

GAM230 Solo Project: “The Elephant in the Room”

Development Blog



Fig 1. COWDRY 2022. *The Elephant in the Room Game Logo.*

Hi, my name is Calve Cowdry. I am a current Game Development: Writing student in my second year at Falmouth University down in Cornwall. I'm currently partaking in a module on specialist practice and I have decided to create this blog to document the development of my game prototype "The Elephant in the Room."

The Elephant in the Room will be a FPP narrative focused puzzle game set inside a home environment. I will be using Unreal Engine 4 (Epic Games, 2019) for this project as knowledge of this game engine is often desired by companies within the Game Development industry.

I've chosen to work on this project because I genuinely believe it will help me improve my very limited game development skills. This project will also enable me to transition from being a "Writer" to more of a Narrative Designer. I also believe that by working on this project, I will learn valuable fundamentals in the roles of programming and level design, which will complement my writing craft.

Another reason is that the themes described in both this blog and the prototype are very real in our social reality. Raising awareness of domestic abuse in all of its forms should remain a priority in order to discourage it from happening and highlight the effects it can have on a person. The day we stop talking about something, is the day society will openly deem it to be acceptable.

I have determined that it would be best to divide each week into One-Week Sprints using AGILE methodology during the course of this development. This will assist in trying to maintain a structure by enabling me to set user stories as well as tasks in order to achieve the project goals. Using AGILE methodologies and Sprints should also help me understand where I have over-scoped in the development process and allow me to re-evaluate the scope on a weekly basis. As a result, this should, in theory, keep the development consistent with my preconceived timeline.

****Disclaimer**** This project's goal is to be a polished and tested prototype and not a complete game. Art and assets used will be considered "placeholders", but effort will be made to make it as visually effective as possible.

Sprint 1:

31st January - 6th February (Statement of Intent)

During this first week sprint, I began brainstorming ideas for what the project I want to create should be centred on. My original plan was to write a game script, similar to what we did in our WRJ (Game Writing) Modules. However, after a brief but formal conversation with my tutor, I discovered that the possibilities for this module are virtually limitless. As a result of this discovery, I believe I could take a significant risk on this module by developing a game prototype. This is a high-risk, high-reward situation. Not only should my grade reflect how well I do in this module, but it also allows me, as a Game Developer, to grow and improve my current very limited Game Dev skills.

Given the current time frame of this project, I believe I can both build and tell a story within the confines of a home environment. If I need to re-evaluate this and it turns

out that I have overscoped in terms of time management or do-ability, I will try to tell it within one to three sections of the house instead, but I'm hoping that this will not be necessary. I intend to create this from a first person perspective (FPP) to avoid the need for a character model or sprite. Making it from an FPP will also allow me to stick to the standard controls of W,A,S,D, which means the character controller will be simple to create while also allowing the player to fully appreciate the environment up close.

Sprint 2:

7th February - 13th February (Statement of intent) (Forming the idea)

I've decided to centre the story on an androgynous character named "Grey," who returns home for the first time since being placed in foster care. The player's role as Grey would be to find little notes left by both of their parents in order to piece together a story of what the player believes happened. By doing so, I believe the prototype's player agency will be upheld, as humans naturally seek information. I also believe that doing so allows the player to play however they choose. For example, one player may completely disregard or be unable to find several notes in the prototype's world, resulting in a different story outcome than someone who took the time to find every note.

****Spoilers ahead****

Domestic Abuse, Childhood Trauma and Separation will be the prototype's themes. I recognise that these are serious issues to be dealing with, so I will include a Trigger Warning in both my statement of intent for the project and the Itch.io page where the prototype build will be posted. I've decided to include these warnings because the goal of this project is to highlight some of the phrases and signs of domestic abuse, which carries a high risk of affecting someone who has dealt with a situation similar to this in their life. With players knowing what to expect right away, I'm hoping to avoid any shock or harm that the prototype's content may end up causing those who have previously been in such situations.

