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The Long Way Home:
Understanding and Conceptualizing Videogame Hub Areas

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ABSTRACT

The realm of video games has witnessed the surge of hub worlds: areas that serve as central points for players to access various game levels or zones; these hubs are vital in creating immersive, cohesive experiences for players, synthesizing the unified identity of the game they are in.The significance of hub worlds in shaping the overall gaming experience is undeniable; however, scant attention has been paid to the development and optimization of their design elements.

The primary objective of this study was to investigate the intricacies of hub world design and identify the factors that contribute to their effectiveness, memorability, and capacity to enhance player engagement while also using these understandings to formulate a hypothetical hub world design.

To achieve this, a multi-pronged qualitative method approach was employed, encompassing a historical overview of hub areas through gaming and comparative analysis of existing hub areas and level design philosophies in order to develop a concrete context-aware framework for understanding and creating hub areas so that concept development with the help of tools such as Unreal Engine 5 and Midjourney could be done.

The findings of this study revealed the hidden or not so often thought of functionalities behind hub areas and their typifications, some of stylistic archetypes they follow and the narrative structures they tend to gravitate to. These insights have the potential to inform future hub world design practices, ultimately contributing to a more enriched gaming experience for players.

Keywords: Hub area, level design, game history, indie game development

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1   INTRODUCTION

1.1   Research Background and Motivation

My fascination with hub worlds was ignited by personal experiences with games such as Borderlands 2 (Gearbox Software 2012), Dark Souls (FromSoftware 2011), NieR: Automata (PlatinumGames 2017) and Super Mario Galaxy (Nintendo EAD Tokyo 2007); these experiences have left an indelible mark on me, instilling a profound appreciation for the design intricacies and narrative power of these virtual spaces. I observed how hub worlds, with their multifaceted roles, offered unique opportunities to train players on mechanics, unveil themes and stories, and provide respite between levels, subsequently keeping players engaged and captivated. All these aspects have significantly contributed to my motivation for undertaking this thesis.

As a level design student, I realized the potential of hub worlds to not only guide players and convey critical information but also to serve as powerful storytelling tools. They occupy the place of the "home" within game worlds and allow players to understand and orient each new part of the game they discover based on that framework. Furthermore, the evolution of hub worlds can mirror the metamorphosis of the game itself, creating an immersive experience for players. A prime example is the Firelink Shrine in Dark Souls (FromSoftware 2011), which adeptly fulfills multiple purposes, such as educating players about the interconnected world and reinforcing the game's themes.

Driven by these insights and personal experiences, I chose to read more about the history and analysis of hub worlds just to find that it was a topic that was not studied with the rigor I expected. Hence I oriented myself to research these areas, aspiring to unravel the secrets of their design and harness their potential for enhancing player engagement in future projects.

1.2   Research Objectives

This production project possesses three objectives:

1) Unraveling the Evolution:

This first objective entails a deep dive into the historical journey of hub areas in video games. It seeks to map out the inception, development, and maturation of these unique spaces over time. This historical exploration will consider key milestones and influential games that have shaped the understanding and utilization of hub areas, thereby revealing how they have contributed to the evolution of game design and player experience.

2) Comprehensive Analysis and Typification:

The second objective of this thesis is to dissect the multifaceted nature of hub areas through a tripartite analysis involving design, art, and narrative elements. Through the lens of design, the study will examine the functional and structural aspects of hub areas, including their spatial organization and navigational considerations. The artistic perspective will focus on the visual aesthetics and soundscapes of these spaces, exploring how they contribute to the overall ambiance and mood. Lastly, the narrative examination will scrutinize the role of hub areas in storytelling, theme development, and player immersion within the game world.

3) Concept Development:

The final objective revolves around the synthesis of the insights gleaned from the historical and analytical exploration. The aim is to construct a coherent and practical framework for the conception and design of a hypothetical hub area. This framework will serve as a guide that integrates key findings about the history, design, art, and narrative elements of hub areas, providing a valuable tool for game developers seeking to optimize player engagement and immersion through effective hub area design.

Through the pursuit of these objectives, the research aims to contribute to the field of hub level design, and ultimately, a better understanding of level design pre-production and its underlying principles for future work.

1.3 Scope and Limitations

The scope of this thesis encompasses the analysis and comparative understanding of hub area history and their typifications along three lenses, the design, art, and narrative lens as well as the conception of a small, modest and innovative level design idea, intended as a possible foundation for further development and refinement in future game projects. Rather than striving for revolutionary change, the focus lies on the exploration of novel ideas underpinned by a strong theoretical basis. This creative endeavor aims to push the boundaries of traditional hub world design, while remaining conscious of the need for practical applicability and future adaptability.

Limitations within this research may come primarily from the constraints of time, budget, and personal abilities. However, these limitations can be mitigated, to some extent, through the utilization of state-of-the-art AI technologies. These cutting-edge tools offer the potential for expediting the design process and compensating for certain resource restrictions, enabling the pursuit of a more ambitious project than would otherwise be feasible (MIT Technology Review 2022).

Another important thing to note is that while much of the theoretical framework mentions and develops hypothetical design choices and narrative progressions; such developments remain as that: hypothetical. **The thesis is ultimately a theoretical research thesis** and while it may mention some practical aspects, the focus concerns the theoretical implementation of our findings.

On a final note, it is important to highlight that the depth and truth behind any pattern seeking analysis is limited by the quantity of the dataset processed, hence, it was decided to play and analyze more than 60 hub area-possessing videogames from all the medium's history to formulate the findings to be read. While a more comprehensive overview can always be done, the validity of the information gathered is founded on the covered range: from high budget to low

budget, old and new, shooter to platformer, console and mobile to pc.

2   HISTORICAL FRAMEWORK: UNRAVELING THE EVOLUTION

Hub worlds, as their name suggests, are central locations that connect different levels or areas within a game, thus providing a cohesive framework for players to navigate and explore vast virtual landscapes just as shown in Figure 1. These areas usually feature a multitude of characters to talk with, options for trading, and a sense of safety in comparison to the rest of the in-game world (Design Doc 2021).

The history of hub worlds in video game design represents an elegant evolution of interconnected spaces, which has, over time, become a nexus of artistic expression, technological innovation, player immersion and an overall semantical tool for "**making players feel like home**".
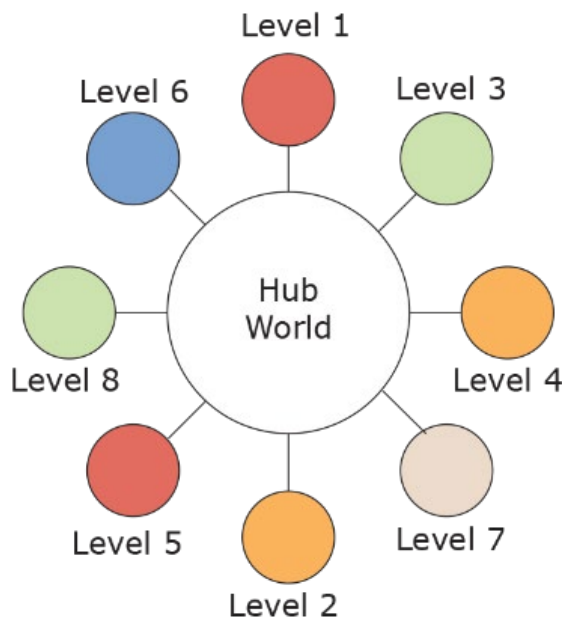
Figure 1. Basic Hub world structure with regards to the rest of the game levels (Schuller 2017)

The concept traces its roots to the early 1980s, with games such as 005 (Sega R&D Japan 1981) and Dragon Buster (Namco 1985) laying the foundation for what would later become a staple feature in the medium: a central gamified menu from which the player could access the different levels. These early precursors sparked a paradigm shift in game design, culminating in the seminal Castle of

Illusion (Sega (AM7) 1990) by Sega, which introduced the hub building concept in the form of a hub castle as seen in Figure 2. While these first iterations were simple level select screens disguised as verisimilar environments, they already included the first basic elements of hub areas: **charming relaxation** that isolates the chaos of the rest of the game and **non-linear interconnectivity** that allows players to choose any level to their liking, even ones they have already played through. These were menus no more: *they were spaces.*
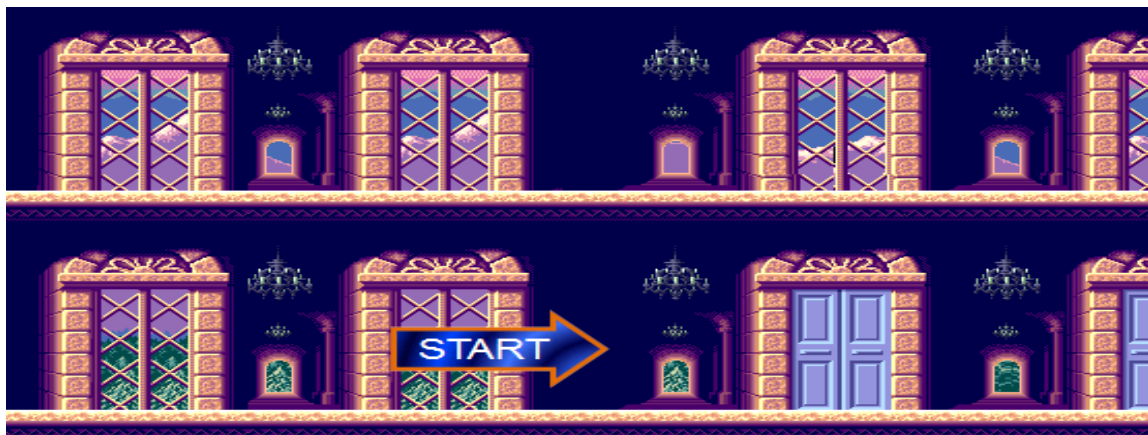
Figure 2. Castle of Illusion's Hub Castle. A hub full of doors that connect to the other game levels (Sega (AM7) 1990)

Later in time, games like Metroid (Nintendo R&D1 1986) pioneered the concept of interconnected spaces and world maps that established a sense of continuity throughout the game. It is sprawling subterranean world of Zebes, with its labyrinthine structure, not only challenged players to traverse its complex passageways, but also laid the foundation for the genre now known as Metroidvania, one which is often based on the circular movement of the player throughout many areas while often revisiting a central one (Perron 2018). Here, the *hub-world* felt more like a **hub-area**, with the whole starter section of Brinstar serving as a connection point between the rest of the levels while also bringing a safer environment with enemies and challenges that became easy to ignore as the players progressed in power just as evidenced in Figure 3.

Figure 3. Map of Metroid 1986 by areas. Brinstar, the alleged hub area is on the right, colored with bright green. It is an area often traversed back and through at all points of the game and has a direct connection with other three game areas (Game Maker's Toolkit 2018)

A breakthrough came in Peach's Castle in Super Mario 64 (Nintendo EAD 1996). This was the first game that developed a hub world to be an all-encompassing area that synthesized the game identity: No player can think about Super Mario 64 without remembering the castle with nostalgia. It offered players a **non-linear satellite structure** to gameplay, with magical paintings granting access to various levels; it brought many mechanics and short minigames to explore the intricacies of the new 3D movement, hence functioning as a **playground**, it also came with tutorials and even tasks to be done within that unlocked as the player advances through the game, adding a sense of **progression**; and was populated with secrets that helped create a game culture around it that centered on uncovering its many **secrets and mysteries**. The facade of the building can be seen in Figure 4.

Figure 4. The iconic Peach's Castle from Mario 64. Full of details and areas that did not necessarily connect to other levels but could stand by their own. The first example of a hub world as an entity of itself rather than a mean to an end (CBR 2022)

Therefore, as the gaming industry ventured into the new millennium, hub worlds continued to develop under these set of successful design choices, with titles like The Legend of Zelda: Ocarina of Time (Nintendo EAD 1998) and Banjo-Kazooie (Rare 1998) further expanding on the concept. In Ocarina of Time, players navigated the interconnected world of Hyrule from central locations like Hyrule Castle Town shown in Figure 5, while Banjo-Kazooie featured a dynamic and whimsical hub world, Gruntilda's Lair, which housed numerous entrances to diverse levels. These later iterations of hub worlds underscored the potential for deepening player immersion and enriching the overall gaming experience. And from here on, the hub world became a design choice by itself, with a proper name and examples to talk about it; and whenever something gets a name and becomes stablished within a culture, it also starts diverting in different paths in goal-oriented manners to suit the specific needs of the games they are in.

Figure 5. Hyrule Castle. While it may feel as a throwback to Peach's Castle, the latter was more of a colorful museum of liminal spaces and impossible geometry, the latter is a vivid city with people to talk with and grounded places to move around: The first iteration of a town as a hub (Zelda Ocarina of Time Wiki 2014)

In real-time strategy games like Age of Empires II (Ensemble Studios 1999) , the idea of hub worlds takes on a different flavor. Starting bases and initial town centers just as the one shown in Figure 6 become a kind of safe haven in the middle of intense battles and constant action. These spots give players a chance to catch their breath, regroup, and strategize, while surrounded by the hustle and bustle of their growing empire. In essence, these town centers are a dynamic kind of hub, bringing together resources, research, and military planning. It also brings an extra characteristic: The player can build as many Town-centers and sub-hubs as they like and wherever they like if able to protect them. And while it may be a stretch to call them hub worlds, these player-made fortresses brace the same principles we have discussed: **Interconnectedness**, **safety**, and now, an additional layer, **preparation, and strategy** before the challenges to come.

Figure 6. Age of Empires Town Center surrounded by walls, farms and houses. It sits as a safe center of production and the last section players would like enemy forces to siege (Ensemble Studios 1999).

