximum efficiency in terms of enjoyment and immersion while switching between storytelling formats.

This, along with deciding on an immersive genre, allowed me to decide on a horror-mystery narrative set on a train, with the main character being a young child. Utilising a horror genre would increase the emotional immersion and writing style with anticipatory sentences, while the mystery element would encourage the reader to actively think about the content and reflect on the story as they read. Additionally, the main character was chosen to be a young child to connect with the reader's protective instincts and their own fear, using the character's vulnerability to create emotional stimuli within the content.

Structure & Plot

The plot of the narrative was formed using a linear format of key points and interactions to plan a cohesive and compelling story for the reader to enjoy and comprehend. Google Docs was used to plan and write the narrative as it automatically saves and forms a version history which would be beneficial to use when switching between iterations of the narrative and improving upon earlier versions.

To adhere to the multimedia advancement of this project, chapters two and four were chosen to be visually interactive. This way, the reader would be introduced to the story with written word and would experience the visuals afterwards, switching between text and visual environments interchangeably to enhance their understanding of the narrative. Additionally, using this method would ensure that the reader/user would not become accustomed to one format and instead consistently stimulate different areas of learning and enjoyment.

Drafting & Iterating

A full first draft of the narrative was formed over three weeks, with the two visual chapters (2 & 4) being written in a script-like format including interactions and switches in implementation such as fades to title pages, differences in camera work and dialogue systems. The initial draft of the narrative was read through and edited on thirteen separate occasions before being assimilated as a full first draft. This large volume of iteration was to be expected, as the story structure and content to be included in the visual environments were interchanged as visual ideation took place.

The first draft was edited five times before a second draft was iterated, and a further three revisions were made before the third draft iteration was produced. These revisions were conducted over a three-month period and took place in conjunction with visual interactivity development to ensure the visual implementation and narrative were cohesive and formed a linear flow.

Storyboarding

After the first draft of the narrative was written, the visual chapters were storyboarded using pencil and paper according to their present content. These storyboards were then altered according to the change in content through iterations between drafts as well as iterations of the visual design and implementation. See Figure 1 or Appendix A to view examples of these storyboards as they progress through sequences.

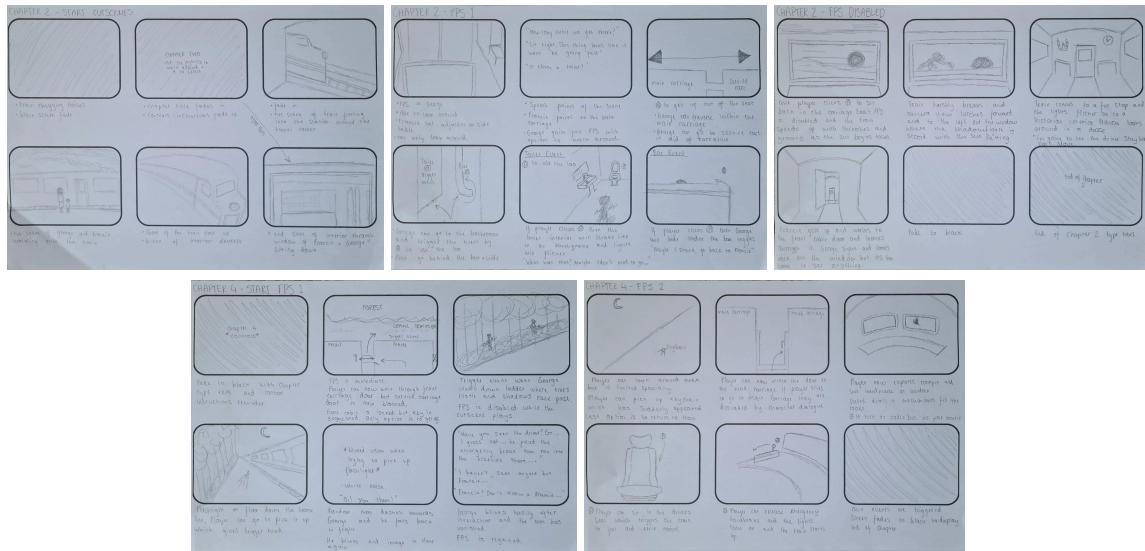


Fig. 1 - Storyboards For Interactive Chapters

Narrative Synopsis

The main character, a ten-year-old boy named George, gets separated from his mother at a small town train station. With no one to turn to, he is managed by staff member Francie who gives a particularly cold exterior. Scared and feeling alone, he suddenly becomes excited by the grand train that stops on the platform, and as it turns out, this train is the one he and Francie will take to be reunited with his mother. The train seems old and dilapidated at first, however, as suspicious and alarming events unfold along their journey, the interior changes to a glorious era of old, the train stopping in an abundant forest where George is tormented by a shadowy figure. As his nightmare continues, George begins to fear the absence of his mother and panics that he may never see her again, alas, thanks to a phantom driver, the train finishes its journey with no explanation to the events that took place along the way. George arrives home and is reunited with his mother, only to never see Francie or the train, again.

VISUAL INTERACTIVITY DEVELOPMENT

Visual Ideation

Once the first draft of the narrative had been written, game case studies that used similar themes were explored and evaluated by their design style, mechanics and narrative presentation to gain a holistic insight into the process of making a cohesive multimedia product. As well as this, specific art styles: low poly, toon shading and realism were researched and evaluated with presentation and enhancement of the project narrative in mind. These research studies, along with the creation of generalised mood boards for 3D modelling reference, helped to form a cohesive design for the project prototype.

The case studies (Figure 2) consisted of Hotel Dusk: Room 215 (Cing & Nintendo, 2007), INSIDE (Playdead, 2016), Before Your Eyes (Goodbye World Games & Skybound Games, 2021) and The Vanishing Of Ethan Carter (The Astronauts, 2014). These games and interactive experiences were chosen to be studied because of their relevant content, mechanics and narrative genre which are similar to the narrative I ideated. Full versions of these case studies can be found in Appendix B.

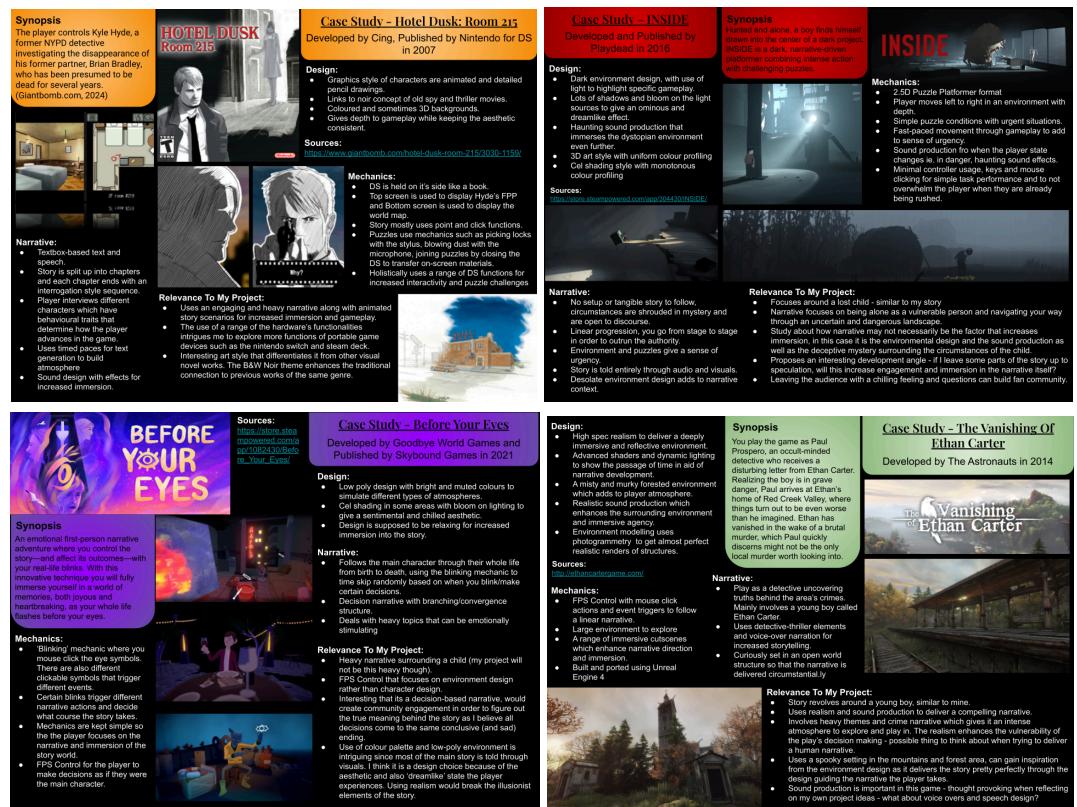


Fig. 2 - Illustrated Case Studies

The art styles researched (Figure 3) were toon shading, low-poly and realism which are all distinct in how they enhance and convey storylines. With each analysis of art style came references of use within interactive media to help evaluate which one would be the best to use for this project. From these studies, I decided to use a mix of realism and toon shading to achieve a dreamlike yet realistic setting to aid the mystic elements of the narrative. Full versions of these art-style studies can be found in Appendix C.



Fig. 3 - Art Style Research Boards

To effectively prepare for the 3D modelling of assets, mood boards (Figure 4) were created for different elements of the visual chapters: the station, train and world space. These mood boards were vital in deciding on model style and geometry and inspired the construction of the visual environment. Full versions of these mood boards can be found in Appendix D.

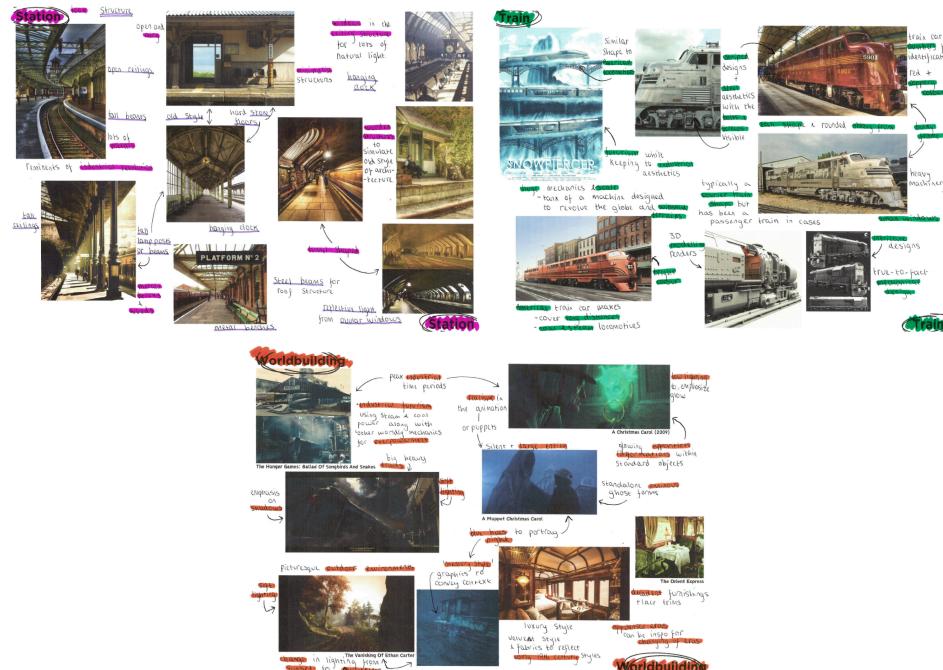


Fig. 4 - Mood Boards With Annotations for 3D Modelling Reference

As design research was being conducted, concept sketches (Figures 5 & 6) were made to visualize and make references of key features I wanted to incorporate into the 3D environments from the narrative and storyboarding. These sketches included floorplans of the station and train interior for scaling reference and layout. Additionally, worldbuilding elements were sketched such as the station tunnel, roof types and speakers to develop the inspiration from the moodboards.

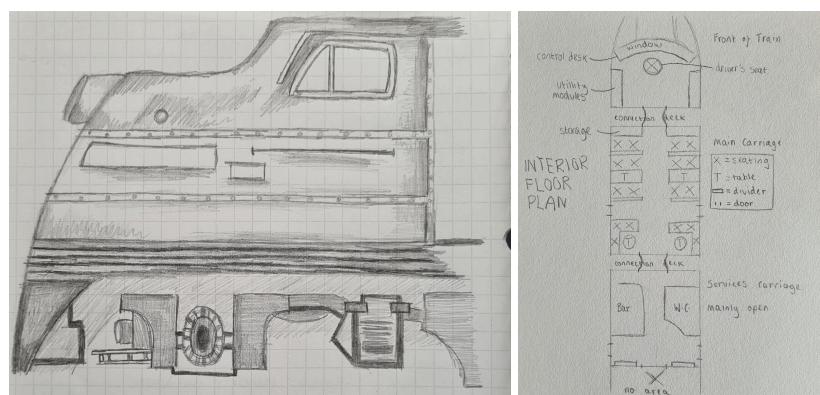


Fig. 5 - Concept Sketches 1



Fig. 6 - Concept Sketches 2

Along with the case studies, art style research, mood boards and concept sketches, preliminary prototype wireframes (Figure 7) were made using Figma to ideate and plan the interactions and connectivity between chapters within the prototype. Elements such as button functions, pop-ups and overlays were ideated according to what typical user functions are included in modern interactive media applications.

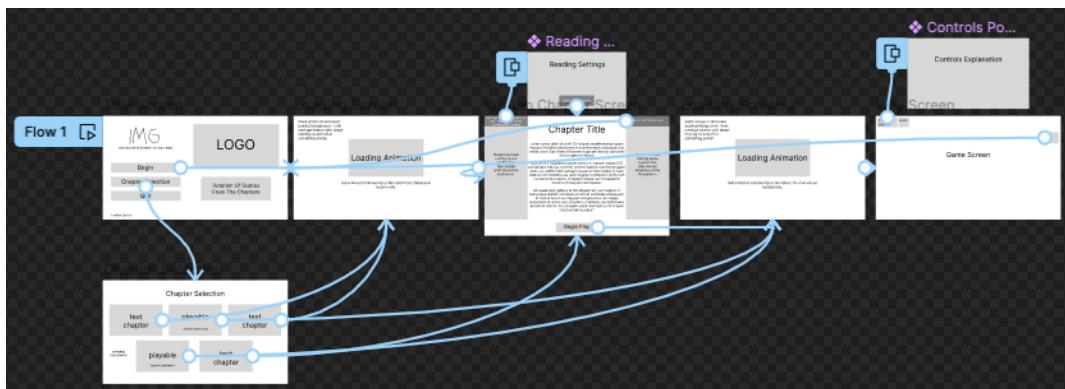


Fig. 7 - Preliminary Wireframe Interaction Flows

User Research

Once visual ideation had started development, preliminary user interviews were conducted to evaluate how a potential user would react to the prototype idea, as well as collect their opinion on popular novel adaptations within the film and game industry. The semi-informal interviews were formatted into two question blocks: the first targeting the pros and cons of media adaptations and the second targeting elements of the project narrative that the potential user would want to visualize. A full script of the interview questions can be found in Appendix H.

The results of these interviews concluded three key findings, identified through analysing responses and drawing connections between commonalities in answers: media adaptations are successful when they stick to core plot material, the mystery genre of the project would entice the interviewee to interact with the product, the interviewee would like to see the train arriving in the station and the changed interior the most. Furthermore, all interviewees agreed that the multi-media approach to presenting the story would enhance its enjoyment and immersivity. An interesting finding is that Interviewee 3 stated they do not enjoy horror as a

genre, however, using a light form of horror mixed with mystery would encourage them to experience the product despite their reservations.

These findings are useful in identifying key parts of the product to focus on in terms of enjoyability and influenced the narrative development by giving feedback on which elements would be visually appealing to see in 3D format, outlining a clear direction of visual development going forward.

Functional & Non-functional Requirements

The cumulative narrative development and visual interactivity development made, along with the academic research conducted, enabled the creation of functional and non-functional requirements as follows:

Functional Requirements:

- It must be designed to be played on a portable game device
- The prototype must depict 3 written chapters and 2 visual chapters
- The prototype should be implemented in Unity
- The prototype should have suitable audio engineering
- The prototype should have a consistent graphic style

Non-functional Requirements:

- Written chapters must be displayed in a comfortable-to-read format.
- Playable chapters must be able to convey the narrative cohesively.
- The prototype must have simple and easy interactions to use.
- The narrative must be written compellingly and effectively.
- Playable chapters must contain key elements of the narrative identified in user interviews
- The 3D models in the prototype should be cohesive and follow the chosen art style

These requirements establish a constructive outline for the prototype to embody and provide suitable goals for the project which were used throughout iterations of development.

Project Longevity And Storage

To ensure the project remained well stored, backed up and robust in creation, three key software were used: Unity, GitHub and Google Drive. Unity was the game engine chosen to create the prototype due to its renowned interface, asset store, creative power and compatibility with the hardware researched in the introduction. Both Nintendo and Steam support interactive applications made in Unity, which makes it the most compatible choice for this project. GitHub was chosen for the storage and backup of the prototype due to its accessibility and compatibility with Unity. Furthermore, GitHub's large file storage system (GitLFS) is easy to implement and update and will allow the prototype file to be quickly pushed and retrieved in development. Google Drive was chosen for the storage of project files separate and external materials so that they would not be lost and would instead be ordered in a competent filing system for ease of access.

