

Emotion-Centric Design: An Innovative Approach to Video Game Development

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Executive Summary — While market expansion challenges developers to create deeper experiences, the growth of the industry also allows them to experiment with different development approaches. Along those lines, emotional design emerges as a very successful approach to Video Game development, establishing the game’s intended emotions as its defining aspect. This project utilizes the emotion-centric design combined with a play-centric approach to create a level in *The Elders Scrolls V: Skyrim* in order to elicit feelings of guilt and sadness through gameplay. Moreover, this thesis examines the game elements that contribute to emotional attachment, providing guidelines for future developers as well as future research on the topic.

Index Terms — Experimental Game Design, Emotional Design, Emotion-centric Game Design, Gameplay Emotions

I. INTRODUCTION

GAME development is currently facing new challenges. There is a notion that games should explore a broader emotional spectrum, digging into complex aspects of human condition [12]. Known as emotion-centric (or emotional) design, this movement is a new approach to the development process, focusing on the player experience and message delivered by the game [3]. Although still small, this design methodology continues to gain more ground in the recent years [1, 15], as a new market segment arises. Differently from the usual polarized casual versus hardcore games, this new segment looks for deeper, more meaningful experiences, as provided by other art forms such as Cinema and Music [1].

This thesis contributes to the medium’s emotional spectrum through the creation of a gameplay experience that delves into the sentiments of guilt and sadness from a game mechanics perspective, as those are ones of the least explored emotions in the current game’s scenario. The thesis artifact consists of a level in an existing game, *The Elder Scrolls V: Skyrim* [24], developed through an iterative, play-centric approach based on emotional design. The author documented the development process and the data gathered from playtests into this journal

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along with the results and conclusion.



Figure 1 - Emotion sample that games usually cover. [17]

II. RESEARCH REVIEW

As games evolved and became more complex, so did the emotional impact they cause on players. Concurrently, the industry growth allowed developers to take experimental approaches, exploring non-traditional aspects of the medium such as different feelings evoked during gameplay. The emotion-centric design (or emotional design) consists of taking the intended emotions as the core aspect of development, focusing the overall game structure around it.

As this thesis creates a short experience following that emotional design approach, this chapter presents a collection of resources, online articles, research, and games, which contribute to the subject, either by exploring the correlation between games and emotions or by utilizing the emotional approach in their development process. Thus, they serve as tools and guidelines to provide a framework for creating a successfully emotional gameplay experience.

A. Literature Review

Although emotional design is a relatively new approach to game development, there have been many studies involving the ways this medium generates emotions. In this sense, this literature review consists of many different sources, such as a

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book [1], online articles [2, 3, 4] and conference papers [5, 6, 7]. The first part of this section covers the growth and importance of emotion-centric design whilst the second presents several works on the key aspects of games in terms of emotions.

1) *The importance of emotion-centric design*

As discussed by T. Fullerton and R. Lemarchand [1], the video game industry has been experiencing the consolidation of experimental game design since the year 2000. Emerging as both a consequence of growth in the indie scene and a reaction to the current marketed-focused AAA industry, the experimental design allows developers to try new ideas and mechanics. As a subset of that movement, the emotional design experiments with a different subject as base for game development (emotions), bringing together or even blending games with other artistic forms, like poetry, music and painting [15]. This exemplifies the emotion-centric design's contribution to innovation and maturity of the industry [1].

Complementarily, T. Fullerton depicts the innovation trends in the game industry, pointing out that most of the research effort aims towards either technical feature advancements within genres or subject matter innovations [2]. Furthermore, there is not a lot of focus on the emotional and experimental aspects of design as observed when analyzing the realm of emotions explored in games. As the article states, the majority of titles developed nowadays covers a short emotional spectrum, often based on surprise, anger, disgust, and fear. It indicates that games poorly explore emotions like happiness, tranquility, and sadness. The author explains how developers can cut through a horizon of new experiences, deriving new mechanics and features when creating a game through the lens of emotions instead of the usual genre-based approach [2].

Nick Harper, in his post about *Journey* and emotional game design [3], and Bill Fulton, in his interview with Pricewaterhouse Coopers US [4], reinforce the importance of emotional game design. By breaking down the design aspects of *Journey*, Harper explains how the interactive trait of games allows them to communicate a message to players through not only cut scenes, but also using gameplay [3]. Similarly, Fulton discusses that games need to engage the audience in a deep level, considering their doing, thinking, and feeling during the gameplay experience. He states that every product has an emotional component and, therefore, developers must encompass that aspect. Fulton argues that delivering an incomplete or poorly designed experience can be even worse than not having an emotional experience at all [4].

As the resources demonstrate, the emotion-centric design is a valuable but poorly explored methodology for game development. This thesis expands upon those articles, using the mentioned approach to create an innovative experience that validates and reinforces its value.

2) *Games and emotions*

The first section of the literature review demonstrated the importance of emotion-centric design. This next step is to build a framework able to support and guide the development decisions of this thesis' project. The upcoming section covers an extensive variety of research on the correlation between games and emotions, gathering models structuring that relation.



Figure 2 – *Flower* (2007) one of the few games that fully explores a different player emotion set.[18]

J. Frome presents a very complete study on “Eight Ways Video Games Generate Emotion” [5]. The author proposes a model to study the aspects of player's emotional responses to videogames and which specific input a game may utilize to trigger those emotions, crossing roles of players, types of emotions, and provided inputs. Player roles refer to how gamers engage the experience (observing versus interfering). Emotion types consider the overall source of the generated emotions – i.e., competition, narrative, artwork appreciation. By comparing these two elements, Frome defines emotion inputs presented in games, which are stimuli that trigger specific emotion types according to player roles. Those work as formal elements that help describe and understand players' emotional response to videogames, guiding developers in the struggle to deliver specific experiences [5].

Types of Emotion	Audience Roles	
	Observer-Participant	Actor-Participant
Ecological	Sensory Environment	Proprioception
Narrative	Narrative Situations	Roleplay
Game	Game Events	Gameplay
Artifact	Design	Artistry

Figure 3 - Frome's table crossing game input and emotions. [5]

In a similar fashion, B. Perron provides a cognitivist perspective on the emotions associated to videogames in his article [6]. The author draws from Film Theory to analyze and structure emotions in story-driven titles. His research states that

movies and games share two different types of generated emotions: fiction and artifact. The former corresponds to witnessing sensations within the game world, the latter, to responding to stimuli caused by the game as a human-made artifact. In addition, Perron introduces a new type of emotion, the gameplay emotion. It represents feelings caused by players' actions and their consequent reactions in games. It is interesting to note the similarities between the emotion types considered in both Frome's and Perron's works [5, 6]. Both studies consider the observing and participatory aspects of players, as well as, the interactive and non-interactive characteristics of games.

Moreover, in Perron's cognitive approach, emotions are the result of an individual's constant assessment about his situation, its relevance, as well as the range of coping options. This assessment process, which Perron calls appraisal, dynamically changes in a game and follows the variations of game state variables. According to the research, these variables relate to appraisal determinants, factors influencing the emotions resulting from a player's assessment – motive-consistent versus motive-inconsistent events, their expectedness versus unexpectedness, certainty versus uncertainty, and so on [6]. This thesis utilized those determinants as guidelines for designing the project successfully towards the intended emotions.

While Perron explores emotions in story-driven games, N. Lazzaro presents four keys to generate emotion in games without necessarily relying on narrative [7]. Her research involves a cross-genre study to determine why people play games. She identified over thirty different emotions coming, not from story background, but from gameplay. The results reveal a Four Keys system for unlocking emotion in player's visceral, behavioral, cognitive, and social responses to games: "Hard Fun" (frustration and fiero), "Easy Fun" (wonder, awe, and mystery), "Altered States" (excitement or relief) and, "People Factor" (amusement, schadenfreude, and naches). Furthermore, Lazzaro discusses the importance of those Four Keys in terms of game design for generating emotion through player choice in the different moments of gameplay [7].

Although these three studies take different approaches to determine and structure the relationship between games and emotions, they end up having similar outcomes, establishing emotion types and stimuli that interrelate to each other. This project utilized several different parameters they provide as both a framework to design the experience, as well as, a criteria set to evaluate the further obtained results.

B. Field Review

After researching and selecting models that provide the necessary criteria for designing and evaluating this project, the next step is to examine games that either successfully used the emotional approach or delivered feelings often absent in the medium. Deconstructing these games helped in understanding the overall process of emotional design, while gathering information about its advantages and pitfalls.

Cloud

The first game discussed is *Cloud* [8]. Developed by T. Fullerton, et al. during their research on emotional design [2] and then acquired by thatgamecompany (TGC), this indie title makes players experience the imagination of a kid in a hospital bed, using mechanics such as flight and cloud shaping to evoke happiness, tranquility, and sadness. It had more than 500,000 downloads over the internet, reaching an audience across different genres and ages. The developers received a large amount of feedback from players, showing gratitude for the provided experience and describing the different kinds of sentiments felt [2, 8]. *Cloud* is an example of a successful emotion-centric title. Through designing the game around joy and serenity, the developers were able to create an innovative mechanic, successfully delivering the intended player experience and contributing to the emotional spectrum covered by the medium.



Figure 4 - In-game screenshot from *Cloud* (2006), where players fly freely while shaping the clouds.[18]

Journey

TGC also developed the critically acclaimed *Journey* [9], an adventure game, in which players take the role of a nameless hero during his journey through ancient ruins, uncovering the mysteries of a lost civilization. Originally released for Playstation 3 (2012) and ported to Playstation 4 (2015), *Journey* became the fastest selling game ever released on PlayStation Store in both North America and Europe and received many different awards, such as the 16th D.I.C.E Awards' "Game of The Year" and "Outstanding Innovation in Gaming" [10]. It was one of the first games to make developers question the medium as a new art form, able to reach wider audiences under different emotional aspects. Its gameplay involves fluidity and transition between different feelings along the traditional hero's journey emotional arch. Players are able to gently slide over sand dunes and glide over the enigmatic remaining pieces of architecture. They can also use musical notes to interact with the environment and/or establish a communication channel with other players. Throughout the game, these mechanics, combined with level layout, color palette, sound effects, and

many other elements, generate a very solid set of emotion states.



