IMT&S Ur in Trouble Devlog

Introduction

The project aims to make the current teaching materials used to introduce school children to the Wilminktheater more engaging and interactive, to help children retain theatre rules and information more effectively. Traditional materials often result in low student engagement, leading to chaos during theatre visits. To address this, the Wilminktheater seeks to develop a playful, flexible game that can be used with or without a teacher. The goal is to create a fun and educational tool that keeps children engaged, ensures they remember theatre rules, and reduces disorder during school performances.

The current approach employed by the teachers and theater staff is not effective for kids to retain the information. Teachers and staff take the time before and during the school visit to explain the code of conduct to the children but due to the low engagement and the stimulation of a new environment, the information doesn't stick.

This project was first initiated by Bo Hamer, who is now working for Wilminktheater as a Receptionist Frontoffice, during her graduation internship at the Wilminktheater. She developed a prototype for a 2D Point & Click game as a medium to show the theatre locations and introduce the children to the code of conduct at the theatre. Based on user tests she conducted, the prototype showed promising results and was passed on to a team for improving and developing the concept further.

The team working on this project is made up of six, 4th year students from the Creative Media & Game Technologies Bachelor at Saxion University of Applied Sciences in Enschede.

- Alexis de Cazenove: Designer, Team Leader
  - Portfolio Link: 🎮 Alexis de Cazenove Portfolio - Level & game mechanics designer
- Jose Peiro: Designer
  - Portfolio Link: 🔗 My Portfolio
- Amber Kortier: Engineer
  - Portfolio Link:
- Artiom Vostrenkov: Engineer
  - Portfolio Link: 🔗 AV
- Thomas Reijmerink: Artist
  - Portfolio Link:
- Jekaterina Markova: Artist
  - Portfolio Link: 🔺 Jekaterina Markova

During this semester long project, we aim to put our skills into practice and deliver a solution to our client's needs.

This Devlog will detail the team's approach towards creating this solution by going over our process for each part of the development cycle. To help during each phase, the Double Diamond Design Thinking Model was used as a framework for delivering the best results possible.
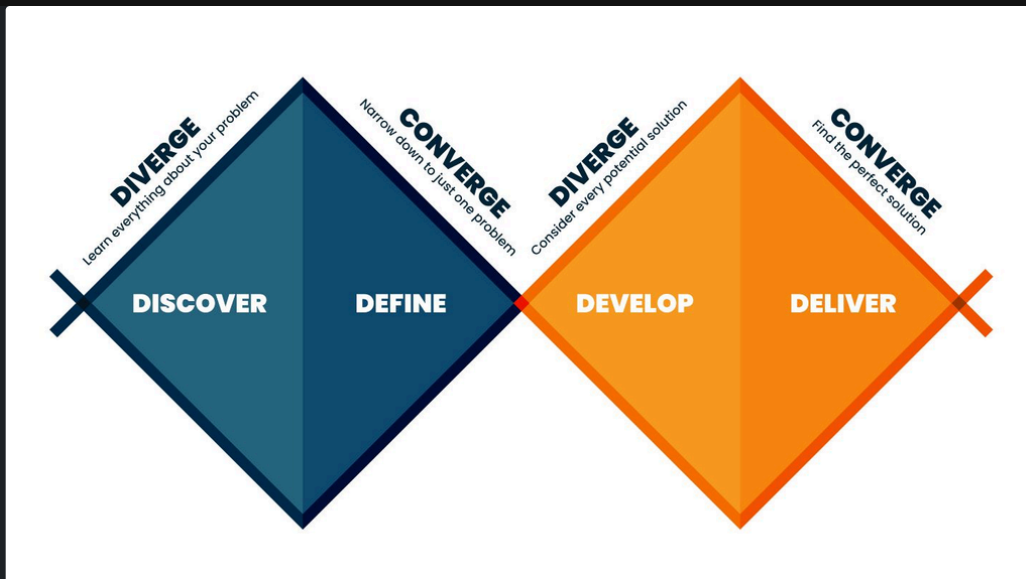
The Double Diamond Design Model is a framework for creative problem-solving, divided into two phases: Discover and Define (divergent and convergent thinking for understanding and framing the problem) and Develop and Deliver (divergent and convergent thinking for ideating and implementing solutions). It helps teams explore a wide range of ideas before narrowing down to the best solutions.

Applications include product design, UX/UI, and game development, where clear problem definition and iterative solution testing are crucial.

Concept Phase

The Research and Define phase is essential in game design—or any design process—because it lays the groundwork for developing a product that truly resonates with users and meets client expectations.

This section will discuss the process each member of the team followed to empathize with our target audience and define the key problems they need to solve.

Devlog Alexis

Concept Phase

In this phase, our goal is to set the stage for the project by really understanding the problem, refining our focus, and laying down a solid foundation that aligns with both our client's vision and our target audience's needs. This means diving deep into research, defining our approach, and setting a clear design direction to guide us as we move forward.

Responsibilities

As the designer and team leader, my main job is to make sure the user experience is at the forefront while keeping the team aligned and productive. This involves making strategic design decisions and coordinating everyone's efforts to stay focused on our project goals.

First Steps

Our client had already gone through a process to figure out the initial problem and even tested a prototype concept. With their insights and test results in hand, I started by reworking the problem statement to make sure it matched our current direction. I used a problem statement canvas to help break down the issue into manageable parts.

The document from our client provided a roadmap of where they had left off, which helped us see where our focus needed to shift. This step was key for understanding their initial goals and identifying areas that still needed exploration. By aligning our goals with our client's needs,

we could pinpoint what was missing and where we could really make an impact.

Research

At this point in the double diamond process, our aim is to cast a wide net and gather insights on various topics related to the project. Since our main audience is kids aged 5-10, we dug into online research to understand how they think and engage with games. We looked at their learning preferences, attention spans, and what game features work best for this age group. We compiled summaries of our findings in a research document which the whole team is able to access with the sources included.

To get firsthand insights, we also planned interviews with kids from a local school in Enschede. We wanted to hear directly from them to help shape our design choices. Unfortunately, some communication delays meant we couldn't get these interviews done before the concept phase wrapped up, but they're still on the schedule, and we're hopeful they'll provide valuable insights later on.

Because our game is educational, I also dove into the theory behind educational game design. This helped us understand how to create learning experiences that are both effective and fun. We gathered some key insights on what works well in educational games for kids and how to keep them engaged while they learn.

Key Takeaways on Young Kids as a Target Audience for Games:

- Young kids respond well to bright visuals and hands-on, interactive elements.
- Simple instructions and immediate feedback help reinforce learning.
- Short attention spans mean we need to keep things dynamic to hold their interest.
- Social features, like multiplayer or collaborative elements, can be great for engagement, as kids this age are naturally social.