3D Modelling

All 3D models were made in the software Blender from scratch. This ensured that the 3D environments were cohesive and fit the narrative and plot points effectively. Blender was used as a modelling software because of its high capability of rendering and modelling tools.

Furthermore, I have adequate experience modelling in Blender which enables the process to be conducted smoother than learning a new software. Modelling progress was tracked using a Google Sheets spreadsheet and Google Drive to save different iterations successfully and to model without having logistical issues.

Station

3D modelling began with the first element shown in Chapter 2: the train station. The station was modelled from primitive shapes such as cubes and cylinders, and then tools such as subdivision, bevelling, loop cuts and solidify modifiers were used to add detail and sophistication to the models. The station was modelled using a holistic approach, meaning all assets were modelled in the same file to ensure scale and dimensions were accurate and that no models got lost. To iterate these models considerably, different save files were made and backed up in Google Drive so that different methods and progress could be saved and edited at any time. A total of six iterations were conducted before the final model was exported to Unity as an FBX. The station was modelled over four weeks, with time being split between the other modelling elements depending on their complexity. Figure 8 depicts the flow of iteration for the Station model.

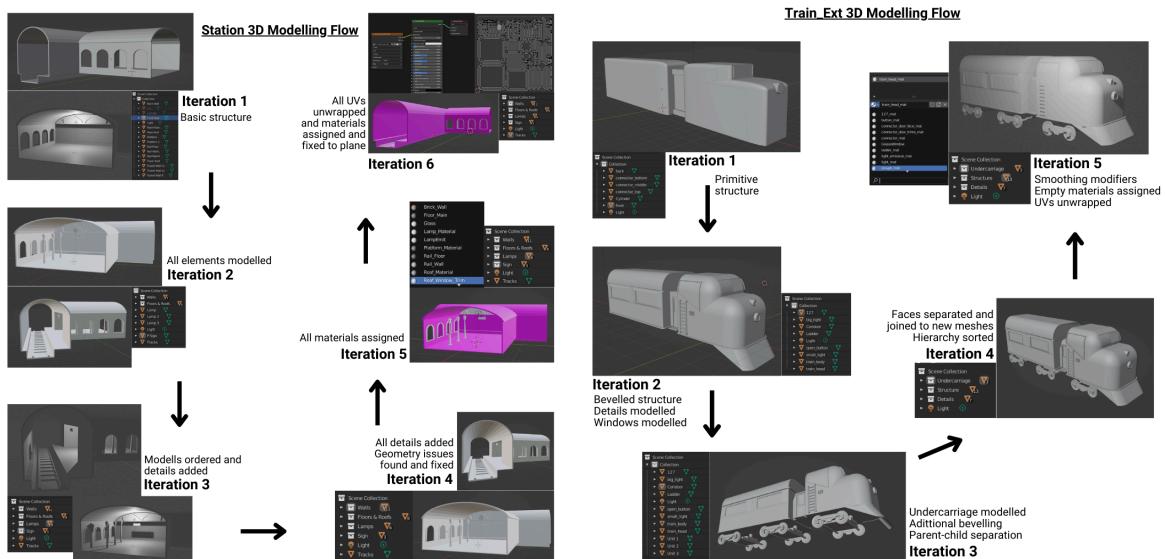


Fig. 8 & 9 - 3D Modelling Flow Diagrams For The Station & Train Exterior

Train Exterior

The exterior of the train, featured at the beginning of Chapter 2, was modelled in conjunction with the station to ensure that the dimensions and scale of the models would be the same since the train exterior was utilised to visualise the train pulling into the station in the first cutscene. The train exterior was modelled using a similar workflow to the station, focusing on the overall shape of the train to make it seem realistic and viable. The mood boards and sketches made in relevance to the train exterior helped to keep the model true to the narrative material. Since the exterior of the train has many curves, bevelling was a crucial tool that enabled a smooth shape. Figure 9 depicts the workflow of modelling the train exterior.

Train Interior (Chapter 2)

The interior of the train featured in the main gameplay of Chapter 2 was modelled after the station and train exterior base had been completed. Models were ordered by their appearance

in the sequence running order so that a waterfall working method was induced: models that appeared first could be implemented, tested and textured while the next models were being created, this process continuing until the last models had been implemented. This enabled me to work on multiple aspects of the prototype at once and ensured the project progressed at a steady rate. The Chapter 2 train interior was modelled as a skeleton base first and duplicated so that the same frame could be used in the interior for Chapter 4. This base was then expanded upon to include details of the current narrative stage such as a modern style of lights, standard chairs and tables with a minimal service carriage.

Train Interior (Chapter 4)

In the narrative between chapters 2 & 4, the interior of the train is described as changed from a depleted modern era to a grandiose historic era. The train interior model for Chapter 4 was modelled, using the skeleton base, to reflect an early 1900 aesthetic to match the narrative material. While the layout of the main carriage stayed the same, the items and furniture within were changed to match an ornate detail, for example, the modern light fixtures were changed to sconces made up of primitive shapes and the chair frames were detailed further to reflect wood carving. Both the interiors for Chapters 2 and 4 were modelled simultaneously so that key features were similar and any significant changes could be reflected. This ensured that each era of the main carriage depicted separate parts of the narrative but the carriage itself was recognisable as being the same. Figure 10 depicts the workflow of modelling the Chapter 2 & 4 train interiors.

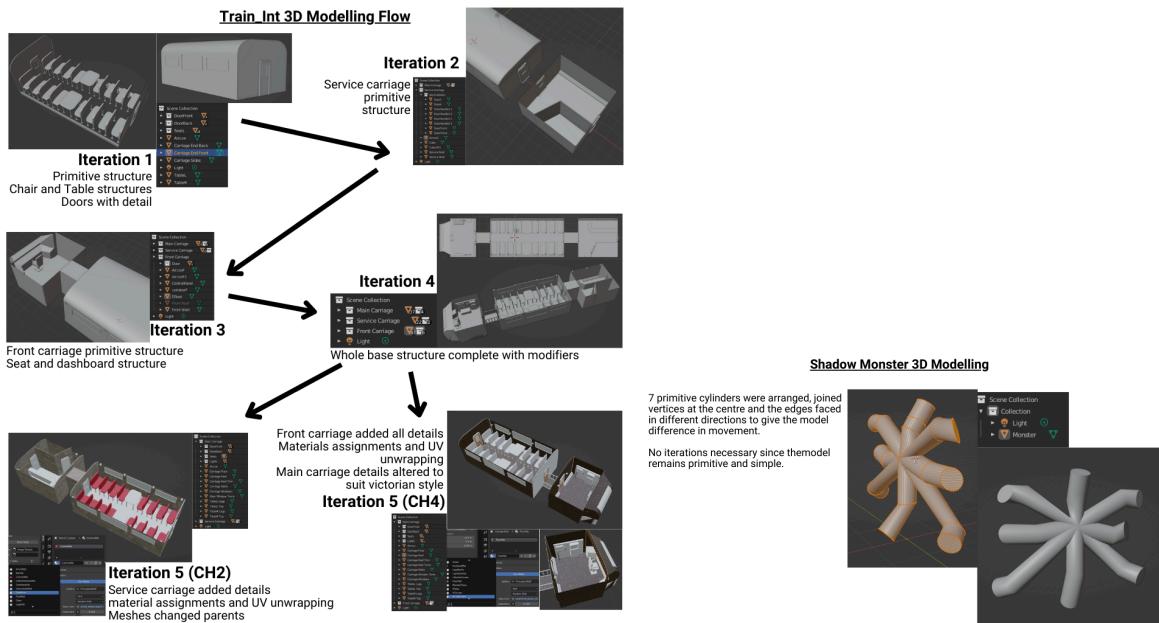


Fig. 10 & 11 -3D Modelling Flow Diagram For The Train Interior & Shadow Entity

Shadow Entity

The ‘shadow entity’ featured in the ending cutscene of Chapter 2 was modelled with a basic structure of cylinders to reflect its description of shape in the narrative. Since the shadow entity is ideated to be visualised as a figure surrounded by shadow and smoke, the base model did not need to be comprehensive. Figure 11 depicts the workflow of modelling the Shadow Entity for Chapter 2. Furthermore, a simple particle system was used in Unity to create the effect of black smoke radiating from the model, this was achieved by altering the particle system properties and assigning a 2D smoke texture as a material.

Texturing

While Blender has texturing capabilities, texturing was undertaken dominantly within Unity so that materials were accurately assigned and kept in a centralised file system. Blender was used to unwrap the model UVs and assign empty materials, so that the texture, once imported into Unity, could be assigned in the inspector with premade maps. Since the models were created in a waterfall method of working, textures were sourced and implemented once the model had been immediately completed. This ensured that any adjustments could be made to the UV maps and models themselves if there were problems within Unity Engine while the model architecture was fresh in mind. While 19 textures were sourced from free libraries, the remaining textures were made using Unity material assets for block colours or designed in Adobe Photoshop and exported according to the assigned UV mapping. This allowed me to follow the art style direction, utilising realism and toon shading, to creatively portray the narrative description of visual elements to a substantial degree.

The distinct workflow that I used when textures and assigning materials to the models was as follows: create and assign empty materials to the separate models and faces in Blender < unwrap the geometry into a UV map < export as a .fbx file into Unity < assign textures and materials in Unity < fix the UV map if necessary, depicted visually in Figure 12. This workflow proved to be effective when texturing the models, as textures could actively be edited within Blender or Photoshop and imported into Unity without changing the file paths or implementation within Unity itself.

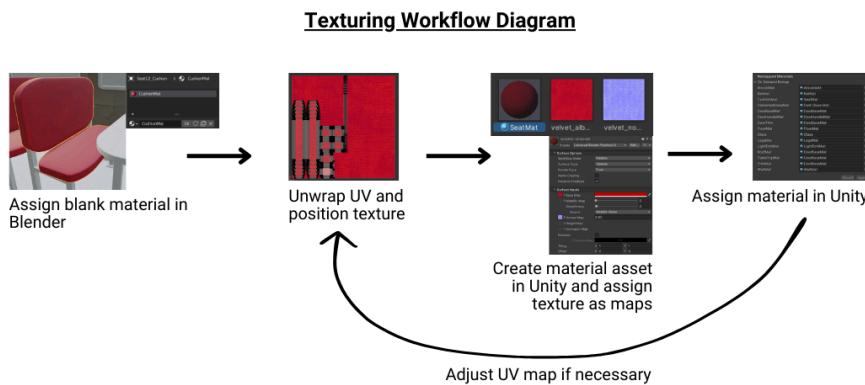


Fig. 12 - Texturing Workflow from Blender Into Unity

Rendering

In Unity, rendering methods such as real-time lighting, post-processing and skybox assets were used to form each scene. The Universal Render Pipeline was used to allow ease of use and speed when iterating through versions of the scenes, as rendering materials were already included within the project settings and global volumes could be used to standardise the lighting settings. Real-time lighting was used so that I could instantly see changes to the scene and so that shadows were simulated accordingly as I altered lighting assets. Figure 13 depicts the global volumes used for chapters 2 & 4.

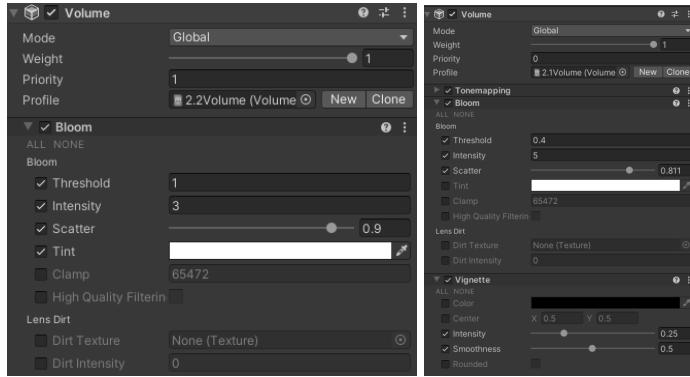


Fig. 13 - Global Volumes and Lighting Settings For Chapters 2 & 4

To adhere to the aesthetics goals set out in the non-functional requirements, post-processing effects such as Bloom and Vignette were used to simulate the dreamlike state of the narrative and offer a high-quality finish to the toon shading art style. Furthermore, skyboxes from the ‘AllSkyFree’ pack on the Unity Asset Store were used to depict a change in time from chapters 2 to 4, with their light sources being turned down to enhance the lighting effects of the carriage interiors.

Animations & Cutscenes

All animation work within the project was conducted in Unity, due to its comprehensive animation system, state-machine functionality and ability to keep all project files within a centralised system. While some models such as the train exterior were animated individually, most of the animation work involved cameras and canvases. Within the prototype, there are three cutscenes, one in the scene ‘Chapter 2.1’ and two in the scene ‘Chapter 2.2’. These cutscenes were animated using the Unity animation timeline and controlled using scripts as follows:

2.1 Cutscene

This cutscene uses four cameras in an animation sequence by playing each camera animation before switching to the next according to whether it has finished playing, coded in ‘CameraControllerScript’ (Figure 14). Conditional statements are used to seamlessly switch between cameras and count how many loops have been executed so that the cutscene can be stopped when all animations have successfully played. The cutscene features a fade-in from black to the platform sign, a wide view of the station interior, a close-up of the train arriving from the tunnel and a wide shot that zooms in to fade to black again before the scene changes.

```

public class CameraControllerScript : MonoBehaviour
{
    public Camera[] cameras; //array of cameras
    public int chapterToLoad; //chapter variable
    private int currentCameraIndex = 0; //set index variable to 0
    private Animator[] cameraAnimators; //array of animators
    public string[] cameraAnimationNames; //array of animation names
    private int counter = 0; //counter for the loop

    void Start()
    {
        SwitchCamera(currentCameraIndex); //set camera to first
        cameraAnimators = new Animator[cameras.Length]; //populates animator array with animators the same length of the camera array

        for (int i = 0; i < cameras.Length; i++) //assigning an animator to each camera in the array
        {
            cameraAnimators[i] = cameras[i].GetComponent();
        }
        PlayNextCameraAnimation(); //start animation function
    }

    void Update()
    {
        if (cameraAnimators[currentCameraIndex].GetCurrentAnimatorStateInfo(0).normalizedTime >= 1.0f) //if current animation has finished
        {
            currentCameraIndex = (currentCameraIndex + 1) % cameras.Length; //change index to next in array
            SwitchCamera(currentCameraIndex); //switch to next camera (currently at index)
            PlayNextCameraAnimation(); //start function (play animation)
            counter++; //to count how many times it's fired
        }
        if (counter == 4) //if counter is more than 4 disabled cameras to stop the loop
        {
            SceneManager.LoadScene(chapterToLoad); //load next scene
        }
    }

    void SwitchCamera(int newIndex)
    {
        DisableAllCameras(); //disable all cameras
        cameras[newIndex].gameObject.SetActive(true); //set current camera active
    }

    void PlayNextCameraAnimation()
    {
        cameraAnimators[currentCameraIndex].Play(cameraAnimationNames[currentCameraIndex], 0, 0f); //play camera animation of the current camera index from the start
    }

    void DisableAllCameras()
    {
        foreach (Camera cam in cameras) //disable all cameras
        {
            cam.gameObject.SetActive(false);
        }
    }
}

```

Fig. 14 - ‘CameraControllerScript’ Screenshot

2.2 Cutscenes & Animations

The first cutscene in 2.2, which we can name 2.2.1, uses one camera, a TMP asset, an animation state machine and two scripts: ‘CameraSwitchChap2’ (Figure 15) and ‘DialogueController’ to manage the sequence effectively. Simple conditional statements are used to set game objects to active and inactive in sequence, allowing the cut scene to be uninterrupted. This script executes the main logic after 26 frames as the animation state machine plays the cut1Camera animation immediately after the scene loads. This ensures that the animation plays smoothly before the associated game objects are set to inactive and the user gets to interact with the environment using the FPS (First Person) controller.

```

public class DialogueController : MonoBehaviour
{
    [SerializeField] float Timer; //timer variable
    [SerializeField] private TextMeshProUGUI TextDisplay; //TMP asset
    [SerializeField] private string[] sentences; //sentence array
    private int Index = 0; //set index to 0

    void Start()
    {
        StartCoroutine(StartText()); //start coroutine
    }

    private IEnumerator StartText()
    {
        yield return new WaitForSeconds(5f);
        WaitForSeconds Wait = new WaitForSeconds(Timer); //wait for the time length for each sentence

        //Make a Loop For which determine how many Does sentences have
        //The -1 removed the last sentence so make the last sentence or Array to Blank
        //It will have an error if the there isn't -1 because the the Index and sentences will be not equal

        for (int i = 0; i < sentences.Length - 1; i++)
        {
            if (Index == sentences.Length - 1) //if index is equal to sentences
            {
                TextDisplay.text = ""; //clear last text
                TextDisplay.enabled = false; //disable TMP
            }
            else
            {
                TextDisplay.enabled = true; //enable TMP
                TextDisplay.text = sentences[Index]; //display sentence equal to the index
                Index += 1; //increment index
                yield return Wait; //wait for timer
                TextDisplay.text = ""; //reset text
            }
        }
    }
}

public class CameraSwitchChap2_2 : MonoBehaviour
{
    public Camera cut1Camera; //to assign cut1 camera
    public GameObject firstPersonController; //to assign fps
    public GameObject disabledText;

    void Start()
    {
        Invoke("SwitchCamera", 26f); //invoke function after 15 seconds
        firstPersonController.SetActive(false);
    }

    void Switchcamera()
    {
        if (cut1Camera != null) //if not disabled
        {
            cut1Camera.enabled = false; //disable camera
        }

        if (firstPersonController != null) //if not enabled
        {
            firstPersonController.SetActive(true); //enable fps
            disabledText.SetActive(false);
        }
    }
}

```

Fig. 15 & 16 - ‘CameraSwitchChap2’ & ‘DialogueController’ Screenshots

DialogueController (Figure 16) uses a Coroutine methodology to display text using a singular TMP asset. This allows the dialogue text to be displayed depending on the time elapsed and will ensure that it is in the same format and position throughout the scene. Within the inspector, the last string in the array is left blank because '-1' within the script removes the last sentence. This script was written using the YouTube video 'Dialogue System Using Coroutine In Unity' (Jehoiakin Arevalo Taniegra, 2021) as a guide, with the code being altered to suit the prototype's infrastructure requirements.