The hub worlds of World of Warcraft (Blizzard Entertainment 2004) and Destiny (Bungie 2014) epitomize the notion of social spaces within the gaming sphere; these areas serve not only as functional waypoints for players, but also as vibrant congregations for communal interaction. In World of Warcraft, cities such as Orgrimmar and Stormwind brim with life, as players of diverse origins converge to trade, plan, and forge alliances; similarly, Destiny's Tower offers a sanctuary for guardians to congregate, exchange items, and embark on cooperative missions; a section of the tower can be viewed in Figure 7. Acting as nexuses of social connection, they provide an indispensable element of camaraderie and collaboration, and by evolving on this direction, they foster a sense of community and belonging that is proper from the use of houses as social spaces.

Figure 7. Destiny's Tower hub. It serves as a social space of communal sharing. Voice chat, emotes and player presence simply makes the Destiny experience much more meaningful (Bungie 2014)

Contrastingly, the hub worlds of Dark Souls (FromSoftware 2011) and Elden Ring (From Software 2022) embody a markedly different design philosophy, emphasizing interconnectedness and exploration within the lonely and crestfallen point of view of a forlorn warrior. Surely these hubs act as homes; but they portray the feeling of rest that comes from arriving to your desecrated home after a long war rather than a comfortable resting place. Dark Souls' Firelink Shrine, a solitary haven nestled amidst a convoluted world, serves as a pivot connecting multiple areas of different skill reach, putting players to test the depths of Lordran and unravel its enigmatic secrets without restricting them to a linear course of action, but letting them go for harder challenges (and therefore higher rewards) if they have the will. An overview of the Firelink Shrine's structure within the game map can be found in Figure 8. Elden Ring's Roundtable Hold diverges from this concept, positioning itself as a discrete hub separate from the sprawling open world, yet it retains a semblance of the Dark Souls blueprint in its capacity to guide players on their odyssey through the unknown. These divergent approaches to hub world design underscore the adaptability and versatility of this enduring element in the world of gaming, perpetually pushing the boundaries of what is possible in the digital landscape.
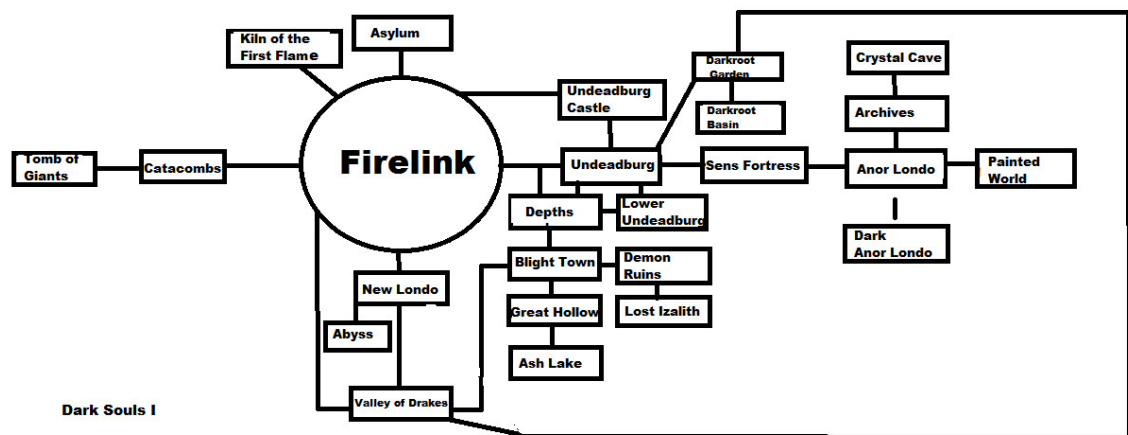

Figure 8. Dark Soul's Firelink Shrine diagram with respects to the rest of the game world. It is an amazing example of interconnectivity and trust in the player's orientation and common sense. It connects to 8 areas in total with four of them being accessible from the very beginning (darksoulstime 2015)

In conclusion, the history of hub worlds in video game design is a fascinating tapestry of innovation and artistic expression, with each era building upon the achievements of its predecessors but also specifying in new and inventive ways to solve case-by-case design problems (Meigs 2003). As games continue to push the boundaries of technology and storytelling, and as the social spaces of the real world start to merge with hose of the virtual one, hub worlds will undoubtedly remain at the heart of this ever-evolving medium, serving as both functional waypoints and captivating spaces that capture the imagination of players the world over. At the end of the day, everyone needs a home.

3   COMPREHENSIVE ANALYSIS AND TYPIFICATION

For making a well-informed decision of the hub area to be developed, an analysis of design patterns within the gaming landscape will be made. Numerous hub worlds across various games and genres will be analyzed after having done at least one playthrough of them, if a playthrough is possible. The total set of games analyzed was 60 and they were of different genres and budgets. The table of all games along the characteristics that were dissected from the playthrough of their game hubs can be found in Appendix 1.

By examining their elements, the core principles and patterns that define and differentiate them will be uncovered, all while maintaining a balance between thoroughness and simplicity to ensure an accessible and engaging analysis that can later be incorporated into the production stages of the thesis. The end-product of this section will be the findings of Hub World analysis based on three criteria: Design, Art, and Narrative Lenses. This approach is a reductionist extrapolative view of what Jesse Schell used to analyze game design within his book "The Art of Game Design" (Schell 2008).

- **The Design Lens** offers a view of the mechanical and gameplay functions that are added into the game spaces; this lens analyzes the different <u>functions</u> and <u>configurations</u> hub worlds may have in game design terms.

- **The Art Lens** concerns the choices regarding <u>mood and feeling</u> that the area elicits and the <u>environment design patterns.</u>
- **The Narrative Lens** involves the choices regarding the <u>dramatic structures</u> and storytelling choices that the areas tell the players.

3.1   The Design Lens

When analyzed through a design lens, hub worlds were found to exercise multiple functions that could be analogous to the functions a house may have. Some of these **functions** offer different approaches for achieving the same result, in such a case, the **function** will show the diversifications it encompasses. Three relevant game examples will be cited for each one of them whenever possible.

❖ **The Door Function (Connection to other Worlds)**

Hubs can serve as the connecting fabric between different worlds or areas in a game, allowing players to traverse and explore new environments. These connections can manifest in various ways, ranging from physical links to metaphysical pathways.

a) **Static Physical Connection**

Physical connections in hubs typically involve tangible pathways, such as bridges, tunnels, or corridors, that directly link one area to another. These connections can create a sense of cohesion in the game world, enhancing the player's immersion and reinforcing the spatial relationships between different environments like the city of Sanctuary in Borderlands 2, as seen in Figure 9. *Examples: Dark Souls -- Firelink Shrine (FromSoftware 2011), Borderlands 2 – Sanctuary (Gearbox Software 2012), The Legend of Zelda: Ocarina of Time - Hyrule Castle Town (Nintendo EAD 1998).*

Figure 9. Sacturary hub. Before its eventual flight to the skies, Sanctuary city sits in the middle of Borderlands 2 world, accessible by treacherous car rides through the arctic continent (Gearbox Software 2012)

b) Migrant Connection

In contrast to the static approach, the migrant hubs move around, changing the places they connect to. This design choice serves to emphasize the themes of travel, change, and the transitory nature of life as is often executed by using a ship or boat such as the Spirit Farer's ship as seen in Figure 10. *Examples: Spiritfarer -- Stella's Boat (Thunder Lotus Games 2020), Super Mario Odyssey – Odyssey Ship (Nintendo EPD 2017).*

Figure 10. Spiritfarer Ship in Spiritfarer. It introduces a dynamic and mobile focal point for the player's journey. The ship itself, with its evolving layout and functionality, becomes an integral part of the player's experience and progression (Thunder Lotus Games 2020)

c) Metaphysical Connection

Metaphysical connections, on the other hand, may involve more abstract or otherworldly methods of transportation. These can include portals, magical doorways, or even shifts in the player's perception, enabling them to access new areas or dimensions. This is exemplified well Figure 11.

Examples: Death's Door - The Hall of Doors (Acid Nerve 2021), Demon's Souls - The Nexus (From Software 2009), Remnant: From the Ashes – Ward 13 (Gunfire Games 2019).
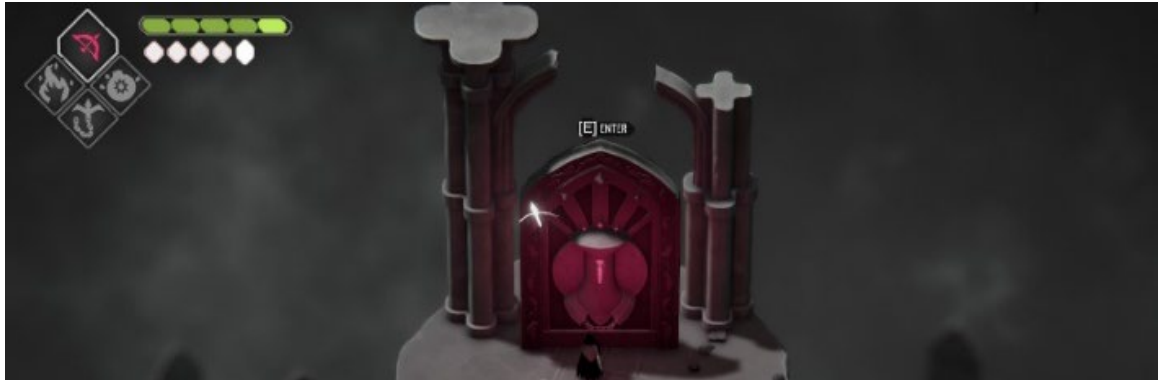
Figure 11. Death's door Hall of doors. It is a separate death dimension from which grim reapers can access different realms to bring death to those who refuse to die. I tis not connected geographically but through portals to the other game levels (Acid Nerve 2021)

d) Hybrid Threshold

Some of the hub areas may be located within a geographic location joins to other areas while also serving as an active portal to other worlds. The bonfire system of the souls-like genre is a good example of this just as the case of God of War's Lake of Nine (SCE Santa Monica Studio 2018); its layout may fit both as a physically interconnected location, with its river paths and nearby mountains as seen in Figure 12, and also a metaphysical connection, with its access to the nine realms of the Norse mythology as evidenced in Figure 13.

Examples: God of War – Tyr's Temple (SCE Santa Monica Studio 2018), Souls Franchise and the relation between main hubs and bonfires.

Figure 12. Tyr's Temple location in the lake of Nine (SCE Santa Monica Studio 2018)

Figure 13. Tyr's temple realm shift (SCE Santa Monica Studio 2018)

❖ **The Hall Function (Mediums for social interactions)**

Hub areas may provide a space for players to engage in talking and interacting with other characters, be them players or NPC's (Non-playable Characters).

a) **The NPC Lounge**

The area is filled with NPC's that may come and go, receive quests, and develop the story just as Disco Elysium's Whirling in Rags, Figure 14. The site normally does not allow for online interaction even if the game has online present.

Examples: Elden Ring – Roundtable Hold (From Software 2022), Kameo:

Elements of Power – Enchanted Kingdom (Rare 2005), Disco Elysium – Whirling in Rags (ZA/UM 2019).

Figure 14. Disco Elysium's' Whirling-in-Rags. It is a vibrant Ristomotel were some NPC's always stay and some others come and go as the story develops (ZA/UM 2019)

b) The Online Lobby

These hubs accentuate the importance of community interaction and cooperation; they are designed to foster player communication, collaboration, and camaraderie as seen in Monster Hunter World's hub in Figure 15. Their architectures promote gathering, socialization, and coordination, thus enhancing the overall multiplayer experience and fostering a sense of belonging to a broader, interconnected gaming community.
Examples: World of Warcraft – Orgrimmar, Stormwind city and other major hubs (Blizzard Entertainment 2004), Destiny -- The Tower (Bungie 2014), Monster Hunter World -- Astera (Capcom 2018).
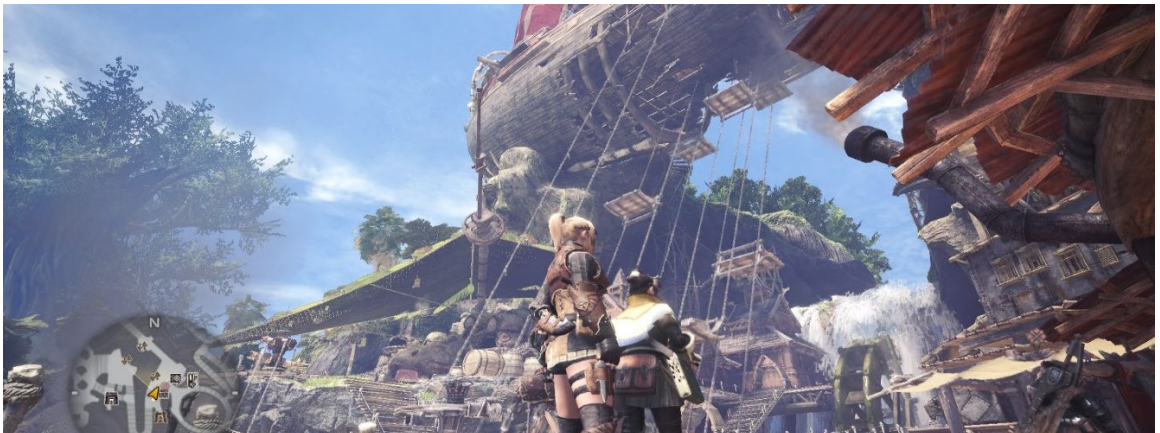

Figure 15. Monster Hunter World´s Astera. A great place to gather with online friends, cook together, interact with NPC's, and prepare armor, weapons and food for the next hunt. (Capcom 2018)

c) The Lone Hall

Hubs may be devoid of NPCs or online interactions, offering a more introspective and solitary experience for players. These lonely rooms emphasize the feelings of isolation and contemplation, allowing players to fully immerse themselves in the game world and ponder its mysteries while also reminding players the importance of self-reliance as seen in Figure 16.