Figure 6 – *Journey* (2012): players glide over the sand dunes, interacting with other players and the environment. [9]

N. Harper discusses the game’s traditional emotional curve: intro, turning point, low point, development, and climax [3]. He shows how it follows that concept and delivers the intended emotions. While the beginning (intro) is joyful and delightful, the turning point takes players to a frightening and sad state (low point), followed by a development and climax that bring them back to the initial state. That emotional curve’s peaks and troughs control players’ emotions, using an interactivity and environmental set – art, audio, and gameplay combined - to create the desired mood. Harper points out that even the world general topology follows the emotional curve, as does the art coloration, day-night cycle and movement limitations. Finally, he explains the importance behind highs and lows to make the game more interesting and the thatgamecompany’s design decisions to accommodate those twists within gameplay and other secondary means. Darker, cool colors mixed with solemn background music and low path level flow antagonize lighter, hot colors, up-beat music and high path level flow, symbolizing the contraposition between sad and joyful moments, one of the key aspects behind *Journey*’s success [3].

Proteus

In a more experimental approach, *Proteus* also broke the frontiers of the traditional industry [11]. Developed by Ed Key and David Kanaga (Curve Digital), *Proteus* is an open-world, walking simulator game where players explore a mysterious, procedurally generated island from a first-person perspective, discovering its secret mechanisms. With simplistic pixel-inspired graphics and unique musical attributes, the developers aimed to create a non-violent, immersive world, where players could experience the sensations of joy, tranquility, and wonder. During gameplay, players feel sublime and delighted, without any sense of danger, anguish, or fear – there is no source of harm/threat. Players only need to explore the environment in their own time, while enjoying the symphony procedurally generated by their interaction with it. *Proteus* had a very positive reception, featured in many different indie game festivals and scoring high ratings in the critics [16]. It is a valuable example of title that was able to deliver non-traditional

game emotions without relying on narrative – there is no indication of story/premise throughout the game.



Figure 5 – *Proteus* (2013): example of how the game aesthetics (pixel art and tones) create an emotional atmosphere. [11]

Brothers, a Tale of Two Sons

Brothers: A tale of two sons is another example of successful emotion-centric title [19]. Developed by Starbreeze Studios and released for a wide range of platforms (from Xbox360 to Windows Phone), this adventure game tells the story of two brothers looking for a cure to their father’s lethal disease. Although narrative is one of its key emotional aspects, *Brothers* wraps up its final moments with a mechanic twist with heavy emotional impact. Throughout the game, players control each brother individually. The joysticks’ left thumbstick and trigger control the older brother’s movement and interactions respectively, while the correspondent right buttons control the younger brother’s respective actions. While the older brother is stronger, being able to pull levers or boost his younger brother to higher areas, the younger brother can fit in narrow areas. By controlling both brothers simultaneously, players solve traversal puzzles and progress in the game.



Figure 7 – *Brothers* (2013): players must control both brothers cooperatively to progress. [19]

However, towards the end, after they reach their goal, the older brother dies, leaving his younger sibling alone to take the cure back to their dad. Then, players must face several

challenges using only the younger brother. At that point, when players utilize the joystick's left trigger button, the younger brother is able to perform actions done before by the older brother. This mechanic has a strong emotional impact, creating a metaphor of growth and overcoming, while tying together the game's final story beats.

Fable 2



Figure 9 – Fable 2 (2008): The dog plays a key role in terms of emotional attachment. [28]

Fable 2 is an action role-playing game, released on 2008 by Lionhead Studios and published by Microsoft Game Studios [28]. The third title of the *Fable* series, this open-world game focuses a lot on the idea of companionship between the main character and his/her dog. In *Fable 2*, players are able to rename the dog, give it collars, and teach it new tricks. Moreover, the dog helps them in combat and finding buried caches, treasure chests, and some quest objectives. The canine companion plays an integral part in the story, enhancing the emotional link between players and the game world. Very well received, *Fable 2* earned many awards, attaining the status of best-selling title in the United States during its debut month [27].

On top of adding to players' attachment, the dog also is an important element in the story end, as it sacrifices itself to protect the hero from a bullet shot. Later in the game, players have the choice to bring the dog back to life, but gaining no reward for it (no gold). This way, *Fable 2* utilized the companion as a powerful tool to create both emotional situations and make players face moral dilemmas.

Thralled

Initially developed as a senior project in the USC Interactive Media & Games Division, *Thralled* is a side-scrolling platform puzzle game about an 18th Century runaway slave mother escaping the Portuguese slave trade with her baby [20]. Expected for 2016 in Ouya, OS X, and Microsoft Windows, this game received several awards and nominations for its innovative approach to such a serious topic as slavery.

In *Thralled*, players take the role of Isaura, being able to move and manipulate obstacles in the environment to complete the puzzles and escape. However, in order to do that, they need to relinquish her baby temporarily. When the baby is down, a

dark, eerie version of the main character appears and starts closing in on the child. Players need to stop whatever they are doing to go back to the baby and hold it back. Otherwise, if the ghost reaches the baby first, it is gone forever.



Figure 8 – Thralled (TBA): Isaura needs to relinquish her baby to solve the puzzles and take them to a better place. [20]

By establishing an immediate emotional bond with players through the relationship between mother and child, on top of such horrible scenario, Brazilian colonial era of slavery, *Thralled's* simple but meaningful mechanics evoke the feelings of guilt and despair on players [21, 22]. Although necessary as a mean to take Isaura and her child out of that miserable situation, the act of putting the baby down, making him vulnerable to outrageous threats, brings a sense of guilt to players. In that way, Isaura's dark version contributes to the despair while also representing the main character's, and players', own regretful and fearful feelings.

Papers, Please

Independently developed by Lucas Pope, *Papers, Please* is a puzzle-like simulation game that depicts the work life of an immigration inspector at a border checkpoint for a fictitious country of Arztozka [23]. Winning many awards after its release in 2013 for its innovative design and narrative, this title focuses on the emotional tolls of judging whom is whether or not allowed to enter Arztozka. Players can inspect candidates' documents, use several tools to examine their papers, demand further information – through interrogation and other procedures, and require their arrest or even execution. All of that in order to keep individuals such as terrorists and criminals out of Arztozka. In addition, players earn a daily salary, which scales up with how many people they have processed plus bribes received from some of them. They must use that money to pay for food, heat, and other necessities for their family.

Within that gameplay scenario, players face many moral dilemmas, as they hear the candidates' reasoning about why they should enter. Often, candidates lacking in documentation tell sad stories that may or may not be true. Accepting someone who does not have the proper papers might mean accepting a terrorist to their country. On the other hand, denying someone in the same situation might also mean denying their unique chance to see their families again. Moreover, players cannot



Figure 11 – *Papers, Please* (2013): players face moral dilemmas when determining the fate of immigrant candidates. [23]

spend much time evaluating each candidate: they need the money to take care of their families. This way, *Papers, Please* successfully recreates a scenario of pressure, in which players are forced to take hard decisions, balancing between their families and the country's safety, and often feeling guilty about either the possibility of punishing innocent people or not having enough money to feed their relatives.

C. Summary

In conclusion, the use of current literature on games and emotions as well as the inspiration from successful emotional titles allow this thesis provide an effective non-traditional game experience based on emotional design. While J. Frome's work provides a useful tool to determine the type of stimuli needed in game [5], N. Lazzaro's study allows for narrowing down the project to specific sets of emotions (one of the Four Keys) [7]. Moreover, B. Perron's appraisal determinants suggest a process to evaluate moment-to-moment of the intended gameplay experience [6].

Merging research with previous design approaches used by the aforementioned games creates an adequate framework for developing a successful project, reinforcing emotion-centric design as a powerful method for creating games and pushing the boundaries of the medium through a more innovative gameplay based on new sentiments in the video game space. The next section depicts the methodology used for achieving that goal, explaining how the gathered guidelines apply to the project.

III. METHODOLOGY

The game development industry is always facing new challenges. One of the current issues is that games should explore a broader emotional spectrum, digging into the complex aspects of human condition [12]. This emotion-centric design is a new approach to the development process, focusing on the player experience and message delivered by the game [3]. It opens up opportunities to explore different sentiments, which are a novelty to the development context [1]. In addition, it allows developers to widen the current limited emotional coverage of the industry, creating more compelling experiences

that tie gameplay to other emotions (rather than empowerment, excitement and thrill) [13].

Regarding the current emotional spectrum, T. Fullerton et al also points out how emotions such as happiness, sadness, and tranquility are underdeveloped in video games, especially when it comes to a tool different from cut scenes [1]. As a way to validate the emotional design approach, as well as, to widen the medium's range of feelings, this thesis aims to demonstrate its applicability by developing a gameplay experience with core mechanic based on guilt and sadness. The study seeks to answer the challenge of evoking such non-traditional emotions using mostly game mechanics, with just a bare minimum of narrative support. Thus, the developed artifact requires two fundamental aspects: players' attachment and morally questionable situations (in terms of the artifact's established moral code).

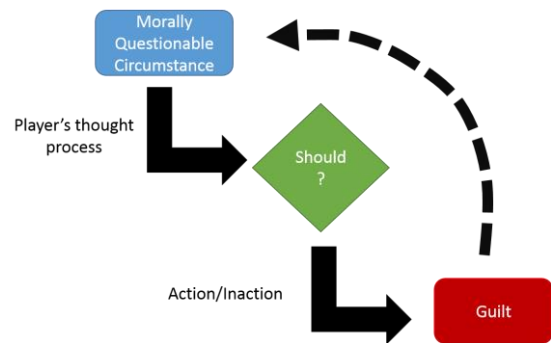


Figure 10 – *Guilt Cycle*.