After the 2.2.1 cutscene, the user is expected to interact with the doors connecting the main carriage to the services carriage. These doors are animated using Unity's animation timeline and accessed using an Animator. The 'doorOpen' animations are triggered using a box collider placed just before the door objects, using a script called 'DoorTrigger' (Figure 17) to access the animation and audio on the trigger object, playing both in response.

```

public class DoorTrigger : MonoBehaviour
{
    public Animator animator;
    private bool isTriggered = false; //check the trigger
    AudioSource doorAudio;

    void Start()
    {
        doorAudio = GetComponent<

```

Fig. 17 & 18 - 'DoorTrigger' & 'DoorTriggerDialogue' Screenshots

The user, once in the services carriage, can interact with the toilet door which animates dialogue using a TMP asset, box collider and script called 'ToiletTriggerDialogue' (Figure 18). This script operates by playing audio OnTriggerEnter() to simulate an attempt to open the door, while displaying narrative text. Additionally, OnTriggerExit() activates 'cutTrigger', assigned in the inspector as the box collider used to trigger the next cutscene. This ensures that the collider to trigger the ending cutscene is not triggered until the user has completed the aforementioned interaction.

The second cutscene, which we can name 2.2.2, uses one camera, an animation state machine and one script called 'Cut2Start' (Figure 19) to control the sequence. It is triggered if an object tagged as 'Player' collides with the box collider located near the cutscene location, which in this case is in the middle of the main carriage (this collider is attached to the same game object as the script so that it can be accessed) and the 'StartEnd' Coroutine is invoked. StartEnd() operates linearly to activate objects based on significant narrative timing, for example, the Shadow Monster is activated to appear once the camera animation turns to the window. This ensures that the cutscene achieves the intended narrative effect and runs smoothly from beginning to end.

```

public class Cut2Start : MonoBehaviour
{
    public Camera cut2Camera; //to assign cut2 camera
    public GameObject firstPersonController; //to assign fps
    public GameObject dialogueController; //assign dialogue
    public int chapterToLoad; //chapter index assign
    public GameObject shadowMonster;
    public GameObject disabledText;

    void Start()
    {
        //startCoroutine(StartEnd()); //start coroutine
    }

    private void OnTriggerEnter(Collider other)
    {
        if (other.CompareTag("Player")) //if its triggered by the player
        {
            StartCoroutine(StartEnd()); //start coroutine
            cut2Camera.gameObject.SetActive(true); //turn on camera
            firstPersonController.SetActive(false); //turn off fps
            dialogueController.SetActive(true); //turn on dialogue controller
        }
    }

    private void OnTriggerExit(Collider other)
    {
        //nothing needed
    }

    private IEnumerator StartEnd()
    {
        disabledText.SetActive(true);
        yield return new WaitForSeconds(7f);
        shadowMonster.SetActive(true);
        yield return new WaitForSeconds(11f); //wait until animation time has passed
        SceneManager.LoadScene(chapterToLoad); //load next scene
    }
}

```

Fig. 19 - ‘Cut2Start’ Screenshot

Skybox Animation

To simulate the train moving, the skybox was coded to rotate slowly using the script ‘SkyboxRotate’ (Figure 20). This uses a variable ‘rotationValue’, which multiplies the time elapsed by the assigned ‘rotationSpeed’ variable, to set the rotation value incrementally frame by frame. This method was applied to the skybox in Chapters 2 & 4.

```

public class SkyboxRotate : MonoBehaviour
{
    private float rotationSpeed = 2f;
    void Update()
    {
        float rotationValue = Mathf.Repeat(Time.time * rotationSpeed, 360f); //set the rotation value by the speed every second
        RenderSettings.skybox.SetFloat("_Rotation", rotationValue); //change the value by the rotation value
    }
}

```

Fig. 20 - ‘SkyboxRotate’ Screenshot

Audio Engineering

To successfully simulate an interactive environment and add to the immersive nature of the prototype, the audio for Chapters 2 & 4 was created in the software Adobe Audition, using effects such as noise reduction, crossfading and equalising to compile audio sources and make an effective sound simulation to match the visual animation and interactions. All sounds used in the cutscenes and interactive chapters were sourced from freesounds.org (fully referenced in the copyright appendix), while the background music for the home screen was sourced from the YouTube Audio Library.

Figure 21 depicts the editing environment within Audition: multi-tracks were used to create the audio for the 2.1 cutscene and 2.2.2 cutscene, while waveforms were edited for specific and continuous audio as featured in 2.2.1. Audition was used to achieve this audio simulation because of its comprehensive and extensive library of effects, as well as its easy-to-use user interface. Furthermore, since Adobe Photoshop was also used in this project, I knew the Adobe suite was compatible to export straight into Unity which allowed for speed in workflow and ease of editing if needed.

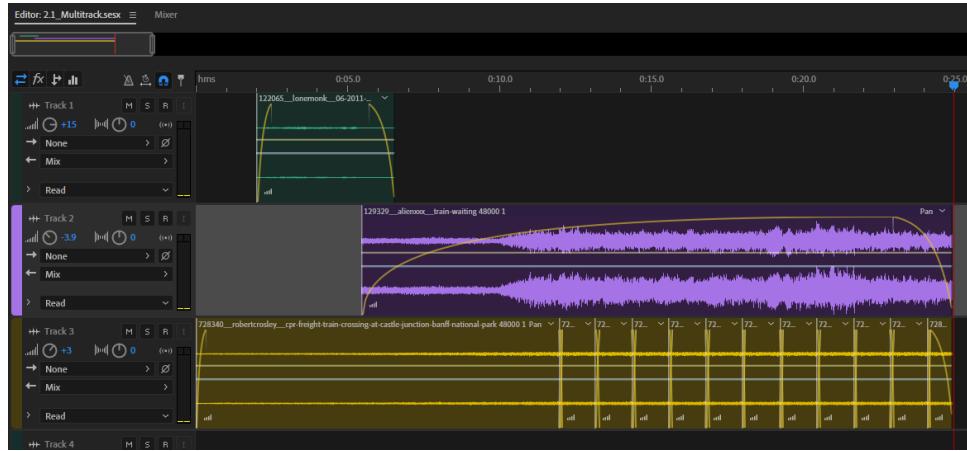


Fig. 21 - Screenshot Of The Adobe Audition Multitrack For The 2.1 Cutscene

Graphics

The graphics for the prototype include artistic elements such as the logo, design for UI items such as button and text boxes, written chapter background art and fonts. These elements were created in Adobe Illustrator and Adobe Photoshop to ensure that file versions were kept in a backed-up cloud and to easily iterate through designs.

Logo

Illustrator was used to create the typography of the logo, using the blend tool to create a directional gradient, while utilising the font ‘Chilling Sabrina’ to reflect an 80s horror movie aesthetic. A mood board (Figure 22) was created to inspire how this aesthetic was formatted and how I could adapt it to fit the project’s visual style.



Fig. 22 - 80s Horror Typography Moodboard

The logo was exported into Photoshop as a PNG and additional imagery such as the yellow glow from train lights and crossing sign were added after iterating through different styles. Filter effects such as noise, motion blur and paint texture were used to make the logo look dated and fit the narrative theme. Figure 23 depicts the iterative workflow of making the logo in Photoshop.

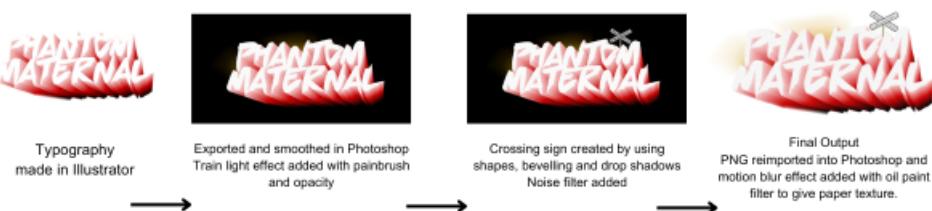


Fig. 23 - Logo Workflow In Adobe Photoshop

UI Sprites

Photoshop was used to create UI Sprites for the button images and text box featured on the home page of the prototype. These sprites were designed with simplicity in mind, following the second iteration of wireframes created in Figma as a base (Figure 24). The font called ‘Sidhe’ was used to reflect a gothic theme, present within the narrative. Additionally, a white outer glow was added to give the sprites depth, using a neomorphic style to adhere to the requirements of the prototype having a consistent art style and easy-to-use interactions. These designs were exported as PNGs and imported into Unity to be used as 2D Sprites within button assets. Figure 25 depicts the end design of UI Sprites featured in the prototype.

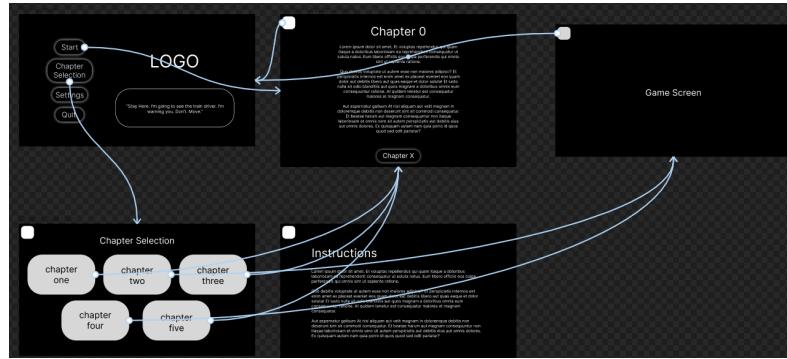


Fig. 24 - Second Iteration Of Wireframes In Figma

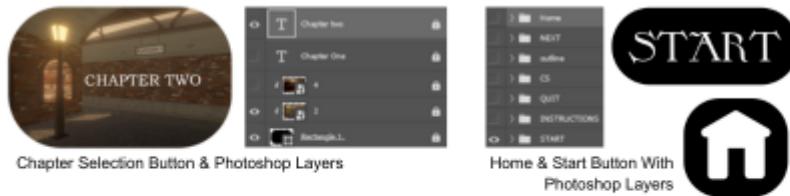


Fig. 25 - UI Sprite Workflow And End Designs Using Adobe Photoshop

Written Chapter Background

Photoshop was used to create the written chapter background (Figure 26), which features a hand-drawn graphic of a track winding its way around the page. This effect was achieved by using a Wacom Tablet and Pen to give a sketched aesthetic. This was exported as a PNG and used as a UI Image within Unity on each written chapter scene to make it more visually appealing to the user.

HOLISTIC PROTOTYPE DEVELOPMENT

Narrative Implementation

Once the visual development for the prototype was completed, the final draft of the narrative was implemented by using a Unity UI Scrollview asset. The narrative text was copied from Google Docs to a TMP asset within the Scrollview, with the textbox being adjusted to follow the example set in the second iteration of wireframing (Figure 24). Figure 26 depicts the final layout of the written chapter sections, with the chapter text implemented.

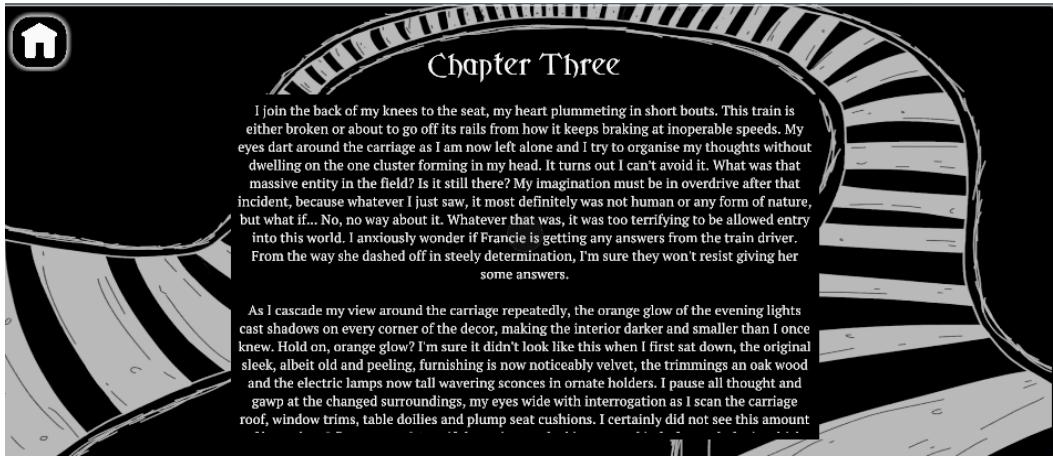


Fig. 26 - Written Chapter With Imported Text (Chapter 3)

Interactivity Engineering

Scene Hierarchy

All scenes within the Unity project were named and ordered according to their position and function within the narrative and prototype. Figure 27 depicts the file system methodology used which allowed me to navigate through the Unity project efficiently while switching between chapters. Furthermore, within the build settings of the project, scenes were ordered and given an index to reference when using scripts (Figure 28).

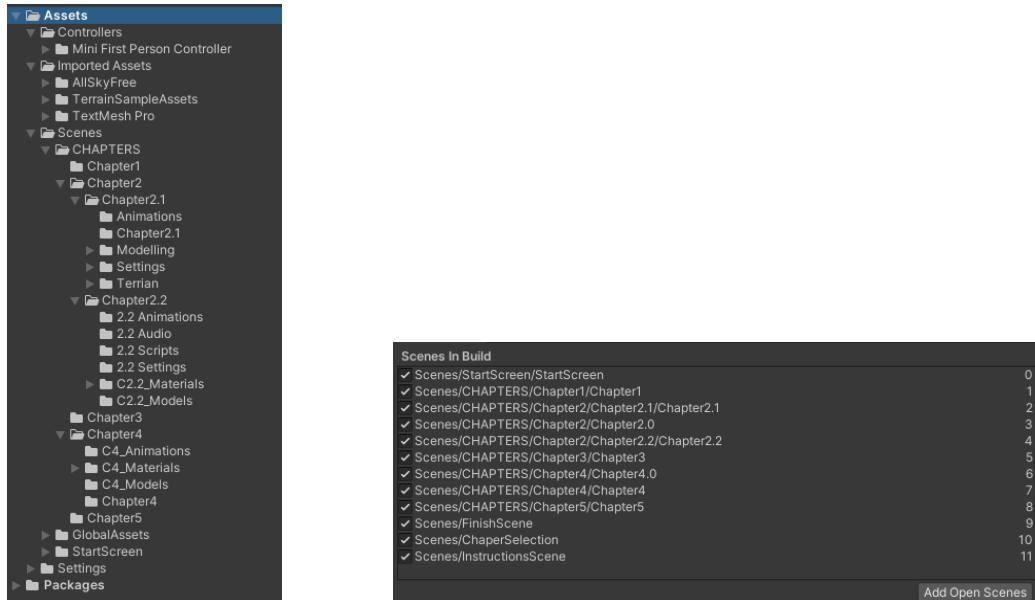


Fig. 27 - File System Organisation In Unity

Fig. 28 - Scene Index In Unity Build Settings

To keep track of this index and the functionality of scene transitions, a table and flow diagram were written down so that I could check the information without disrupting workflow. Figure 29 illustrates these physical notes.

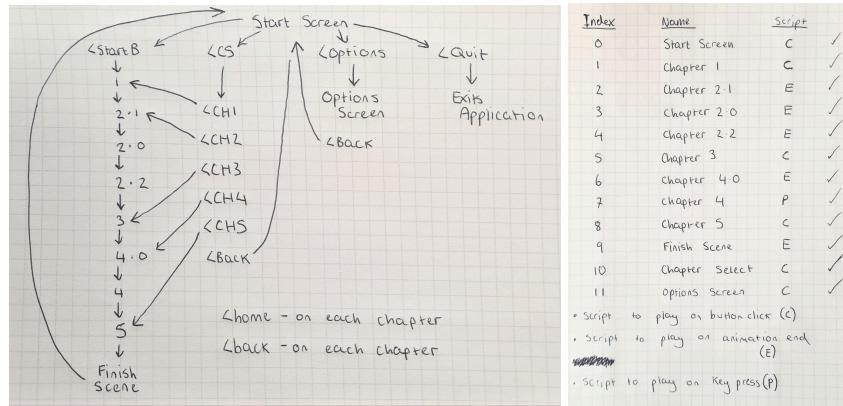


Fig. 29 - Scene Transitions Diagram & Index Table With Script Assignments

Scene Transitions & Functionality

To transition between scenes and add interactive functionality to the prototype, eight globalised scripts were used: ‘C_TransitionScript’ (C)(Figure 30), ‘E_TitleFade’ (E), ‘P_FadeScript’ (P), ‘HomeButton’, ‘HomePress’, ‘QuitScript’, ‘X_SceneSwitch’ (X) and ‘MouseScript’.