Examples: What Remains of Edith Finch – Finch's House (Giant Sparrow 2017), Below – The campfire (Capybara Games 2018), Nights: Journey of Dreams – Dream Gate Park (Sega Studios SA 2007).

Figure 16. Finch's house. With its silent, winding corridors tell the whispering tales of the characters who once inhabited it (Giant Sparrow 2017)

❖ The Bedroom Function (Havens of rest)

Hubs can be where players can take a break from the intense action, combat, or tension typically experienced throughout the rest of the game,bringing a sense of safety, tranquility, or relative calmness, which contrasts with the more dangerous or hostile environments encountered in the game world; just as Sky's home, found in Figure 17.

Examples: Titan Souls – Overworld (Acid Nerve 2015), The Evil Within – Beacon Mental Hospital (Tango Gameworks 2014), Sky: Children of Light – Home (Thatgamecompany 2019).

Figure 17. Sky's home. Always situating itself at the end of a chapter to signal the previous conflict closing and a new set of challenges to come, hence acting as a pacing rest tool. (Thatgamecompany 2019)

❖ **The Study Room Function (Libraries of Information and Quests)**

Hubs also may serve as interfaces for the interaction of the player with explicit formats of information; offering libraries of quest logs, character biographies, bestiaries, and historical archives, permitting the player to reflect on their journey and plan their future course, hence becoming a playable menu; as examplified in the case of Super Mario Galaxy, which offers an interactive library of information that exemplifies this function as shown in Figure 18.

Examples: Mass Effect 2 – Normandy (BioWare 2010), Deus Ex: Mankind Divided – Prague (Eidos-Montréal 2016), Super Mario Galaxy – Comet Observatory (Nintendo EAD Tokyo 2007).

Figure 18. The library within the Comet Observatory in Super Mario Galaxy. A place full of stories and archives for the player to read about and listen (Nintendo EAD Tokyo 2007)

❖ **The Workshop Function (Resource Management**)

Hub areas usually emphasize the importance of managing resources and preparing for the journey and challenges to come, such as currency and supplies. They also allow players to obtain new abilities, weapons, and equipment or upgrade their existing arsenal as explained in Figure 19.

Examples: Enter the Gungeon – The Breach (Dodge Roll 2016), Slime Rancher – The Ranch (Monomi Park 2017), Death Stranding – The Knot Cities (Kojima Productions 2019).

Figure 19. The Breach in Enter the Gungeon. A hub where players can unlock new items and characters using the resources they've collected in their previous runs (Dodge Roll 2016)

❖ **The Attic Function (Chambers of Secrets**)

Hubs can contain secrets and mysteries that spark player curiosity. With hidden paths, obscure symbols, and intriguing items, these hubs engage players in a different kind of storytelling just as explained in Figure 20. They become more than just functional spaces - they're an important part of the game's story and player experience.

Examples: Deltarune – Hometown (Fox, Detltarune 2018), Dark Souls 2 – Majula (FromSoftware 2014), Fez – Village of Gomez (Polytron Corporation 2012)
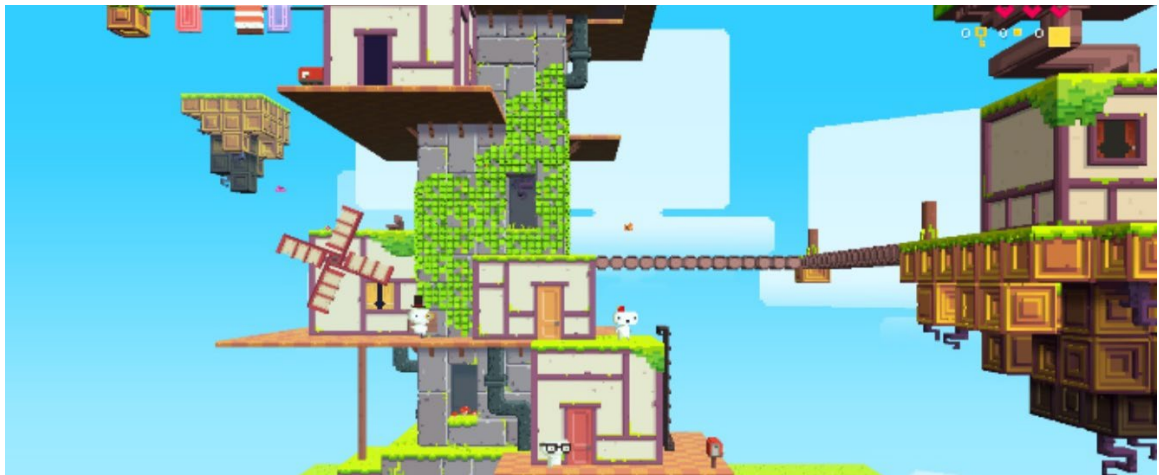
Figure 20. The Village of Gomez. An area full of secrets and encryptions all around in each of their houses. They tell some of the world's secrets just as new keys for advancing the game further (Polytron Corporation 2012)

3.2   The Art Lens

An analysis through the art lens allows for the study of the common environment archetypes. The pattern analysis adjusted for the relationship of the hub with the rest of the in-game world and did not just view the general mood the hub areas had, as that would probably just give information regarding the general game setting and not how the specific role of contrast the hub has with the rest of the world.

❖ **Shrines and Forgotten Temples**

These hubs exude a somber and eerie atmosphere with environments that showcase the architecture of times that usually predate the game's present. Such places may also feature some airs of divinity and ecclesiastical awe using religious imagery and high ceilings. Usually calm and quiet like Dark Souls III's Firelink Shrine as seen in Figure 21.

Examples: Dark Souls III – Firelink Shrine (FromSoftware 2016), Hades – The House of Hades (Supergiant Games 2020), Sekiro: Shadows Die Twice – Dilapidated temple (FromSoftware 2019)

Figure 21. Dark Souls III Firelink Shrine. A dilapidated sanctuary of gothic architecture and shadowy mood (FromSoftware 2016)

❖ **The Spiritual or Oneiric Hubs**

These hubs transport players into realms that blur the boundaries between dreams and reality. In these hubs, a kenopsian feeling is evoked (as in the experience associated with visiting spaces that were designed to be populated but now are empty), bringing both unease and daunt; yet they are also strangely captivating and misty with memories that are hard to forget, as shown in Figure 22.

Examples: Bloodborne – Hunter's Dream (FromSoftware 2015), Demon's Souls – The Nexus (From Software 2009), Nights: Journey into dreams – Dream Gate Park (Sega Studios SA 2007)

Figure 22. Nights: Journey Into Dreams' Dream Park. A lonely and oneiric impossible park floating in the middle of the Aeter and connecting to the dream and nightmare worlds of those who visit it (Sega Studios SA 2007)

❖ **Enchanted Kingdoms and Castles**

These hubs are colorful, vivid environments with fantastical elements just as seen in Figure 23. By instilling a sense of wonder and enchantment they remark the power and "goodness" of the kingdom they are in. The music is usually happy, motivating, and eager to boost the player into action.

Examples: Kameo: Elements of Power – Enchanted Kingdom (Rare 2005), The Legend of Zelda: Twilight Princess – Castle Town (Nintendo EAD 2006), Castle of Illusion – Hub Castle (Sega (AM7) 1990)

Figure 23. Kameo's Enchanted Kingdom. (Rare 2005)

❖ **Crestfallen Villages**

In these games, the hub areas embody a sense of melancholy and decay, reflecting the somber narratives and themes that pervade the worlds they inhabit. Visually, these crestfallen town hubs are recognized by their muted color palettes, crumbling dilapidated structures, and a pervasive air of desolation abandonment and depression while also being beautiful in the melancholic sense as illustrated in the Vagrants Rest (Figure's 24). Musically wise, they usually feature silent echoes and soft whispering instruments that accentuate the silence of longing.

Examples: Ashen – Vagrant's Rest (A44 2018), Hollow Knight – Dirtmouth (Team Cherry 2017), Dark Souls II – Majula (FromSoftware 2014)

Figure 24. Ashen's Vagrant's Rest. A spiritual successor of Souls like's tendency to make their hub worlds into towns that have long lost their luster (A44 2018)

❖ **Metropolis**

Whether futuristic, current, or past, these games offer close-to-reality hubs with some dissonances that put the player between believing they are inhabiting a real-world city. The area is usually full of NPC's and sprawling with movement, commerce, and activities to do. One of the hubs that exemplifies this best is Deus Ex: Mankind Divided Prague as illustrated in Figure 25.

Examples: Deus Ex: Mankind Divided – Prague (Eidos-Montréal 2016), Undertale – Snowdin Town (Fox, Undertale 2015), Shovel Knight – The Village (Yacht Club Games 2014)

Figure 25. Deus Ex's Prague. A seemingly normal city; yet plagued by new world technology, robots, and futuristic augmentations (Eidos-Montréal 2016)

❖ **The House**

Some hubs choose the simplest approach to make players feel at home: Making the hub an actual house. They become living buildings with different rooms for each function and allow for some cozy and intimate moments as in Figure 26. *Examples: Braid – Tim's House (Number One 2008), Grand Theft Auto V – Your property (Rockstar North 2013), Deltarune – Toriel House (Fox, Detltarune 2018)*

Figure 26. Deltarune's Toriel House. The first time the player presents heir friend to their mother, Toriel, sits as a sweet moment that is highlighted by the familiarity the situation brings by the hub being a house (Fox, Detltarune 2018)

❖ **The Last Bastion**

They are hubs that serve as the final stronghold or the remaining sanctuary amidst a devastated world. Often imbued with history, reflecting the trials and tribulations of the inhabitants who found solace within their protective walls just like Remnant's Ward 13, shown in Figure 27.

Examples: Remnant: From the Ashes – Ward 13 (Gunfire Games 2019), NieR: Automata – Resistance Camp (PlatinumGames 2017) , Phantom Dust – Underground City (Microsoft Game Studios 2004)
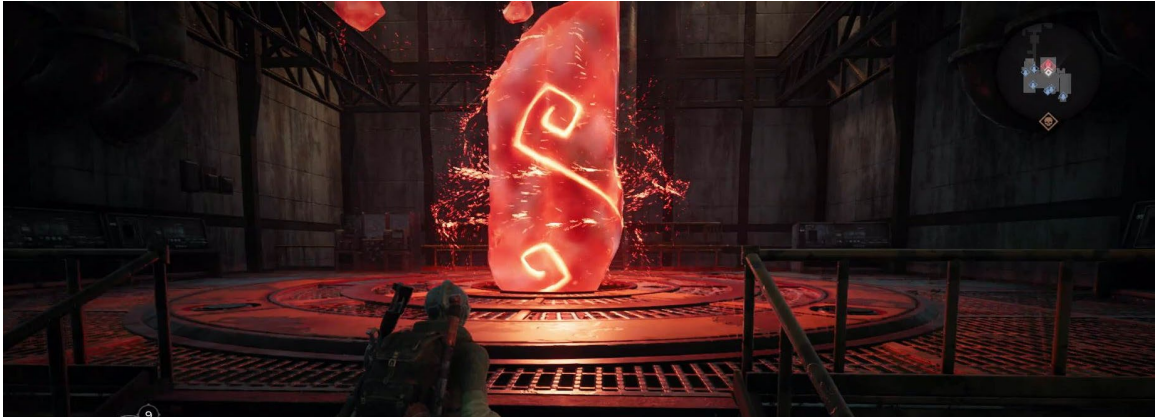
Figure 27. Remnant's Ward 13. The last human fortress after an apocalypse event (Gunfire Games 2019)

❖ Ships, Trains and Stations

These hubs depict a unique fusion of motion and stillness; some of them are locations in transit, others are heavily interconnected stations as shown in Figure 28. They incite anticipation, with the promise of destinations yet unreached. This type offers a dynamic environment that frequently changes scenery, contributing to a refreshing atmosphere that staves off monotony as in Figure 29's Medical decks.

Examples: Mass Effect 2 – The Normandy (BioWare 2010), Dead Space – The Medical Deck and train (EA Redwood Shores 2008), Deep Rock Galactic – Space Rig (Ghost Ship Games 2020)

Figure 28. Dead Space´s Medical Deck. This area has resources, logs an safe spaces that give the player a break from the tension and horror of the rest of the Sevastopol station (EA Redwood Shores 2008)

3.3 The Narrative Lens

The main narrative figures encountered when analyzing hubs through a storytelling lens are as follows:

❖ **Evolving Hubs**

The narrative in these hub areas progresses and changes as the player advances through the game, reflecting the evolution of the story and the world. The area may get filled with new NPC's or change entirely as is the case with the Round Table Hold in Figure 29.
Examples: Hollowknight – Dirtmouth and Forgotten Crossroads (Team Cherry 2017), Elden Ring – Roundtable hold (From Software 2022), Borderlands 2 – Sanctuary (Gearbox Software 2012)

Figure 29. Elden Ring's Round Table Hold. When the Erdtree is burnt it starts to char and when death is finally released into the world, the whole Round Table Hold is being consumed by the flames with most NPC's already vanished (From Software 2022)

❖ **Living and Breathing Hubs**

These hubs are filled with NPCs who have their own routines and stories, creating an immersive narrative experience for players as they explore the area. These hubs serve as the primary narrative centers, where players interact with key characters, receive quests, and uncover important story information. This is the case of World of Warcraft's hubs, a game where most of the narrative work is happening in these areas, one of which can be seen in Figure 30.
Examples: World of Warcraft – Stormwind City and other hub cities (Blizzard Entertainment 2004), The Legend of Zelda: Breath of the Wild – Kakariko Village (Nintendo EPD 2017), Deus Ex: Mankind Divided – Prague (Eidos-Montréal 2016)

Figure 30. Stormwind City, one of World of Warcraft's capital hubs (Blizzard Entertainment 2004)

❖ **Quiet and Reflective Hubs**

These hub areas provide a respite from the action and a space for players to contemplate the game while avoiding heavy narrative loads, often through introspective moments and beautiful environments, exemplified in Figure 31. More often than not they are narratively static.