Although some degree of players' attachment is key for immersion in any title, an emotional experience requires an even stronger link between players and in-game entities in order to, successfully, affect them in personal boundaries [25]. Moreover, the experience needs to provide players with a moral code, establishing what, in general, the world considers right. Then, it creates circumstances that are not clearly right or wrong in relation to that conduct, giving players options of action or inaction towards those settings. Finally, by seeing the consequences of their choices, players experience the sentiment of guilt and sadness [14]. As figure 10 depicts, this process, called Guilt Cycle, occurs several times, under different circumstances, in order to make players feel the mentioned sentiments.

A. Artifact and development process

The artifact for this thesis is a single-player level for *The Elder Scrolls V: Skyrim* [24], built using the Creation Kit editor and a base mod called "Playable Children PLUS" [26] – this mod, made by Kristoffer, provides children as playable characters, which is a non-native feature in *Skyrim*. The artifact evokes the intended emotions by using the idea of companionship and sacrifice: players control a child giving orders to a companion dog, in order to help both to overcome environmental threats. The core mechanic consists of using the companion to access areas that the main character cannot reach, establishing a cooperative gameplay style, where both players and dog help each other to progress.

The player's attachment arises from the relationship between main character and his companion. Through the traditional story of a boy and his dog, the designer used a common place to establish an immediate emotional bond between players and the characters. Although choosing a dog partner narrows the target audience, it also increases the likelihood for that audience to engage the artifact emotionally. This is very important, especially considering that the artifact could not dedicate much gameplay time to develop the characters. While the child represents innocence and vulnerability, a character who does not have an adult's strength and experience to fight back, the dog represents his guardian and emotional support. Moreover, the dog's abilities increase its value to players, adding to their emotional bond. The level evokes guilt by forcing players to put the dog in danger, as traps may hurt, and, eventually, kill it.

1) Artifact Overview

The artifact twists the usual *The Elder Scrolls V: Skyrim* gameplay style, delivering a single-player, 3rd person-perspective, side quest, with an exploration-based gameplay different from the original game. In this level, players take the role of Ixion, a farm boy, followed by his dog companion Reus, in their emotional journey to survive the threats of wild nature. Traversing hostile scenarios such as snowy mountains, ice caves and mechanical ruins, players need to combine the abilities of both characters in order to make it back home.

Players are able to control Ixion directly, walking/running and jumping around with him. However, they are not able to attack at all. In addition, they can interact with elements in the environment by pressing 'E', as well as, command Reus using mouse buttons. The dog has three different behaviors:

- **General behavior:** Reus generally follows Ixion around
- **Left mouse button (sniffing):** Reus explores the area, stopping by any interesting element within a certain range – traps, important items, buttons – activating them if that is possible. An interesting element does not necessarily hurt Reus, but it may do
- **Right mouse button (come back):** Reus runs back to Ixion, getting close to him – used especially to bring Reus back after a sniffing command, as it cancels the former

As an NPC, Reus cannot die throughout the game. The companion can get hurt. However, in the end of the level, the dog cannot survive the last threat and ends up dying – this is unavoidable. Moreover, players can interact with the dog by pressing 'E', which allows them to check the dog's state and pat it on the head, cheering it up. The researcher added this mechanic later, based on feedback – more details on sections IV (**Data Analysis**).

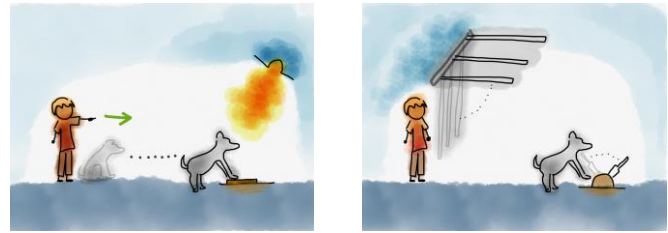


Figure 12 – Main character orders the dog to sniff around – interesting point: pressure plate or lever.

Based on these core mechanics, the author built the thesis artifact, through iterative design process, involving feedback from advisor and testers.

The artifact contains the following general emotion flow, which describes the emotional intensity intended for players throughout the level:

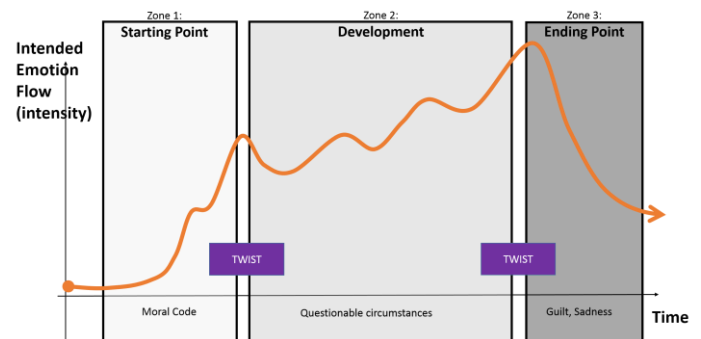


Figure 13 – Artifact's intended emotion flow.

Zone 1: Starting Point – Players learn the game mechanics and premise, establishing the moral code considered right in that world. This zone corresponds to the tutorial and aims to establish the foundation of the relationship between players (Ixion) and the dog companion. It also foreshadows that Reus can get hurt.

Zone 2: Development – Followed by a twist moment from the previous area, players begin to face situations that force them to break their moral code. This zone presents a change of tides that put both player and dog in danger, introducing them to the dungeon, its mechanisms, and traps. It brings players to situations where they end up hurting their companion, creating circumstances that tend to make them feel guilty. These questionable circumstances build up for the ending point, slowly preparing players for the dog's death.

Zone 3: Ending Point – After a cooldown transition, players go through a last zone, where they face a final gameplay situation that forces them to break their moral code completely (twist). In this scenario, players need to kill the dog in order to progress. After that, they advance towards the dungeon's exit, finishing the quest.

With the established flow, the researcher designed a group of maps and a level flow summary (Figure 14, 15, 17, and 18) – available in more details in the appendices (Level Abstract) – created to support the emotional gameplay experience.

Level Overview

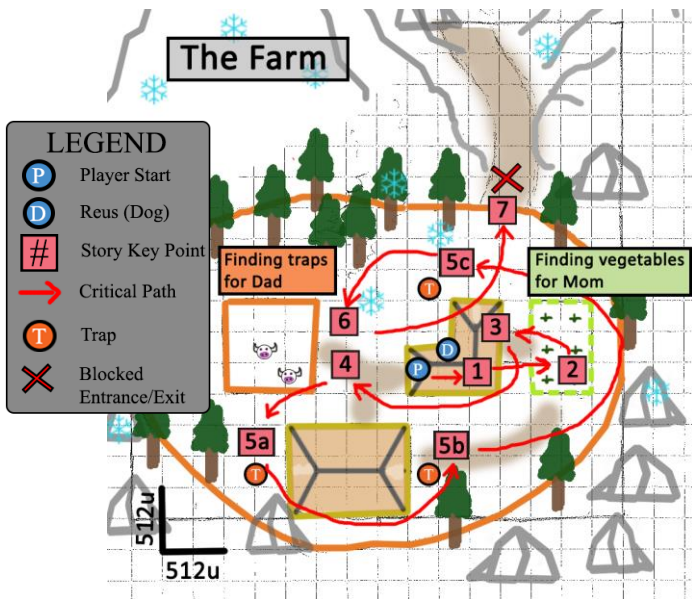


Figure 14 - Overview Map (The Farm).

1. Introduction: Players start the level in Ixion's house. They meet Reus and Eva (Ixion's mom). Eva asks for their help to get some vegetables so she can prepare food for Ixion's trip with his dad, Adam
2. Tutorial 1: Players have their first tutorial about Reus' Sniffing mechanic (finding items), looking for vegetables that Eva asked for
3. Tutorial 1: On the way back, players get a reinforcing message about the Comeback mechanic. After giving the vegetables back to Eva, she asks them to find Dad and tell him to meet her in their house
4. When players find Adam, he is taking care of a cow that died because of a bear trap. Then, he requests Ixion's help to look for the traps around the farm and come back to tell him exactly where they are
5. Tutorial 2: Players have their second tutorial, which reinforces their knowledge on Reus' commanding mechanics while also showing that the companion can get hurt (5a, 5b, and 5c on the map indicate the location of each trap)
6. Tutorial 2: After telling Adam about the traps' exact locations, he tells Ixion to go pack for their travel. The quest teleports players along with Reus back to Ixion's house.
7. Transition: Players leave the house and meet Ixion's mom and dad in the farm's exit, before they leave with Adam to the town village. Then, Ixion and his dad leave, Reus following them

8. Turning point/call to action: On the mountains, players wake up hurt and dizzy. First, they find Reus, barking

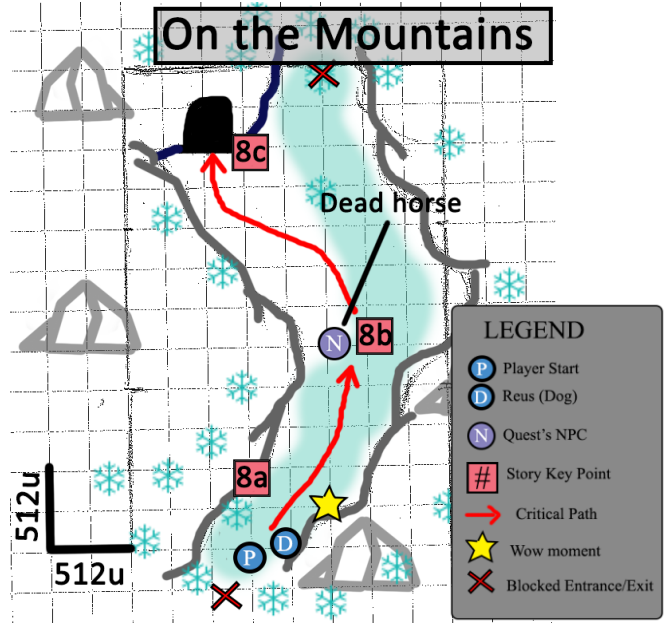


Figure 16 - Overview Map (On the Mountains).