Scripts C, E, P and X were used with a canvas asset to load the next scene in the index with a fade in and out from black animation effect. These scripts were allocated based on the scene functionality and according to the notes made of the scene index in Figure 29. This fade effect makes the transition between scenes more visually appealing to match the narrative's tone and is less abrupt for the user experience. The Script HomeButton was used to give functionality to the home button featured on all static scenes, with HomePress being used to give the user an immediate return to the start screen if they pressed ‘1’ on the keyboard. These functions are outlined in the ‘Instructions’ screen of the prototype so that the user understands how to navigate the prototype sufficiently. QuitScript was applied to the ‘Quit’ button on the start screen so the application could be exited swiftly. Lastly, MouseScript was used on all static chapters to ensure that the device's mouse was enabled for the user when scrolling and clicking through the experience.

```
public class C_TransitionScript : MonoBehaviour
{
    public Animator animator; //initialize animator
    public int chapterToLoad; //public variable to assign in inspector which refers to scene index in build settings

    IEnumerator FadeOutPlay()
    {
        animator.SetTrigger("FadeOut");
        yield return new WaitForSeconds(2f);
        SceneManager.LoadScene(chapterToLoad); //called in an animation event within unity animation panel
    }
    public void FadeComplete()
    {
        StartCoroutine(FadeOutPlay());
    }
}
```

Fig. 30 - ‘C_TransitionScript’ Screenshot

User Testing

To ensure a successful and functioning prototype had been created, user testing was conducted once the whole system was implemented. This user testing included full participation from start to finish, with the participants reading through all written chapters and interacting with the visual chapters according to the linear structure which took ~30 minutes. A Google Form was created to record participant feedback which was completed after the participant had finished testing the prototype. A full reference of this feedback form

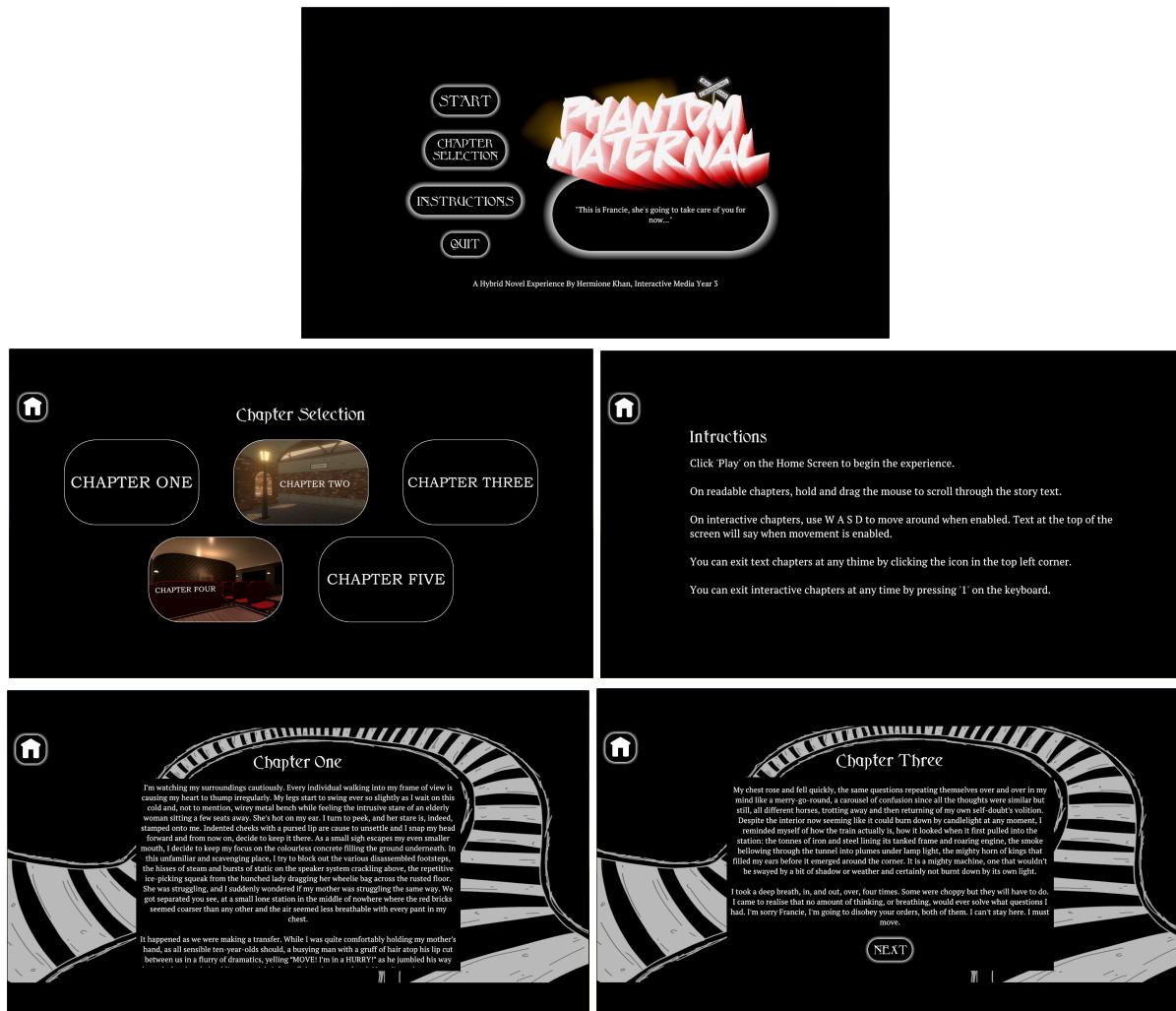
can be found in Appendix I. All participants used Sony WH-1000XM4 headphones and the same prototype build on a Windows operating system while taking part in the user test.

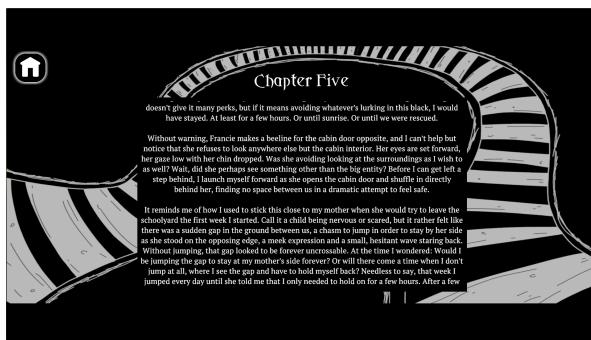
The main findings from the user testing were as follows: the graphics, narrative and visual chapters were all enjoyed by participants, highlighting that “the realistic designs add great depth to the story”, “the narrative is gripping and well-written, leaving the reader wanting more” and “the visual chapters, as well as the audio sections, added a previously unseen layer to the story.” Furthermore, when asked if the participants would interact with a product like the prototype in the future, participants answered yes, specifically noting that “the prototype provides an enjoyable experience through multiple avenues with the visual, audio, interactive and written aspects, there are many parts to enjoy which adds to the experience.”

This user testing indicates that the prototype is successful in its development and gives the user a rounded, enjoyable and cohesive experience. Furthermore, this prototype encouraged the participants to think more about interactive forms of storytelling as a form of learning and relaxation.

FINAL PROTOTYPE REPRESENTATIVES

UI & Written Chapters





Chapter 2



Chapter 4



EVALUATION

In this evaluation, we will critically assess the success of the prototype in relation to the problem space, product reviews, design requirements and user research, as well as review the ethical considerations, reflect on the development process and outline areas of future work.

Critical Evaluation

The main weakness of the prototype is the need for more interaction implementation within Chapter 4, as while the visuals of the chapter are formed, the interactivity is interrupted by having no implemented cutscenes to extrapolate on the written narrative. While these implementations can be considered moving forward with the project, the effectiveness of the overall experience is hindered by the incomplete nature. Further weaknesses of the prototype include the inability to click buttons before the transition animation has finished, which momentarily confuses the user, the absence of character models in the visual chapters and the discontinuation of background music in static scenes. Character models were not implemented to focus on the development of the environment singularly, as in the user interviews, the most requested visual implementations were elements such as the station, train exterior and interior changing through eras. With further engineering development, the remaining weaknesses could be remedied accordingly using the existing project framework.

A main strength of the prototype is that the narrative, according to user testing results and objective considerations, is cohesively portrayed throughout the prototype, despite Chapter 4 having minimal interaction. This cohesivity is achieved by closely following the source story, which proved to be successful when adapting media from a text in the example of Solo Levelling and from user interview answers. The visual chapters accurately depict the environment and scenarios involved in the written text and go further to add more detail in terms of the characters' surroundings through audio engineering and a realism art style for key structures. Furthermore, using toon shading with realism ensured that the visual chapters reflected not only the narrative content but also the narrative undertones: toon shading adds a child-like aesthetic to elements such as the exterior of the train, which reflects the narrator mindset of the main character who is a ten-year-old boy. This strength is similarly seen in one of the case studies conducted: 'Before Your Eyes' (Goodbye World Games, 2021) which also features a child as the main character and uses a low-poly art style to convey a young mindset.

Another main strength of the prototype is it adheres to all of the functional and non-functional design requirements, formed at the beginning of development: the prototype is designed to be played on a portable game device, notably the Steam Deck, through being created in Unity and built for a Windows operating system that could be published to Steam and altered for the portable device. The prototype depicts and implements three written chapters and two visual chapters successfully, has suitable audio engineering to increase the immersivity of the visual chapters and has a consistent, dark graphic style to reflect the narrative while the user interface remains simple to navigate. Additionally, according to user testing, the narrative is written compellingly and is presented in an easy-to-read format and includes highlighted visual elements that were identified in the user interviews. Lastly, the 3D models in the prototype are cohesive and successful in portraying the surroundings in conjunction with the written text, with the chosen art styles being closely followed.

Holistically, the prototype reflects the proposed solution of a hybrid novel experience which incorporates both written text and 3D interactive environments to increase immersion and reading skills through a linear narrative structure in an alternating format. A cross-multimedia approach enables the user to enjoy a symbiotic experience that will open up their interest to both text and visual formats of storytelling. Despite the weaknesses of this prototype, success can be measured based on the fulfilment of requirements and the potential for growth in the project's future.

Future Work

The future work of this project can be outlined using the identified weaknesses in the critical evaluation and extrapolated to include wider ideas: Chapter 4 interactivity can be fully completed in the future, as both visual chapters can be developed further to include character models for precise dialogical interactions, enhanced cutscenes to include multiple simultaneous animations and higher quality rendering effects. Furthermore, the narrative could be continued to make the experience longer and more intensive, giving the user a broader investment into the story and more enjoyment. Lastly, the format of the prototype could inspire further stories to be created, offering a variety of genres and visual styles to cater to user preferences.

Ethics Review

User research was conducted ethically by ensuring the participants for both the interview and survey had read the associated information sheet, asked any questions to gain a complete understanding of the study being performed and signed consent forms. All participants were over the age of 18 and were given the option to delete their data at any time. User interviews were carried out in similar environments of an enclosed private room and user tests were conducted using the same materials to increase the internal validity of the research. All external assets and references used in this report and the prototype are sourced and credited in the bibliography.

Reflection

From a personal perspective, I am proud of the level of achievement conducted in this project. I was ambitious with the project idea and eager to learn new working methods and improve my existing skills in Blender and Unity, however, I did not adequately anticipate the workload, mental pressure and technological complications that were involved in the project journey. Despite the hardship of multitasking this project alongside two more assessments, managing creative expectations, anxiety surrounding releasing the original written narrative and GitHub causing time-expensive problems, the prototype that was produced sufficiently displays my intentions and goals for the project. This project gave me a mental learning curve in improving resilience to problems and enabled me to grow a more positive mindset.

Specific areas of the project that allowed me to learn new skills were using more UI assets in Unity such as Scrollview and using vertices in Blender to create sophisticated curves. Additionally, I greatly improved my proficiency in Adobe Audition and Unity's Universal Render Pipeline which I can use in the future. Overall, this project both challenged and allowed me to produce an impressive project that cumulates my three years of teaching in Interactive Media, and provides an impressive portfolio piece to use in my career journey.

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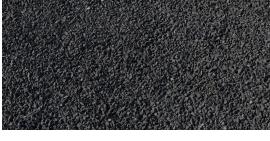
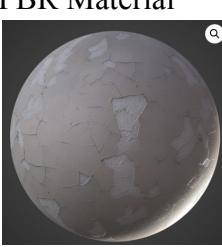
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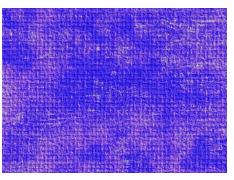
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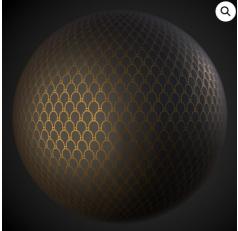
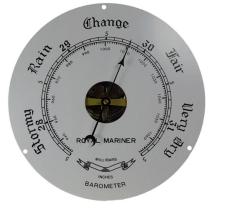
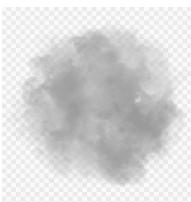
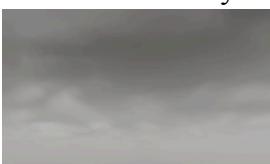
Valve Corporation
‘Steam Deck’
2022

ZA/UM
‘Disco Elysium’
2016

Project Copyright List

Title	Used For	Source	Copyright Type
Materials			
Offset Lightly Whitewashed Bricks Texture 	Station Model Texture	https://www.poliigon.com/texture/offset-lightly-whitewashed-bricks-texture/7787 Poliigon	Free Usage
Weathered Planks PBR 	Station Model Texture & Chapter 4 Train Interior	https://polyhaven.com/a/weathered_planks Polyhaven	Free Usage
Large Concrete Panels Texture 	Station Model Texture	https://www.poliigon.com/texture/large-concrete-panels-texture/7856 Poliigon	Free Usage
City Street Asphalt Generic Clean 001 	Station Model Texture	https://www.poliigon.com/texture/city-street-asphalt-generic-clean-001/2561 Poliigon	Free Usage
Gravel Stones Texture 	Station Model Texture	https://polyhaven.com/a/gravel_stones Polyhaven	Free Usage
Chipping Painted Wall PBR Material 	Chapter 2 Train Interior	https://freepbr.com/materials/chipping-painted-wall/ FreePBR	Free Usage

Orbed Plastic PBR Material 	Chapter 2 Train Interior	https://freepbr.com/materials/orbed-plastic/ FreePBR	Free Usage
Metal With Leaks PBR Material 	Chapter 2 Train Interior	https://freepbr.com/materials/metal-with-leaks/#:~:text=This%20Metal%20with%20Leaks%20PBR,using%20a%20metalness%2Froughness%20workflow. FreePBR	Free Usage
Wallpaper Abstract Texture 	Chapter 2 Train Interior as 'Velvet Normal Map'	https://creazilla.com/nodes/1647742-wallpaper-abstract-texture-illustration Creazilla	Free Usage
Keyboard 	Chapter 4 Train Interior as 'Keyboard Material'	https://www.quora.com/Do-different-languages-use-different-keyboards Quora	Personal use
Oak Wood Seamless 	Chapter 4 Train Interior	https://free-3dtextureshd.com/download/oak-wood-seamless-3d-textures-pbr-material-high-resolution-free-download-4k-unity-unreal-vray/ FreePBR	Free Usage
Rusted Streaked Iron 	Chapter 4 Train Interior	https://freepbr.com/materials/rusted-streaked-iron-pbr-metal-material/ FreePBR	Free Usage