Based on our research, we filled in some empathy maps to have an overview of our target audiences' situations:
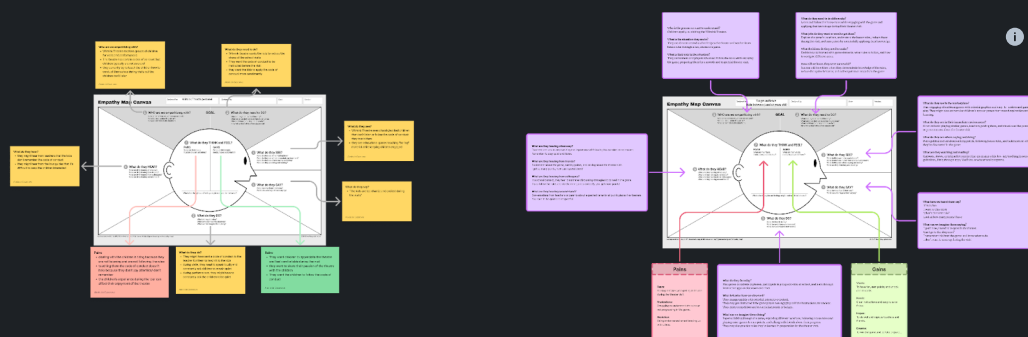
**Key Takeaways on Designing Educational Games for Young Kids**:

- Gradually introducing new concepts helps kids build on what they already know.
- Positive reinforcement, like rewards, keeps kids motivated and gives them a sense of accomplishment.
- It's crucial to integrate educational goals directly into the game mechanics so that learning feels natural, not tacked on.

Definition

With our research findings in hand, Jose and I began defining the overall design direction for the project. We documented the specifics and outlined three main design pillars to guide us:

1. **Engaging and Age-Appropriate Learning**: Making sure the content is both fun and accessible for young kids. We want them to feel challenged but also capable.
2. **Interactive Exploration**: Letting kids explore and discover at their own pace, which encourages curiosity and gives them a sense of control.
3. **Playful and Educational Challenges**: Mixing play with learning to create challenges that promote problem-solving and critical thinking in a fun way.

These pillars serve as a reference point to keep us on track. Along with the design pillars, we also drafted some initial game loops to keep players engaged. We'll keep refining these as we go, based on what works best for reaching our goals.
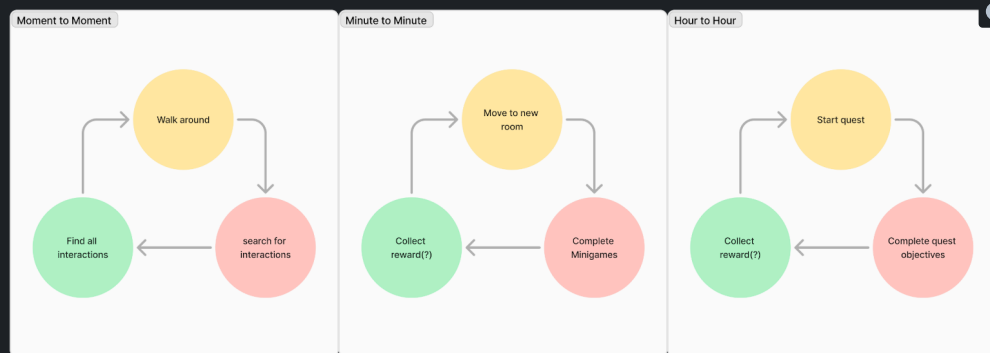
Finally, I wrote out the specifications of our project in a document using the problem statement canvas as a guideline.

Outcomes

At this point in the double diamond process, we've diverged to explore and then converged to bring together all the insights into a new problem statement. Next, we'll diverge again to brainstorm game ideas, then converge on the ones that seem most promising. This will lead us to a vertical slice of the game—a kind of functional prototype focused on the main gameplay elements.

In the next phase, I'll be working on game mechanics that align with our design pillars and game loops. It'll be a lot of testing and refining to make sure everything we build serves our educational goals and keeps our target audience engaged.

By the end of this concept phase, we aim to have a clear understanding of the problem, a defined direction for our design, and a game plan for the next steps. As we continue to gather feedback and test our ideas, this foundation will help us bring the project to life.

Devlog Thomas

Introduction

Hello everyone, my name is Thomas, and I am the 2D artist for this project. As you already know our team has been tasked with creating a game for children at school aged 5-10. My art will help support our educational game to help kids feel engaged and excited about our game. My responsibilities include things such as creating 2D assets, such as sketches and concept art, finished artworks and 3D models. Besides that, my collaboration with the team is really important for maintaining a unified art style throughout the project. I work together with one other artist and we continuously make sure that our work is cohesive and fits the style we are trying to achieve.

Concept phase

Our development process is based on the **Double Diamond model** of design thinking. This way of development emphasizes the importance of exploring many different options to then narrow down our options with new solutions. We use this method of approach in our

project to make sure that we thoroughly research our target audience and iterate on our concepts. This is why the Double Diamond model is very important to use during the concept phase. With this approach we aim to find and lay the foundation for the visual style of the game. An important part of that is done by empathizing with the target audience, children aged 5-10, and defining their needs and our goals of the game. For me as a 2D artist, this phase is important because I need to set the tone for all the visual art direction for the rest of the project.

To empathize with the kids, I first began by diving deep into understanding what a day at the theatre would be like to the kids. Our game is meant to peacefully introduce them into a world of fun and exciting antics, but done in a controlled and engaging way. To do this, I need to know what kind of art style would appeal to kids within that particular age group. I asked questions like: What are children of this age group interested in? How can we create something playful with the art style? What kind of art style would appeal to kids throughout the entire age range?

To answer these questions I had to rely predominantly on **desk research.** This way I could look into already existing media for children and draw inspiration from there. I looked for popular games and animations aimed at our demographic in the hopes of identifying common and overlapping themes in color palettes, shapes and designs. This exploration was really important in shaping the look and feel of the game. The initial research I did was broad, encompassing some of the most popular children's games like Tamagotchi and Toca Boca. Both of these games are well known amongst kids and are recognized by their simple yet engaging visuals, which I believe would resonate with our audience.

The art style of these games is nice but together with the other artist we came to the conclusion that we wanted to push the style a bit further, since half of our demographic is a bit older. This led us to different styles and for example led us to the work of artist Nadiia Kanishcheva. Her art style plays around with stylized shapes and exaggerated features while using a wide color range without using too many overly saturated colors. Her work features softer edges, giving the environment a friendly feeling which we wanted to replicate in our game. What Nadiia does so well in her work is that she creates a sense of warmth and playfulness, while still having a bit more of a serious structure that I think would work well for our entire age demographic.

Besides looking into other games and visual styles, another significant part of the concept phase is to focus on how children perceive and engage with art. Children at such an early age are still developing themselves day by day, so it's important to use visual assets that are easy to understand and navigate. Based on research from various child psychology studies and educational theories there are a few things that we know for certain. First off, kids respond well to bright and contrasting colors, especially primary colors. These colors help objects stand out and become more visually recognizable. Besides that, strong simplified shapes and exaggerated proportions can be more easily interpreted by younger children. Bulky shapes and round edges are commonly used in children's games because they are easier to visually understand. This goes hand in hand with a clear and intuitive design that helps kids engage better with the environment that they are placed in. This means that when I'm creating art, that I need to prevent any visual cluttering and instead create recognizable places that would intuitively guide children through the game.