Examples: Superbrothers: Sword & Sworcery – The hut (Capybara Games & Superbrothers 2011), Journey – Hub Desert (Thatgamecompany 2012), BELOW – The island (Capybara Games 2018)

Figure 31. Superbrothers: Sword & Sworcery's hut. Not only it welcomes you with tranquil music and close to zero narrative, it also makes sure to close the session every time you come back to it, summarizing your achievements and going back to the game menu (Capybara Games & Superbrothers 2011)

❖ **Player-Driven Hubs**

In these games, the hub areas are primarily shaped by the decisions and actions of the players themselves. These hubs function as a canvas for creative expression, allowing players to customize and expand their domain according to their preferences and playstyles. The narrative in these hub areas emerges organically from the players' interactions with the world and their discoveries as in games like Valheim (Iron Gate Studio 2021) in Figure 32.

Examples: Valheim (Iron Gate Studio 2021), Age of Empires 2: Age of Kings (Ensemble Studios 1999), Minecraft (Mojang Studios 2011) – Player Base

Figure 32. Valheim bases come in all shap.es and forms. They are an exhibition of the player's creativity and needs. Going all the way from a small hut in the middle of the forest, to a viking mansion on the steppes (Iron Gate Studio 2021)

4   THE FRAMEWORK

4.1   Baselines for Good Hub Design

In the domain of hub level design just as in any other enterprise, crafting general "good practice" guidelines and frameworks is key for creating engaging and successful products. Thus, a set of 10 principles that serve as a frame of reference was created based on the learnings of the GDC (Game Developer's Conference) talk of "Ten Principles for Good Level Design" (Taylor 2018) , the video "What Makes a Great Hub World? - How Mario 64, Spyro, and Hades Made Theirs" (Design Doc 2021) and the theses titled "3D platformer level design" (Aaltonen 2018) and " Level Flow and Player Guidance in a 3D Multiplayer Level" (Kuoppala 2019).

The principles formulated are:
I.   **Gestalt Navigation:** The level should guide players through visual cues like lights, color, and animation to communicate the message. Such visual cues should be aligned with the Gestalt principles of Design as found in Annex 2 applied to 3D worlds. Such orientation principles should help the player identify the sub-areas within the hub to not feel lost.

II. **Mise-en-Scène:** The game world should subtly communicate its story, providing just enough information for players to piece together the narrative but also not enough for them to have a completely solid understanding that does not allow for theorizing.

III. **Low Stakes:** The hub area should provide a low-pressure environment where players can learn the mechanics of the game, practice their skills, and understand the rules of the world without the risk of failure or negative consequences.

IV. **Karmic Feedback and Progression:** A good hub world will offer a sense of progression or reward. This can be through unlocking new areas, gaining new equipment or abilities, or seeing changes in the environment that reflect the player's achievements or mistakes in the game.

V. **Balanced Size and Scope:** While large hub worlds can offer a sense of exploration, they should not be so vast that they become tedious or overwhelming for players.

VI. **Accessibility and Navigation:** The hub world needs to be easily navigable, with a clear layout and effective fast travel options if necessary. Players should be able to find their way around without getting frustrated or lost.

VII. **Fast Tutorialization:** The tutorial should be as fast and non-intrusive as possible. Mechanics can be introduced via the hub in a slow pace, much more if the game has many mechanics for which player may not be accustomed.

VIII. **Rising tension:** The game hub narrative and layout should be affected by the narrative tension escalation within the game world. Via NPC's coming and going or even parts of the layout and environment changing.

IX. **Comfort Design:** Hub areas are supposed to be the closest thing players have to a home within the game world. Hence bringing music, sound effects and narratives that conjure that sense of coziness can be helpful for being memorable.

X. **Memorable and Unique Aspects:** Ultimately, a good hub world should have elements that make it unique and memorable, whether that is through its design, its mechanics, its characters, or its rewards. Such

elements should not only stand out from those of other hub worlds but also from the rest of the game areas.

These ten principles create a practical framework that can be applied to various aspects of hub level design, and such will be the framework use for the development of the hub area idea within this project. Note that lots of these principles may not be seen in action within the final product as such is a static project that does not allow for dynamic narrative progression nor complex mechanics; such is not the scope of this thesis.

4.2 Baselines and Goals for the Hub Design

Based on the disambiguation of the principles and patterns exposed in hub worlds, the following baselines were decided: The hub to be designed will follow as closely as possible the ten commandments mentioned above if possible.

In **design terms**, it will aim to be an area that employs the **door function** while being a static physical location. In terms of the **hall function**, it will be a lone hall that eventually evolves into an NPC lounge and further in the game, into an online lobby as well, evolving as the player gathers new resources. It will serve as a **rest** area in-between the exploration of the game world, a **study room** to read about the in-game universe, a **workshop** to upgrade and gather new equipment, and an **attic** full of mysteries and areas to be uncovered.

For the **art aspect,** the hub was chosen to encompass the **crestfallen village** and the **station archetypes.** With it being both a village formed within the ruins of an oil rig but also a port from which players can depart in boats. Moreover, the **general environment** was formulated to be an oil rig in the middle of a mistful ocean and an ash desert. The **general mood** was decided to evoke forlornness while also having a happy carnivalesque feeling: grey outdoors and colorful indoors, a contrast not often seen.

For the **narrative lens**, the area aims to have an evolving nature while also being quiet and reflective, allowing for calmness and dynamism.

Many of the design and narrative connotations will only be able to be evidenced in the design documents as the production of the level is focused on the environment and art part of the design and not on the functional and narrative aspect.

5   CONCEPT DEVELOPMENT

The preproduction stage forms the bedrock of the hub area design, morphing abstract ideas into concrete plans through conceptualization and research.

5.1   Use of AI Technologies in the Pipeline

As of April of 2023, the technologies that may allow for higher efficiency within the level creation pipeline are quite limited, yet they allow for optimizing the process even if in small ways. For starters, GPT4-powered **ChatGPT** helped with brainstorming ideas for using environmental storytelling on the level design. Gpt4-powered **Bing Chat** was used to troubleshoot errors within the game engine (Unreal Engine 5) and to find methods to create specific effects and navigate through the program's documentation efficiently.

Midjourney aided the development of concept art and moodboards. **Withpoly** helped on the creation of smart material and textures for assets and landscapes. Blockade labs **Skybox** allowed for the creation of custom skyboxes. Finally, **3DFY** helped with the creation of simple 3D models for tables and cutlery.

It is important to remark that the output given by all of models was not used raw from the models that produced them: Images were edited or painted over, text and ideas was rewritten or iterated upon and even textures were adjusted for.

5.2   Research and Inspiration

Drawing from a variety of game worlds, the hub area's design is influenced by several notable environments. Dark Souls III's Ash Wastes from The Ringed City

DLC (FromSoftware 2016) is a key inspiration, providing a model for our desolate landscape and the surroundings. The loneliness and stark visuals of this waste ground capture the essence of the setting as evidenced in Figure 33. It is an interesting symbol of both the beginning and the end of everything, making it an interesting symbol for what a hub world must be.

Figure 33. The end of the world in Dark Souls 3. A tremendous example of desolation and a mood proper to "end things". A quite conflicting but interesting notion to deal with when creating a hub area which is supposed to "start things" (FromSoftware 2016)

The projected mood of our hub is inspired by the mood of Disco Elysium's Whirling-in-Rags, which communicates resilience amidst despair along some fun while in the eye of the storm. Scarred building and potholed streets are some of the elements that bring this sense of abandonment just as seen in Figure 34.

Figure 34. The Whirling in Rags. It keeps a stereotypic decaying soviet atmosphere while also being able to feature a sad happiness and dark humour mood (ZA/UM 2019)

Some of the symbological and mythical implications of the area are directly taken from "The Epic of Gilgamesh, the king who tried to conquer death", where Gilgamesh, the ancient Sumerian hero aims to find a cure for death amidst the decease of his best friend Enkidu. His travels bring him to a bar in the end of the world as illustrated in Figure 35, where Utnapishtim, the only survivor of an ancient deluge that engulfed earth lies. (The Epic of Gilgamesh 2003)

Figure 35. Utnapishtim bar at the end of the world as depicted by Amir Houshang Moein. (TED 2021)

Additionally, some of the surrounding landscape and overall feeling is motivated by the blocky digital architecture found in NieR: Automata's Copied City depicted in the Figure 36. The hub is aimed to feel real but at the same time distinctly digital, balancing the natural force of time and nature that comes with the ash desert, the decay of human civilization of Disco Elysium's mood and the virtuality of angular black and white landscapes.

Figure 36. NiER Automatat's Copied city. A clean and liminal space that suggests the virtual and simulated nature of the game area (PlatinumGames 2017)

Finally, the actual hub layout draws inspiration from Call of Duty Black Ops 2's Buried map (Figure 37) and the real-life oil rigs in the south of Helsinki, Finland (Figure 38). The labyrinthine, vertical design of the Buried map is echoed in the rig's network of corridors and platforms. Meanwhile, the robust, industrial architecture of the Finnish oil rigs informs the hub's aesthetics and sense of place, grounding the game world in a tangible reality. Together, these influences shape a unique hub environment that is both immersive, industrial and brings a certain lonesome mood.

Figure 37. The starting room of COD: BO2 zombies' map Buried is a dusty oil rig in the middle of Africa (Treyarch 2012)

Figure 38. The sturdy, imposing oil rigs of the Baltic Sea between Helsinki and Tallin. They provide a blueprint for the hub's layout. There is something marvelous behind the industrial structure protruding from the calm sea (Entre 2015)

5.3 Narrative

A narrative was proposed to accompany the hub level and the surrounding environment art. The in-game world was set as a nebulous simulation of what the collective unconscious of humanity would look like if it was all connected via the internet and being used as training data by Golem-class AIs. Golem-class AIs, originally proposed as GLLMM AIs (Generative Large Language Multi-Modal Model Artificial Intelligence) by the Center for Humane Technology, are Ais that are able to understand and translate bit of information from one format to

another. Such AI's (like GPT-4 or Midjourney 5.1 can understand images, text and even symbols and translate them to other formats or modes if necessary. Such AIs are not necessarily sentient, conscious, or autonomous, yet they are able to process massive amounts of data and find patterns within them. (Center for Humane Technology 2023)

Such scenario would be close to an oneiric, internet-based second life (or death) where all of human-possessed information is slowly being compressed and processed for their understanding.

Within this framework, multiple lands, civilizations, and people rise and fall. Many existing within real life, many others created as the result of the melting-pot of non-fictions and fictions: Within this context the difference between the real world and the conceptual world is blurred, and instances that were not "earthly" now occupy a space and interact with some others that we would consider historic or even contemporary. A general map structure of the whole hypothetical in-game world can be seen in Annex 3.

Figure 39. Artistic Depiction of the game world seen from the outside.

This dream-like simulation, known as "The Egg" can be understood as a living intelligence that is constantly metabolizing the information within, as seen in Figure 39. It harbors a practically infinite number of places and characters that are in constant motion. One of these areas is that of the **Besieged Maelstrom**, a harsh corner of the ash wastelands, which stands as a testament to the turbulent chaos at the end of the world. It is an ash desert, barren and desolate, punctuated by oil pumpjacks and remnants of once bustling industrial complexes. The landscape itself defies conventional logic, its geography breaking in chunks that rise and fall, mimicking the drift of continental plates on a fluctuating sea of digital data. A storm of epic proportions engulfs the area, spewing not rain but ash; and below, a sinister undercurrent, a tar ocean slowly erodes the continent. In the backdrop to this bleak panorama is a daunting presence, the colossal black cube known as Kronus, the Eternal Slate; a dormant deity of time with an ominous aura that pervades the entire landscape.

Located within this setting is the hub area: **The Charred Monkey**, an oil rig that now serves as a haunting ristobar. Its industrial past echoes within its structures, a monument to the fossil fuel industry now lost in the maelstrom. Yet, its present existence as a ristobar imparts a sense of uncanny homeliness, a shelter for the tormented by the deepest guilts. Thus, the Charred Monkey, within the heart of the Besieged Maelstrom, stands as a symbol of refuge amidst chaos, a haven of decay, a revindication room for those who have committed great crimes.

5.4   Soundscapes

The aural dimension of a gaming environment is just as crucial as the visual, if not more so in some respects. Sound and music have a profound impact on the player's immersion and emotional connection to the game world (Geller 2020). In this context, creating a cohesive soundscape playlist is an essential part of the design process, helping to crystallize and convey the overall mood to be conveyed. It is important to note that just as a moodboard, this playlist or soundscape is not meant to be used as background music in the level, but to orient the development efforts.

The playlist was carefully curated, bringing together pieces from renowned artists like Jim Guthrie, Amos Roddy, and e.hillman. All of them videogame composers. Each track chosen to synergize with the hub's unique blend of desolation and resilience, chaos, and serenity. Tracks such as "The Cloud" by Jim Guthrie (Guthrie 2011) and "The Foothills" by e.hillman (e.hillman 2019) weave an auditory tapestry of solitude and introspection, mirroring the barren wastelands of the Besieged Maelstrom with some adventurous auditory glitch proper from the virtual nature of the area. In contrast, "Mercury" and "The Last Color of Land" by Amos Roddy and ToyTree (Tree 2018) exude a sense of redemption and tranquility but also a feeling of returning to a home that is not what it used to be, encapsulating the peaceful beauty that can be found in the aftermath of a burning and changing world. This duality mirrors the narrative of the level, a haven of decay amidst a turbulent maelstrom. Perhaps the use of this resource allows for the development to have more mood and emotion invested in it.

The full playlist content and URL can be found in Appendix 4.