I fully acknowledge that by including these trigger warnings, some of the "puzzle" aspect of piecing together what exactly happened is stripped away. However, I hope

to rectify this by keeping the story fairly general, using this project to raise awareness about the stigma associated with domestic abuse, and abandoning my original concept of the victim being male and the abuser being female, instead making both roles androgynous. I believe this is also the correct call to make because everyone's experience with domestic abuse will be unique, and there is no true answer to say that domestic abuse affects one gender more than the other. Neither should I, as a game developer, imply that there is. The story overall therefore will not be the traditional beginning, middle and end saga, but instead, I want to create an experience that is open to interpretation where anyone who plays it can gather the necessary information and come to their own conclusion(s).

Sprint 3:

14th February - 20th February (Statement of intent)

This is the final week to finalise the statement of intent, and I need to identify the specific User Stories that I want the player to receive so that I can begin development of the prototype with those in mind and set tasks to achieve them.

My User Stories for this project are;

1. I want the player to have a home environment to move around in.
2. I want the player to have some form of note to collect to improve player agency.
3. I want the player to explicitly understand the situation the character is placed in.
4. I want the player to come away with a better understanding of domestic abuse.
5. I want the player to consider possible solutions to overcoming domestic abuse.
6. I want the player to potentially become motivated to help or seek help if they know someone who is, or are themselves dealing with domestic abuse.

I intend to devote approximately 9 hours per week to this project. In doing so, I hope

to achieve my project goals of creating a working narrative prototype of a broken home environment. Knowing that the next stage will be the most intensive part of this project, I will re-evaluate this after each sprint from now on.

Sprint 4:

21st February - 27th February (Development)



Fig 2. COWDRY 2022. *Screenshot of the original architectural concept.*

I spent the majority of this week's sprint laying the groundwork for the environment.

This includes the positioning of the walls, floors, doors, and garden (Figure 2). I initially placed several 200 by 200 by 200 scaled square blocks for the walls, but after doing so, I realised that some of the walls would flicker due to overlap. To fix this, I simply scaled one of the wall's longitudinal axes to fill what used to be six different walls running across (Figure 3). Not only did this fix the issue I was having, but it also saved me from scrolling through a lot in the hierarchy of the engine.



Fig 3. COWDRY 2022. *Second iteration of the architectural concept.*

The only problem with this is that I couldn't just copy and paste this asset because I needed a different asset for doors and windows. However, this was easily remedied by being precise with asset placement and scaling them appropriately.



Fig 4. COWDRY 2022. *Improved house layout with garden.*

I also realised that the garden's environmental space is a ring of bushes around the house; from a creative standpoint, I recognised that this was not at all interesting, so I moved the entire house back against one of the environment's outer walls to open up a space for a back garden area to the house (Figure 4).

Sprint 5:

28th February - 6th March (Development)

This week marked the first time I had to outsource assets. Originally, I intended to make the majority of the objects I required, but realised that sourcing them from Free-To-Use sites would save me a significant amount of time. Placing the assets where I wanted them was relatively simple; however, when implementing a prefab into the engine, I noticed that the collision on a lot of assets is a little scuffed and needs to be remapped. Fortunately, this is only a 5 to 10 minute fix per asset; however, this alone was eating up a lot of time that could be spent elsewhere.



Fig 5. COWDRY 2022. Simple use of a bed and frame to illustrate a bedroom.

As a result, I've decided to only source future assets if I believe they are absolutely necessary for the project. For example, the bedroom contains only a bed and a frame (Figure 5). I believe the player will be able to tell that this is the bedroom without the need for additional assets. Any additional time spent sourcing and remapping the meshes of items results in me losing valuable time on this project, so I hope to avoid it if possible. Because I don't have a lot of different assets, I've started texturing some of them to give the environment more life. Any textures I required were easily located within the "starter content" folder and are free to use within Unreal Engine 4.