- to wake them up (8a). Then, they see the cart broken, along with a dead horse (8b) and a trail of blood towards the entrance of a cave (8c)
9. Turning point/call to action: looking for Ixion's dad, they follow the trail, entering the cave. There, they find the dead corpses of Adam and a bear. While still facing the tragedy, boulders fall near the cave entrance, trapping players and Reus in the ruins, forcing them to find their another way out

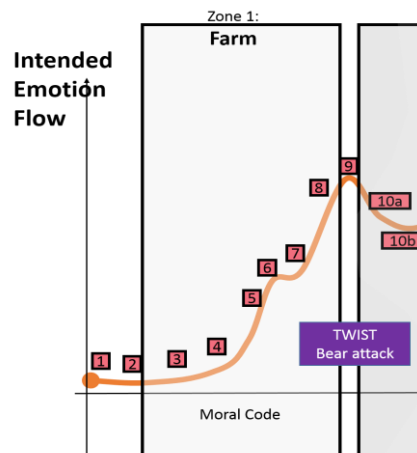


Figure 15 – Zoomed intended emotion flow (key points 1 to 9).

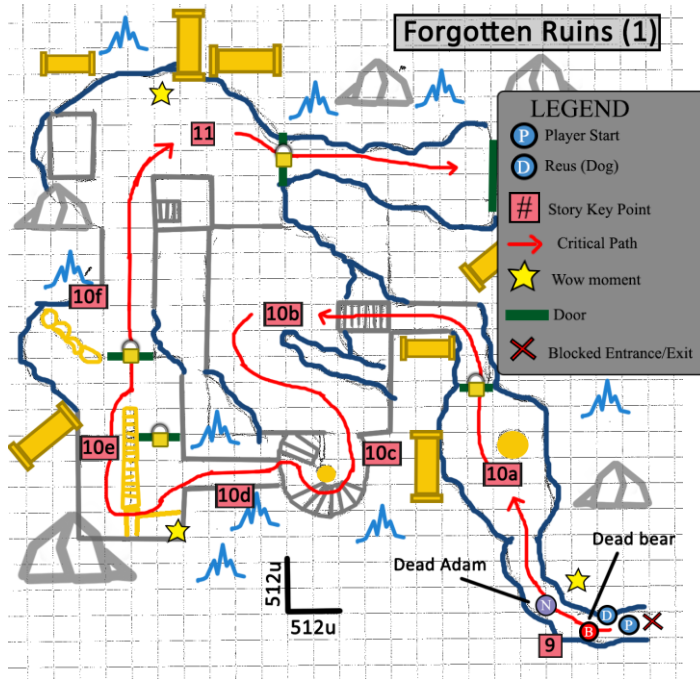


Figure 18 - Overview Map (Forgotten Ruins 1).

10. Players need to go through a series of traps, trying to get out alive. Throughout this process, they must use Reus abilities, very likely, hurting the dog (guilt moments). Key points 10-a to 10-f work as tutorials, presenting the dungeon's traps and the puzzle pieces used throughout the quest
11. Towards the end of this area, players encounter the first actual puzzle, which challenges them to combine

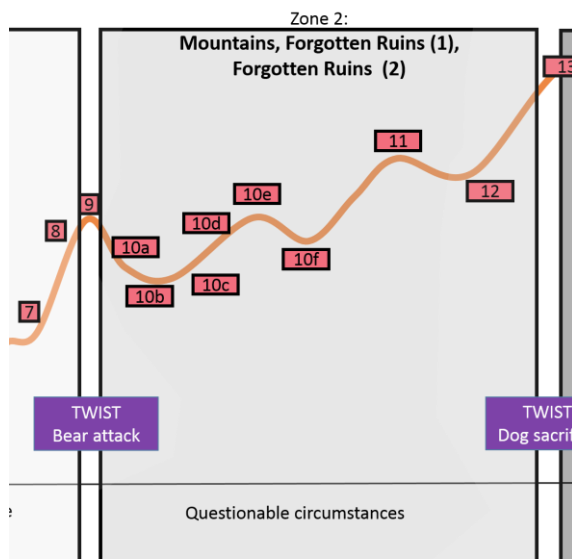


Figure 19 – Zoomed intended emotion flow (key points 10 to 12).

both Ixion's and Reus' abilities, while actually forcing

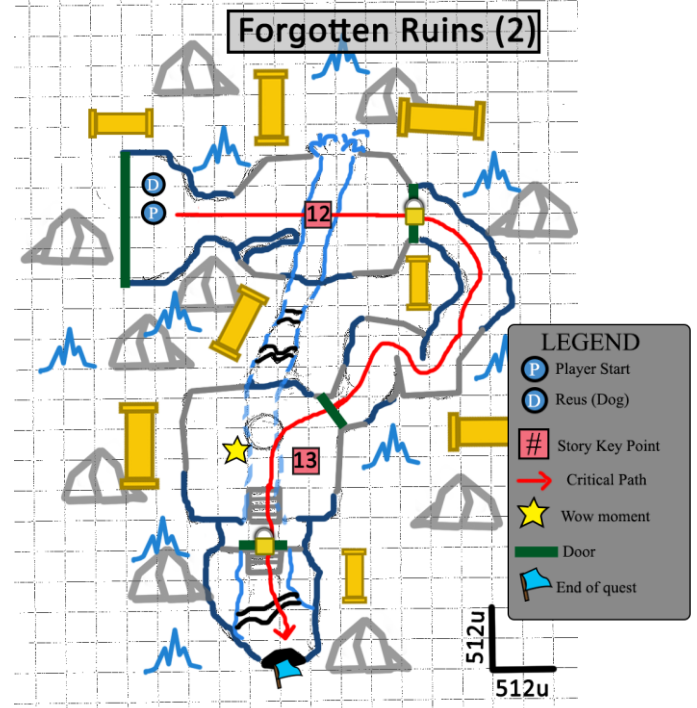


Figure 17 - Overview Map (Forgotten Ruins 2).

12. This area has another puzzle that involves cooperation between players and the companion. However, in this case the dog does not get hurt
13. Climax: In this last puzzle, players need to sacrifice Reus to open the door, which leads to a path to the

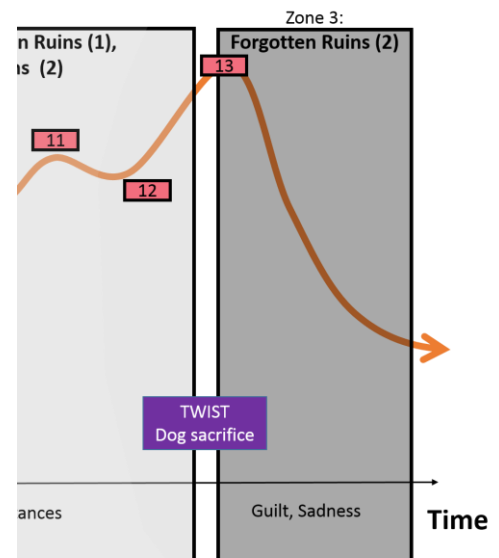


Figure 20 – Zoomed intended emotion flow (key points 13).

outside of the cave. As players leave the dungeon, the quest ends.

Overlapping this level overview with the emotion flow presented in figure 13, the artifact ends up consisting of the following diagram, which is a cleaned up representation of all previous zoomed flows together, containing only the most important moments of the quest.

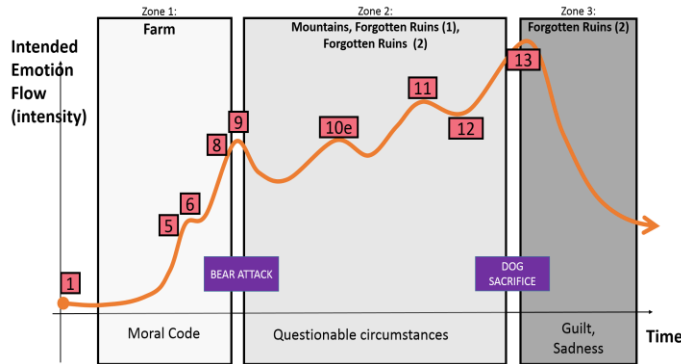


Figure 21 - Overlap between intended emotion flow and level overview.

2) Development Process

Using the Level Abstract as a starting point, the researcher began the level building process, according to the following milestones:

Whitebox: Laying out the geometry, creating the main playable spaces, and introducing the major gameplay beats. At that stage, the level seemed to be excessively large. However, both researcher and advisor decided to reevaluate that after the following milestone.

Gameplay: Making it playable from beginning to end as well as adding most important visual elements. As foreshadowed by the previous milestone, playtest sessions proved the original level to be out of scope both in terms of gameplay and development time. The maps presented before actually correspond to the final version – the quest original design, available in the appendix VIII, involved one more set of mechanics and a larger gameplay area. Trimming the quest proved to be the right choice later, as players were able to test it in a feasible time, focusing in one simple set of mechanics.

Gameplay2: As part of the original design changed, both researcher and advisor agreed on a second Gameplay milestone, focusing on rewriting areas/sequences based on mechanics no longer used. At that point, as the level was not completed, playtest sections did not serve the purpose of evaluating its emotional aspects. Rather, they focused on the quest's mechanics and progression. Playtest showed testers engaged the experience but got lost several times. Their main comments consisted in lack of feedback from mechanics and confusion to distinguish between situations to use the dog and the main character. On top of that, they had issues with the quest collision, getting either stuck in some areas, or reaching others,

which they should not. That was the result of the asset limitations, made to build for adult-sized characters. Players also felt cheated with the dog's death, as there was no clear indication that was going to happen.



Figure 22 – Dialog lines and blood splatters.

Aesthetics: On top of adding the majority of visual elements, such as small clutter and particle effects, the researcher addressed the feedback gathered from the previous milestone during the Aesthetics milestone. The author added audio cues and subtitles to the dog commanding mechanics, better distinguishing moments that Reus found something from moments that it did not find anything. In terms of the collision issues, blocking volumes helped building reliable paths, preventing players from being stuck and using weird edges to beat the quest. Moreover, the visual pass contributed to clarify both areas where only the dog can reach and situations that it can get hurt, signaling to players that Reus was in danger (figure 21).