5.5 Concept Art

The concept art sets the tone for the gaming experience, providing a visual framework that communicates the mood and atmosphere before working on the final product.

The first moodboard was developed using AI-generated images under the prompt: "Ash wasteland in the midst of a collapsing virtual world. Edge of the world. Drowned by a biblical deluge. In the style of black and white apocalyptic Joaquin Sorolla --ar 16:9 --v 4". The AI synthesized this prompt into a series of unique images, capturing the essence of a barren, apocalyptic wasteland on the verge of a digital collapse, all in the expressive style of the renowned artist Joaquin Sorolla. This exercise enabled a fusion of visual ideas that brought together the expected ambiance of the setting while also pushing the boundaries of imagination. Some of the results of that process can be seen in Figure 40.

Such compilation of images as well as some of the references previously cited in previous sections is what made the first moodboard.

Figure 40. AI generated images that helped build the first set of reference images.

It has been proven that GLLMM AIs perform better when given a task dissected into small steps. Hence, these AI-generated images from the moodboard were then retroactively fed into the AI model[1] to create new and more detailed sets that

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[1] Midjourney is a Multi-Modal Model, which means it can process multiple modes of information and translate between them. For the case of Midjourney, it can translate images into words and words into images. Fact which is useful when using other images along text descriptions as prompts for new generations of images.

were closer to the envisioned idea. Not only that, but additional descriptions were added. The results from this process can be seen in Figure 41.

Figure 41. Images formed from the input use of the images seen in Figure 40 and the prompt: In the heart of the Besieged Maelstrom, the landscape is a tapestry of many decayed worlds. Its desolate ash desert is marked by the many clashes and collisions of universes past and present, a testament to the volatility of existence. Carved into one of the towering cliffs that border this realm is the famed end-of-the-world bar-motel oil rig :: Oil painting by Sorolla – ar 1:1 – v 5.0

These AI-generated images from the moodboard were then used to create an original concept image that encapsulated the collapsing world, the brewing storm, the tilted seas, the surrealist aura and a solitary industrial oil rig Ristomotel on the edge of a cliff as seen below in Figure 42. Painting and photo bash techniques were used.

Figure 42. The painting encapsulates the desolation and resilience in the heart of the hub world, grounding the abstract themes in a tangible visual representation.

5.6   Practical Implementation

With a narrative and art direction set along some goals. A small test of the hub area design was developed using the videogame engine Unreal Engine 5. Assets were either handcrafted or extracted from free modular packages.

5.6.1   The Landscape of the Besieged Maelstrom

While the playable area of a level is of utmost importance, the surrounding unplayable landscape too plays a critical role in creating a sense of immersion and grounding the location in a believable world. It is a crucial component that assists in maintaining continuity and providing context for the player so that the sense of "a virtual world being real" is maintained.

The terrain of the Besieged Maelstrom was generated utilizing a blend of simulation presets within the **Gaea** program, including deserts, dunes, and craters. The erosion and wind movement of sand resources were employed to convey the rocky sandiness of the environment (Figure 43). The texture was generated using an AI-powered material generation site called **Withpoly**, which

yielded an ash texture (Figure 44). This texture was later rendered dynamic through a shader that tiled closer areas more densely than farther ones, mitigating obvious tiling effects within **Unreal Engine 5** (Figure 45).
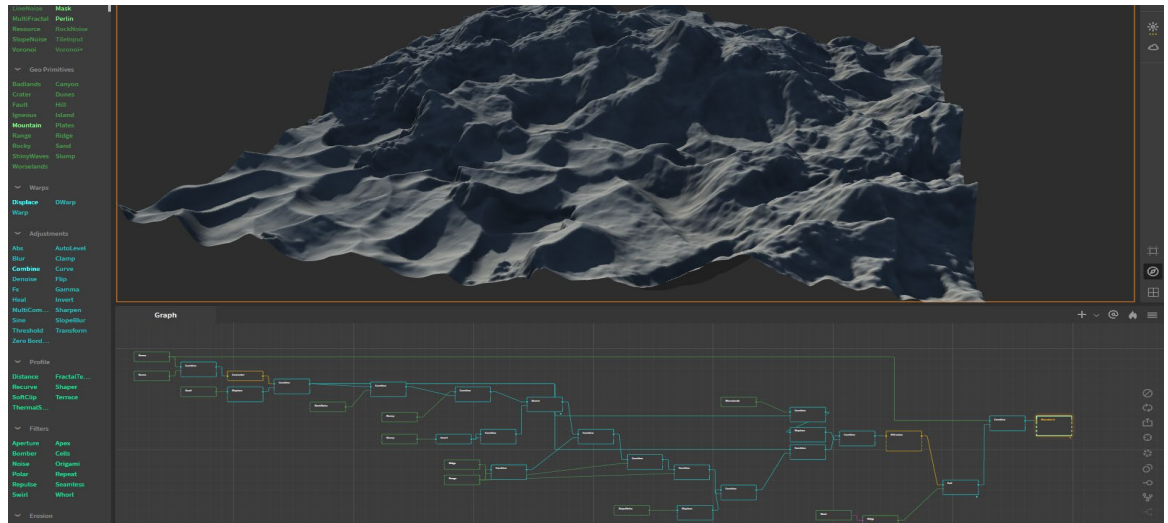
Figure 43. Utilization of Gaea program's simulation presets for generating the initial terrain layout of the Besieged Maelstrom.
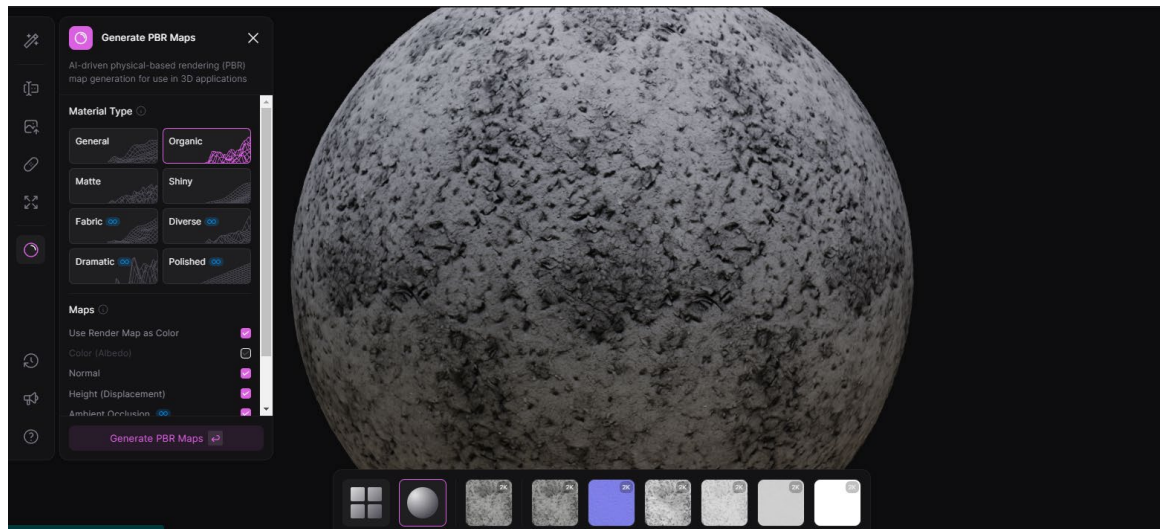
Figure 44. Ash material generated by Withpoly. Prompt used was: "Dirty Ash black and white with organic relief profile"
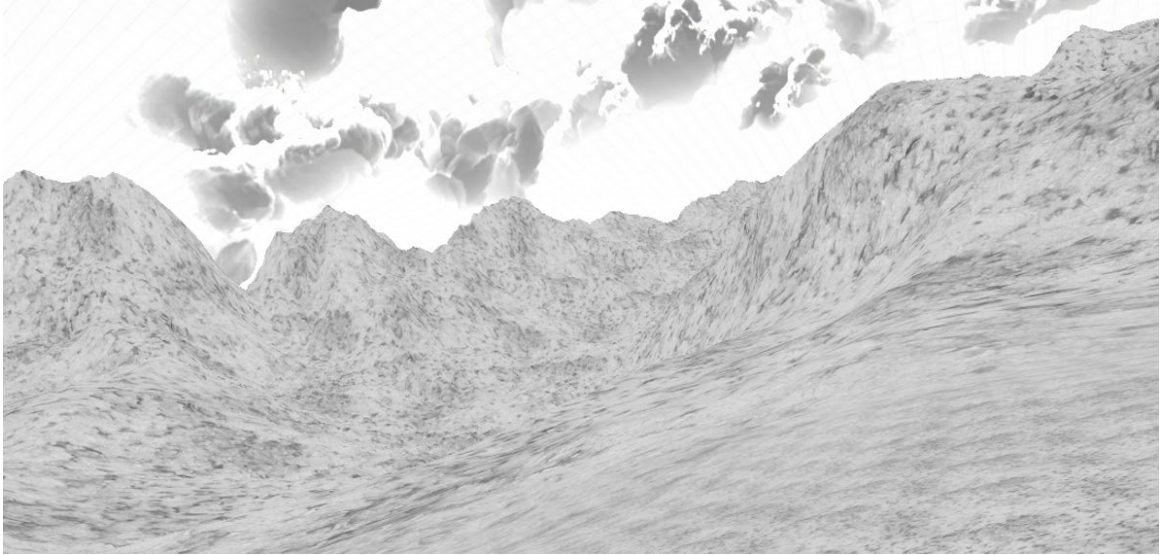
Figure 45.Demonstration of the dynamic ash shader. Making the texture of closer sections appear smaller and those of further away section appear larger, hence avoiding any visible texture repetition

The creation of the skybox was facilitated by Blockade Labs' Skybox program, which employed AI to generate a skybox that harmonized with the environment. This skybox was later edited in Photoshop to incorporate additional elements and correct warping (Figure 46).
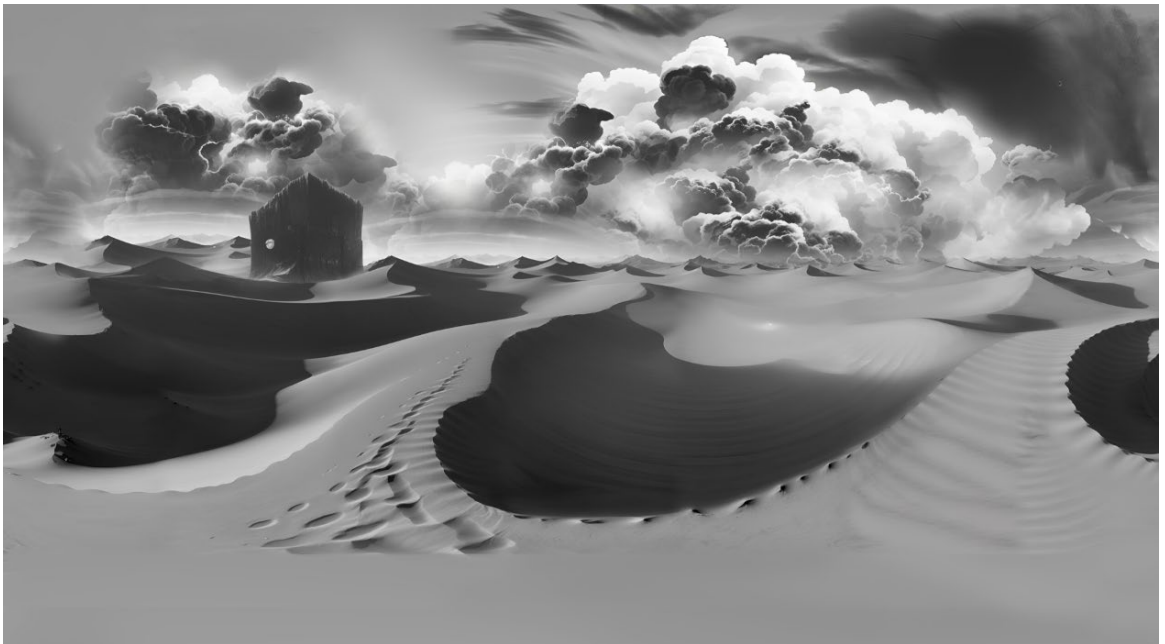
Figure 46. The AI-generated skybox, post-editing in Photoshop, exhibiting added elements and corrected warping. The ash desert, the storm, and Kronus, the eternal god of time can be seen

The creation of the sea and its unique texture was a meticulous task that involved tilting to instill a mood of instability and surrealism. The cloud simulation system built into the engine was modified through parameter experimentation to mimic black pixel particles in the sky. Giant cubes were strategically distributed in the periphery to simulate the world's virtual and drifting nature (Figure 47).

Figure 47. Modified cloud simulation that creates a black pixelated ray atmosphere and peripheral giant cubes, creating a sense of instability and surrealism

Visual effects were utilized to create a constant ash-fall effect by replicating snow but modifying the color and wind speeds. Cones of light, composed of emissive translucent materials, were also created throughout the world. These cones, which represent streams of data being injected into the game world, featured an array of white pixel particles exploding from where the light touched the sea, originating in black pixel vortexes (Figure 48).

Figure 48. The light bean and voxel vertex coming down from the sky

The overall mood of the environment was established using heavily desaturated post-processing and high contrast, which adjusts in response to the surrounding lighting. This level of detail contributes significantly to the world's atmosphere and sense of place.

5.6.2   The Insides of The Charred Monkey

In the practical realization of the Charred Monkey, a significant deviation from the original conception as a ristobar was noted. This departure largely stemmed from the extensive use of assets derived from industrial kits, which led to a structural alignment much less akin to an oil rig made into a ristobar and more like and abandoned industrial complex as seen in Figure 49.