Sprint 6:

7th March - 13th March (Development)



Fig 6. COWDRY 2022. *Elephant in the Original Living Room.*



Fig 7. COWDRY 2002. *Updated Living Room.*

This week, I decided it was time to begin constructing the living room area. Continuing from last week, I have only sourced assets that I believe are absolutely necessary to set the scene. I've also found a notebook asset to re-use for the game's collectible aspect, as the blank paper asset I made wasn't working out in the game world. Because I couldn't find a TV, I had to make one myself out of a blank canvas and four different cubes that were then textured to be black (Figure 8).

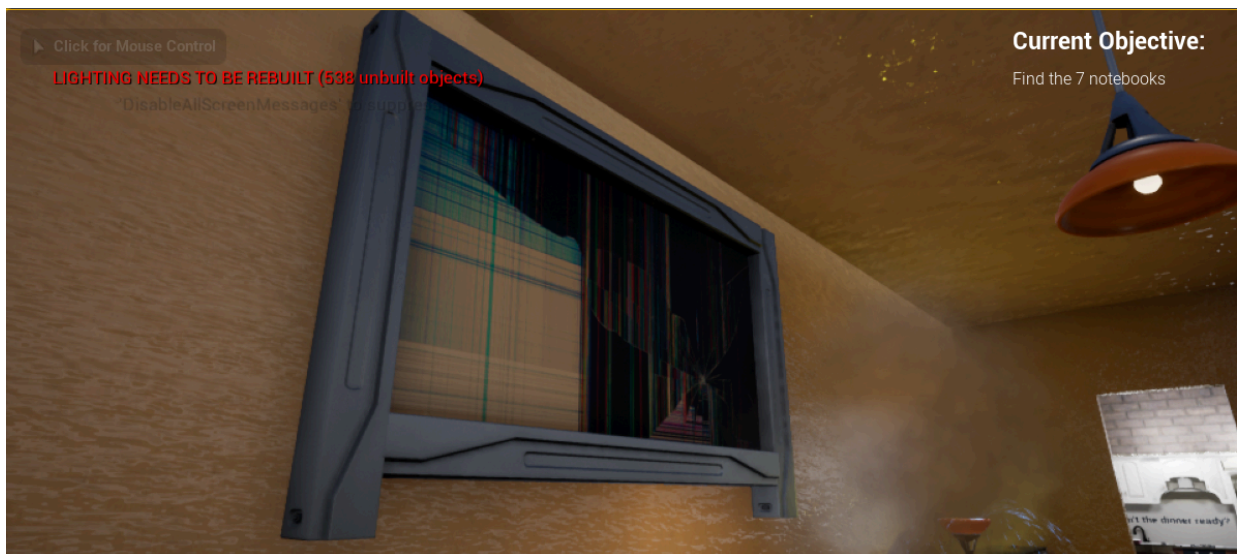


Fig 8. COWDRY 2022. *Elephant in the Room Updated TV.*

What I struggled with was figuring out an appropriate way for the player to open doors within the game world. Despite following tutorials (and watching them at 0.25 speed just to make sure I didn't miss anything), no matter what I did, it didn't work as intended or introduced new bugs into the game. In the hopes of resolving this, I asked a fellow student who studies computing for games to look over the code; their response was not encouraging, as they stated that the code used was confusing and they didn't understand it. Unfortunately, they were too busy to assist me in figuring

out how to write bug-free code, so I decided to keep the doors closed but add a sound whenever the player walks through one.

Another issue I encountered was with the notebooks themselves. I came up with the idea of forcing the player to pick up each note one at a time in a specific order aiming to tell a complete story, as well as to demonstrate "control," a tactic of domestic abuse. However, due to a lack of coding knowledge, this has been changed back to being more open and allowing the player to create their own story of events using the notes found around the house.

I also believe that if I had made it a much more linear experience, I would have lost a key component of this prototype in terms of allowing the player to freely roam and do whatever they want, allowing and maintaining a unique experience for each player.

I've also included a collectible objective system that shows the player how many notebooks they've collected and how many are still available. The notebooks are accompanied by widget notes that appear on screen when you're close by.