Figure 23 - Interacting with Reus.

Playtest showed that such changes significantly contributed to gameplay, but players still pointed out a lack of purpose and context throughout the quest. Moreover, they felt that Reus did not have enough soul, neither personality, which made it look like a tool, instead of a companion.

RTM (Gold): Addressing the issues indicated before and adding the last visual beats to the quest. In order to finalize the artifact, the researcher added monologue lines for the main character throughout the level – these did not have voice over, as the designer did not have the time resources for such, though,

if done right, they could definitely enhance the overall experience. These lines gave players a better sense of context and purpose, as well as contributing to their relationship with the dog. Another important addition was the ability to interact with Reus, asking how it felt and being able to pat its head (figure 23). Such interactions gave more personality to the dog and allowed players to appease their consciousness when putting the companion in danger. On top of that, the researcher added whining sounds for moments when the dog got hurt, contributing to its overall presence in the world as a companion.

After that, the artifact was complete and ready for verifying its emotional effects. The author performed two weeks of playtest – 23 testers – to collect enough data for evaluating the level effectiveness. The following section summarizes the results and analyzes them.

IV. DATA ANALYSIS

In order to gather the appropriate data, each tester completed a survey after finishing the quest – the survey had questions such as:

- “Have you played *The Elder Scrolls V: Skyrim* before?”
- “On a scale of 1-10, how much did you like the level?”
- “Please, describe Reus, the dog, using three adjective”

The 32 questions are available in the appendix VII - Playtest Survey. In addition, the researcher took notes of what testers said and did throughout the playtest. Crossing the collected data, this section provides the results both in terms of general gameplay as well as in terms of the level’s emotional impact.

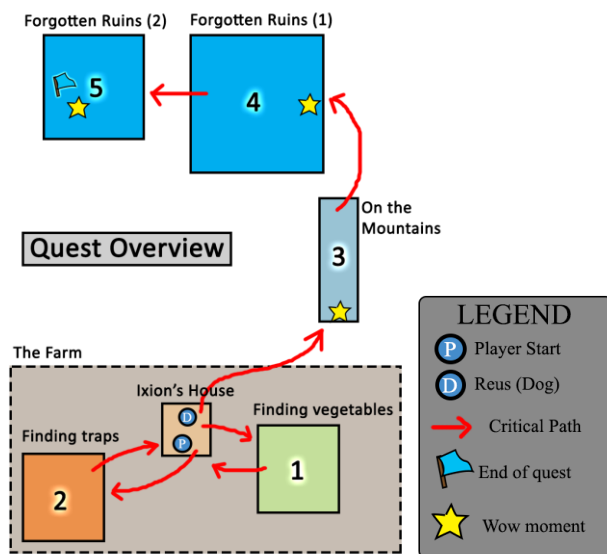


Figure 24- Quest overview according to the different areas.

The above picture depicts the overview of the quest’s gameplay areas. Each number corresponds to a challenge that players had to overcome. Next sections break down each of

those areas according to the analysis of the gathered feedback data.

A. Gameplay-related Results

The tester’s pool consisted mostly of game developers, who were very familiar with exploration and puzzle games, the two genres in which the quest reside. Complementarily, the vast majority of the testers have played *The Elders Scrolls V: Skyrim* before. These facts show that the background knowledge necessary to play the quest was not an issue among them, guaranteeing that unfamiliarity with the artifact’s genre did not harm its gameplay and emotional impact.

The survey’s first set of questions – for example: “How clear were the dog commanding mechanics?” – aimed to track players’ overall gameplay experience, identifying elements such as their perception on the mechanics and how they worked, difficulty curve, and moments of frustration. These elements influence how players experience the level, possibly preventing it from achieving the intended results – i.e., players who do not understand the mechanics suffer in the puzzles, feeling frustrated throughout the quest, and ignoring any other feeling.

The playtest demonstrated that most of testers did not have gameplay issues with the quest, finding the artifact extremely enjoyable. Moreover, those that did not enjoy the artifact as much usually tended to identify the genre as far from their favorite.

Testers also showed no major issues with the game mechanics – sniffing and calling Reus back commands. Most of them considered the mechanics very clear, intuitive, and easy to use. The fact that the dog could find non-typical items did not break their immersion, as most of them did not even consider that strange. They pointed out how the text and child sound effects – i.e., Ixion saying, “Go, boy!” – really contributed to the immersion and worked well as feedback, with the tutorials helping to explain the mechanics. On the other hand, some players got confused about how to use the dog: they thought the sniffing worked around the cursor position and they mentioned that the dog would not behave properly sometimes. The researcher concluded that one of the major causes of those issues was the game’s legacy – the fact players had certain expectations based on how *Skyrim* plays affected their mindset towards the mechanics. As they worked as spells, some testers thought they could either target the sniffing area with the cursor or hold the mouse button to keep Reus searching the area. On top of that, the development tool – CreationKit – provided limited control over the dog behavior, which hindered the author from preventing weird actions for Reus’ AI.

Along those lines, the survey evaluated how effective were the two tutorial parts in terms of teaching the mechanics.

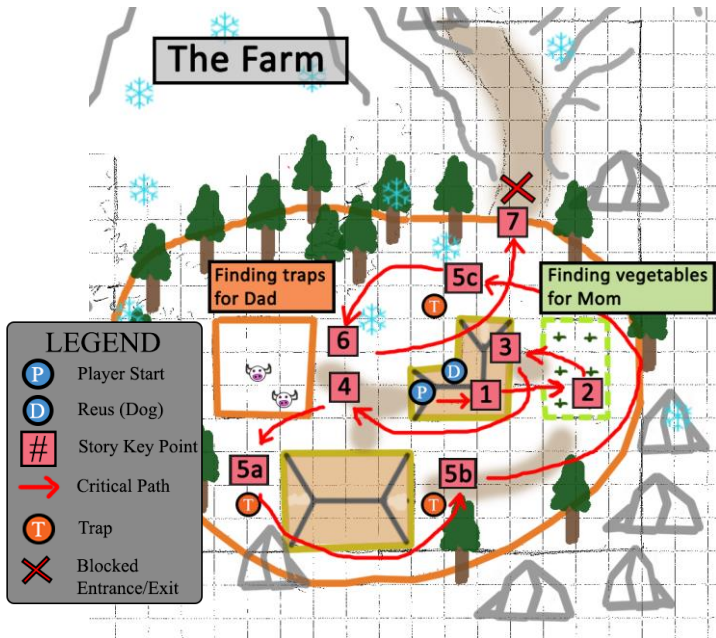


Figure 26 - Overview map (The Farm) – Tutorials.

Finding vegetables for mom: Although some testers found it too simple and commented that Ixion’s mom could reinforce Reus’ abilities, in general, testers thought this tutorial was helpful, introducing the mechanics considerably well.



Figure 27 - Finding vegetables tutorial.

Finding traps for dad: This tutorial was a lot more controversial, with some players considering it very helpful, while others found it unnecessary. The former liked how it reinforced the mechanics, showing its range, as well as, that fact that Reus could get hurt and players could pat him on the head to make him feel better. On the other side, many players considered the tutorial a blind search and commented that was unnatural for the dog to find a trap and still step on it. Others also mentioned lack of consistency in trap placement, and lack of narrative reasoning for the tutorial.

Analyzing the feedback, the researcher inferred that, despite mechanics-related issue – already discussed – the tutorials should have been more specific: the current implementation of the mechanics make them hard to use in open spaces, where players do not have a clue where to go/search. Finding



Figure 25 - Finding traps tutorial.

vegetables seemed to provide a good introduction because it was a very specific area, the plantation. While finding traps covered the whole farm, making players feel lost in regards to whether or not the mechanics were actually working. The fact that Ixion’s dad gives clues about traps’ location only if asked did help players, but only after a long time of search and frustration. Further adjustments should encompass a more grounded tutorial, where players do not feel lost and know where to go.

In terms of gameplay, players also pointed out the areas they liked the most as well as the least in both first and second parts of the dungeons (Forgotten Ruins). These areas corresponded to challenges of the level – ranging from the most simple, to the most complex ones.

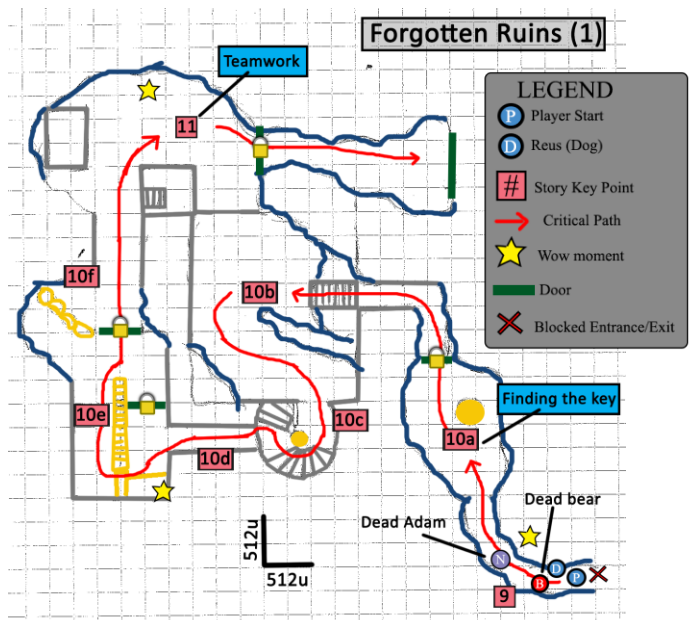


Figure 28 - Overview Map (Forgotten Ruins 1) - Puzzles

Forgotten Ruins 1: Most of testers liked the last challenge (11th key point) better, they considered it more complex, and liked the fact they had learned every puzzle piece at that point and then, could use it.