Figure 49.the Charred Monkey as it eventually materialized: a towering structure, reminiscent of a retired offshore drilling platform, repurposed into a bustling hub of activity

The structure of the Charred Monkey was divided into five distinct areas, each serving a unique purpose within the gameplay (Figure 50). Going from the top deck to the port where you can sail to other areas makes you first pass through the workshop and kitchen prepare before leaving.
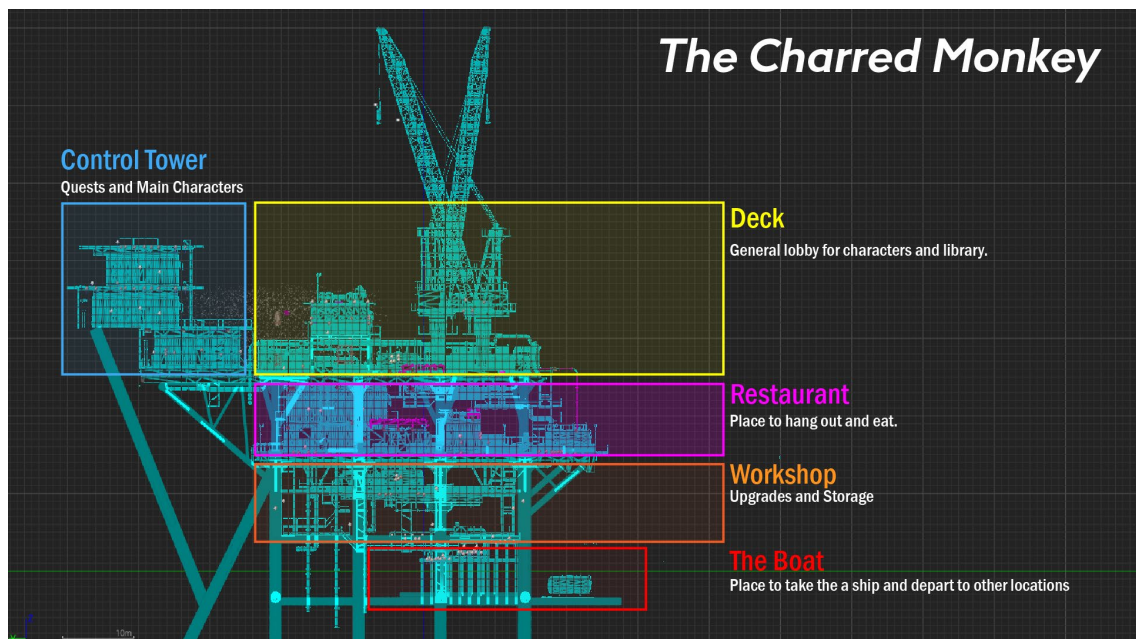
Figure 50. Charred Monkey Layout

The control tower, serving as the central quest hub and principal character interaction point; it is nexus of player progression (Figure 51). This area was built to house mission-related NPCs, allowing players to engage, obtain quests, and receive essential guidance.

Figure 51. The Tower, the focal point for quests and main character interactions

The deck was designated as the general lobby for NPC interactions, online player congregations, and a data library (Figure 52). This area was crafted to facilitate player interactions and create a communal environment while also allowing access to a library, providing players with access to real-world, non-copyrighted pdf books, represented an innovative feature blending education and recreation within the game's context.

Figure 52. The deck, serving as a multi-purpose area for NPC interactions, online player gatherings, and access to a digital library of data

The ristobar area was conceived as a social and culinary hub within the game world (Figure 53). Beyond serving as a location for players to prepare for their in-

game adventures with a variety of dishes, the restaurant also provided real-life recipes, hence forging bridge between the virtual and real worlds.

Figure 53. The restaurant area. Envisioned as a social hub where players can indulge in culinary delights and discover real-life recipes

The workshop was designed as a practical, functional space where players could upgrade their gear and manage their inventory (Figure 54). This area was integral to player progression, providing necessary tools and facilities for enhancing player capabilities and fostering a sense of accomplishment as players upgraded their gear and effectively managed their resources.

The boat, acting as a transportation conduit to the ship and other world areas, offered an avenue for exploration and discovery within the game world (Figure 55). It was designed to encourage players to venture beyond the limits of The Charred Monkey and explore the vast, nebulous landscape that lay beyond.

Figure 54. The boat area. While it was not fully developed due to the lack of assets, yet it was thought of as an interconnected set of rails and corridors that eventually led you to the ship boarding area

Thus, the design and implementation of the Charred Monkey, with its distinct areas and diverse functionalities, aims to offer an engaging and unique experience for players, not only in its mood but also on its functionalities.

6   CONCLUSION

The presented thesis has navigated the complex world of game hub development, examining the historical evolution of hubs, categorizing distinct hub types according to the design, art and narrative lenses, and finally, embodying these concepts in the creation of the Charred Monkey within the game world of the Besieged Maelstrom. From this comprehensive exploration, several significant insights have been gained.

The study of game hub history has revealed the vital role these areas play in gaming. Serving as narrative nexus, social spaces, and strategic centers, hubs have evolved alongside gaming itself, reflecting changes in technology, player expectations, and game design philosophy. The categorization of game hubs, offered a systematic approach to understanding the diversity of hub design, highlighting the tailored nature of these areas in response to game-specific

requirements and the to use such findings in order to execute a hub of own production.

The Charred Monkey itself, morphing from its original conception as a ristobar into a fully operational oil rig due to available assets allowed to get a glimpse into what level and environment design is within the view of hub worlds. The resulting structure, with its distinct areas catering to diverse gameplay and narrative functions, embodied the integral role of the hub in the gaming ecosystem as an entity that encompasses multiple function in a unified space.

In conclusion, the creation and implementation of the Charred Monkey, coupled with the theoretical analysis of game hub history and categorization, offers a holistic perspective on game hub development. It really shows the importance of hubs as a narrative, design and art cover letter for the whole game project and helps players create a home of their own within their newly inhabited virtual spaces.

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APPENDIX

Appendix 1. List of games and hub areas with their respective analysis.

Game	Year	Name	Design Elements	Art Elements	Narrative Elements
Metroid	1986	Brinstar	1. Brinstar serves as a central location for the game's interconnected world. 2. Players can access various regions from Brinstar 3. Brinstar contains save points and health refills.	1. Alien, cavernous aesthetic. 2. Organic structures and vegetation. 3. Atmospheric music that sets the tone for exploration.	1. Brinstar sets the stage for Samus's exploration of Zebes. 2. It hints at the larger conflict with the Space Pirates. 3. Brinstar's layout and secrets encourage player curiosity by making them come back when they have more powers and abilities.
Castle of Illusion	1990	Hub Castle	1. Hub Castle connects the game's levels but is topographically disconnected from them. 2. Players unlock new levels by completing previous ones (linear level design). 3. Hub Castle contains a life-refilling water fountain.	1. Fantasy, whimsical design. 2. The castle interior features grand, detailed architecture. 3. The safety of hub presents a contrast to the game's more treacherous levels.	1. The castle serves as Mickey's entry point into the Illusion world. 2. The game's story centers around Mickey rescuing Minnie from the evil witch Mizrabel. 3. The castle's secrets and shortcuts encourage players to explore.
Super Mario 64	1996	Peach's Castle	1. Peach's Castle serves as a centralized hub for the game's levels, accessed via paintings, hence being topographically disconnected. 2. Players unlock new areas of the castle by collecting Power Stars, each area has a different power star cost. 3. The castle contains secrets and bonus areas	1. Royal, ornate architecture. 2. The castle exterior features gardens and a moat. 3. The interior is decorated with iconic Mario elements, like the stained glass window.	1. Peach's Castle sets the stage for Mario's quest to save Princess Peach. 2. The game's narrative is driven by the need to collect Power Stars. 3. The castle's secrets create a sense of discovery and wonder.
The Legend of Zelda: Ocarina of Time	1998	Hyrule Castle Town	1. Hyrule Castle Town serves as the central hub for Link's adventures. 2. Players can access various regions of Hyrule from the town. 3. The town contains shops, mini-games, and important NPCs.	1. Medieval, European-inspired architecture. 2. The town is bustling with life and color. 3. The music reflects the town's lively atmosphere.	1. The town serves as the entry point to Link's journey in Hyrule. 2. The narrative revolves around Link's quest to save Princess Zelda and Hyrule. 3. The town's inhabitants provide information, side quests, and character development.
Banjo-Kazooie	1998	Gruntilda's Lair	1. Gruntilda's Lair connects the game's levels. 2. Players unlock new levels by collecting Jiggies. 3. The lair contains secrets, shortcuts, and important NPCs.	1. The lair features a dark, ominous aesthetic. 2. The architecture is a mix of organic and constructed elements. 3. The music is eerie and atmospheric.	1. Gruntilda's Lair is the antagonist's base and central to the game's story
Age of Empires II	1999	Town Center	1. Town Center functions as the main hub for resource management and unit production. 2. Players can access and construct various buildings around the Town Center. 3. The Town Center is crucial for defending against enemy attacks.	1. Architecture reflects the chosen civilization. 2. Detailed, historically inspired designs. 3. The Town Center and surrounding area convey a sense of order and civilization amidst the chaos of war.	1. The Town Center is the heart of each civilization, driving players to expand and conquer. 2. The narrative is built around historical events and scenarios. 3. The Town Center's role in each scenario contributes to the overarching story of each campaign.
World of Warcraft	2004	Orgrimmar, Stormwind City, etc.	1. Major cities (e.g., Orgrimmar, Stormwind City) serve as hubs for players to gather, trade, and receive quests. 2. Hubs contain essential services like vendors, trainers, and banks. 3. Hubs are crucial for social	1. City aesthetics reflect the corresponding faction's culture and architectural style. 2. Grand, detailed structures and landmarks. 3. Each hub has a unique atmosphere, enhanced by distinctive music and ambient sounds.	1. Hubs are deeply rooted in the game's lore and history. 2. NPCs and locations within hubs contribute to the overall narrative of the game world. 3. Hubs serve as central points for players to engage with the game's various storylines and quests.

Game	Year	Name	Design Elements	Art Elements	Narrative Elements
				interaction and forming groups for dungeons and raids.	
Game	**Year**	**Name**	**Design Elements**	**Art Elements**	**Narrative Elements**
Resident Evil 4	2005	Merchant's Shops	1. Merchant's Shops are safe zones for players to buy, sell, and upgrade items. 2. Shops are strategically placed between action-heavy sections. 3. The merchant's inventory evolves as the player progresses.	1. Shops have a dimly lit, mysterious atmosphere. 2. The merchant's design is enigmatic and ominous. 3. The shop's surroundings often contrast with the game's horror and tension.	1. The merchant's presence adds an air of intrigue to the game's narrative. 2. The shops provide brief moments of respite in the game's otherwise relentless pacing. 3. The merchant's dialogue and interactions with Leon contribute to the game's overall story and atmosphere.
Kameo: Elements of Power	2005	Enchanted Kingdom	1. Enchanted Kingdom serves as the hub world, connecting various elemental realms. 2. Players unlock new realms and abilities by rescuing elemental warriors. 3. Enchanted Kingdom contains key NPCs, shops, and secrets.	1. The hub has a vibrant, fantastical aesthetic. 2. Lush landscapes, waterfalls, and floating islands create a sense of wonder. 3. The hub's design reflects the game's overarching theme of elemental power.	1. Enchanted Kingdom is central to the game's narrative of Kameo's quest to save her family and the Elemental Kingdom. 2. The hub's inhabitants provide backstory, side quests, and character development. 3. The hub's layout and secrets encourage players to explore and delve deeper into the game's story.
The Legend of Zelda: Twilight Princess	2006	Castle Town	1. Castle Town serves as a central hub for Link's adventures in Hyrule. 2. Players can access various regions of Hyrule from the town. 3. The town contains essential services, like shops, mini-games, and important NPCs.	1. Medieval, European-inspired architecture with a darker, more realistic tone than Ocarina of Time. 2. The town is bustling with life and activity, featuring a variety of distinct districts. 3. The music and ambient sounds reflect the town's atmosphere and the game's overall darker theme.	1. Castle Town is the heart of Hyrule and central to Link's quest to save Princess Zelda and the kingdom from the encroaching Twilight. 2. The town's inhabitants provide information, side quests, and character development, deepening the game's narrative. 3. The presence of Twilight and the contrast between light and dark worlds contribute to the game's core narrative themes.
Nights: Journey of Dreams	2007	Dream Gate Park	1. Dream Gate connects levels. 2. Players can customize the hub. 3. Dream Gate contains a shop for items.	1. Ethereal, dream-like visuals. 2. Floating islands and surreal architecture. 3. Calming, atmospheric music.	1. Dream Gate reflects the game's themes of dreams and imagination. 2. Characters provide context for the game's story. 3. The hub's structure emphasizes exploration and discovery.
Super Mario Galaxy	2007	Comet Observatory	1. Comet Observatory connects to game's galaxies. 2. Observatory expands as players collect Power Stars. 3. Observatory houses NPCs and bonus areas.	1. Space-themed aesthetics. 2. Observatory has a celestial design. 3. Soothing, orchestral music.	1. Observatory serves as a base for Mario's quest to save Princess Peach. 2. NPCs provide story context and hints. 3. Observatory's expansion reflects players' progression.
Braid	2008	Tim's House	1. Tim's House connects to game's worlds. 2. Each room represents a world with its own time mechanic. 3. House layout changes as players progress.	1. Hand-painted visuals. 2. House features a cozy, domestic aesthetic. 3. World themes reflected in room decorations.	1. Tim's House sets the stage for the game's narrative about love and regret. 2. Art and design reinforce story themes. 3. House layout enhances players' understanding of the narrative.
Mass Effect 2	2010	The Normandy	1. Normandy serves as player's base. 2. Players manage team, research, and resources. 3. Normandy houses essential services and NPCs.	1. Futuristic, high-tech aesthetics. 2. Detailed interior design. 3. Normandy's design reflects player choices.	1. Normandy is central to the game's story of Commander Shepard's mission. 2. NPC interactions develop the game's narrative. 3. Player choices impact the game's outcome and story progression.