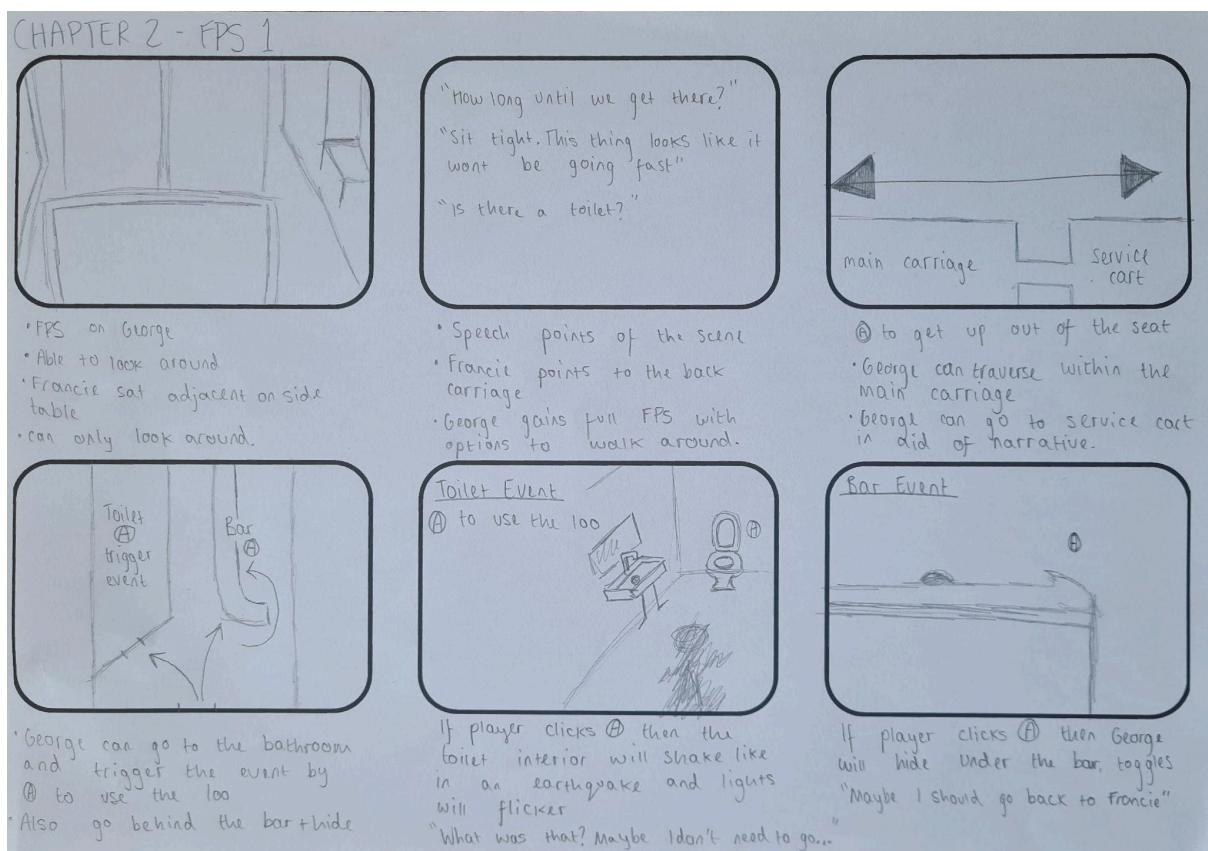
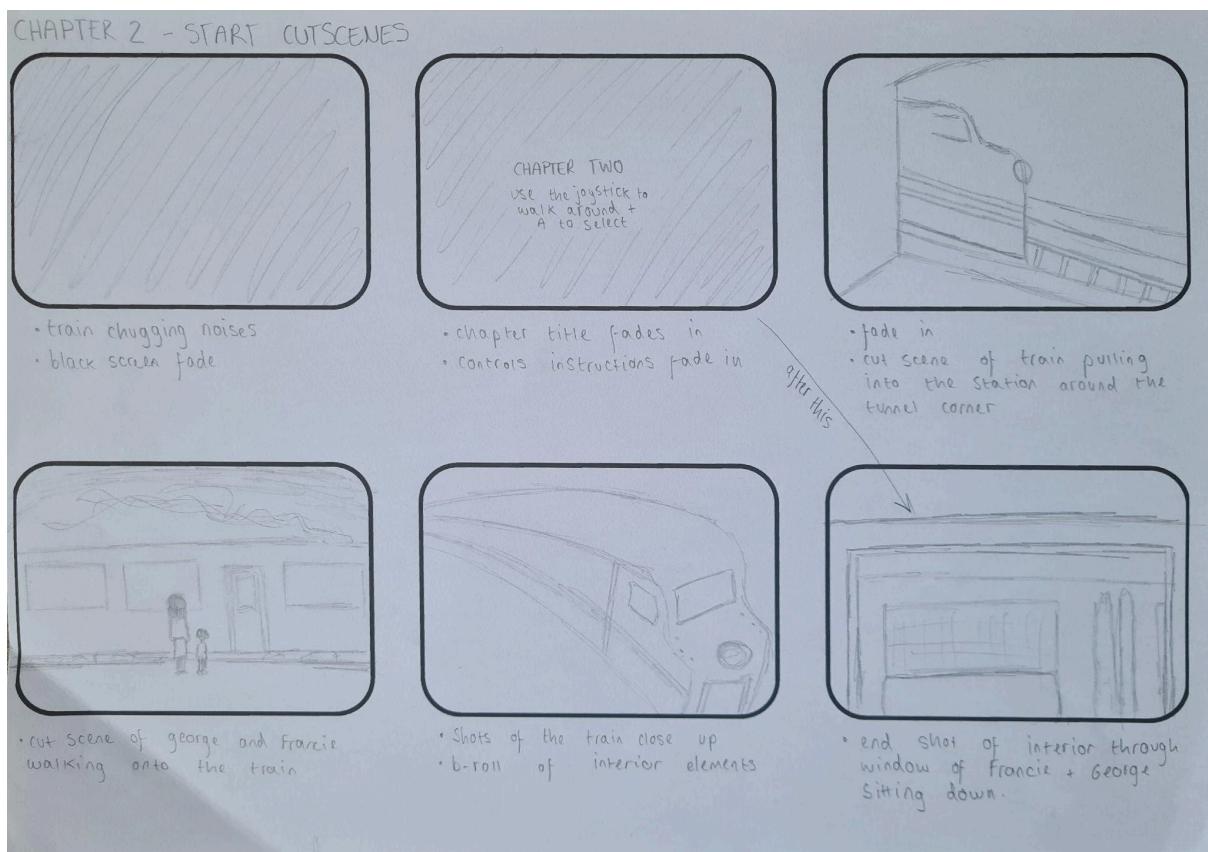
Classy Art Deco Wallpaper 	Chapter 4 Train Interior	https://freepbr.com/materials/classy-art-deco-wallpaper/ FreePBR	Free Usage
Antique Wood Veneer 	Chapter 4 Train Interior	https://freepbr.com/materials/antique-wood-veneer/ FreePBR	Free Usage
Pressure Gauge Face 	Chapter 4 Train Interior as 'Big Dial Face'	https://www.jilgauges.com/support/cannot-decide/17-types-of-pressure-gauges	Personal Use
Barometer Face 	Chapter 4 Train Interior as 'Small Dial Face'	https://www.sheridamarine.com/product/royal-mariner-barometer-mechanisms	Personal Use
Smoke Particle Material 	Chapter 4 Shadow Monster Smoke Material	https://toppng.com/free-image/smoke-particle-texture-PNG-free-PNG-Images_70935#google_vignette	Personal Use
Overcast Low Skybox 	Chapter 2 Skybox	https://assetstore.unrealengine.com/packages/2d/textures-materials/sky/allsky-free-10-sky-skybox-set-146014 Unity Asset Store	Standard Unity Asset Store EULA

Deep Dusk Skybox 	Chapter 4 Skybox	https://assetstore.unity.com/packages/2d/textures-materials/sky/allsky-free-10-sky-skybox-set-146014 Unity Asset Store	Standard Unity Asset Store EULA
Lemon Trees by NUMENA 	Chapter 2 Environment	https://assetstore.unity.com/packages/3d/vegetation/trees/lemon-trees-200372	Standard Unity Asset Store EULA
TerrainSampleAssets ‘Grass A Base Colour’ by Unity Technologies	Chapter 2 Environment	https://assetstore.unity.com/packages/3d/environments/landscape/terrain-sample-asset-pack-145808	Standard Unity Asset Store EULA
TerrainSampleAssets ‘Fern C’ by Unity Technologies 	Chapter 4 Environment	https://assetstore.unity.com/packages/3d/environments/landscape/terrain-sample-asset-pack-145808	Standard Unity Asset Store EULA
Audio			
‘Moving Train AC Compartment India 2’ by prospekt42 on freesound.org	Chapters 2 & 4	https://freesound.org/people/prospekt42/sounds/712291/	Freeware
‘DOOR Flat Wood INT open close near.wav’ by matucha on freesound.org	Chapter 2	https://freesound.org/people/matucha/sounds/182762/	Share & Remix With Credit
‘dumpster garbage bin lid heavy open thud2.flac’ by kyles on freesound.org	Chapter 2	https://freesound.org/people/kyles/sounds/637510/	Freeware
‘Glass Break 001.wav’ by VSokorelos on freesound.org	Chapter 2	https://freesound.org/people/VSokorelos/sounds/346173/	Freeware

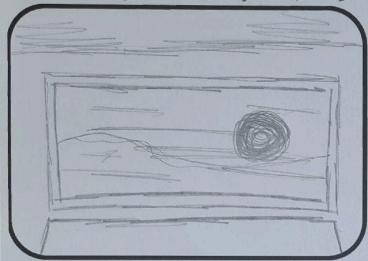
‘Tram_hiroshima.wav’ by Heigh-hoo on freesound.org	Chapter 2	https://freesound.org/people/Heigh-hoo/sounds/25824/	Freeware
‘Ominous III.wav’ by BaDoink on freesound.org	Chapter 2	https://freesound.org/people/BaDoink/sounds/563043/	Freeware
‘CPR Freight Train, Crossing at Castle Junction, Banff National Park’ by Robert.Crosley on freesound.org	Chapter 2	https://freesound.org/people/Robert.Crosley/sounds/728340/	Share & Remix With Credit
‘Train waiting.wav’ by AlienXXX on freesound.org	Chapter 2	https://freesound.org/people/AlienXXX/sounds/129329/	Share & Remix With Credit
‘06-2011 Passenger Train Pass #2.wav’ by lonemonk on freesound.org	Chapter 2	https://freesound.org/people/lonemonk/sounds/122065/	Share & Remix With Credit
‘EBB’ by TheGreyRoom on YouTube Sounds	Start Screen	https://www.youtube.com/@TheGreyRoom/videos	Freeware
Fonts			
‘Chilling Sabrina’ by Mawhrt on FontSpace 	Start Screen Logo	https://www.fontspace.com/chilling-sabrina-font-f30135	Freeware
‘Sidhe’ by Furdzville on FontSpace 	Written Chapters, Titles, Buttons. Prototype UI	https://www.fontspace.com/sidhe-font-f3649	Freeware
‘PT Serif’ by ParaType on Google Fonts 	Written Chapters, Dialogue	https://fonts.google.com/specimen/PT+Serif	Open Font License
Bookman Old Style from Adobe	Chapter Selection, Buttons	https://fonts.adobe.com/fonts/bookman-jf	Personal And Commercial use

APPENDIX

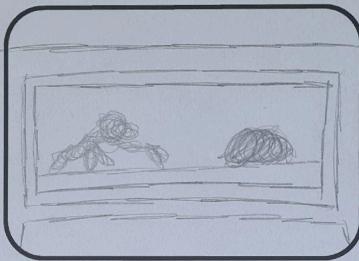
Appendix A - Storyboards



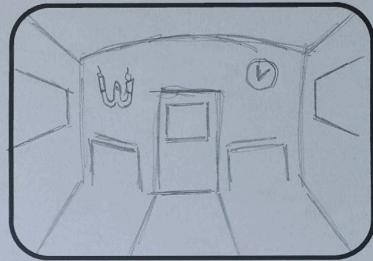
CHAPTER 2 - FPS DISABLED



Once player clicks ⌘ to sit back in the carriage seat FPS is disabled and the train speeds up with screeches and groans as the sun begins to set.

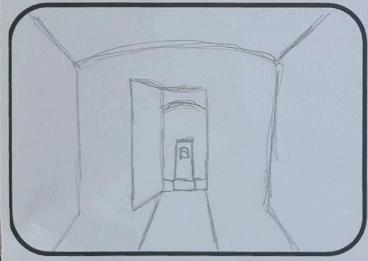


Train harshly breaks and camera view lurches forward and to the left out the window where the shadow figure is stood with the sun setting.



Train comes to a full stop and the lights flicker on to a Victorian interior. Francie looks around in a daze.

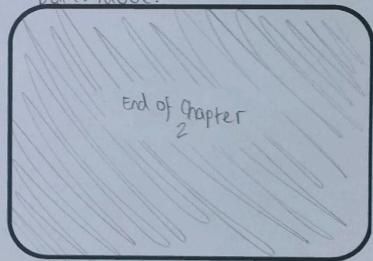
"I'm going to see the driver. Stay here. Don't move."



Francie gets up and walks to the front cabin door and leaves through it. George sighs and looks back out the window but it's too dark to see anything.



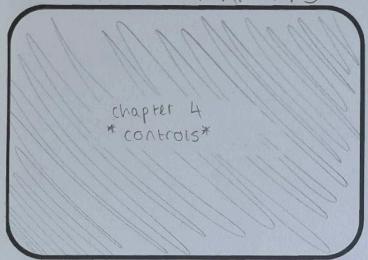
Fade to black



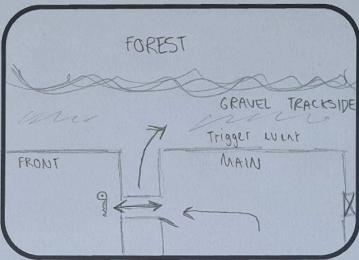
End of Chapter 2

End of Chapter 2 type text.

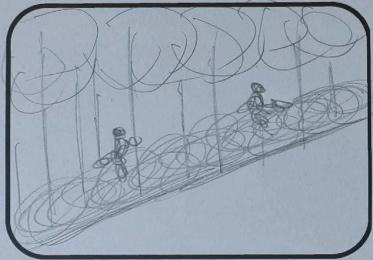
CHAPTER 4 - START FPS 1



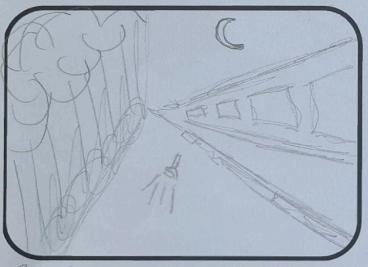
Chapter 4
controls



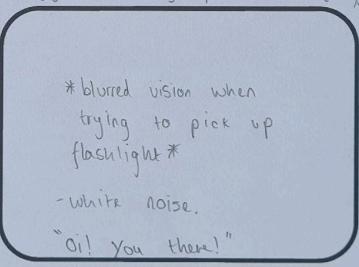
FPS is immediate.
Player can now exit through front carriage door but service carriage door is now blocked.
Front cabin is locked but key is suggested. Only option is to get off.



Trigger event when George comes down ladder where trees rustle and shadows race past. FPS is disabled while the cutscene plays.



Flashlight on floor down the track line. Player can go to pick it up which gives trigger event.



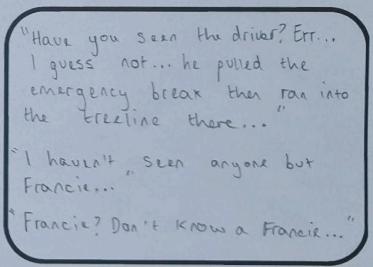
blurred vision when trying to pick up flashlight

-white noise-

"O! You there!"

Random man dashes towards George and he falls back in fright.

He blinks and image is clear again.



"Have you seen the driver? Err... I guess not... he pulled the emergency break then ran into the treeline there..."

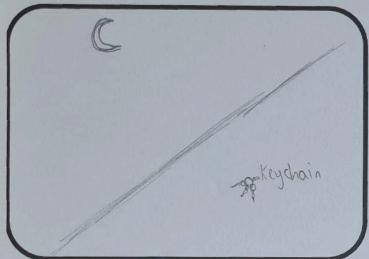
"I haven't seen anyone but Francie..."

"Francie? Don't know a Francie..."

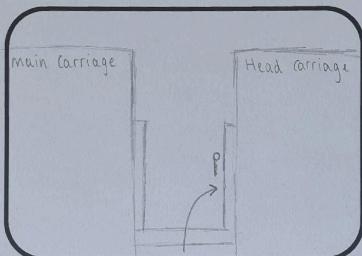
George blinks hazily after interaction and the man has vanished.

FPS is regained.

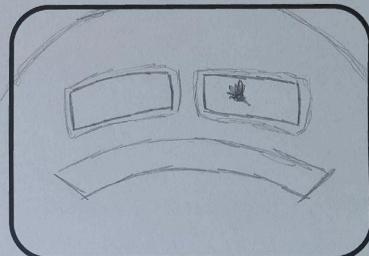
CHAPTER 4 - FPS 2



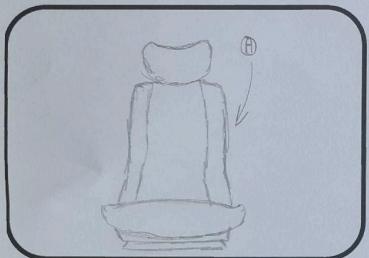
Player can look around area but is limited spatially.
Player can pick up Keychain which has suddenly appeared
Last option is to return to train.



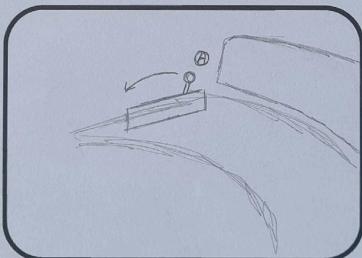
Player can now unlock the door to the head carriage. If player tries to go to main carriage they are dissuaded by character dialogue



Player now explores cockpit and sees handmark on window
Dated dials + mechanisms fill the room.
④ to turn on radio but its just static



⑤ Player can sit in the drivers seat which triggers the train to jolt and eerie noises.