Knowing all of these things now, I can start thinking about defining the core visual goal of the project. An easy way to do this, which is also encouraged by the Double Diamond framework, is to create a clear **problem statement.** This statement is meant to help me focus my efforts to ensure that all the decisions that I make are aligned with the game's needs.

My idea for the problem statement is: "How can we create an interactive, visually appealing game that educates children aged 5-10 about the Wilminktheatre experience, while maintaining an art style that is both engaging and accessible to this demographic?"

Now that we knew the problem we could employ different tools to help me and the other artist to solidify our visual direction. We first started off by creating moodboards and a style sheet. Moodboarding is a crucial tool for helping artists being aligned with each other regarding the visual style of the game. Our moodboard is expansive and creates references from countless games. The moodboard not only helped us artists, but also helped us communicate our vision to the rest of the team and the client.

The designers spent their time creating several **empathy maps** to help us understand the feelings, needs and motivations of the users, schools and the theatre. This provided us with insights into what people might think and feel when they interact with the game. An example of this is how we learned that children response well to environments that allow them to freely explore while getting many rewards. We thought about a simple user journey detailing how a child would interact with the game from start to finish.

While that was going on, I started working on several sketches of the game's environment which was essential for refining the style. I worked closely together with the other artist while this was going on, sharing sketches of buildings and different settings. We experimented a lot with the degree of stylization, color schemes and composition. These sketches allowed us to play around with proportions, detail and simplify shapes to fit the preference of the kids.

Two weeks went by and we were starting to wrap up the concept phase for the art direction of the game. At this point we had a very solid foundation to keep working with. We had a clear understanding of the needs of the kids, backed by research and empathizing. We created a problem statement that kept our work focused on creating something visually engaging and educational. We have a moodboard and stylesheet that aligns with both the artists on the team to ensure that we can create consistent art across the assets. Lastly we have several iterations of concept art for the environment, giving us a clear vision on what should and should not be done.

Now that all of this is clear I have completed the first half of the cycle of the Double Diamond model. I first diverged by exploring different arty styles. Next up I gathered references and inspirations and started creating moodboards with all of the inspiration that was gathered. Next to that I also made some concept art and sketches. Next up I started converging those ideas to refine the best ideas. This way I could create a coherent art style for the game. While narrowing down we kept thinking about the target audience, feasibility and consistency. This led us to create a stylized, colorful and exaggerated art style.

Devlog Amber

Introduction:

Hi! I'm Amber, I'm an engineer in the project. For this project we are making a 2D point and click game for *het Wilminktheater*. The goal of the game is to help children aged 5 – 10 with learning the rules of the theatre. My part in the project is making the core mechanics. Think of walking, talking, and the general game flow. I do this in cooperation with the artists and designers.

Concept phase:

We decided to use the Double Diamond Method in our team. This system allows us to explore and iterate more. We plan to use it to find what art style to use and other core gameplay mechanics. During the empathize phase we plan on collecting the needs and goals of our target audience (children aged 5 – 10 going to *het Wilminktheater* and the theatre itself). I will also use this phase to research about many point and click approaches and engines to see what fits with our project.

The empathizing phase was a teamwide process for us, there were also individual parts. That was figuring out what style of game (engine) would fit the best for the target audience, but also what would be viable for us to make within this time period. We want to make a 2D point and click game to teach the children the rules of the theatre.

This was predominantly achieved by researching different types of point and click engines and games. A request of the team was to not use a custom engine due to the time investments/requirements that come with that. Also, the client requested specifically for the game to be 2D but I will come back to that.

I started off by researching a lot of different point and click engines. This of:

- Construct
- GDevelop
- Game Maker
- ClickTeamFusion
- Visionaire
- Adventure Game Studio
- Godot
- RPG Maker
- Renpy
- Wintermute Engine
- Unity

All of these engines have their own strengths and weaknesses. Some are really good for specifically point and click games and would for sure fit our needs, however as a team we had another big obstacle to face. The game needs to run on a website, not as a downloadable executable. This makes almost all these engines obsolete and only Unity stays behind as a viable option.

Because of that I started looking into different point and click game solutions for Unity, there are a couple of very nice ones. For example:

- Adventure Creator
- Naninovel
- Game Creator 2

These solutions work very well and technically suit our needs, they cost money however and we have a budget of zero euros. We also wanted the ability to playtest and change things up. If we commit to an engine/solution before we do any target audience research it could be a waste of time. The waste of time being the biggest contributor. By getting a custom solution we would waste a lot of time teaching the team about the new solution. Since we don't have the luxury of extended development time this might not be suitable for our needs.

Because we chose for a self/custom made Unity implementation, it was up to me to figure out how we would approach that. The team had concluded that they want a character to be able to move around the environment and scale properly depending on the depth. That is easy to do in 3D but difficult to do in 2D due to the ever changing camera angle. It was also difficult for me to find a proper 2D path finding solution in Unity that worked well for our game. So ultimately I decided we build the game in 3D and use the build in Unity 3D pathfinder because it would fit our needs perfectly.

The problem is, the client requested a 2D game, so why are we making a 3D game. Well, in reality a lot of 2D games are secretly build in 3D. I figured it would be the best for us to do this as well as it would make the development of the game easier but we can still make it look 2D by making everything unlit and appear 2D by putting the camera super far away and on a very low FOV.

For walking and path finding I initially intended to use the build in Unity system called NavMesh. What it does is basically in the name. Navigation Meshes. It creates a mesh (a shape, imagine a tarp stretched across the floor) that a character can walk on. The problem is due to the way we build the game the NavMesh system proved to be very problematic. This is due to the fact that I cannot make fine adjustments to the mesh, and there are only a limited amount of customization options available. Due to this I decided to make my own path finding system using A*. I chose A* because I know it is capable of doing exactly what I want, and also very customizable. By making it myself I can decide to prefer the player walking over certain areas or avoid certain areas altogether. I can also easily alter the width and height of the player.

Before all this research came to fruition the designers made a set of empathy maps that we as a team rely on. They provide us the knowledge of what the end user wants, needs and how they feel. But also what our client wants, needs and feels. Because of this I made very deliberate steps in what engines to research, why they were and were not viable and how we ultimately end(ed) up making a 3D game that will look 2D. (The product owner approved of this in a meeting).

All of these mechanics I researched and build (prototypes, in order to see if something works/is viable you need a prototype of it) are there to ensure that the children get an easy way to learn the rules of the theatre. By making the mechanics intuitive and easy to understand we aim to satisfy all the client's needs.

In order for this to stay clear in my head I came up with a problem statement: "How do we create a fun and educative game that can teach children from age 5 to 10 the rules of the theatre whilst we keep this project viable to build in the timeframe we have?"