Dark Souls	2011	Firelink Shrine	1. Firelink Shrine serves as a central hub. 2. Interconnected world with shortcuts back to the hub. 3. Players level up and access NPCs at the hub.	1. Gothic, dilapidated architecture. 2. Desolate, eerie atmosphere. 3. Haunting, ambient music.	1. Firelink Shrine's design reflects the game's themes of decay and hope. 2. NPCs provide lore and backstory. 3. The hub's structure reinforces the game's nonlinear storytelling approach.
Game	**Year**	**Name**	**Design Elements**	**Art Elements**	**Narrative Elements**
Superbrothers: Sword & Sworcery EP	2011	The Hut	1. The Hut connects to various locations. 2. Players can access inventory and character information. 3. The Hut serves as a resting place.	1. Pixel-art aesthetic. 2. Earthy, natural color palette. 3. Warm and cozy atmosphere.	1. The Hut provides context for the game's mystical journey. 2. NPCs share stories and lore. 3. The Hut's design emphasizes the game's exploration theme.
Fez	2012	Village of Gomez	1. Village connects to the game's various levels. 2. Players can access NPCs and side quests. 3. Village serves as a central point in the game world.	1. Retro-inspired pixel art. 2. Quaint, idyllic village setting. 3. Bright and vibrant color palette.	1. Village provides a starting point for Gomez's journey. 2. NPCs offer guidance and hints. 3. Village design highlights the game's themes of discovery and transformation.
Journey	2012	Hub Desert	1. Hub Desert connects to different areas. 2. Players progress through a linear path. 3. Hub Desert offers respite and a sense of scale.	1. Minimalist, desert aesthetic. 2. Warm, golden color palette. 3. Sweeping vistas and large open spaces.	1. Hub Desert reinforces the game's themes of solitude and connection. 2. Environmental storytelling provides context. 3. Hub Desert's design encourages exploration and contemplation.
Borderlands 2	2012	Sanctuary	1. Sanctuary offers access to quests, vendors, and NPCs. 2. Players can customize their character and manage inventory. 3. Sanctuary serves as a safe haven from the hostile world.	1. Sci-fi, post-apocalyptic aesthetic. 2. Gritty, chaotic atmosphere. 3. Iconic landmarks and unique art style.	1. Sanctuary is central to the game's story and mission progression. 2. NPCs provide context and backstory. 3. Sanctuary's design highlights the game's themes of survival and resistance.
Grand Theft Auto V	2013	Your Apartment	1. Apartment serves as a safehouse and base. 2. Players can store vehicles, access wardrobe, and plan heists. 3. Apartment offers in-game services and activities.	1. Realistic, modern aesthetic. 2. Detailed and personalized interior design. 3. City skyline and dynamic day/night cycle.	1. Apartment provides a personal space for the game's protagonists. 2. NPCs interact with the player in the apartment. 3. Apartment's design reflects the game's themes of crime, ambition, and success.
Destiny	2014	The Tower	1. Central hub for quests, vendors, and social interactions. 2. Access to multiplayer activities and events. 3. Vault storage and character customization.	1. Futuristic, sci-fi aesthetic. 2. Sweeping vistas and detailed architecture. 3. Dynamic day/night cycle and weather effects.	1. The Tower is a base for Guardians, providing context for missions. 2. NPCs offer story information and quests. 3. The Tower's design highlights the game's themes of hope and unity.
The Evil Within	2014	Safe Haven	1. Safe Haven connects to various chapters. 2. Players can save progress and upgrade skills. 3. Safe Haven offers a reprieve from the game's horror.	1. Creepy, unsettling atmosphere. 2. Distorted, dreamlike visual design. 3. Contrasting color palette between safe and dangerous areas.	1. Safe Haven provides a mysterious, eerie narrative backdrop. 2. Environmental storytelling offers clues to the game's plot. 3. Safe Haven's design emphasizes the game's themes of fear and psychological horror.
Shovel Knight	2014	Village	1. Village serves as a hub for accessing levels, vendors, and NPCs. 2. Players can purchase upgrades and items. 3. Village provides minigames and side quests.	1. Retro, 8-bit aesthetic. 2. Colorful, medieval-inspired setting. 3. Varied NPCs with distinct designs.	1. Village offers context for Shovel Knight's quest. 2. NPCs share lore and backstory. 3. Village design highlights the game's themes of heroism and adventure.
Alien: Isolation	2014	Sevastopol Station	1. Sevastopol connects to various game areas. 2. Players can access resources, save points, and map information. 3.	1. Dark, moody atmosphere. 2. Retro-futuristic design inspired by the Alien franchise. 3. Claustrophobic, labyrinthine layout.	1. Sevastopol Station is central to the game's narrative and setting. 2. Environmental storytelling reveals the station's history. 3. Sevastopol's design emphasizes the game's themes of isolation and survival.

			Sevastopol creates a sense of tension and danger.		
Dark Souls II	2014	Majula	1. Majula connects to various game locations. 2. Players can level up, upgrade equipment, and access vendors. 3. Majula serves as a respite from the game's challenging combat.	1. Moody, desolate atmosphere. 2. Breathtaking vistas and ocean views. 3. Ruined, aged architecture.	1. Majula provides a central hub for the game's interconnected narrative. 2. NPCs offer lore, backstory, and quests. 3. Majula's design highlights the game's themes of decay and rebirth.
Game	**Year**	**Name**	**Design Elements**	**Art Elements**	**Narrative Elements**
Bloodborne	2015	Hunter's Dream	1. Access to game areas via headstones. 2. Level up, weapon upgrade, and storage services. 3. Return to Hunter's Dream after death or by using a lantern.	1. Dreamlike, ethereal atmosphere. 2. Gothic architecture and design. 3. Contrast between the peace of the hub and the game's nightmarish world.	1. Hunter's Dream provides insight into the game's mysterious world. 2. NPCs share lore and guidance. 3. The hub's ethereal nature reflects the game's themes of dreams and nightmares.
Undertale	2015	Snowdin Town	1. Save points and access to a shop and inn. 2. Unique NPCs and interactions. 3. Acts as a central point for multiple game areas.	1. Charming, pixel art style. 2. Snow-covered landscape with cozy, welcoming atmosphere. 3. Distinct character designs for NPCs.	1. Snowdin Town is a key location in the game's narrative. 2. NPCs reveal story details and offer quests. 3. The hub's peaceful atmosphere contrasts with the game's darker themes.
Ori and the Blind Forest	2015	Nibel	1. Nibel connects multiple game areas. 2. Players can access fast travel and save points. 3. Nibel's layout changes as players progress.	1. Lush, vibrant color palette. 2. Beautiful, hand-painted backgrounds. 3. Organic, natural environment design.	1. Environmental storytelling reveals Nibel's history. 3. Nibel's design reflects the game's themes of hope, sacrifice, and rebirth.
Titan Souls	2015	Overworld	1. Central hub connecting to various boss battles. 2. Exploration and discovery of hidden paths. 3. No explicit guidance, encouraging player autonomy.	1. Pixel art style with lush, natural colors. 2. Mysterious ruins and environmental details. 3. Overgrown, ancient world aesthetic.	1. Overworld provides subtle narrative hints. 2. Environmental storytelling offers clues to the world's past. 3. The hub's design reflects the game's themes of challenge, isolation, and discovery.
Dark Souls III	2016	Firelink Shrine	1. Access to game areas via the bonfire. 2. Level up, weapon upgrade, and storage services. 3. NPCs providing quests and services.	1. Dark, Gothic atmosphere. 2. Rugged, weathered architecture. 3. Contrast between the safety of the hub and the game's hostile world.	1. Firelink Shrine serves as a safe haven for the game's characters. 2. NPCs share lore and guidance. 3. The hub's design emphasizes the game's themes of cycles, decay, and perseverance.
Enter the Gungeon	2016	The Breach	1. Access to different chambers of the Gungeon. 2. NPCs providing items, services, and quests. 3. Unlockable shortcuts for faster progression.	1. Pixel art style with a dark, dungeon-like atmosphere. 2. Detailed environmental design with weapon and ammunition motifs. 3. Varied character designs for NPCs.	1. The Breach serves as a base of operations for the game's characters. 2. NPCs provide backstory and context. 3. The hub's design underscores the game's themes of persistence, challenge, and gun-based gameplay.
Deus Ex: Mankind Divided	2016	Prague	1. Access to missions, side quests, and vendors. 2. Exploration of a detailed open-world city. 3. Social hubs with branching dialogue options.	1. Futuristic, dystopian aesthetic. 2. A blend of historical and modern architecture. 3. Realistic environment design with attention to detail.	1. Prague serves as the game's central narrative location. 2. NPCs offer insights into the game's themes and conflicts. 3. The hub's design reflects the game's themes of transhumanism, inequality, and conspiracy.
The Legend of Zelda: Breath of the Wild	2017	Kakariko Village	1. Access to quests, vendors, and services. 2. Exploration and interaction with unique NPCs. 3. Acts as a central point for multiple game areas.	1. Vibrant, colorful art style. 2. Japanese-inspired architecture and design. 3. Lush, natural environment with water features and foliage.	1. Kakariko Village is a key location in the game's narrative. 2. NPCs reveal story details and offer quests. 3. The hub's peaceful atmosphere contrasts with the game's dangerous open world.

Game	Year	Name	Design Elements	Art Elements	Narrative Elements
Slime Rancher	2017	The Ranch	1. Central location for managing resources and slimes. 2. Access to upgrades and tools. 3. Acts as a home base for exploration.	1. Bright, colorful, and cartoony art style. 2. A mix of natural and man-made structures. 3. Charming and inviting atmosphere.	1. The Ranch is the player's personal space for building and expanding. 2. Represents the player's progress and accomplishments. 3. The hub's design emphasizes themes of exploration, discovery, and growth.
NieR: Automata	2017	Resistance Camp	1. Access to missions, side quests, and vendors. 2. Safe zone for healing and upgrading. 3. Acts as a hub for story progression.	1. Post-apocalyptic environment with a mix of natural and robotic elements. 2. Makeshift, utilitarian structures. 3. Subdued color palette.	1. Resistance Camp is a key location for interacting with NPCs and learning about the world. 2. Serves as a base for the game's resistance movement. 3. The hub's design reflects themes of hope, survival, and the human-machine relationship.
Hollow Knight	2017	Dirtmouth	1. Access to game areas through the well. 2. Provides resting point and stag station for fast travel. 3. NPCs offer items and services.	1. Hand-drawn art style with moody, atmospheric visuals. 2. Quaint, abandoned village aesthetic. 3. Subtle use of color to convey a sense of isolation.	1. Dirtmouth serves as a starting point for the game's story. 2. NPCs provide lore and guidance. 3. The hub's design emphasizes themes of decay, exploration, and the unknown.
Cuphead	2017	Inkwell Isle	1. Overworld map for selecting levels and bosses. 2. Access to vendors and hidden secrets. 3. Acts as a central point for game progression.	1. 1930s-inspired hand-drawn animation. 2. Vibrant, colorful environments. 3. Distinct visual themes for each section of the island.	1. Inkwell Isle sets the stage for Cuphead's narrative. 2. Characters provide context and story details. 3. The hub's design reflects the game's themes of perseverance, challenge, and its unique visual style.
Super Mario Odyssey	2017	Odyssey	1. Acts as a central hub for accessing various kingdoms. 2. Stores collected Power Moons for progression. 3. Provides access to costumes and upgrades.	1. Colorful, whimsical art style. 2. Odyssey ship design based on a top hat, reflecting the game's hat-based mechanics. 3. Dynamic lighting and atmosphere changes.	1. Odyssey represents Mario's journey through various kingdoms. 2. Provides a space for reflection on the game's progress. 3. The hub's design emphasizes themes of adventure, exploration, and the power of friendship.
What Remains of Edith Finch	2017	Finch House	1. Central hub for exploring family members' stories. 2. Acts as a gateway to various narrative vignettes. 3. Encourages environmental storytelling and exploration.	1. Realistic, detailed art style. 2. Visually diverse rooms reflecting individual family members' personalities. 3. Haunting, melancholic atmosphere.	1. Finch House represents the family's history and legacy. 2. Each room tells a story about its occupant. 3. The hub's design emphasizes themes of family, memory, and the passage of time.
Dead Cells	2017	Prisoner's Quarters	1. Starting point for each run. 2. Access to permanent upgrades and equipment. 3. Entry point to the game's procedurally generated levels.	1. Gothic, pixel-art aesthetic. 2. Dark, moody atmosphere. 3. Contrasting light and shadow to create depth.	1. Prisoner's Quarters set the stage for the game's rogue-like structure. 2. Visual cues hint at the protagonist's mysterious past. 3. The hub's design reflects themes of imprisonment, death, and rebirth.
God of War	2018	Lake of Nine	1. Central hub for accessing various regions. 2. Offers side quests and optional exploration. 3. Acts as a point of reference for story progression.	1. Norse-inspired, semi-realistic art style. 2. Majestic, sprawling vistas. 3. Evocative use of color and light.	1. Lake of Nine is a key location for character development and world-building. 2. NPCs provide lore and guidance. 3. The hub's design emphasizes themes of family, fate, and the relationship between gods and mortals.
Deltarune	2018	Hometown	1. Acts as a hub for accessing the game's various chapters. 2. Provides interactions with NPCs and story progression. 3. Offers environmental puzzles and secrets.	1. Retro, pixel-art aesthetic. 2. Cozy, inviting atmosphere. 3. Detailed environments that evoke a sense of familiarity.	1. Hometown is the starting point for the game's narrative. 2. NPCs provide context, backstory, and foreshadowing. 3. The hub's design emphasizes themes of friendship, duality, and the power of choices.