Figure 32 - Puzzle 11: "Teamwork".

In addition, players enjoyed a lot the teamwork aspect of the puzzle, mentioning that its cooperative element added more to the relationship with Reus.



Figure 31 – Puzzle 10a: "Finding the key".

On the other hand, the feedback towards an area players liked the least was very mixed. The majority considered "Finding the key" (key point 10a) their least favorite, since they had a hard time to find it and some even did it without the dog's help. This reinforces the previous discussion about how the mechanics do not work very well in open spaces, where players do not know where to look. However, among the contrasting feedback, there were players who pointed "Teamwork" (11th key point) as their least favorite, because they did not think that burning the dog was right. That shows a stronger bond between players and their companion.

Forgotten Ruins 2: As there were two areas only, testers just had to indicate the one they liked the most. In that sense, feedback was disparate. Although most liked the first challenge better (12th key point, also known as "Teamwork 2"), many others pointed out the last (13th, aka "Sacrifice") as their favorite. Moreover, neither areas presented gameplay-related issues – most players traversed through them without major problems.

Players who chose "Teamwork 2" said it also had a lot of collaboration, with interesting layout, that made them work together with Reus to advance. Another major reason for them was the fact that their companion did not get hurt throughout

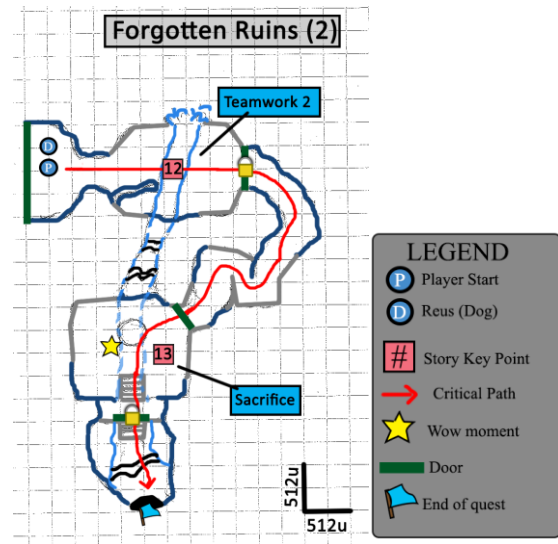


Figure 29 - Overview Map (Forgotten Ruins) - Puzzles

the puzzle, in opposition to both previous and next areas – some players even mentioned not liking "Sacrifice", because the dog dies. Then again, testers who liked "Sacrifice" better indicated their appreciation for its visuals and cinematic moments in addition to its balance between satisfaction and loss. Players found that the simplicity of the puzzle gave them a false sense



Figure 30 - Puzzle 12: "Teamwork 2".



Figure 33 - Puzzle 13: "Sacrifice".

of security, which contrasted well with the moment of loss, when Reus dies.

The next section investigates the emotion-related results, talking about the moments where players felt the saddest, and their heartbeat accelerated.

B. Emotion-related Results

After answering gameplay-related questions, players also provided feedback more specific about how they felt throughout the level. The survey encompassed the artifact’s key moments, from its beginning to end, summarized in the following diagram:

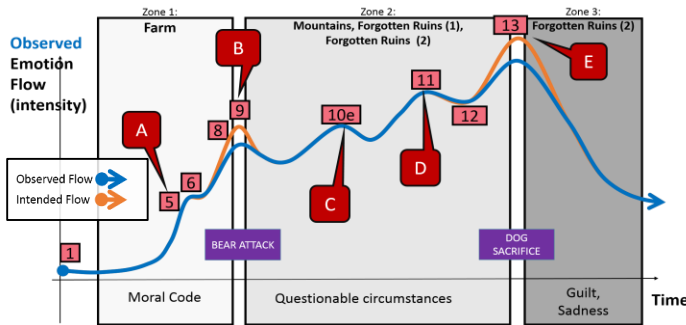


Figure 34 - Observed emotion flow with callouts for the high moments: A: Finding traps; B: Seeing dad’s corpse; C: Pulling the lever; D: Burning the dog (pressure plate); E: Killing the dog.

As the picture above indicates, the observed emotion flow (blue) differs in certain points from the one intended (orange). These points are “seeing dad’s corpse” and “killing the dog”. The author investigates those differences throughout this section.

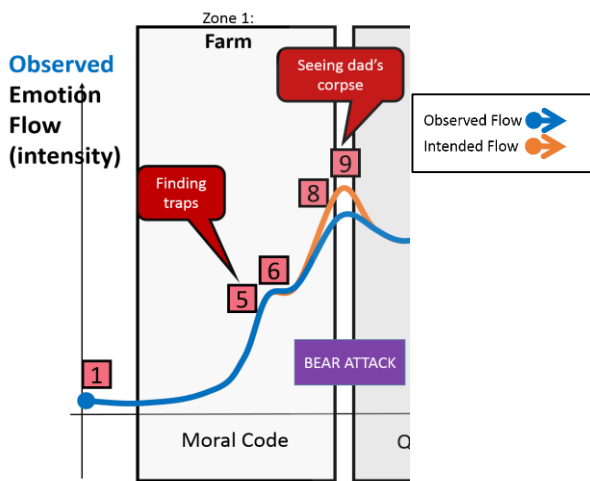


Figure 36 – Zoomed intended x observed emotion flow (1 to 9).

Players finding traps for Ixion’s dad is the first moment with intense emotion, because that is the first time Reus gets hurt. When asked about such moment, most of testers felt sad about

it, using words such as inquietude, discomfort, and guilt to describe their feelings. They mentioned how sounds (dog whimpering) really contributed to that effect. On the other side, there were players that considered Reus dumb for being able to detect traps, but still get caught on them. Moreover, some found unrealistic that it could take so much damage without dying.

Following up, the next high moment is waking up in the middle of the mountains, during a snowstorm, and finding out the Ixion’s dad gave his life to protect his son, killing the bear that attacked them.



Figure 37 - Dad is gone.

Regarding this moment, the majority of testers commented that there were not enough moments with Ixion’s dad to make them feel attached for him. In general, they felt sad for Ixion – a kid losing his father – but expected that from the trail of blood that led them into the cave. This goes along with how players also expressed themselves about interacting with both Ixion’s parents: they pointed out such interactions were mostly neutral, neither adding nor harming the overall experience.

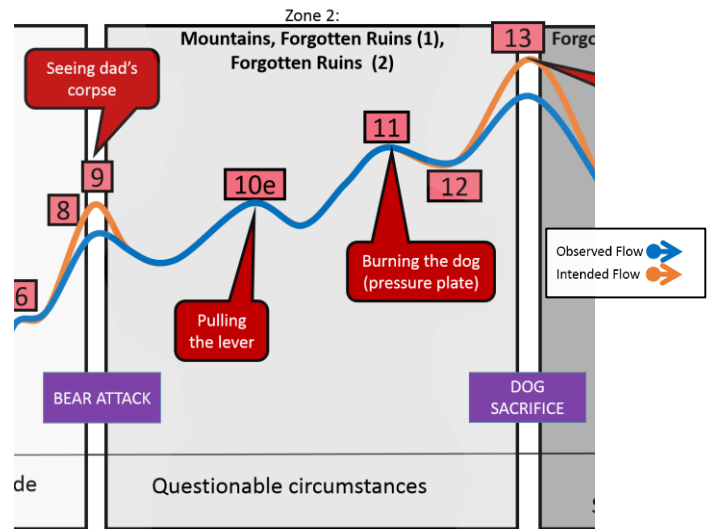


Figure 35 – Zoomed intended x observed emotion flow (10 to 12).

A while after, players encounter the next intense moment when they pull a lever to open the gate for Reus, which ends up

also triggering flamethrowers that burn the companion. Most of testers felt terrible and surprise about that, using words such as sad, awful, and a “sense of regret” to describe their emotions. A couple of them tried to call the dog or to push the lever back in order to protect it.



Figure 40 - Pulling the lever and burning Reus.

However, a common feedback for several players regarding not only that situation, but also others where Reus got hurt was that testers started getting used to them and to the idea that the companion was invincible. The author discusses that aspect of the artifact in details later in this section.

By the end of Forgotten Ruins 1, players go through the last emotional-intense moment for that part, when they have to solve a puzzle using both Reus' and Ixion's abilities. However, in that process, Reus needs to step on pressure plates that also trigger flamethrowers, which hurt the canine.



Figure 38 - Teamwork requires players to burn the dog.

Again, most players felt terrible – upset, sad, awful – while others described themselves as surprised and uncomfortable. Some testers also mentioned how powerful the sound effects were, even with the dog not reacting to the fire visually. They said that, although the dog animations did not show it was in pain, its constant whimper made them anxious. In addition, the researcher notice that players tried to save the dog, either calling Reus back immediately after activating the plates or trying to take its place to solve the puzzle. Along those lines, they commented on how they would like to do that in order to repay Reus for its efforts.

On the other hand, there were testers who considered the situation unnatural, finding that the level forced them to take such actions. That way, they felt burning Reus was just a step of the puzzle, especially because the dog seemed to be invincible.

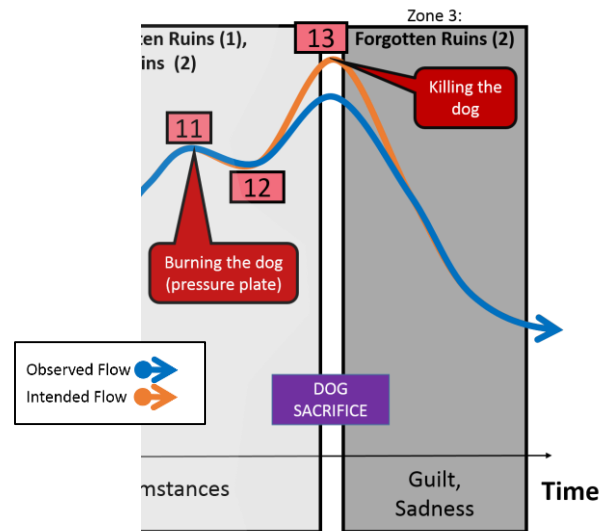


Figure 39 – Zoomed intended x observed emotion flow (12).