Devlog Jose

Introduction

Hello! I am Jose, and I am one of the designers in this project. My team and I have been assigned to work on a 2D point-and-click game for the Wilmic Theater in Enschede. The game is aimed at children between the ages of 5 to 10 years old. The goal is to develop a game that introduces the children to the Wilmic Theater, what it is, its locations, and most importantly, its house rules. One of the issues that the theatre has been challenged with is the fact that during school trips, the children do not behave according to the house rules of the theatre and its locations. So, we are aiming to develop a game that is engaging to the children and low-key teaches the house rules.

As one of the designers in the team, my responsibilities include the creation of the questionnaire for our target audience, visiting and contacting schools to set playtesting sessions with the children, researching online games for the creation of minigames, UI-UX, and the Game Design Document together with the lead designer. Besides these points mentioned, working closely with the team and maintaining a good flow of communication among everyone so we are all on the same page and everything runs smoothly.

Concept phase

As a team, we've decided to approach the development process using the **Double Diamond method**, which allows us to thoroughly explore both the problems we're solving and the solutions we're creating. This method emphasizes divergent and convergent thinking first, we identify the problem and expand our understanding, and then we narrow down solutions.

For me as a designer, the concept phase focuses heavily on understanding our target audience: children aged 5-10. My role here is to ensure that the gameplay, mechanics, and overall user experience align with the needs and expectations of this age group, while still addressing the issue at hand—teaching the house rules of the Wilmink Theater. The research and insights we gather during this phase will guide how we design the game's interactive elements and structure.

Target Audience Research

One of my primary responsibilities is to gather information directly from children, which will inform the design of the game. To do this, I'm creating a questionnaire aimed at understanding what types of games children in our target group play, what keeps them engaged, and what they enjoy most about their favourite games. By asking about their preferred activities during school and lunch breaks, I can gain insight into the kind of interactions and rewards that will resonate with them in the game.

This questionnaire is crucial for helping me to empathize with the players. I, together with the team, will also be scheduling playtesting sessions at schools to gather feedback from the children, observing how they interact with the game and what draws their attention. This will allow us to iterate on our designs, art, and mechanics and ensure the gameplay remains fun, engaging, and educational.

Research and Inspiration

In addition to understanding the children themselves, I've been researching other educational games and interactive experiences to see what elements we can incorporate. These games have effective ways of teaching children without feeling too instructional, and that balance is exactly what we aim to achieve.

Another key aspect of the concept phase for me is ensuring that the educational elements teach the house rules of the Wilmink Theater seamlessly integrated into the gameplay. The challenge is to create mechanics that naturally teach these rules without them feeling forced. For example, we are exploring reward-based systems where players earn points for demonstrating good behaviour in the game, which ties into the theatre's house rules.

Collaborating with the Team

Collaboration is essential during this phase. I work closely with our lead designer, artists and engineers to ensure that the game mechanics and visual style work together to deliver a unified experience. This collaboration helps us create a cohesive design that matches both the gameplay and the aesthetic style of the game and the theatre itself.

Problem Statement and Moving Forward

At this point in the Double Diamond process, we've defined the problem: how to create a fun and interactive game that teaches children about the theatre's house rules while remaining engaging for the 5-10 age group. With the research gathered, the next step is to begin developing and testing solutions. My focus will shift towards designing specific game mechanics and mini-games that align with the problem statement.

Our next task is to begin prototyping the game based on the feedback gathered from playtesting sessions and user research. We'll continue iterating on the game design, ensuring that the core mechanics keep children engaged while teaching them important lessons about behaviour at the Wilmink Theater.

Devlog Kit

Introduction

Hi I'm Kit and as an Artist, my primary role is to bring the game's world and characters to life through detailed illustrations, character art, and environment designs that enhance the player experience. Being a 2D point-and-click game, it needs to feel explorable, which would be

achieved through immersive environments and interactions with characters and objects on the screen. Through said environments, children aged 5-10 should be able to get familiar with Wilminktheatre's 4 main event locations and behaviours expected of them. As the designated artist for this project, my responsibilities include:

- **Character Design & Customization**: Crafting unique and engaging character concepts that align with the game's story, world, and style. The game from a third-person perspective will include a main character that will have customization options.
- **Character & Prop Animation**: Creating character 2D rig and animations using Spine 2D for the main character. The customizability of the main character also needs to be implemented to the rig through Spine 2D. Additionally, the game will need to have animations for environment elements that will be interactable.
- **Environment and Background Art**: Designing visually compelling environments that not only immerse the player but also provide visual cues for interaction. This involves the use of perspective techniques (such as 1, 2, and 3-point perspectives) to create depth and enhance the game's 2D world.
- **Asset Creation**: Developing interactive objects, mini-game assets and other visual assets that fit the game's aesthetic and functional needs. These elements need to blend with the environment while maintaining clarity and usability.
- **Maintaining Visual Consistency**: Ensuring a consistent art style across all characters, environments, and assets not only among my own work but also with Thomas, the 2nd artist in the team, so we can create a unified and coherent game world that enhances the player's experience.

1. **Concept Phase**

Games designed for kids can be an effective educational tool, combining entertainment with learning. Integrating educational elements can enhance their problem-solving skills, creativity, and logical thinking. (Video Game Design for Different Age Groups: Design Considerations for Diverse Audiences | MoldStud, 2024) However, to guarantee a secure and educational experience, our team must take certain factors into account while making the game for our target audience. Our team uses the Double Diamond Design Thinking Model to consider key points to the success of the project. Some of the things to consider would be age-appropriate content and challenges, intuitive gameplay, and the biggest focus of an artist, engaging visuals.

Desired Art Style

The visual elements play a crucial role in shaping the game's storytelling, mood, and atmosphere, making it essential to create cohesive, stylized artwork that supports the gameplay mechanics and narrative arc. As artists our first goal was establishing the mood and the style of the artwork we would be creating. We began the art-style desk research by creating a Miro board. I collected various examples of environmental art that had the possibility of fitting our narrative. The examples varied in art styles; each had a different presentation of shapes, line art and rendering types. Through discussion with the team, we came to identify the desired looks of the game, referencing other games suitable for our target group and the collected feedback, including our client's. One of the most impactful art styles for us became a work by Nadiia Kanishcheva's wine shop concept art.

Based on our conclusions the desired art style of the game should have:

· Rounder and inflated shapes, no sharp angles (bevelling), slight deformation of forms

· Minimized original details, exaggeration of proportions

· Bright colours with mild saturation, usage of many warm colours

· Gouache brush texture on flat surfaces

· Emphasis on soft lighting and shading, no usage of blacks/grey in the shadows

An important consideration for artists was the fact that all of the locations were real-life locations and one of the goals of the game is to get the children familiar with the surroundings. Ideally, children would be able to orient in all of the 4 locations. As a team, we went to all of the 4 locations with a tour guide provided by our client. Not only were we able to take many reference photos of the rooms and structures, but we also deep-dived into the functionality of the Wilmikthreatre in both professional and technical ways. This was a valuable exploration as some of the technical aspects such as the lighting work for the stage later impacted one of the mini-games. For art, we were analyzing structures and trying to imagine how we would adjust the locations to fit in the style and how we would approach and achieve that.