Game	Year	Name	Design Elements	Art Elements	Narrative Elements
Ashen	2018	Vagrant's Rest	1. Central hub for upgrading and crafting. 2. Offers access to quests and character interactions. 3. Evolves as players progress through the story.	1. Minimalist, low-poly art style. 2. Sparse, desolate environment. 3. Muted color palette with contrasting light sources.	1. Vagrant's Rest symbolizes the player's progress in rebuilding the world. 2. NPCs provide lore and guidance. 3. The hub's design reflects themes of rebirth, community, and the struggle against darkness.
Monster Hunter: World	2018	Astera	1. Central hub for crafting, upgrading, and preparing for hunts. 2. Offers access to quests and character interactions. 3. Acts as a gathering point for multiplayer activities.	1. Vibrant, organic aesthetic. 2. Busy, bustling atmosphere. 3. Emphasis on verticality and interconnected spaces.	1. Astera represents the human presence in the New World. 2. NPCs provide lore and guidance. 3. The hub's design emphasizes themes of exploration, cooperation, and the relationship between humanity and nature.
Game	**Year**	**Name**	**Design Elements**	**Art Elements**	**Narrative Elements**
Below	2018	The Isle	1. Central hub that connects to various regions. 2. Offers safe spaces for crafting and resting. 3. Acts as a point of reference for the game's progression.	1. Minimalist, atmospheric art style. 2. Dark, foreboding environment. 3. Moody lighting and shadow effects.	1. The Isle is a mysterious location that invites exploration. 2. Environmental storytelling hints at the island's history. 3. The hub's design emphasizes themes of isolation, survival, and the unknown.
Sekiro: Shadows Die Twice	2019	Dilapidated Temple	1. Central hub for upgrading abilities and equipment. 2. Offers access to story missions and side quests. 3. Acts as a safe space for rest and recovery.	1. Feudal Japanese-inspired art style. 2. Serene, tranquil atmosphere. 3. Richly detailed, lived-in environment.	1. Dilapidated Temple is a key location for character development and lore. 2. NPCs provide guidance and backstory. 3. The hub's design emphasizes themes of honor, duty, and the consequences of immortality.
Remnant: From the Ashes	2019	Ward 13	1. Central hub for crafting, upgrading, and preparing for battles. 2. Offers access to quests and character interactions. 3. Acts as a point of reference for story progression.	1. Post-apocalyptic, industrial aesthetic. 2. Dark, somber atmosphere. 3. Focus on gritty realism and environmental storytelling.	1. Ward 13 serves as humanity's last bastion against an otherworldly threat. 2. NPCs provide lore and guidance. 3. The hub's design emphasizes themes of survival, camaraderie, and resistance against overwhelming odds.
Control	2019	Federal Bureau of Control	1. Central hub for accessing various areas and missions. 2. Offers character interactions and opportunities for exploration. 3. Evolves as players progress through the story.	1. Brutalist, modernist architectural style. 2. Surreal, shifting environments. 3. Use of stark contrasts and bold color choices.	1. Environmental storytelling reveals the organization's secrets. 3. The hub's design emphasizes themes of power, control, and the supernatural.
Death Stranding	2019	Central Knot City	1. Central hub for accepting and completing deliveries. 2. Offers character interactions and access to equipment. 3. Acts as a point of reference for story progression.	1. Futuristic, industrial aesthetic. 2. Isolated, secure atmosphere. 3. Contrasts with the desolate, open world.	1. Central Knot City represents a bastion of human civilization in a fractured world. 2. NPCs provide lore and guidance. 3. The hub's design emphasizes themes of connection, isolation, and rebuilding society.
Sky: Children of the Light	2019	Home	1. Central hub for accessing various realms. 2. Offers opportunities for social interactions and customization. 3. Acts as a safe space for players to rest and regroup.	1. Ethereal, dreamlike aesthetic. 2. Calm, serene atmosphere. 3. Emphasis on light and color.	1. Home serves as a sanctuary for the Sky Children. 2. Environmental storytelling hints at the world's history. 3. The hub's design emphasizes themes of hope, friendship, and the power of light.

Game	Year	Name	Design Elements	Art Elements	Narrative Elements
Disco Elysium	2019	Whirling in Rags	1. Central hub for character interactions and quests. 2. Offers opportunities for investigation and exploration. 3. Acts as a base of operations for the protagonist.	1. Painted, hand-drawn art style. 2. Gritty, urban atmosphere. 3. Detailed, immersive environment.	1. Whirling in Rags is a key location for unraveling the game's central mystery. 2. NPCs provide information, backstory, and opportunities for role-playing. 3. The hub's design emphasizes themes of identity, politics, and the consequences of personal choices.
Demon's Souls (2020 Remake)	2020	The Nexus	1. Central hub for leveling up and upgrading equipment. 2. Offers access to the game's various worlds. 3. Acts as a safe haven for players to recover.	1. Gothic, cathedral-like architecture. 2. Mysterious, ethereal atmosphere. 3. Contrasts with the dark, dangerous environments of the game's worlds.	1. The Nexus serves as a gathering point for characters connected to the story. 2. NPCs provide lore and guidance. 3. The hub's design emphasizes themes of struggle, sacrifice, and the cycle of life and death.
Hades	2020	The House of Hades	1. Central hub for upgrading abilities and interacting with characters. 2. Offers opportunities for story progression and relationship building. 3. Acts as a point of reference between runs in the roguelike game structure.	1. Rich, vibrant art style inspired by Greek mythology. 2. Atmospheric, otherworldly environment. 3. Emphasis on detailed character design and environmental storytelling.	1. The House of Hades serves as a backdrop for the game's narrative, focusing on the protagonist's quest for freedom. 2. NPCs provide information, backstory, and emotional support. 3. The hub's design emphasizes themes of family, rebellion, and the struggle against fate.
Game	**Year**	**Name**	**Design Elements**	**Art Elements**	**Narrative Elements**
Deep Rock Galactic	2020	Space Rig	1. Central hub for upgrading equipment and selecting missions. 2. Offers opportunities for social interaction and customization.	1. Sci-fi, industrial aesthetic. 2. Functional, lived-in atmosphere.	1. Space Rig serves as the base of operations for the dwarven miners. 2. Environmental storytelling hints at the company's operations and goals.
Spirit Farer	2020	Stella's Boat	1. Central hub for character interactions and resource management. 2. Acts as a mobile base, allowing players to travel between locations.	1. Whimsical, hand-drawn art style. 2. Serene, calming atmosphere.	1. Stella's Boat is a key location for bonding with spirits and helping them move on. 2. The hub's design emphasizes themes of compassion, growth, and the journey of life.
Sable	2021	Ewer	1. Central hub for quest management and character interactions. 2. Offers opportunities for exploration and discovery.	1. Unique, cel-shaded art style. 2. Desert-like, open environment.	1. Ewer serves as a starting point for Sable's rite of passage. 2. NPCs provide guidance and worldbuilding. 3. The hub's design emphasizes themes of identity, adventure, and the importance of community.
Death's Door	2021	Hall of Doors	1. Central hub for accessing different game locations. 2. Offers opportunities for character interactions and ability upgrades.	1. Stylized, atmospheric art style. 2. Mysterious, otherworldly environment.	1. The Hall of Doors serves as a backdrop for the game's narrative about reaping souls. 2. NPCs provide information, backstory, and guidance.
Valheim	2021	Player-created bases	1. Central hub for crafting, storage, and defense. 2. Acts as a customizable safe haven for players to return to.	1. Stylized, low-poly art style. 2. Reflects the player's personal choices in design and decoration.	1. Player-created bases serve as a testament to the player's progress and growth. 2. Environmental storytelling is based on player decisions and accomplishments.
Elden Ring	2022	Roundtable Hold	1. Central hub for character interactions and upgrading abilities. 2. Provides fast travel access to the open world.	1. Dark fantasy, intricate architecture. 2. Grand, atmospheric environment.	1. Roundtable Hold serves as a gathering point for key characters and lore. 2. The hub's design emphasizes themes of power, duty, and the struggle against a greater threat.
Atomic Heart	2023	Nora the Perverted Robot	1. Central hub for character interactions, quest management, and crafting. 2. Acts as a safe haven from the dangers outside.	1. Retro-futuristic, bizarre aesthetic. 2. Chaotic, unsettling atmosphere.	1. Nora serves as a source of dark humor and contrast to the game's intense narrative. 2. The hub's design emphasizes themes of isolation, human nature, and the blurred line between reality and fiction.

Appendix 2. Gestalt Principles

Gestalt Principles

ux hints.com

Good Figure
Objects grouped together tend to be perceived as a single figure. Tendency to simplify.

Proximity
Objects tend to be grouped together if they are close to each other.

Similarity
Objects tend to be grouped together if they are similar.

Continuation
When there is an intersection between two or more objects, people tend to perceive each object as a single uninterrupted object.
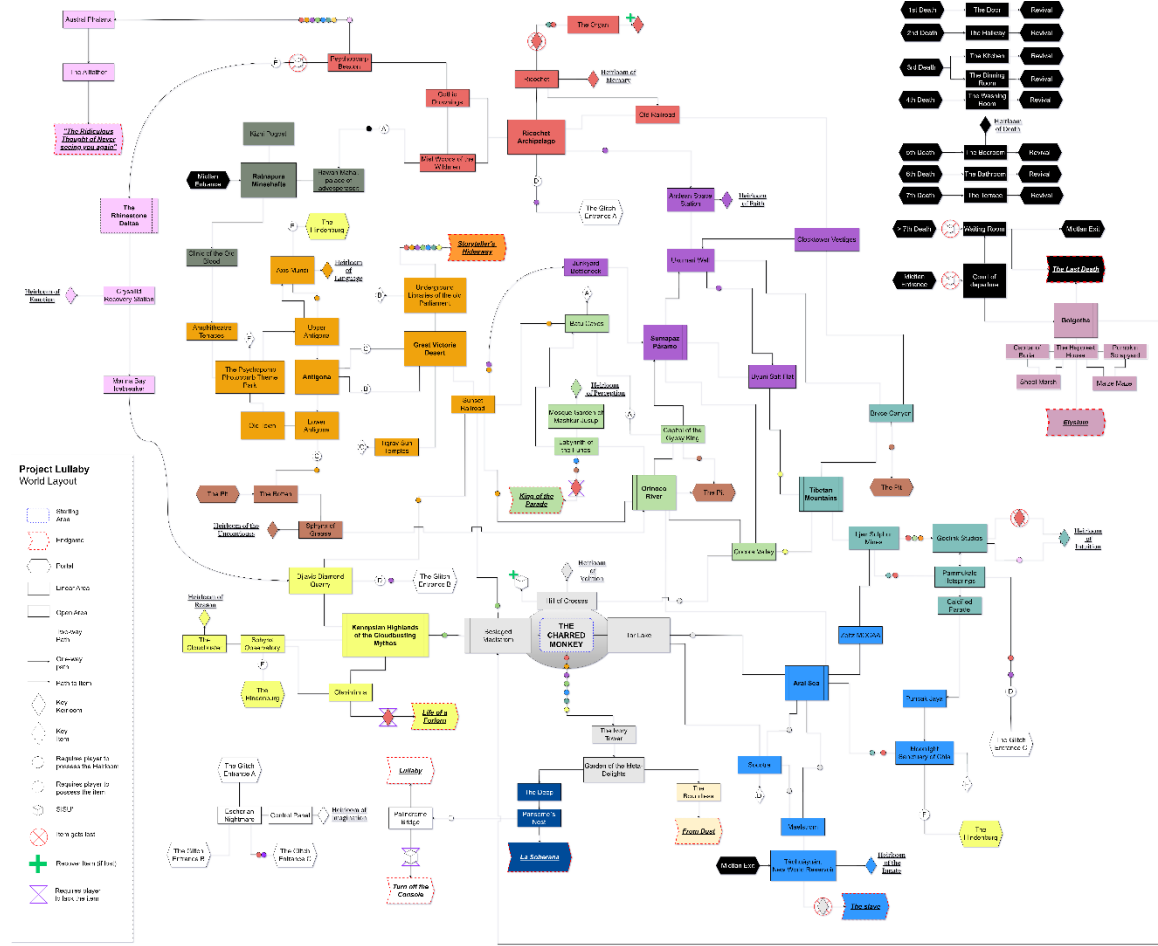
Closure
Visual connection or continuity between sets of elements which do not actually touch each other in a composition.

Symmetry
The object tend to be perceived as symmetrical shapes that form around their center.

(uxhints 2017)

Appendix 3. Hypothetical Game Map Structure

Appendix 4. The Charred Monkey Spotify Playlist

[Link](#)

Song	Artist(s)	Album
Campfires	Jim Guthrie	Below (Original Soundtrack)
The Cloud	Jim Guthrie	Sword & Sworcery Lp: The Ballad Of The Space Babies
A Tired Ghost	Amos Roddy, ToyTree	Kingdom Two Crowns (Original Soundtrack)
The Foothills	e.hillman	Ashen (Original Soundtrack)
Dark Flute	Jim Guthrie	Sword & Sworcery Lp: The Ballad Of The Space Babies
Mercury	Amos Roddy, ToyTree	Kingdom Two Crowns (Original Soundtrack)
The Last Color of Land	Amos Roddy, ToyTree	Kingdom Two Crowns (Original Soundtrack)
Hall of Doors	David Fenn	Death's Door (Original Soundtrack)
Driftwood	Amos Roddy, ToyTree	Kingdom Two Crowns (Original Soundtrack)

Song	Artist(s)	Album
Vagrant's Rest (A Place to Call Home)	e.hillman	Ashen (Original Soundtrack)
Into the Green Vale	Amos Roddy, ToyTree	Kingdom Two Crowns (Original Soundtrack)
Farthest Point	Amos Roddy	In Other Waters (Original Game Soundtrack)