⑥ Player can release emergency handbrake and the lights come on and the train starts up.



Once events are triggered
Screen fades to black to display end of chapter

Appendix B - Case Studies

Synopsis

The player controls Kyle Hyde, a former NYPD detective investigating the disappearance of his former partner, Brian Bradley, who has been presumed to be dead for several years. (Giantbomb.com, 2024)



Narrative:

- Textbox-based text and speech.
- Story is split up into chapters and each chapter ends with an interrogation style sequence.
- Player interviews different characters which have behavioural traits that determine how the player advances in the game.
- Uses timed paces for text generation to build atmosphere
- Sound design with effects for increased immersion.

Relevance To My Project:

- Uses an engaging and heavy narrative along with animated story scenarios for increased immersion and gameplay.
- The use of a range of the hardware's functionalities intrigues me to explore more functions of portable game devices such as the nintendo switch and steam deck.
- Interesting art style that differentiates it from other visual novel works. The B&W Noir theme enhances the traditional connection to previous works of the same genre.

Case Study - Hotel Dusk: Room 215

Developed by Cing, Published by Nintendo for DS in 2007

Design:

- Graphics style of characters are animated and detailed pencil drawings.
- Links to noir concept of old spy and thriller movies.
- Coloured and sometimes 3D backgrounds.
- Gives depth to gameplay while keeping the aesthetic consistent.

Sources:

<https://www.giantbomb.com/hotel-dusk-room-215/3030-1159/>

Mechanics:

- DS is held on its side like a book.
- Top screen is used to display Hyde's FPP and Bottom screen is used to display the world map.
- Story mostly uses point and click functions.
- Puzzles use mechanics such as picking locks with the stylus, blowing dust with the microphone, joining puzzles by closing the DS to transfer on-screen materials.
- Holistically uses a range of DS functions for increased interactivity and puzzle challenges



Case Study - INSIDE

Developed and Published by Playdead in 2016

Design:

- Dark environment design, with use of light to highlight specific gameplay.
- Lots of shadows and bloom on the light sources to give an ominous and dreamlike effect.
- Haunting sound production that immerses the dystopian environment even further.
- 3D art style with uniform colour profiling
- Cel shading style with monotonous colour profiling

Sources:

<https://store.steampowered.com/app/304430/INSIDE/>

Synopsis

Hunted and alone, a boy finds himself drawn into the center of a dark project. INSIDE is a dark, narrative-driven platformer combining intense action with challenging puzzles.



INdIE

Mechanics:

- 2.5D Puzzle Platformer format
- Player moves left to right in an environment with depth.
- Simple puzzle conditions with urgent situations.
- Fast-paced movement through gameplay to add to sense of urgency.
- Sound production fro when the player state changes ie. in danger, haunting sound effects.
- Minimal controller usage, keys and mouse clicking for simple task performance and to not overwhelm the player when they are already being rushed.



Narrative:

- No setup or tangible story to follow, circumstances are shrouded in mystery and are open to discourse.
- Linear progression, you go from stage to stage in order to outrun the authority.
- Environment and puzzles give a sense of urgency.
- Story is told entirely through audio and visuals.
- Desolate environment design adds to narrative context.

Relevance To My Project:

- Focuses around a lost child - similar to my story
- Narrative focuses on being alone as a vulnerable person and navigating your way through an uncertain and dangerous landscape.
- Study about how narrative may not necessarily be the factor that increases immersion, in this case it is the environmental design and the sound production as well as the deceptive mystery surrounding the circumstances of the child.
- Proposes an interesting development angle - if I leave some parts of the story up to speculation, will this increase engagement and immersion in the narrative itself?
- Leaving the audience with a chilling feeling and questions can build fan community.

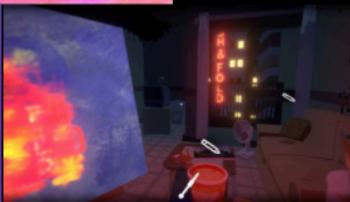


Synopsis

An emotional first-person narrative adventure where you control the story—and affect its outcomes—with your real-life blinks. With this innovative technique you will fully immerse yourself in a world of memories, both joyous and heartbreakng, as your whole life flashes before your eyes.

Mechanics:

- 'Blinking' mechanic where you mouse click the eye symbols. There are also different clickable symbols that trigger different events.
- Certain blinks trigger different narrative actions and decide what course the story takes.
- Mechanics are kept simple so the player focuses on the narrative and immersion of the story world.
- FPS Control for the player to make decisions as if they were the main character.



Sources:
https://store.steampowered.com/app/1082430/Before_Your_Eyes/

Case Study - Before Your Eyes

Developed by Goodbye World Games and Published by Skybound Games in 2021

Design:

- Low poly design with bright and muted colours to simulate different types of atmospheres.
- Cel shading in some areas with bloom on lighting to give a sentimental and chilled aesthetic.
- Design is supposed to be relaxing for increased immersion into the story.

Narrative:

- Follows the main character through their whole life from birth to death, using the blinking mechanic to time skip randomly based on when you blink/make certain decisions.
- Decision narrative with branching/convergence structure.
- Deals with heavy topics that can be emotionally stimulating

Relevance To My Project:

- Heavy narrative surrounding a child (my project will not be this heavy though).
- FPS Control that focuses on environment design rather than character design.
- Interesting that it's a decision-based narrative, would create community engagement in order to figure out the true meaning behind the story as I believe all decisions come to the same conclusive (and sad) ending.
- Use of colour palette and low-poly environment is intriguing since most of the main story is told through visuals. I think it is a design choice because of the aesthetic and also 'dreamlike' state the player experiences. Using realism would break the illusionist elements of the story.

Design:

- High spec realism to deliver a deeply immersive and reflective environment.
- Advanced shaders and dynamic lighting to show the passage of time in aid of narrative development.
- A misty and murky forested environment which adds to player atmosphere.
- Realistic sound production which enhances the surrounding environment and immersive agency.
- Environment modelling uses photogrammetry to get almost perfect realistic renders of structures.

Sources:

<http://ethancartergame.com/>

Mechanics:

- FPS Control with mouse click actions and event triggers to follow a linear narrative.
- Large environment to explore
- A range of immersive cutscenes which enhance narrative direction and immersion.
- Built and ported using Unreal Engine 4

Synopsis

You play the game as Paul Prospero, an occult-minded detective who receives a disturbing letter from Ethan Carter. Realizing the boy is in grave danger, Paul arrives at Ethan's home of Red Creek Valley, where things turn out to be even worse than he imagined. Ethan has vanished in the wake of a brutal murder, which Paul quickly discerns might not be the only local murder worth looking into.

Narrative:

- Play as a detective uncovering truths behind the area's crimes. Mainly involves a young boy called Ethan Carter.
- Uses detective-thriller elements and voice-over narration for increased storytelling.
- Curiously set in an open world structure so that the narrative is delivered circumstantially.



Relevance To My Project:

- Story revolves around a young boy, similar to mine.
- Uses realism and sound production to deliver a compelling narrative.
- Involves heavy themes and crime narrative which gives it an intense atmosphere to explore and play in. The realism enhances the vulnerability of the play's decision making - possible thing to think about when trying to deliver a human narrative.
- Uses a spooky setting in the mountains and forest area, can gain inspiration from the environment design as it delivers the story pretty perfectly through the design guiding the narrative the player takes.
- Sound production is important in this game - thought provoking when reflecting on my own project ideas - what about voice overs and speech design?

Case Study - The Vanishing Of Ethan Carter

Developed by The Astronauts in 2014



ART STYLES AND MASTERS



ZELDA: BOTW & TOTK

The new open world

envisioned toon-shading approach for game style. This, mixed with stylised and dynamic skyboxes enable an aesthetic and enjoyable scene while allowing fantasy elements to shine and imagined within the environment.



- Soft lighting complements the vibrant yet muted colours of shading fantasy effects are standout for their glow & contrast



GENSHIN IMPACT

The open world game Genshin Impact also uses this art & graphic style for the environment design. It fits well with the complicated city systems as well as character style which is similar to anime.



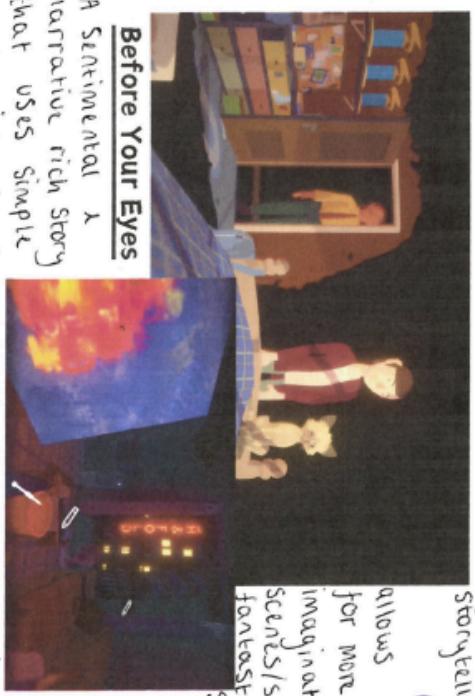
- Example of different shading styles

 - often used together in conjunction to give different dynamic to items.
 - + diffusion well with hazy atmospheres in magic & battle animations Standout against the calming colours & shading of the environment

STYLESARTSARTSYLESTER

ART STYLES

LOW-POLY focus on narrative & low polygon count in modelling allows for more imaginative scenes/scenery or fantastical situations



A Sentimental & narrative rich story that uses simple mechanics with low-poly but fully rendered environments in order to convey the story. A style choice based on the narrative's use of fantastical characters & scenarios as seen in the screenshots. This art style allows the vivid and lucid nature of the protagonist's worldviews shine and portray it in a youthful sense since the main character is a child.

This is an adventure-rich game experience, where low-poly models are used to convey an expansive terrain and fantasy environment. The characters in this game have a low-poly aesthetic which adds to their soft nature and customization abilities. Use of low poly enhances the light rendering.



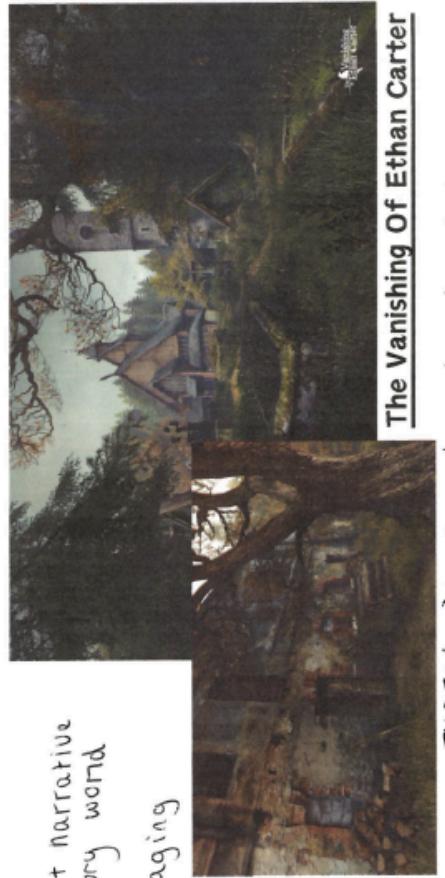
ART STYLES

RTS STYLESARTS

REALISM

- highly expressive power
- high spec models & renders
- comprehensive modelling which requires great detail and texturing to achieve.
- use of enhanced imaging techniques to simulate a real environment.
- Gorgeous aesthetics & renders that enhances the narrative's power

High workload



The Vanishing Of Ethan Carter

TVOEC (abv) uses modern imaging technology to create 3D renders of real-life structures that are being represented in gameplay. This uses a lot of computing power, but the result is hyper-realistic, adding to the environment's comprehensive and deeply immersive state. This aids the narrative intensity, as the player is transported into a space that reflects the real-world.



Alien Isolation

Alien Isolation uses highly comprehensive modelling, lighting and rendering to deliver a hyper-realistic gameplay, immersing the player in the tense and visually stimulating game world. Realism adds to player urgency as surroundings are more believable.

STYLESARTS

Appendix D - Research Mood Boards

Station

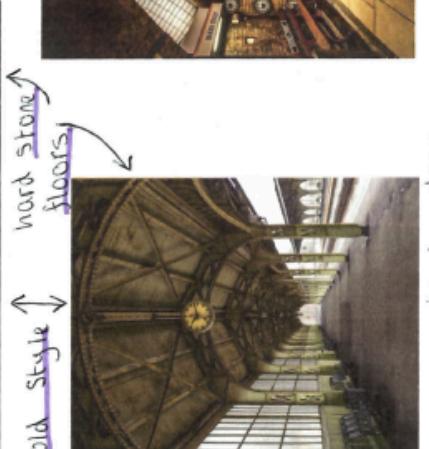
Structure

open and airy
open ceiling

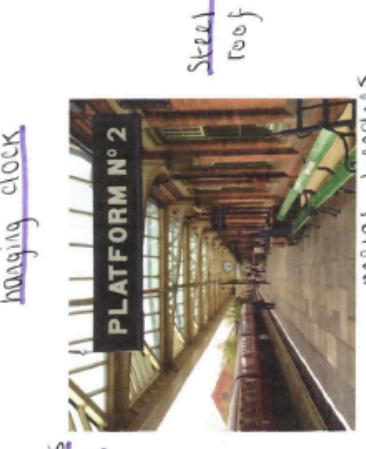


tall beams
lots of mezzanine structures

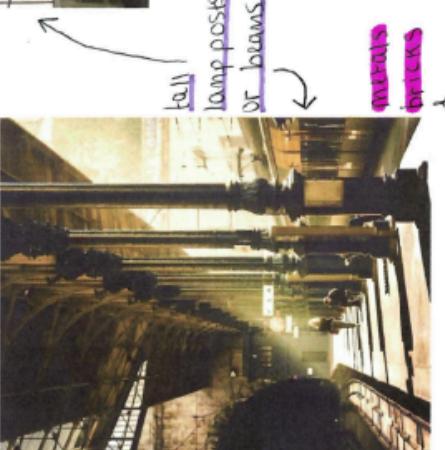
Remnants of industrial revolution



old style ↑ word stone floors



high ceilings
tall lamp posts or beams



metals bricks woods

Windows

windows in the ceiling structure for lots of natural light.



miniature structures hanging clock



miniature structures to simulate old style or architecture.

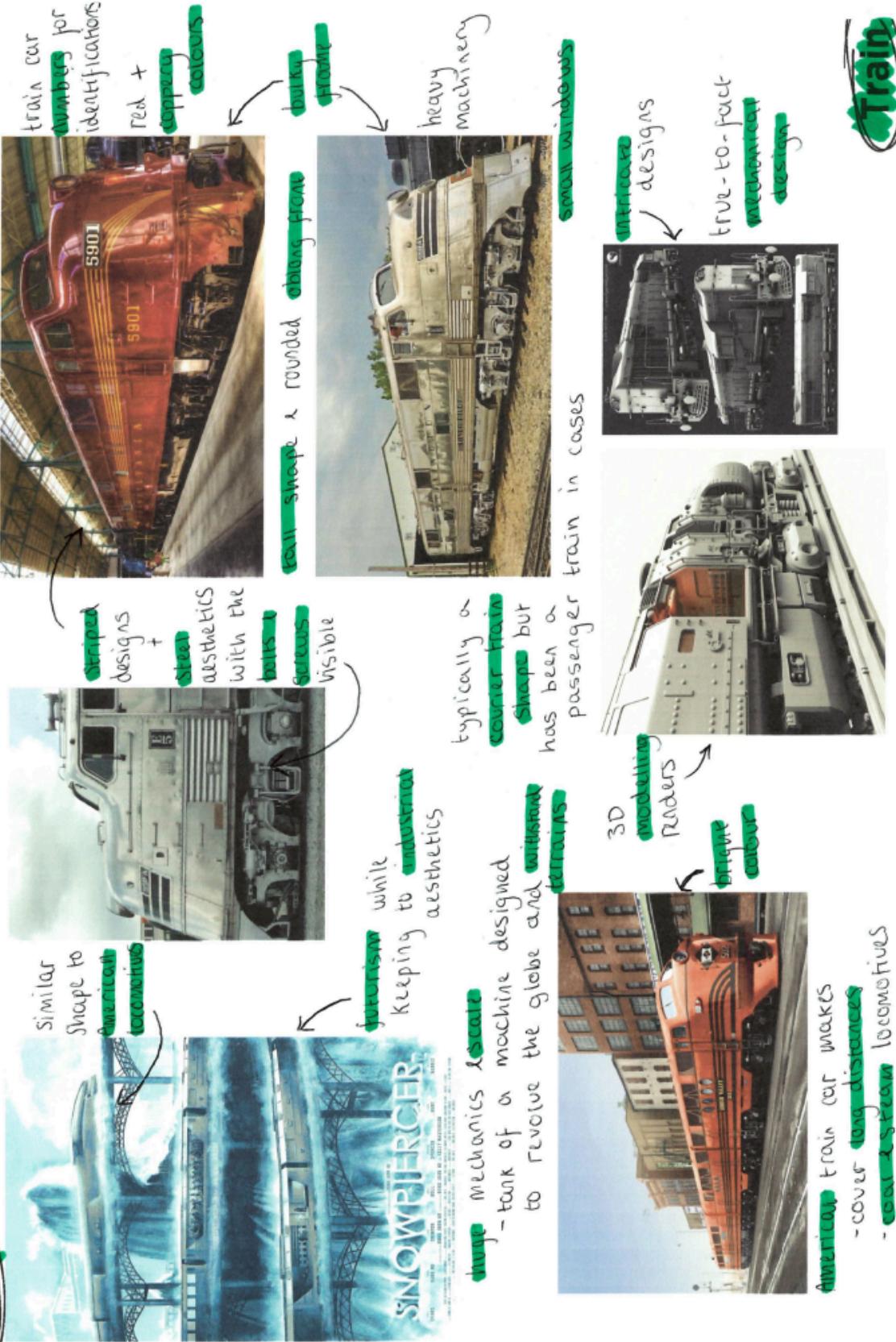


tunnel shaped

Steel beams for roof structure

reflective light from window

Station



Worldbuilding

peak industrial time periods

industrial futurism
realism in the animation
using steam & coal power along with
other worldy mechanics for over movement



A Christmas Carol (2009)

low lighting to emphasize glow
growing apparitions within standard objects



A Muppet Christmas Carol

Silent + large entities

soft lighting
big heavy trains



The Hunger Games: Ballad Of Songbirds And Snakes

emphasis on shadows



The Orient Express

growing apparitions within standard objects



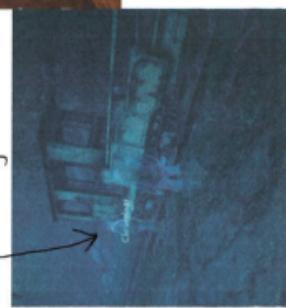
standalone ominous ghost forms

can be inspiring for changing of eras

Worldbuilding

luxury style

valent style
fabrics to reflect early 19th century styles



The Vanishing Of Ethan Carter

change in lighting from sunset to nighttime

Appendix E - Completed Ethics Checklist

ACT Research Ethics Checklist for Taught Students



School of Arts and Creative Technologies

RESEARCH ETHICS CHECKLIST FOR TAUGHT STUDENTS

FOR PROJECTS USING DEPARTMENT LEVEL ETHICS PRE-APPROVAL

This checklist is to be used **ONLY** for research work by ACT students who wish to use the Department Level Ethics Pre-Approval to accommodate the ethical risks of their proposed research work.