To develop a cohesive art style that can mimic the real locations in the defined style, my fellow artist and I started a calibration process. We both referenced real-life houses and applied the guides from the created stylesheet. We adjusted the scale of details, like windows or chimneys, making them slightly oversized or undersized to fit the playful look. These initial sketches helped us establish structural consistency across our designs. We aimed to exaggerate proportions and soften angles, giving each house a whimsical, inviting look. Throughout the process, we regularly reviewed each other's work, giving and receiving feedback to maintain a unified style. This helped us to make quick adjustments and reinforce the style's key elements in every piece. We repeated this process a few times with different references until we settled on an image that would be used as our guide in style.

Workspace Organization

While as a team we use Jira and Discord for sprint management and communication Discord we needed we needed a little more coordination-oriented tool. I have created multiple Excel sheet slides in a single file for easy access. The slides include an hour & task tracking, where each member can put in which tasks they did during the day and how many hours they have worked. This will be useful for the value proposition of our project and works as an overview of people's tasks during the project so their contribution can be seen. Another slide is an availability sheet that allows one to see members' work location (remote/onsite) and the days/hours that they are not able to participate in work. Artists also have a separate more detailed task list slide, that depicts the pipeline of environment art creation and additional tasks that are not easy to overview in Jira..

The project is environmental art heavy, so I set up a pipeline for the illustrations. The pipeline that we would follow would look like:

Panoramic Sketch (if needed) --> 3D Modelling --> Final Sketches --> Final Environment Art

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Devlog Artiom

Introduction

Hello, my name is Artiom, and I am one of the engineers for our Point and Click project, working together with another engineer, two artists, and two designers. Currently my primary contribution to this project is creating and hosting the website where our game will be accessible, also on another side, I'm responsible for helping to develop main Unity project. I am responsible for designing the overall web experience in collaboration with our designers and artists to ensure it is engaging and appropriate for our target audience, and implementing character customization and animations.

Concept phase

Our team chose the Double Diamond model of design thinking to guide our development process. This methodology emphasizes exploring a wide range of options before converging on the best solutions, allowing us to thoroughly research our target audience and iteratively develop our concepts. This approach is particularly crucial during the concept phase as we aim to establish not only the visual style and core gameplay mechanics of our 2D point-and-click game but also the digital platform that hosts it. The game is designed to teach children aged 5–10 the rules of the Wilminktheater.

Empathize

During the empathize phase, our team focused on understanding the digital habits, preferences, and needs of children aged 5–10 to create an engaging website experience. Recognizing that simplicity and visual appeal are important for this age group, I aimed to design a website that is easy to navigate and visually consistent with the game's art style.

I considered how children interact with websites, noting that they prefer straightforward interfaces with large buttons and minimal text. Bright colors and interactive elements can capture their attention and make the experience more enjoyable.

By focusing on these aspects, aim was to create a digital platform that not only effectively hosts the game but also enhances the overall experience for children. This approach ensures that the website is accessible on any platform and engaging without overwhelming young users with complex navigation or unnecessary features.

Simultaneously, our team are exploring various point-and-click game approaches and engines to find the best fit for our project, considering both what appeals to our audience and what is feasible within our time constraints. The team has decided against using a custom engine due to the significant time investment required, and our client has specifically requested a 2D game, which makes thing easier, since Unity allows us to build a game made for browsers.

Since our team came up with the concept where the character can freely move within the scene, and while the second engineer was busy creating a pathfinding system, my task was to synchronize the character's movement with animations. Although we don't have the finished character yet, we have already implemented a working animation system, which allows us to control different character animations when needed.

Defining the user's needs and pain points

Based on the research and empathy mapping, I identified the following key needs and pain points:

- **Needs:**
  - Simple and intuitive navigation.
  - Quick access to the game without unnecessary steps.
  - Visual consistency with the game's art style to maintain immersion.
  - Interactive elements that are responsive and engaging.
- **Pain points:**
  - Confusing interfaces with too many options.
  - Slow-loading websites due to heavy frameworks or unoptimized code.
  - Inconsistent visual experiences that can distract or confuse young users.

Researching Web Development Frameworks

To address these needs, I researched familiar to me website creation frameworks like Angular and React. While these frameworks offer robust features, I found that they can introduce unnecessary complexity. Additionally, implementing the game within these frameworks caused problems.

Considering these factors, I decided to proceed without using a complex framework. This approach allows for:

- **Improved Performance:** Faster loading times by reducing overhead.
- **Greater Control:** The ability to optimize code specifically for our game's needs.
- **Seamless Integration:** Easier alignment with the game's visual style without being constrained by framework-specific limitations.

Problem Statement

Based on the insights gathered, I refined my problem statement:

"How can I, as an engineer, develop a simple yet engaging website to host our 2D point-and-click educational game for children aged 5–10, ensuring that the digital experience is accessible, aligns seamlessly with the game's visual style, and maintains optimal performance across platforms without using complex frameworks like Angular or React?"

This problem statement is based on the research, and directly addresses the needs of our client. Our next task is to finish the design of the website and start implementing prototype into the actual website.

Define Phase

Design phase - Thomas Reijmerink

For the **Design Phase,** my goal was to transform the concepts that we had created during the Concept Phase into fully realized design elements. I tried to follow a structured approach, following the Double Diamond model. This phase involved creating, testing, refining assets, experimenting with art stylization and iterating based on feedback.

To recap my findings during the concept phase, earlier during the project I explored a wide range of creative design solutions to meet the goal of making a child-friendly and engaging point-and-click game that introduces kids to a day at the theatre. This involved **diverging elements** such as using desk research and analyzing visual trends in children's games. This research helped me find a playful yet functional aesthetic for the game.

Now that I had all of these ideas I could start creating several sketches and low-fidelity prototypes in 3D to experiment with perspective, scale and atmosphere. These models were informed by **field research**, including photography from the theatre itself, ensuring that my visualization aligned with the real-life spaces but was still stylized for children. Each sketch focuses on different aspects, such as color, level of detail exaggeration and how to make the space functional and inviting.

Once the team and I had a variety of concepts to explore, we moved to a convergent stage to filter down and improve these ideas in order to come closer to our goal; creating a vertical slice of the game. First I started refining the 3D models. Using feedback from the team members I refined the environmental proportions and shapes to try and capture an inviting and engaging space. It was extremely important that my models were visually accurate but also practical. For each game scene, I collaborated with the team to determine the best angles. We took countless screenshots of 3D models, which would serve as guides for the 2D artwork that we wanted to create for the final product. We approached each scene by first considering the gameplay's perspective needs, focusing on making essential potential game assets very visible, while also leaving the room so that we can introduce more interactive props later down the line. Once the key angles were established, I created a finished, stylized 2D artwork using our final 3D models that I made as a reference. Each piece requires **thoughtful decision-making** regarding color, lighting and perspective to create depth and mood. I learned during the concept phase that these aspects are essential for helping children feel engaged with the theatre experience. This process of creating a finished artwork includes significant iterative feedback, where adjustments to perspectives, colors and details were implemented based on the input from my team.