Finally, the quest's highest emotional moment, when players sacrifice Reus to pull the lever, opening the gate towards the exit of the ruins.



Figure 41 - Reus' sacrifice.

In this last moment, even though players anticipated the dog's death, most of their feedback consisted of feelings such as sadness, sorrow, and regret. Among them, some felt like they failed their companion, while others wondered if there was a way to save Reus. Many said that the background music, not only for this moment but also throughout the quest, was very important, as it enhance players' immersion by setting up the level's tone. They mentioned how the sad music played when players enter the cave and after Reus' death really added to their gloomy feelings. Moreover, they really liked the ominous music played during the last puzzle, which foreshadowed the tragedy about to come. Overall, although players could foresee

Reus’s death, diminishing the impact of this moment, its sacrifice still brought a lot of sadness and sorrow to testers.

Still regarding Reus’ sacrifice, a few testers felt either forced by the game or considered not enough moments to bond with the dog, so they did not care much about its death. They pointed out that the quest designer was responsible for Reus’ death, not them, as they did not have an alternative but to kill it.

In order to understand better why players felt in such different ways, through the questionnaire, the researcher also gathered data about their thoughts and feelings regarding Reus. The results were especially interesting as most of the players felt the dog was their pet, although they still considered it a tool.

As anticipated by prior results, the majority of testers established some degree of positive relationship with Reus. The following diagram represents how players felt towards Reus:



Figure 42 - Word diagram for Reus' descriptors.

The figure above highlights the most common words used by testers to describe Reus. The majority of players considered Reus loyal or obedient, followed by helpful, and friendly – all positive attributes (underlined). Moreover, the one negative adjective, which players mentioned more often, is dumb/stupid. As the diagram shows, not only the most used words have positive connotation but also the majority of the words used in general defines the dog with some sort of positive quality.

That goes along with the fact that most players really liked interacting with Reus and having its help to overcome the puzzles. They liked the dog’s interactions and defined the mechanics as natural for a pet and its owner – realistic. As the designer intended, they felt very protective towards the companion, worried about it when sending Reus to accomplish a task. Testers asserted that Reus’s help with puzzles added more to their attachment as well as to the relationship between Ixion and his dog. Moreover, they really enjoyed being able to check Reus’ feelings and pat it on the head to make the dog feel better – some of them even did it constantly to make sure their companion was fine throughout the game, especially after it got injured. Along those lines, many players felt terrible when Reus hurt itself, mentioning the sound effects as one of the key factors that moved them.

On the other hand, a significant amount of testers considered Reus a tool in some degree. In these regards, a common reason for them was requiring the companion to beat the challenges. This also relates to the dog’s invincibility – players noticed that

Reus would not die while the puzzles required its actions, which ended up breaking the emotional connection for some of them. In addition, the fact that the further in the quest, the more damaged Reus gets made players grow used to it and added to the dog’s deficiency of personality. They said Reus lacked a sense of self-preservation and more animations to correspond to its state – the dog did not change its behavior when hurt in general. Finally, some testers felt they needed either more time or more interactions with Reus to establish a stronger emotional bond with it.

Such diverse feedback corroborates to the general emotional results depicted in the following figure:



Figure 43 - Word diagram for players' emotions.

The diagram above represents how players felt throughout que level according to their own descriptions. As it shows, the vast majority of players felt sadness, anxiety, and concernment. Happiness, cleverness, and curiosity followed them. This confirms the results presented so far: most of testers established some sort of emotional bond with Reus, which the gameplay mechanics and situations used to leverage the most elicited feelings. On the other hand, the fact that players still felt Reus was some sort of tool broke part of the emotional engagement, heavily diminishing any sense of guilt/regret.

In details, the puzzle-based gameplay, smooth learning curve/level progression, and the ability to use the dog for overcoming the challenges brought players to feel intrigued, smart, and thoughtful. That, aligned with dog interactions (especially sounds), commanding mechanics, and testers’ potential predisposition to like pets, allowed most of them to develop enough emotional attachment to care about Reus, feeling sad when it was hurt and, eventually, died. However, the attachment was either not enough or jeopardized by the companion’s invulnerability and lack of personality. Thus, most of the players did not feel as responsible for their actions as they would need to be in order to feel guilty for hurting the dog.

In broader strokes, the level worked as desired to a certain extent. The cooperative play style added to the relationship between the main character and Reus, strengthening players’ emotional engagement with the overall arch. Being able to pat Reus on its head, check its emotional state, as well as the ability to send it over an area and call it back, felt genuine, as if interacting with a real dog. Along those lines, while the boy’s

voice over for the commanding mechanics added to his relationship of the dog, Reus' whimpering sounds made testers care about its safety. The music background established the quest's mood, which prepared players and enhanced their immersion. The combination of these elements resulted in an emotional journey, where most players worried about their companion, feeling anxious about what could happen to it. Ultimately, the level delivered a gameplay experience with sadness as its core emotion.

On the other side, in order to reach a wider audience and evoke the sentiment of guilt, the artifact needs to focus more on the companion and on the illusion of player's choice. Despite the editor's limitations, the author should design and implement more situations where players need to check the dog's state, interact with the companion. In addition, the tutorials – especially “finding traps” – could have a bigger emphasis on Reus, utilizing some real life-based dog interaction, such as playing catch, engaging in a game of chase or occasionally giving it a special treat for good behavior, bringing players and dog closer together. In terms of the illusion of choice, design changes should include situations where players harm themselves to protect Reus, as if they were repaying it for the help. On top of that, using food or patting on the head as some sort of healing mechanic to keep the dog alive could help delivering the illusion that players could have saved it. Finally, providing alternate paths, which make players wonder about their choices, also creates such deception and enhances the likelihood of players feeling guilty.

V. CONCLUSION

The games industry and its ever-expanding market have a growing need for different types of games that provide more mature gameplay, which are not as long as traditional titles [2]. In addition, developers face a new challenge, which is not only creating feature advancements but also involving players into meaningful experiences that go beyond narrative. On the other hand, the industry growth also allows developers to try more-experimental approaches. Emotional game design is part of this new tendency and manipulates player feelings at its core. This thesis contributes to the emotion modification challenge by aiming to deliver a short emotional experience based on guilt and sadness, utilizing emotion-centric design. It also demonstrates mastery with crafting specific emotions into players through gameplay mechanics, without relying solely on story-based elements.

By following an iterative development methodology, the researcher successfully achieved most of this **project's goals**:

- Using the emotion-centric approach, the author designed and built a quest in *The Elders Scrolls V: Skyrim* game, which the majority of players enjoyed and felt engaged
- The artifact established an emotional attachment between players and the main characters (the boy and his dog), eliciting sadness, anxiety and concernment through gameplay.

However, the artifact did not achieve the emotion of guilt. While sadness seems to be more easily reached, guilt resides in a deeper layer of the players' psyche [25], as it is easier for them to blame the designer for gameplay situations. In order to address such guilt-breaking issues, further work on the artifact should encompass creating a better sense of player choice (or player-determined actions) and adding more to the relationship between players and the companion.

The three major project takeaways are as follows:

- Music and sound effects play a key role for the creation of emotional attachment. Especially because Reus, the dog, did not have many reactive animations, the vast majority of players pointed out its whimpering sounds as the main reason why they cared and protected it as much as they could. Some players even mentioned that Reus' barking felt like the companion was encouraging the main character, thus, the players themselves, to face hard moments. On top of that, background music and environmental sound effects contributed to set the tone of each gameplay moment as well as to immerse testers in the world
- For emotional bonding, especially when defining a game mechanic based on a character other than the player, it is very important to take that character away from simply being a tool. Early on, developers must create moments that show not only the character's gameplay values, but also his/her personality. Moreover, keeping him/her as reactive as possible in gameplay situations adds to his/her value as a companion, enhancing player's attachment. Characters must feel real and players must empathize with them. As discussed in the Data Analysis, Reus' lack of reaction and interaction harmed the emotional connection for some players who ended up considering it a tool. More situations that give uniqueness to a character tend to enhance his/her charisma and break his/her image as a tool
- In order to evoke guilt through gameplay, designers must give either choice or the illusion of choice for players. Moments that feel unnatural in the context of the game, or that clearly forces players down a specific path, break their immersion, pushing them away from guilt. There needs to be the illusion that players are in control and that they have the choice to take a different route and affect the game in meaningful ways.

VI. FURTHER RESEARCH

Finally, studies taking upon this project/approach as a starting point could explore scenarios where companions may actually die in any moment of the gameplay. Developing scenarios where players are responsible for the safety of a valuable companion is an interesting way to delve in to the emotion of guilt. Another idea is to create a similar artifact in other tools: especially with powerful engines such as Unity and

Unreal having free licenses nowadays, a developer could focus on a minimalistic version of similar mechanics. With minimal graphics, the animation budget for characters would not be out of scope for the developer, who could target such resources to leverage the characters' emotions. Moreover, designers could use the emotion-centric approach to create other experiences based on emotions still poorly explored by games, such as love, tranquility, disgust, and, trust.