Originally, I wanted to have these vanish from the game world and appear on a collectible menu or inventory when found, but this is completely out of my current skill set, and I couldn't find a way to do this via a tutorial.

For the time being, I've decided to keep the widget active if a player overlaps with the box collider, allowing the player to re-enter the area whenever they want. This eliminates the possibility of a player exiting the box and the widget completely disappearing from the world without the player reading the text.

Sprint 7:

14th March - 20th March (Development)



Fig 9. COWDRY 2022. *Kitchen Placed Against The Left Wall.*

This week, I decided it was time to start working on the kitchen area. I've found several assets for this, but I've had issues with all of them. The first kitchen I found was more than 500MB in size. The Poly's were in the millions, but the Uni's git server only allows commits of less than 100MB. Such that, if I continued to use this asset, I would no longer be able to push my project and then work on it from anywhere other than my home PC. Not only that, but Unreal projects are naturally large in size, and this definitely doesn't help, so I've decided to remove it from the build entirely and forgo using it.

The second kitchen I obtained was a prefab room/house. It was much smaller in size, but still around 80MB. Because the asset was created in such a way that it would texture the entire space in all one colour, it turned out that this was primarily unusable unless I kept the original texture colour, which would have meant creating an entirely new scene because the walls were see-through.

The third kitchen (Figure 9) I discovered is far from perfect, but it is functional. The problem with this asset is that it's split into roughly 70 different objects to make up the entire kitchen, and there appears to be a buggy mesh on one of the objects that makes up the entire asset. The 5-10 minute mesh fix I discovered earlier in the development process, however, does not work on this asset.

The only solution I've found is to place it in a corner of its own room, with the left side of the asset nowhere near where the player can get to or interact with. The player can't get behind the kitchen countertop, which is consistent with the unfixable collision detection, but I fixed this by placing a notebook on the kitchen countertop where the player can reach it from the front. I've also thoroughly tested this area to ensure that the player does not clip into any of the assets and become stuck, resulting in a needed restart of the prototype.

Sprint 8:

21st March - 27th March (Development & Playtesting)

I uploaded a build and invited some friends to try out a playable version of the game. After hearing their feedback, I took some of their suggestions and began to consider how I could improve upon them.



Fig 10. COWDRY 2022. *Large open area of the house.*

1. The house was still too "open" (Figure 10).

I agreed; I felt there was a lot of the house that the player could explore that was left empty, so I closed off several walls, added trees and bushes to the garden area, and even hidden content in the form of both animated and inanimate text in places that were frequently open and unexplored (Figure 11). Including a few where the player

has to go out of their way to find, making for a more interesting player experience.