During the Design Phase, I also used another method to ensure that our designs aligned with the client goals and user needs. Together with Jose, the designer of the team, a **session was organized with a school**. This session would allow us to get direct insights from children, which helped us refine certain elements of the design of our game. For example, we got insights on what kids do and do not like about games and why. We also learned more about the character designs that they like.

The final outcome of the Design Phase is a polished visual direction, ready for the full development of in-game assets. My key deliverable for the upcoming phase will be finalized 2D artworks, based on the 3D models that were made before. Each scene will serve an educational and navigational purpose aligned with our goal of creating a final game.

I had a few challenges down the road. I mostly struggled with finding the balance between realism and stylization. I had to translate real-world spaces into simplified and engaging environments for children. By iterating 3D models and sketches, I could create spaces that maintained the essence and recognizability of the theatre. Besides that, I had to do a lot of adapting throughout the Design Phase, where I had to make constant adjustments based on the feedback I got from the team. This was essential but also time-consuming. However, this process resulted in assets that were significantly improved in every way.

Following the Double Diamond model, I managed to have **a systematic explorative approach** towards refining our style for the game. This phase served as the bridge between the first concepts we had and the artwork that we would need for our first prototypes, helping me create a solid foundation for further development. Through testing, feedback and iteration my designs are now much better equipped to ensure our game can complete its goal of introducing kids to the world of theatre in the best way possible.

Design phase - Jose Peiro

As a designer, the design phase places a strong emphasis on understanding the target audience, testing concepts with them, and reaching out to schools, teachers, and friends who can provide insights on children aged 5 to 10. This involves setting up appointments, gathering information, and building connections to ensure that the game effectively resonates with the needs and interests of young players.

Alongside this major task, I have been focusing on developing prototypes for the game set within the theatre, using artist-created sketches to achieve a more accurate visual representation of the final product. Additionally, I have been working on ideating and creating minigame prototypes in Figma, conducting SWOT analyses based on research into similar games, and developing UI elements in Figma. To refine the concept, I've created some prototypes in Visual Studio Code to better convey my vision for the final minigame concept, especially for the main theatre location, which presents the biggest and most complex challenge.

One of the biggest challenges I encountered during the design phase was coordinating with a primary school willing to assist with our research and dedicate time to let the children complete the questionnaire I developed, with guidance from Yvens Serpa and a fellow artist, Thomas Reijmerink who helped with the translation and speech at the primary school. This involved scheduling an appointment and gathering the qualitative data from the children's responses, which then needed to be organised by "groep" for further analysis.

Target Audience Engagement

As mentioned previously, I was in charge of conducting research on the target audience and contacting primary schools within the area of Enschede. To create this questionnaire, I had to do some research on how to even approach children and make them understand what is being asked of them, keep it simple and also clear to gather the best responses possible. I read websites to make this questionnaire smooth and easy to read, such as business.YouGov, Quora, and Question, which were an amazing source on how to ask basic yet straightforward questions to children, and also the help of Yvens Serpa, who helped us make the questionnaire shorter and usable for every age.

Once we had the questionnaire ready, Thomas Reijmerink, a fellow artist in the group, helped with the translation since everything needed to be in Dutch. Furthermore, once this was done, it was time to start sending emails to primary schools within Enschede and also to some teachers who were willing to help us with the questionnaire.

As a result of the emails, most of the schools had their agendas full, with no space for us to present the questionnaire, so one of our last options was to go in person to the school that was right behind Saxion, which is called "Prinseschool". I knocked on the door and entered the building to speak with someone in charge and propose my idea, which actually worked. I had two meetings where I showed what we are working on, and they were more than happy to conduct a questionnaire day with the kids, so an appointment was set, and the questionnaire was conducted with the help of Thomas since it has to be in done in Dutch, although it is a bilingual school.

After finishing the extensive questionnaire session, it was time to write down the results, so I started to do a qualitative analysis of the over 80 questionnaires, which were divided by their respective "groep"

Concept Development and Prototyping

To explore different possibilities, I used brainstorming sessions, created concept descriptions, and sketched initial ideas. I initially focused on developing mini-games that would seamlessly integrate educational elements into gameplay, experimenting with different mechanics, themes, and styles. However, after closer consideration, we decided to shift our focus. Rather than prioritising the educational aspects, we chose to centre the mini-games on fun and entertainment, ensuring that they would capture the children's attention and keep them engaged. Collaborating closely with the team, I translated these revised ideas into low-fidelity prototypes in Figma and also developed a rough prototype in Visual Studio Code. This allowed us to test the functionality and basic interaction of the mini-games.

As part of this process, I conducted SWOT analyses to evaluate the strengths, weaknesses, opportunities, and potential challenges of each approach. This iterative process allowed us to refine our concepts, ensuring they remained aligned with the client's objectives while prioritising enjoyment and age-appropriate fun for children.

However, the ideation phase for the mini-games was not easy. I had to come up with multiple concepts per location, and we had to do multiple meetings to make a decision

In addition, before getting to the final mini-game idea for the main theatre location, I also prototyped other ideas in Figma to finalise the decision on what we were going to put in the game as a final decision. So I made two variations of multiple mini-games: the first one based on behavioural conduct, and the second based on arranging the decoration for the stage and then the minigame starts after the stage is finished.

Design phase - Kit

In the design phase, now that we have established a unified and appealing style the goal is to develop how we approach asset creation and create those placeholders and sketches to ensure consistency.

Developing an Art Style for Character Art

To determine the best style for the children's characters, I created multiple sketches of the same character in a variety of art styles tailored to young audiences. I focused on experimenting with **shape language, colours, and line quality** to see what would resonate most with the project's goals. Starting with shape exploration, I drew the character with different body proportions such as larger heads, rounder bodies, and shorter limbs to create a gentle, approachable look. I also played with the shapes of facial features, using circular eyes, soft cheeks, and exaggerated, rounded expressions to amplify warmth and friendliness.

In creating character art, my goal was to make the characters approachable and engaging for children, matching the friendly and interactive nature of this game. This design choice not only aligns with the playful tone but also avoids any sharp edges that could look too realistic or intimidating for young players. I focused on clear, friendly facial expressions and body language keeping in mind our younger target group. The characters' appearance was also aligned with the game's environment. This consistency helps reinforce the familiarity and expectations tied to these locations in a gentle, visually engaging way.

To adapt the same child-friendly art style for adult bodies, I used **rounded shapes** in their body proportions and features, avoiding sharp angles to keep the designs approachable. For faces, I made rounded jawlines, and gentle curves in posture, giving a warm and friendly appearance even in adult characters. Drawing from the idea that circular shapes create a welcoming feel, I added these shapes in hairstyles to reinforce the approachable, warm tone across all ages, making each character feel inviting and accessible.