Students must ensure that their proposed research work can be accommodated by the restrictions in this Checklist. If not, you will be unable to conduct the work without further Ethical scrutiny by the ACT Ethics Committee as the work is considered to have higher ethical risks. To apply for additional Ethics approval, you must submit the Research Ethics Clearance Form for review by the ACT Ethics Committee. However, please note that some modules DO NOT permit students to submit individual Ethics applications.

All students who use the Department Level Ethics Pre-Approval for their work must complete this checklist and include the following as Appendices to their assessment reports:

- This completed Checklist;
- Example Participant Information Sheets and Participant Informed Consent Forms, if appropriate;

Please note that if this Ethics Checklist is associated with an assessment that has an **anonymous submission** (i.e. if you are using your Exam Number, Y123456 for submission) you **MUST** redact your name and any other information that would identify you as an individual from the appendices before submission.

Please note that your assessment markers will compare the submitted assessment work to this Ethics Checklist, Information Sheets and Consent Forms to ensure compliance.

You are also required to conduct this research work in compliance with the General Data Protection Regulation (GDPR). Information on how to ensure compliance is available on the ACT Ethics VLE site.

Before completing this Research Ethics Checklist for Taught Students, please consult the ACT Ethics VLE Site for guidance and further information.

SECTION 1: STUDENT AND PROJECT DETAILS

Box 1A: Student Details

ALL students must complete this box

Student Name OR Exam Number for Anonymous Submission	HERMIONE KHAN
Degree Title	Interactive Media BSc
Stage (e.g. 2 nd year Undergraduate)	3 rd Year Undergraduate
Role in Project (e.g. Team Leader)	Sole Member

Box 1B: Project Details

ALL students must complete this box

Module Title and Module Code	Interactive Media Individual Project TFT00090H-S1-2-A
Project Supervisor Name and Email Address	Dar'ya Guarnera darya.guarnera@york.ac.uk

Box 1C: Project Details

ALL students must complete this box

Project Title	'Phantom Maternal' A Hybrid Novel Experience
Project Submission Date	30.05.24

Please complete Section 2: Research Ethics Concerns

SECTION 2: RESEARCH ETHICS CONCERNS

Box 2A: Checklist of Research Ethics Questions ALL students must complete this box		YES	NO
1	<p>Will the project involve conducting work that would typically require NHS Ethics approval?</p> <p>That is, will you be working with any of the following as participants, if recruited specifically due to their involvement with the NHS:</p> <ul style="list-style-type: none"> - Patients and Users of the NHS, - Relatives or carers of patients and users of the NHS, - NHS staff? <p>OR will you be using or accessing NHS premises or facilities as part of the work?</p>		x
2	<p>Will the project involve conducting work that would typically require His Majesty's Prison & Probation Service Ethics approval?</p> <p>That is, will you be conducting research with staff and/or offenders in prison establishments, National Probation Service (NPS)/Community Rehabilitation Companies (CRC) regions or within His Majesty's Prison and Probation Service (HMPPS) Headquarters?</p> <p>OR will you be conducting research on HMPPS premises?</p>		x
3	<p>Will you be working with vulnerable participants (e.g. those under 18, people with learning disabilities, people with mental impairment due to health or lifestyle, people who are terminally ill or recently bereaved etc.)?</p> <p>Note that if you are unsure whether someone you would like to work with could be considered vulnerable under the circumstances, you are required to discuss your concerns with the module leader, your supervisor and/or Ethics Chair. It is generally expected that any student working with vulnerable groups would submit the longer Research Ethics Clearance form.</p>		x
4	Will you be identifying any of the participants in your outputs?		x
5	Will you be discussing sensitive or potentially upsetting or distressing topics with participants?		x
6	Is it reasonably foreseeable that the work could involve causing physical or emotional distress to participants or researchers?		x
7	Is it reasonably foreseeable that the participants could disclose or discuss participation in illegal activities (e.g. drug use)?		x

Box 2A: Checklist of Research Ethics Questions ALL students must complete this box		YES	NO
8	Is it reasonably foreseeable that the participants could disclose confidential or sensitive information (e.g. financial data, sensitive organisational data)?		x
9	Will you be deliberately misleading the participants in any way?		x
10	Will you be filming or making recordings of people without their knowledge and consent (e.g. covert filming of people in non-public places)?		x
11	Will you be researching or discussing issues relating to terrorism or political extremism as part of your work?		x
12	Will you be collecting online data that has been generated by human participants (e.g. social media data) from closed, restricted forums (i.e. from closed communities or those that require approved membership to view, e.g. restricted Facebook groups)?		x
13	Will you be identifying anyone from online data that has been generated by human participants (e.g. social media data) from either open or closed forums (i.e. by including information that could make the individual identifiable, such as direct quotes or usernames)?		x
14	Could the work involve potentially damaging property and/or the natural environment?		x
15	Will the work involve animals?		x
16	Is it reasonably foreseeable that the work could result in any anticipated university/institutional risk (e.g. adverse publicity or financial loss)?		x
17	Will you be compensating participants with financial inducements OTHER THAN reasonable incentives (e.g. chocolate, cake) for the inconvenience?		x
18	Will you be paying participant expenses?		x
19	Will you be conducting any of the work for this project OUTSIDE of the UK?		x

If you have answered “YES” to ANY of the questions in Box 2A: Checklist of Research Ethics Questions:

The Department Level Ethics Pre-Approval together with this Research Ethics Checklist for Taught Students MAY be insufficient to accommodate the ethical risks of your proposed work.

Some lower-risk ethical issues can be accommodated without further Ethical scrutiny provided that you agree to follow a process that is considered appropriate. These situations and processes are described on the ACT Ethics VLE site.

IF there is a suitable procedure to manage this ethics issue, please complete Box 2B to provide further details of how you intend to manage the ethical issues associated with your proposed work in consultation with either the module convenor or your assessment supervisor.

Box 2B: Further Details

Complete this box if you answered "Yes" to any question in Box 2A AND there is an identified procedure to manage the ethical risks in this situation.

Provide details of the nature of the ethical risks that you identified by answering YES to questions in Box 2A and describe the process that you will follow to minimise the risks.

Please note that if you answered YES to Question 17 and/or 18:

Will you be paying your participants? If research participants are to receive any payments, reimbursement of expenses, or any other incentives or benefits for taking part in your research, please give details, indicating what and how much they will receive and the basis on which this was decided.

Payment must follow the [University's policy](#). Please note that the policy includes maximum limits and researchers should note that they may pay less than these, as appropriate.

n/a

Alternatively, the associated risks of your proposed work may be sufficiently low risk that an appropriate approach can be agreed with the ACT Ethics chair without requiring submission of the ACT Research Ethics Clearance form. Your supervisor/module convenor may contact the ACT Ethics on your behalf to identify an agreed process on a case-by-case basis. If your supervisor has discussed your proposed work with the ACT Ethics Chair via email, please complete Box 2C: Case-By-Case Agreed Process.

Box 2C: Case-By-Case Agreed Process		YES	NO
<p>Students must complete this box IF they have answered "YES" to any questions in Box 2A AND there is no identified procedure to manage the ethical risks of the proposed work.</p> <p>Note, that most students will need to submit a ACT Research Ethics Clearance form and this case-by-case process approach is ONLY suitable for work that can be considered low risk.</p>			
1	Has your project supervisor or module convenor discussed the proposed work and associated ethical risks with the ACT Ethics Chair via email?		
2	Was your project supervisor or module convenor able to agree a process to manage the low risks associated with your proposed work?		
IF YES to BOTH questions please provide further details of the anticipated risks of the proposed work and the process that was agreed with the ACT Ethics chair. Please include dates of the email correspondence AND the name and email address of supervisor/module convenor involved.			
n/a			

If the associated risks of your proposed work cannot be accommodated through an identified procedure or through a case-by-case agreed process then, provided the module convenor permits it, you will need to submit an application to the ACT Ethics Committee for review using the Research Ethics Clearance Form. But, please note that some modules do NOT permit students to submit individual applications to the Ethics Committee.

Please complete Section 3: Data Protection

SECTION 3: DATA PROTECTION

In order to comply with the General Data Protection Regulation (GDPR) you MUST adhere to the data usage and storage principles described in Box 3A: Checklist of Data Protection Questions.

Box 3A: Checklist of Data Protection Questions ALL students must complete this box		YES	NO
1	<p>Will you guarantee that you will inform all people whose personal and/or special category data that you are using:</p> <ul style="list-style-type: none"> • What data you will be collecting and why; • How you will be storing the data; • The legal basis under which you are storing the data; • When/if/how the data will be destroyed? <p>Please note that using a GDPR Compliant Project Information Sheet will ensure you meet these requirements.</p>	x	
2	Will you guarantee that IF you use a portable device to collect electronic data you will transfer that data to your University Google Drive account or University Filestore as soon as possible after the interview AND delete it from your personal device?	x	
3	Will you guarantee that the data will ONLY be accessible to the project team AND that IF the project team extends beyond the University of York that you have consulted the University's IP and Legal team to ensure appropriate data protection safeguards are in place?	x	
4	Will you guarantee that you will ONLY use Google Forms OR Qualtrics to host online surveys that collect personal and/or special category data?	x	
5	Will you guarantee that you are collecting the MINIMUM amount of data necessary for the intended project?	x	
6	Will you guarantee that IF you are storing or accessing data from OUTSIDE the European Economic Area (EEA) you will access the data through your University of York Google Account connected to the University of York Virtual Private Network (VPN)?	x	
7	Will you guarantee to destroy all physical AND electronic data EITHER after your module marks have been ratified by the Board of Examiners OR 10 years after last requested access?	x	

Box 3A: Checklist of Data Protection Questions ALL students must complete this box		YES	NO
8	IF storing electronic data for 10 years after last requested access, will you guarantee to EITHER use a University Google Drive account OR an approved data repository service to store the data?	x	
9	Have you screened your project against the Data Protection Impact Assessment (DPIA) screening questions AND if required conducted a DPIA and submitted a copy to the Data Protection Officer for review?	x	
10	If capturing audio, will you use an encrypted device for recording (e.g. an Apple iOS device or encrypted voice recorder)?	x	
11	Where data is held on an encrypted portable device (e.g. laptop, tablet) will you back it up to a University approved service as soon as possible and perform periodic checks to ensure data is being backed up appropriately?	x	
12	Will you ensure confidential information is encrypted before it is transmitted/shared digitally?	x	
13	Please detail what other protections will be used for digital data (e.g. access/edit permissions, procedural safeguards re downloads/making copies, remote access via VDS/VPN, 2 factor authentication)?		
	Give answer here: Digital data will be kept in the University system using a secure folder service such as Google Drive in which access will be limited.	x	
14	Confirm you have reviewed the user commitments under the Policy for the safe use of University information on devices . Detail anything in the user commitments that will pose a challenge in carrying out your proposed research.	x	
	Give answer to the second element of question 14 here: No challenges.	x	
15	Will you ensure that personal data or confidential data held on paper are stored in a lockable filing cabinet or container, and/or a locked room in secure premises?	x	
16	How will devices be physically protected (e.g. in transit, when not in use or left unattended)?		

Box 3A: Checklist of Data Protection Questions ALL students must complete this box		YES	NO
	<p>Give answer here:</p> <p>Devices will be locked with a secure passkey and will be kept in a secure location when left unattended or in transit.</p>	x	
17	Will you ensure the device(s), accounts, or storage area(s) used to store data are not accessible to any unauthorised parties?	x	

Box 3B: Checklist of Data Retention Questions ALL applicants must complete this box		YES	NO
1	<p>How long will you keep personal data after the project, in what form and for what reason?</p> <p>https://www.york.ac.uk/library/info-for/researchers/data/sharing/</p>	x	
	<p>Give answer here:</p> <p>Personal Data will be kept no longer than the Project Completion Date, in an encrypted form using Excel or Google Suite in order to identify data when working on the project.</p>		
2	<p>When will the research data be destroyed, by whom, and how?</p> <p>https://www.york.ac.uk/library/info-for/researchers/data/sharing/#tab-2</p>	x	
	<p>Give answer here:</p> <p>The data will be destroyed no longer than 6 months after the Project Completion Date by the Project Member by deleting all files from devices and cloud storage.</p>	x	
3	<p>Will any personal or special category data (i.e. data that is not truly and irrevocably anonymised) be deposited in an archive or external repository?</p> <p>https://www.york.ac.uk/library/info-for/researchers/data/sharing/#tab-4</p> <p>Move on to Question 5 if you have answered 'no'</p>		x

Box 3B: Checklist of Data Retention Questions ALL applicants must complete this box		YES	NO
4	<p>Where personal data are to be transferred to an archive or repository, please confirm that your Information Sheet will:</p> <ul style="list-style-type: none"> (i) cover the archiving and reuse of any personal data and participant agreement to this, (ii) explain to participants the benefits of any data sharing, (iii) indicate where possible whether research data will be deposited in a named, recognised repository (e.g. Archaeology Data Service, UK Data Service, York's institutional repository, etc.) 		x
5	<p>Where you have special category personal data or criminal data, will it be destroyed in line with an agreed retention policy (set by the University, the data provider, or approved by this ethics committee)?</p> <p>You may enter 'N/A' if you are not collecting this type of data</p>	n/a	

Before submission of your assessment work, you must complete Section 4: Student Agreement. This completed Checklist must be included as an Appendix to your assessment report, together with examples of your Project Information Sheets and Informed Consent Forms.

SECTION 4: STUDENT AGREEMENT

Box 4A: Student Agreement ALL students must complete this box.		YES	NO	N/A
1	I confirm that the work conducted for the above project has met all the statements as expressed in this Research Ethics Checklist.	x		
2	I confirm that the work conducted for the above project was guided by the University's ethical rules and regulations.	x		
3	I have included example Project Information Sheets and Informed Consent Forms as Appendices to my report, if applicable.	x		
4	I confirm that I have adhered to the ACT requirements for storing personal and special category data compliant with the General Data Protection Regulation (GDPR). Note that GDPR compliance guidance can be found on the ACT Ethics VLE site.	x		
5	I confirm that, if applicable, all payments made to personnel in relation to this project have complied with financial regulations.	x		
Student Name (or Exam Number for Anonymous Submission)		HERMIONE KHAN		
Date		23.02.24		

Box 4B: Supervisor Agreement		YES	NO
1	I have reviewed this Research Ethics Checklist.	x	
2	I have reviewed the Project Information Sheets and Informed Consent Forms, as applicable.	x	
Supervisor Name	Dar'ya Guarnera		
Signed	Dar'ya Guarnera		

ACT Research Ethics Checklist for Taught Students

Box 4B: Supervisor Agreement		YES	NO
Date		26/02/24	

Appendix F.1 - Interview Consent Form

'Phantom Maternal' An Immersive Novel Experience: Dissertation Project



School of Arts and Creative Technologies

Participant Consent Form – Non-Anonymous Interviews

Thank you for your interest in this project. This project aims to deliver an immersive narrative experience using a hybrid technique of combining traditional written text with explorable 3D environments to deliver a cohesive and enjoyable novel. This is for Hermione Khan's Dissertation Project. This Consent Form is for a semi-formal interview in which you will give your thoughts and opinions on the prototype's direction.