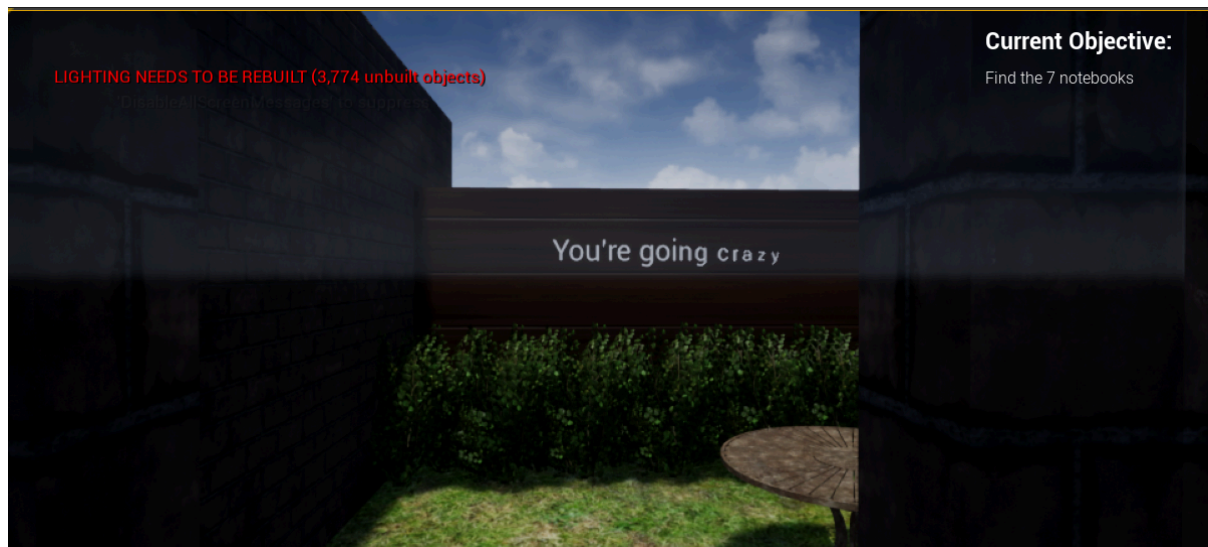


Fig 11 . COWDRY 2022. *Text That Appears On A Trigger.*

2. There must be sound and atmosphere.

I agreed with this as well, but admittedly did not give it as much thought as I should have earlier in the development. To address this, I used the Uni Soundsnap account to find some free sounds, such as floor creaks and a backing track, and placed them in the world to enhance the player experience.

3. More things to interact with.

I didn't think adding stuff for the sake of it would add much to the overall player experience, but I figured I'd give it a shot anyway. I did include a chest of drawers, and the plan was for the player to be able to open each one, with a notebook inside one and red herrings in the others. I ran into a problem with this because the drawers could be opened repeatedly and would just float in front of the player, and not only that, but when the drawers were opened, the player could no longer interact with the notebooks. I determined that the notebooks were sufficient for a prototype and that I needed to add story over more interactable objects.

Sprint 9:

28th March - 3rd April (Playtesting & Submission)

This week was spent mostly on playtesting and polishing. I distributed the build to a few more people so they could download and play it. The feedback was mostly positive, but I did receive some critical suggestions.

1. The widgets that appear on the screen are temperamental depending on where you stand in relation to the notebooks.

This was discovered to be a trigger box issue. This was a simple fix that involved mostly resizing and repositioning the trigger boxes.

2. The living room's details and lighting needed to be improved.

This problem, I believe, was caused by the lighting not being properly built when the game's build was sent off. I also added a broken light with smoke coming out of it to represent "gaslighting" and to highlight that form of domestic abuse.

3. The story notes should be a little more subtly written.

I asked for more information on this, and the playtester said the notes were too specific. I took a look at them and tried to make them a little less obvious while still telling the story. I replaced what text was on the widgets to be a little less specific, which should have resolved the issue.

The End of Development:

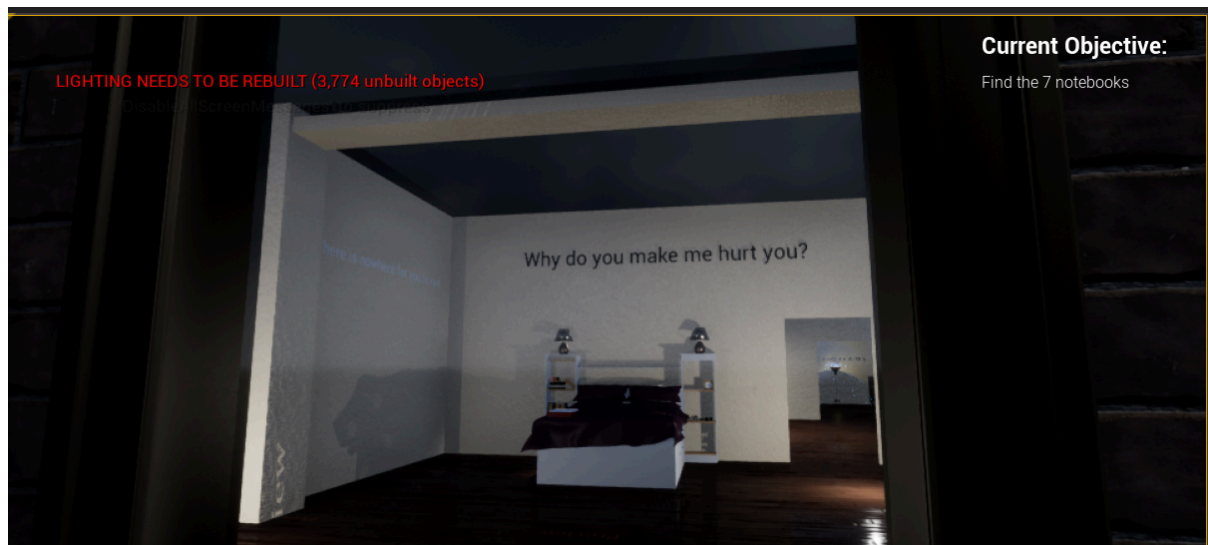


Fig 12. COWDRY 2022. *Hidden Message Through A Window*.

It's with great regret that I've officially run out of time on this development, and the prototype is due to be submitted. With hindsight comes great vision for change, and while looking back, there's a few things I would have done differently.

For example; writing the script and then immediately seeking advice from fellow Design and Programming students; to see if certain aspects of the project in their eyes was plausible as they have more knowledge than me in their own respective field. By doing this early I could have saved myself a lot of stress and wasted time when it came to buggy code or overstretching some of the project's goals listed in my Statement of Intent.

If I had a lot more time, or a full development team to take this project further, I'd have absolutely loved to breathe so much more life into this prototype, through the art aesthetics as well as coding in the entire collectible menu where the player could see every note they had picked up.

As well as that, I would have loved to include a full story where Grey actually does find out what happened to their parents, as well as what path that discovery leads Grey onto.

As someone who has come from never working in Unreal Engine 4 before this year,

I'm very proud of this project. There were many possibilities where this project could have taken a bigger or better form, but without constant perseverance it could have also taken the opposite. While I had to downscope on certain elements of the prototype due to a lack of ability or time restraints, I had also managed to keep the absolute core foundations of this project alive, and I genuinely believe I reached a fantastic compromise from my original concept.

Undertaking this project was always going to be a dramatically high risk situation and regardless of not being able to get in absolutely everything I wanted to, I learned so much by doing it. I can now take these skills into my third year, where I will be working in Unreal Engine 4 again, and hopefully, with a solid team behind me, create something imaginative and fantastic.

Assets Used References:

Assets (Objects):

All housing Architecture, Cubes, Doors, Lamps, Particle Effects, Pillars, Bushes, Windows & Trees used were from Starter Content & Free to Use Assets within Unreal Engine or on the Unreal Marketplace (Epic Games, 2019).

Atheriiss, *RETRO CARTOON PHONE*,
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Vinrax, *Army Boots Low-Poly*,
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BLASTWAVE FX, *Foliage movement. Tallgrass brushes and dead leaves. Short pass. Sound effects.*

<https://www.soundsnap.com/search/audio/Foliage%20movement.%20Tall%20grass%20brushes%20and%20dead%20leaves.%20Short%20pass./score>

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Epidemic Sound, *Door Open 16*, <https://www.epidemicsound.com/track/8wbCyD9nI0/>

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Epidemic Sound, *Chime Musical 23*, <https://www.epidemicsound.com/track/CrkgMi8qJy/>

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Kevin MacLeod, *Heartbreaking*, <https://incompetech.com/>

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Soundsnap, *WATER SMALL SPLASH DEEP 01*,
<https://www.soundsnap.com/search/audio/WATER%20SMALL%20SPLASH%20DEEP%2001/score>
Creative Commons: <https://www.soundsnap.com/licence>

Images used In-Game:

All Widget PNG images in this project were created by myself. (Calve Cowdry, 2022).

All textures were from Starter Content within Unreal Engine (Epic Games, 2019).

AMiR-HaCkEr, *Children And The Butterfly*,
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