Approaching Environment Art: The Pipeline

For the environment art, I followed a structured pipeline to create explorable, immersive backgrounds:

1. **Panoramic Sketch (if needed)**: For larger or more complex scenes, I started with a panoramic sketch to establish the scene's spatial layout. The bigger locations are very hard to navigate even as an adult, so it was important to choose a good angle that would show a good overview of the room and passages to the other rooms. This sketch captures the environment's flow, ensuring that interactive elements are well-placed for children to explore naturally. This panoramic view also helped me visualize the composition and understand how the environment might guide children's interactions.

2. **3D Modeling**: To ensure spatial accuracy and depth, I then built basic 3D models of the environment. This step provided a framework for the scene, allowing me to experiment with camera angles, lighting, and proportions before committing to final sketches. The 3D models also served as a base to create a believable yet stylized sense of depth, even within the 2D art style.

3. **Final Sketches**: Using the 3D models as a reference, I moved to final sketches, defining the details and stylization needed for each environment. Here, I adjusted the colour schemes to match the warm and inviting tone, focusing on friendly shapes, and adding engaging details that align with the character art.

4. **Final Environment Art**: In the final stage, I added textures and colour, with soft lighting. This final touch made each location feel lively and approachable while staying aligned with the overall art style.

Design phase - Artiom

In the design phase, my main focus as an engineer was to translate our initial concepts into functional features, including a rhythm-based minigame inspired by Guitar Hero and a character customization system. Using a structured approach based on the Double Diamond model, I aimed to ensure these features aligned with our game's goals and provided an engaging experience for players.

Minigame Development

For the rhythm-based minigame, me and designers wanted to create an interactive activity that would be both simple and engaging for our target audience and also adjustable for different age groups. During the concept phase, we explored various mechanics that would fit this age group, ultimately deciding on a tap-to-hit format synchronized with visual and sound cues.

To begin, designers created a low-fidelity prototype to test basic gameplay elements such as timing, rhythm, and feedback. I implemented coroutines to control timing and used Unity's timing functions to ensure smooth gameplay. There are still some work that needs to be done

regarding visuals and overall design, but this is not our team priority right now.

Character Customization and Wardrobe Scene

For the character customization feature, I focused on building a wardrobe system that would allow players to select outfits that persist across different scenes in the game. Since the character assets weren't developed yet, I worked with placeholder templates and collaborated closely with artists and designers on the technical aspects like bone structures and pivot points. This groundwork was essential to ensure that once the final character assets were created, they could be easily integrated into the wardrobe system without major rework.

In the wardrobe scene, I developed a UI where players can browse through outfit options and preview their selections. I set up the customization options using Unity's Canvas and UI elements, aiming to make the interface intuitive and visually appealing. To enable data persistence, I used Unity's PlayerPrefs, allowing the selected outfit to carry over to other game scenes seamlessly. This setup ensures that players' customization choices remain consistent throughout the game, enhancing the sense of continuity.

Collaboration with Artists and Designers

Although the character assets were still in development, I worked closely with artists and designers to define the functionality and technical requirements for the customization feature. We discussed details like bone hierarchy, pivot placements, and template layouts to make sure that the character's outfits could be easily adapted to the final character model, althugh this part wasn't finished yet, and needs to be discussed after assets will be finished by artists. This collaboration was essential to prepare a system that would be compatible with the finished art assets, minimizing the need for adjustments later.

Challenges

The biggest challenge I faced in this phase was achieving my primary learning goal: designing a customizable and easily modifiable code structure that would be accessible for all team members through Unity Inspector. My goal was not only to build a flexible system but also to document it thoroughly, so that any team member—whether a developer, artist, or designer—could understand and modify it without extensive technical guidance.

I focused on building a modular system that could handle different character assets and configurations. Working with templates and placeholders, I established a solid foundation, ensuring that the system would seamlessly integrate with final character assets once they were ready. This approach allowed us to proceed with development without waiting for completed assets, providing flexibility in the project timeline.

Creating the documentation was another essential part of this challenge. I wrote clear, step-by-step instructions detailing the structure of the customization system, how to add or adjust clothing options, and troubleshooting tips. The goal was to make sure that anyone on the team could make adjustments independently.

The design phase resulted in a functional rhythm-based minigame and a flexible wardrobe customization system, both ready for further development as final assets become available. Through close collaboration with the art and design teams, I was able to establish a solid foundation for character customization, ensuring that future assets can be integrated smoothly. This phase allowed me to bridge initial concepts with technical implementation, setting up these features to support an engaging and personalized gameplay experience for players.

Design Phase Amber Kortier

Our plan for this phase is to get a vertical slice of the game so we as a team can get an idea of what we want to make, but also so the client knows and can expect what will be delivered. The idea is that most systems work on a basic level. For this I had to develop multiple solutions based on what the designers have tested and… well, designed. These solutions aim to fix the needs of the product owner, which is a point and click game that helps kids learn the rules of the theatre.

However, in order to create a game; and a final end product; you have to build global systems as well. The global systems are my responsibility. The catch with them however is they are less for the client and more for the team. The same design phase concepts apply, they are just applied to the team, and not so much the client. The reason for this is because the tools I develop are used by the team to

ultimately create a game based on the clients wishes. The clients wishes gets relayed to the team; obviously to me as well; and we think out what the game should be capable of doing. Based on that I set out to create solutions and tools that can aid that development. Based on feedback tools get changed, documented, removed and/or added.

For this analysing existing solutions is very important. Basically, that is how I spend most my time. Everything that is already done is very helpful to use. Our game needs to be able to store values between scenes easily editable by designers. I looked for systems like this that already existed, and surprisingly there aren't that many good ones. Except for the Unity Translation System. Unity has a translation system in testing that surprisingly does the exact basics that I need it to do. This means the making of variables, storing them and editing them on the fly. Of course it does a lot more in regards to translations and we do have to deal with some annoyances regarding to it wanting to translate something. These slight inconveniences are super easy to dismiss and deal with in order to save a lot of time later. The editor I'm building for the team is also going through multiple iterations where based on feedback I change things and fix bugs. This editor is used to quickly navigate our game for those that require it.

Our team uses a lot of tools. We have prototypes for everything that people can see, click, and test. We have lots of meetings about them to determine what is good and what isn't. I also make prototypes by releasing some of my code early then continuing on other stuff so people can figure out what should change and what is already working earlier on in the process. We also hold many meetings in general that are often brainstorming sessions or planning sessions as to how and why we are implementing a certain feature. The team is also holding user tests with our art and prototypes that we are using to build the game.

I'm very pleased with the outcome and the results of what we achieved this gate. Because of our tests and meetings I've been able to produce some basic solutions to our problems in the form of a variable system that can be interacted with via basic Unity events. The benefit of this is that designers can now easily build their own prototypes AND complete features within our game. This is very helpful because it allows for quicker concepting and tests. Whilst we are *technically* supposed to be past this phase that doesn't quite work for our game because we also have minigames and they require us to go through all the phases again individually.