Please read the following statements carefully and tick the appropriate box:

	YES	NO
I have read the information sheet about this project		
I agree to take part in this project		
I consent to being interviewed for this project		
I consent to the interview being audio recorded		
I understand my right to withdraw and/or destroy my data from this project at any time in the interview		
I consent to be identified by an alias in the outputs from this project		
I am over the age of 18		

Participant Name:

Researcher Name:

Participant Signature:

Researcher Signature:

Date:

Date:

If you wish to be informed about the outcomes from this project, please provide your email address:

Appendix F.2 - User Testing Survey Consent Form

'Phantom Maternal' An Immersive Novel Experience: Dissertation Project

UNIVERSITY *of York*

School of Arts and Creative Technologies

Participant Consent Form – Anonymous

Thank you for your interest in this project. This project aims to deliver an immersive narrative experience using a hybrid technique of combining traditional written text with explorable 3D environments to deliver a cohesive and enjoyable novel. This is for Hermione Khan's Dissertation Project. This Consent Form is for a feedback survey in which you will give your thoughts and opinions on the prototype.

Please read the following statements carefully and tick the appropriate box:

	YES	NO
I have read the information sheet about this project		
I agree to take part in this project		
I understand my right to withdraw and/or destroy my data from this project at any time in the interview		
I am over the age of 18		

Participant Name:

Researcher Name:

Participant Signature:

Researcher Signature:

Date:

Date:

If you wish to be informed about the outcomes from this project, please provide your email address:

Appendix G.1 - Interview Information Sheet

'Phantom Maternal' An Immersive Novel Experience: Dissertation Project



**Department of Theatre, Film, Television and
Interactive Media Ethics Committee**

Participant Information Sheet – Non-Anonymous Interviews

Project background

The University of York would like to invite you to take part in the following project: 'Phantom Maternal' An Immersive Novel Experience: Dissertation Project.

Before agreeing to take part, please read this information sheet carefully and let us know if anything is unclear or you would like further information.

What is the purpose of the project?

This project is being conducted by Hermione Khan (hk1084@york.ac.uk) who is a 3rd year undergraduate student on the BSc in Interactive Media at the University of York. This research is being undertaken for the assessment of the Interactive Media Individual Project Module, supervised by Dar'ya Guarnera (darya.guarnera@york.ac.uk)

The work that is being assessed for the module is being conducted according to restrictions that have been subject to approval by the ACT Ethics committee. The Chair of the ACT Ethics committee can be contacted on ACT-ethics@york.ac.uk.

For this research project, we are interested in understanding what limitations the project must undertake in relation to player imagination vs. visual representations, as well as general interest in the prototype idea. Your participation in this project will involve taking part in a semi formal interview in which you share your opinions on pre-proposed questions.

Please note that to comply with the approved Ethics requirements of this work, we do not intend to discuss sensitive topics with you that could be potentially upsetting or distressing. If you have any concerns about the topics that may be covered in the research study, please raise these concerns with the researcher.

Your participation in this project is voluntary. If you wish, we will provide you with access to the final prototype after marks have been received. If you would like to receive access to these, you can indicate as such on the consent form.

Why have I been invited to take part?

You have been invited to take part because you are interested in books, games or film/tv.

Do I have to take part?

No, participation is optional. If you do decide to take part, you will be given a copy of this information sheet for your records and will be asked to complete a participant consent form. If you change your mind at any point during the research activity, you will be able to withdraw your participation without having to provide a reason. To withdraw your participation, you need to state that you wish to withdraw from the interview before it is over, and the interviewer will terminate the interview and delete all data.

Will I be identified in any outputs?

Yes. Your participation in this interview is non-anonymous and therefore you will be identified in the following outputs: Deliverable Report, in which your contributions will be referenced to using an alias.

Privacy Notice

This section explains how personal data will be used by 'Phantom Maternal' An Immersive Novel Experience: Dissertation Project at the University of York.

For this project, the University of York is the [Data Controller](#). We are registered with the Information Commissioner's Office. [Our registration number](#) is Z4855807.

What is our legal basis for processing your data?

Privacy law (the UK General Data Protection Regulation (GDPR) and Data Protection Act 2018) requires us to have a legal reason to process your personal data. Our reason is we need it to perform a public task.¹

This is because the University has a [public function](#), which includes carrying out research projects.² We need to use personal data in order to carry out this research project.

Information about your health, ethnicity, sexual identity and other sensitive information is called "[special category](#)" data. We have to have an additional legal reason to use this data, because it is sensitive. Our reason is that it is

¹This refers to [UK GDPR Article 6 \(1\) \(e\)](#): processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller

² [Our charter and statutes](#) states: 4.f. To provide instruction in such branches of learning as the University may think fit and to make provision for research and for the advancement and dissemination of knowledge in such manner as the University may determine.

needed for research purposes.³ All research projects at the University follow our [research ethics policies](#).

How do we use your data?

Data will be collected using an audio recorder. This recording will then be transcribed and securely stored within the University Of York system to be interpreted and used in order to refine the prototype and provide evidence in the report.

Who do we share your data with?

As well as this, we use computer software or systems to hold and manage data. Other companies only provide the software, system or storage. They are not allowed to use your data for their own reasons.

We have agreements in place when we share data. These agreements meet legal requirements to ensure your data is protected.

How do we keep your data secure?

The University is serious about keeping your data secure and protecting your rights to privacy. We don't ask you for data we don't need, and only give access to people who need to know. We think about security when planning projects, to make sure they work well. Our IT security team checks regularly to make sure we're taking the right steps. For more details see [our security webpages](#).

How do we transfer your data safely internationally?

If your data is stored or processed outside the UK, we follow legal requirements to make sure that the same level of privacy rules still apply.

How long will we keep your data?

The University has rules in place for how long research data can be kept when the research project is finished. For this project, data will be kept until marks are ratified.

What rights do you have in relation to your data?

[You have rights over your data](#). This sheet explains how you can stop participating in the study, and what will happen to your data if you do. This information is in the section 'Do I have to take part?'

³This refers to [UK GDPR Article 9 \(2\) \(j\)](#): processing is necessary for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes in accordance with Article 89(1) based on Union or Member State law which shall be proportionate to the aim pursued, respect the essence of the right to data protection and provide for suitable and specific measures to safeguard the fundamental rights and the interests of the data subject.

If you want to get a copy of your data, or talk to us about any other rights, please contact us using the details below.

Questions or concerns

If you have any questions or concerns about how your data is being processed, please contact Dar'ya Guarnera, darya.guarnera@york.ac.uk.
University of York, Heslington, YO10 5DD.

If you have further questions, the University's Data Protection Officer can be contacted at dataprotection@york.ac.uk or by writing to: **Data Protection Officer, University of York, Heslington, York, YO10 5DD.**

Right to complain

If you are unhappy with how the University has handled your personal data, please contact our Data Protection Officer using the details above, so that we can try to put things right.

If you are unhappy with our response, you have a right to [complain to the Information Commissioner's Office](#). You can also contact the Information Commissioner's Office by post to **Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF** or by phone on **0303 123 1113**.

Appendix G.2 - User Testing Survey Information Sheet

'Phantom Maternal' An Immersive Novel Experience: Dissertation Project

UNIVERSITY *of York*

**Department of Theatre, Film, Television and
Interactive Media Ethics Committee**

Participant Information Sheet – Non-Anonymous Interviews

Project background

The University of York would like to invite you to take part in the following project: 'Phantom Maternal' An Immersive Novel Experience: Dissertation Project.

Before agreeing to take part, please read this information sheet carefully and let us know if anything is unclear or you would like further information.

What is the purpose of the project?

This project is being conducted by Hermione Khan (hk1084@york.ac.uk) who is a 3rd year undergraduate student on the BSc in Interactive Media at the University of York. This research is being undertaken for the assessment of the Interactive Media Individual Project Module, supervised by Dar'ya Guarnera (darya.guarnera@york.ac.uk)

The work that is being assessed for the module is being conducted according to restrictions that have been subject to approval by the ACT Ethics committee. The Chair of the ACT Ethics committee can be contacted on ACT-ethics@york.ac.uk.

For this project, we are interested in understanding how the prototype has performed as well as any design feedback. Your participation in this project will involve completing a short feedback survey online.

Please note that to comply with the approved Ethics requirements of this work, we do not intend to discuss sensitive topics with you that could be potentially upsetting or distressing. If you have any concerns about the topics that may be covered in the research study, please raise these concerns with the researcher.

Your participation in this project is voluntary. If you wish, we will provide you with access to the final prototype after marks have been received. If you would like to receive access to these, you can indicate as such on the consent form.

Why have I been invited to take part?

You have been invited to take part because you are interested in books, games or film/tv.

Do I have to take part?

No, participation is optional. If you do decide to take part, you will be given a copy of this information sheet for your records and will be asked to complete a participant consent form. If you change your mind at any point during the research activity, you will be able to withdraw your participation without having to provide a reason. To withdraw your participation, you need to state that you wish to withdraw from the survey before it is over, and the project leader will delete all data.

Will I be identified in any outputs?

No.

Privacy Notice

This section explains how personal data will be used by 'Phantom Maternal' An Immersive Novel Experience: Dissertation Project at the University of York.

For this project, the University of York is the [Data Controller](#). We are registered with the Information Commissioner's Office. [Our registration number](#) is Z4855807.

What is our legal basis for processing your data?

Privacy law (the UK General Data Protection Regulation (GDPR) and Data Protection Act 2018) requires us to have a legal reason to process your personal data. Our reason is we need it to perform a public task.¹

This is because the University has a [public function](#), which includes carrying out research projects.² We need to use personal data in order to carry out this research project.

Information about your health, ethnicity, sexual identity and other sensitive information is called ["special category" data](#). We have to have an additional legal reason to use this data, because it is sensitive. Our reason is that it is

¹This refers to [UK GDPR Article 6 \(1\) \(e\)](#): processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller

² [Our charter and statutes](#) states: 4.f. To provide instruction in such branches of learning as the University may think fit and to make provision for research and for the advancement and dissemination of knowledge in such manner as the University may determine.

needed for research purposes.³ All research projects at the University follow our [research ethics policies](#).

How do we use your data?

Data will be collected in Google Forms and used as qualitative research.

Who do we share your data with?

As well as this, we use computer software or systems to hold and manage data. Other companies only provide the software, system or storage. They are not allowed to use your data for their own reasons.

We have agreements in place when we share data. These agreements meet legal requirements to ensure your data is protected.

How do we keep your data secure?

The University is serious about keeping your data secure and protecting your rights to privacy. We don't ask you for data we don't need, and only give access to people who need to know. We think about security when planning projects, to make sure they work well. Our IT security team checks regularly to make sure we're taking the right steps. For more details see [our security webpages](#).

How do we transfer your data safely internationally?

If your data is stored or processed outside the UK, we follow legal requirements to make sure that the same level of privacy rules still apply.

How long will we keep your data?

The University has rules in place for how long research data can be kept when the research project is finished. For this project, data will be kept until marks are ratified.

What rights do you have in relation to your data?

[You have rights over your data](#). This sheet explains how you can stop participating in the study, and what will happen to your data if you do. This information is in the section 'Do I have to take part?'

If you want to get a copy of your data, or talk to us about any other rights, please contact us using the details below.

Questions or concerns

³This refers to [UK GDPR Article 9 \(2\) \(j\)](#): processing is necessary for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes in accordance with Article 89(1) based on Union or Member State law which shall be proportionate to the aim pursued, respect the essence of the right to data protection and provide for suitable and specific measures to safeguard the fundamental rights and the interests of the data subject.

If you have any questions or concerns about how your data is being processed, please contact Darya Guarnera, darya.guarnera@york.ac.uk.
University of York, Heslington, YO10 5DD.

If you have further questions, the University's Data Protection Officer can be contacted at dataprotection@york.ac.uk or by writing to: **Data Protection Officer, University of York, Heslington, York, YO10 5DD.**

Right to complain

If you are unhappy with how the University has handled your personal data, please contact our Data Protection Officer using the details above, so that we can try to put things right.

If you are unhappy with our response, you have a right to [complain to the Information Commissioner's Office](#). You can also contact the Information Commissioner's Office by post to **Information Commissioner's Office, Wycliffe House, Water Lane, Wilmslow, Cheshire, SK9 5AF** or by phone on **0303 123 1113**.

Appendix H - Interview Question Template

- *Give them the information sheet and consent form to sign*
- *Start audio recording*
- *Introduce yourself and explain what this interview is for:*

In this interview, you will be answering some questions surrounding how book adaptations differ, where they succeed, where they fail, and also some general feedback on my final project prototype ideas. Please be as honest with your thoughts as possible, and if you have any questions during the interview please feel free to ask. This first question block focuses on media adaptations.

Question Block 1:

"Can you give me any examples of media that you have read as well as watched/played before? For example, Harry Potter is both a book series and a film series."

"Can you think of any examples of adaptations that have been successful and enjoyable?"

"Can you explain why you believe the adaptation was successful or enjoyable, giving details or opinions about production?"

"Have you had any experiences where an adaptation has been disappointing or has inaccurately portrayed the story, or vice versa?"

"Can you explain to me why you believe the adaptation was disappointing or inaccurate, including details or opinions about production?"

"Do you generally prefer books, films/tv or video games?"

"Can you explain why?"

- *Thank them for their answers and explain the novel synopsis*

Thank you for answering those questions. This next block of questions is on my final project ideas and prototype development. First I will give you a rundown of my project idea and then a story synopsis for context. Phantom Maternal is a hybrid experience which utilises traditional written format and explorable 3D spaces in sequence to deliver an immersive narrative and impactful story. The first, third and fifth chapters will be readable and in a basic text on-screen format, think of an ebook. The second and fourth chapters will be playable in a 3D first-person controller format. All chapters will follow the same linear narrative structure. This project aims to use these two formats together to give an increased immersion and enjoyable experience, in which the reader is given agency to imagine and speculate the narrative and story world while receiving visual aids to guide them through a centralised understanding of the story.

Phantom Maternal is a story about a ten-year-old boy, George, who becomes separated from his mother at a small town train station during a changeover. He is unfortunately swept away by a busy crowd and his mother is forced onto a leaving train, resulting in George being left alone in the station. He is taken into care by a station attendant, Francie, who is

mysteriously cold and blunt. Francie and George are bound to board the next available train to the end destination where his mother is waiting. The train that awaits them is a huge mechanical amalgamation unlike any George has seen before. After boarding the train and leaving the station promptly, George and Francie sit quietly in the same carriage as the sun sets, until strange and disorderly events start to occur such as frequent braking, visual disturbances and the carriage interior changing eras dramatically. George is also haunted by this shadowy figure he briefly sees looming in the field the train has stopped beside. Both he and Francie investigate why the train has stopped mid-journey, despite her telling him to stay put, and they encounter many oddities before the train starts itself up again and sails away from the scene without a driver. Throughout this journey, George has a first taste of what life can be without parental support, albeit spooky, and he and Francie form a mutual friendship of sorts through their shared experiences. George arrives at his home station where his mother is waiting for him, and attempts to show his mother what train he came on, only to find the platform empty and the arrivals board inaccurate. He and Francie share a look before going their separate ways, and George is happy to be reunited with his family.

Question Block 2:

"Would this story intrigue you if you were to find it in a bookstore? If so, what would draw you to it?"

"Would this experience intrigue you if you saw it on a game site such as Steam? If so, what would draw you to it?"

"What specific parts of the story would you want to see visually in a 3D world setting? Please be specific and if you need a reminder of some plot points please say."

"Would you want the main characters to be described as well as visually represented, or only described?"

"What parts of the story would you like to leave up to your own imagination?"

"Do you think visual representative elements of the story would ruin the imaginative agency or enhance it?"

"Do you think a hybrid experience such as this would be more immersive or less immersive than traditional storytelling formats?"

"Would you consider reading other novel hybrids such as this if they were available on a portable device such as a tablet, Nintendo Switch, steam deck etc?"

- *Thank them for taking part in the interview and stop the audio recording.*

Appendix I - User Testing Survey Template

28/05/2024, 13:09

'Phantom Maternal' User Testing Feedback Form

'Phantom Maternal' User Testing Feedback Form

Please complete this short survey, based on the experience you just had with the prototype.

** Indicates required question*

1. Have you read the information sheet? *

Mark only one oval.

Yes

No

2. Are you over 18? *

Mark only one oval.

Yes

No

3. Have you signed the consent form? *

Mark only one oval.

Yes

No

4. Do you like the prototype's graphics?

5. Do you like the prototype's narrative?

6. Do you like the prototype's visual chapters?

7. Do you believe the visual chapters enhanced your immersion into the story?

8. Do you believe the narrative was cohesively delivered?

9. Do you think the prototype is successful in giving an enjoyable experience?

10. Could you imagine yourself interacting with a product like the prototype on a portable gaming device?

11. Is there anything you would like to mention?

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