I've also worked on the basics of the Task List. It works functionally but the art hasn't been implemented yet. It is also not fully functional yet by intention. A tasklist can be build, cleared and tracks progress. There has also been work on many other smaller systems having to do with dialogue, pathfinding and interactions.

Design Phase Alexis de Cazenove

The main goals of the design phase were to take our initial concept and turn it into something more concrete, with a focus on creating a playable prototype. This prototype would be a vertical slice centered around the main theatre level of the game. We started by brainstorming ideas for game mechanics that could meet the specs defined earlier in the project. After we had a list of promising ideas, we moved forward with prototyping and testing to see which mechanics worked best. This approach was key to transforming big ideas into practical, engaging gameplay elements.

Brainstorming Game Loops
To figure out the core structure of the game, Jose and I brainstormed from a mechanics perspective. We began by defining the main gameplay loops we wanted, based on the core design goals we'd set earlier. The idea here was to get a clear picture of what kinds of mechanics we'd need and at what level each one would work—some might serve moment-to-moment gameplay, while others would be more about overall progression. We put together a flowchart that laid out the different game loops and showed how they connected to each other. This helped us keep everything organized and see the big picture while making sure we weren't missing any key parts of the experience.
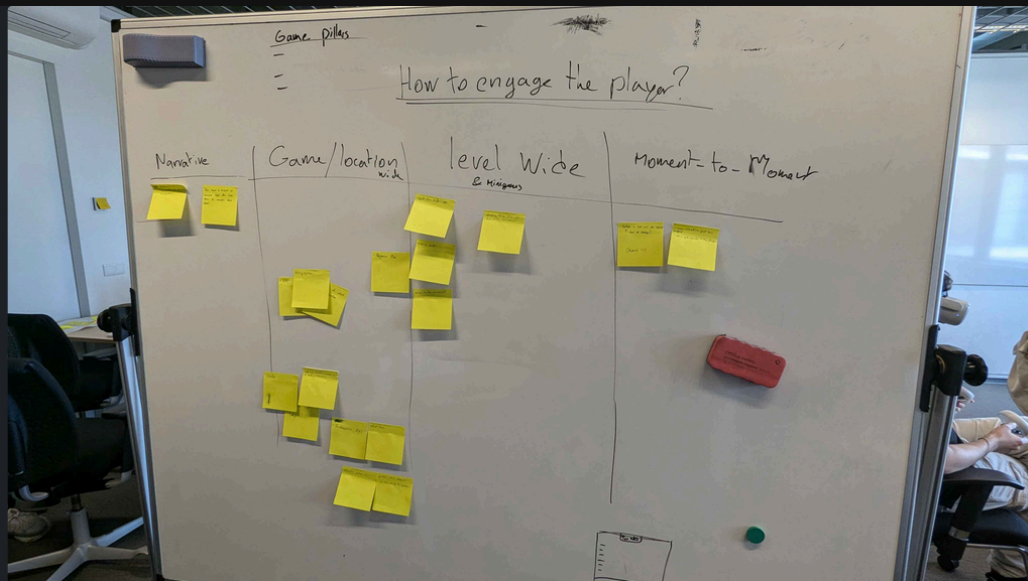
Game loops brainstorm board

Game loops flowchart

Brainstorming Game Mechanics
Once we had the core game loops mapped out, Jose and I could dive deeper into brainstorming specific mechanics and interactions. We

looked at different time scales of gameplay to decide where each mechanic would fit into the structure, making sure everything would flow well. This also helped us pinpoint where the educational elements could be best included, w

hich was an important aspect of the project. By connecting mechanics to different time layers, we could make sure each one would serve a purpose—whether for quick tasks, medium-length goals, or long-term objectives. After a good amount of brainstorming, we focused on a few ideas that seemed promising and set out to prototype the core mechanics.

Prototyping Game Mechanics Concepts
The first mechanic I tackled was the "Task List," which I made as a simple prototype in Figma. The idea was to guide the player through the main theatre level, outlining the steps needed to get everything ready for the performance. The Task List functioned as a checklist and a guide, helping players know what they needed to do in each area of the level while keeping them on track toward the end goal. This low-fi prototype was useful for showing the concept to both the team and the client, so everyone understood how it would work. Plus, testing it out internally helped us see if the mechanic was actually guiding players as intended, so we could make any needed tweaks.


Lo-fi Figma prototype

Brainstorming Environmental Interactions
Another big focus was on environmental interactions, which involved adding small interactive elements throughout the level to make the environment feel alive. These interactions let players engage with various props, levers, and set pieces in the theatre, giving them more to explore and interact with. Our clients really liked this mechanic during playtests, as it added a sense of discovery and made the setting feel more authentic. Jose, Thomas, and I worked together to come up with ideas for these interactions specifically for the main theatre level. Thomas, as the lead artist, provided great insights on how these interactions could look visually and how they could enhance the level's vibe. His artistic perspective made sure these interactions felt natural within the environment, adding to the immersion and keeping players engaged.

Overall, these brainstorming, prototyping, and feedback phases helped us take our initial ideas and shape them into something playable. Working closely with the team and clients allowed us to create a more cohesive gameplay experience and set the foundation for an engaging game prototype.
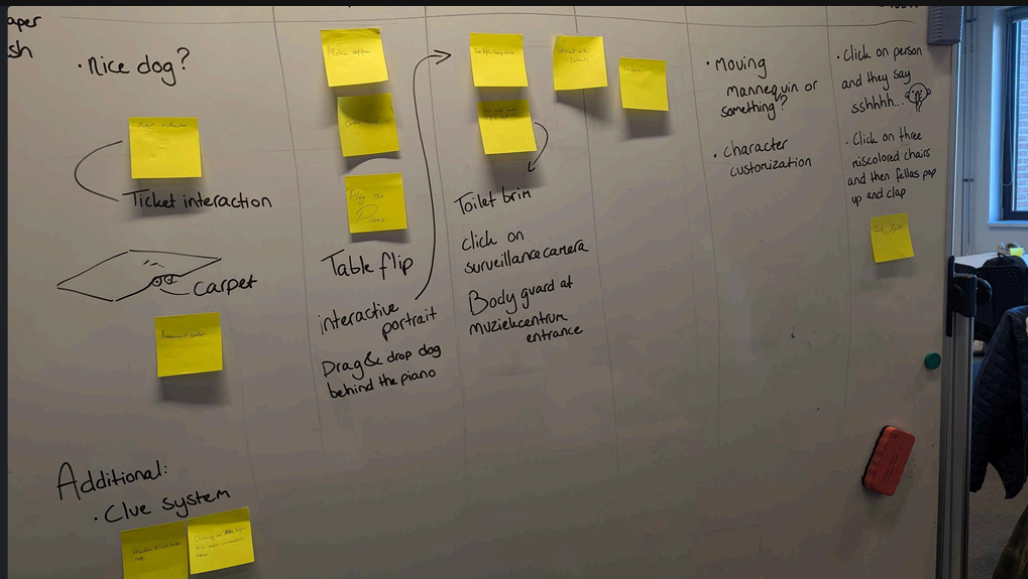
Brainstorm board for interactions