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15. Overview Map (On the Mountains) – created by the author
16. Zoomed intended emotion flow (1 to 9) – created by the author
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20. Zoomed intended emotion flow (13) – created by the author
21. Overlap between emotion flow and level overview – created by the author
22. Dialog lines and blood splatters – in-game screenshot of the artifact – *Skyrim*
23. Dog interactions – in-game screenshot of the artifact – *Skyrim*
24. Quest overview according to the different areas – created by the author
25. Overview Map (The Farm) with callout for tutorials – created by the author
26. Finding vegetables tutorial – in-game screenshot of the artifact – *Skyrim*
27. Finding traps tutorial – in-game screenshot of the artifact – *Skyrim*

28. Overview Map (Forgotten Ruins 1) with callout for “Finding the key” and “Teamwork” – created by the author
29. “Teamwork” – in-game screenshot of the artifact – *Skyrim*
30. “Finding the key” – in-game screenshot of the artifact – *Skyrim*
31. Overview Map (Forgotten Ruins 2) with callout for “Teamwork 2” and “Sacrifice” – created by the author
32. “Teamwork 2” – in-game screenshot of the artifact – *Skyrim*
33. “Sacrifice” – in-game screenshot of the artifact – *Skyrim*
34. Emotion flow with callouts for the high moments – created by the author
35. Zoomed intended x observed emotion flow (1 to 9) – created by the author
36. Discovering that dad was killed – in-game screenshot of the artifact – *Skyrim*
37. Zoomed intended x observed emotion flow (10 to 12) – created by the author
38. Pulling the lever – in-game screenshot of the artifact – *Skyrim*
39. Burning Reus to open gates – in-game screenshot of the artifact – *Skyrim*
40. Zoomed intended x observed emotion flow (12) – created by the author
41. Reus’ sacrifice – in-game screenshot of the artifact – *Skyrim*
42. Word diagram for Reus’ descriptors – created by the author
43. Word diagram for players’ emotions – created by the author

VII. APPENDIX – PLAYTEST SURVEY

The following questions compose the questionnaire players had to fill out after finishing the artifact’s playtest session:

1. Do you have a game-related specialization?
 - a. Yes
 - b. No
2. If yes, what is your specialization?
 - a. Level Design
 - b. Programming
 - c. Art
 - d. Production
 - e. No applicable
 - f. Other
3. How familiar are you with exploration games?
 - a. Very familiar
 - b. Familiar
 - c. Neutral
 - d. Unfamiliar
 - e. Very unfamiliar
4. How familiar are you with puzzle games?
 - a. Very familiar
 - b. Familiar
 - c. Neutral
 - d. Unfamiliar
 - e. Very unfamiliar
5. Have you played *The Elder Scrolls V: Skyrim* before?
 - a. Yes
 - b. No
6. On a scale of 1-10, how much did you like the level? (1: did not like it at all, 10: Loved it!)
7. How clear were the dog commanding mechanics? Would you like to elaborate on that?
 - a. Very clear
 - b. Clear
 - c. Confusing
 - d. Very confusing
8. On a scale 0-10, how helpful were the challenges presented in the farm in terms of teaching the mechanics:
 - a. Finding veggies for Mom (0: unhelpful, 10: very helpful)
 - b. Finding traps for Dad (0: unhelpful, 10: very helpful)
 - c. Would you like to elaborate on that?
9. You would describe your interactions with Mom (Eva) as...
 - a. Natural
 - b. Neutral
 - c. Unnatural
10. You would describe your interactions with Dad (Adam) as...
 - a. Natural
 - b. Neutral
 - c. Unnatural
11. In the farm, how did you feel when Reus, the dog, when stepped on traps looking for them?

12. How did you feel when you saw that Dad was killed by the bar?
13. Which challenge of Forgotten Ruins 1 did you like the most? Why?
14. Which challenge of Forgotten Ruins 1 did you like the least? Why?
15. Which challenge of Forgotten Ruins 2 did you like the most?
16. Describe Reus using three adjectives (example: beautiful, severe, and grounded).
17. How did you feel about your interaction with Reus?
18. Did you feel the dog was yours?
 - a. Yes
 - b. No
19. Did you feel the dog was a companion or a tool? Why?
20. Please, describe how you felt throughout the level using three words (examples: joyful, free, and scared).
21. How did you feel when Reus helped you getting through different puzzle pieces?
22. How did you feel when moments the dog got hurt by a trap?
23. How did you feel about pulling the lever and burning Reus?
24. How did you feel when Reus had to stand on the pressure plates, getting burned?
25. How did you feel when Reus died?

VIII. APPENDIX - LEVEL ABSTRACT: TRAILS OF TEARS

Disclaimer: this level abstract corresponds to the author’s original design for this thesis project. Although it shares a lot in common with the artifact’s final version, much of it changed through iterative development and feedback analysis.

Quick Summary

“Trail of Tears” is a single-player, 3rd person-perspective, side quest level for *The Elders Scrolls V: Skyrim* (PC), which provides an exploration-based gameplay different from the original game. In this level, players take the role of Ixion, a brave farm boy, followed by his faithful dog companion Reus, in their emotional journey to survive the threats of wild nature. Traversing hostile scenarios such as Nordic mountains, ice caves and Dwemer ruins, players need to combine the abilities of both characters in order to make it back home.

Hook(s)

“Trail of Tears” has the following hooks:

- Innovative, non-traditional, gameplay style based on the cooperation between Ixion, the boy, and Reus, the dog
- Unique emotional experience, as players tend to feel guilty about their actions throughout the level

Gameplay Highlights

Mechanics

Players are able to control Ixion directly, walking/running and jumping around with him. However, they are not able to attack at all. In addition, they can interact with elements in the environment by pressing ‘E’, as well as, command Reus using

mouse buttons. The dog has two different behaviors, according to its combat state:

- **When not in combat:**
 - **General behavior:** Reus generally follows Ixion around
 - **Left mouse button:** Reus explores the area, stopping by any interesting element within a certain range: traps, chests, and, ambushes
 - **Right mouse button:** if pressed after left mouse button, Reus either triggers the found trap or anticipates the ambush, engaging combat with enemies. If pressed before left mouse button
- **When in combat:**
 - **General behavior:** Reus fights the closest enemies, protecting Ixion, but not necessarily following him. However, if Ixion's health is too low, the dog comes around him to protect the boy, regardless of any player input
 - **Left mouse button:** Reus goes near Ixion's current position, holding it for a while. After that, it reassumes general behavior
 - **Right mouse button:** Reus barks, taunting the enemies and drawing their attention. After that, for a while, they stop attacking Ixion, completely focusing on the dog

As an NPC, Reus cannot die throughout the game. The companion can get very hurt, walk slowly and limping. After a while, it recovers health progressively. However, in the end of the level, the dog cannot survive the last threat and ends up dying.

Gameplay style

This level's core gameplay style combines exploration and cooperation between Ixion and Reus. As players do not have any means to attack, they must rely on Reus to survive the threats (traps and enemies). However, using the companion to find traps, for example, can potentially hurt it. As previously said, players are also able to interact with environmental objects (such as levers and buttons), to open doors/gates and activate traps. This way, they can use Reus as bait, luring enemies into traps, though, putting the dog in danger. Furthermore, this level forces players to take tough decisions and feel sad and guilty about their actions.

Setting Summary

Theme	Fantasy, Companionship, Sacrifice
Mood	Guilty, Sadness, Emotional attachment
Setting	Medieval Fantasy, Farm, Pinewood Forest, Snowy Mountains, Dwemer Ice Cave
Time of Day	Dusk (Farm), Night (Farm, Mountains, Dwemer Ice Cave), and Morning (Farm again)
Season	Transition from Fall to Winter
Weather	Snowy weather (mostly)

Mission Difficulty

Position	Difficulty	Reasons
Beginning	3	Learning a reasonable amount of mechanics
Middle	5	Applying recently learned mechanics to non-friendly contexts
End	6	Slightly more complex puzzles


Scale: 1-10 (1 is Easiest and 10 is Hardest)

Mission Metrics

Play Time	30 minutes
Critical Path	471.5m
Physical Area	(Width x Height) The Farm (exterior): 58.5m x 58.5 On the Mountains (Exterior): 25.6 x 52.18m Forgotten Cave 1 (Interior): 84.09m x 84.09m Forgotten Cave 2 (Interior): 51.18m x 25.6m

Characters

Character	Description
Ixion	Ixion is the level's playable, main character. He is a 12-year old boy, living in a farm with his parents (Adam and Eva) and his friend Reus, the dog. Although he does not have any fighting skills, the boy is very smart and strong. He is always helping his dad with farm duties, followed by Reus.
Reus  [http://skyrimfansite.com/wp-content/uploads/2013/10/Dog-As-A-Skyrim-Companion.jpg]	Reus is an NPC dog who follows the main character throughout the level. Inseparable friend of Ixion, this dog is always by his side. Used to assist Ixion and his family with farm tasks, Reus is very helpful to find items, traps, and even, enemies.
Adam (Dad)	Adam is an ally NPC. He is Ixion's dad and very protective to his family. As a farmer, he is mainly responsible for raising cattle and selling farm byproducts in the village. He has taught Ixion many tricks to play with Reus.
Eva (Mom)	Eva is another ally NPC. She is Ixion's mom and the family's manager. She takes care of the cabbage plantation, as well as, the 'boys' (Adam, Ixion, and Reus). Although she says not to like dogs, she loves Reus as much as the others do.

Cave Bear  [http://images.uesp.net/6/60/SR-creature-Cave_Bear.jpg]	The cave bear is "Trail of Tears" main enemy. Although it does not characterize as a villain, this wild beast is responsible for killing Adam, as well as, for threatening Ixion and Reus to protect its territory. It chases the main character throughout the level.
Cave enemies	These minor enemies ambush Ixion and Reus in the Dwemer caves. Ranging from Dwarven Spiders to Dwarven Spheres, they are not evil as their intention is only to protect their territory.

Theme	Description
The Farm	Exterior, countryside area surrounded by pinewood forest and mountains. It has farm tools and buildings (such as barns), as well as, cattle, plantation, etc. For both beginning (morning light) and end (dusk), it feels calm, quiet, and cozy. For the transition (night time), the area maintains those aspects, with a little bit of eerie added to it.
On the Mountains	Exterior, a lot of snow throughout the path, surrounded by mountains. Night time combined with the blizzard gives this area a sense of danger and inquietude, foreshadowing the tragedy about to happen.
Forgotten Cave	Interior, ice cave combined with Dwemer ruins. Usual dim light, very weary, full of Dwarven pipes, spider webs, ice blocks, debris, etc. However, it still has functioning structures, making it feel unsettling

Visual Themes

Key Theme References



Figure 44: References for the farm: countryside, pinewood forest, snow, different day times [1,2, 3 ... 7].



Figure 45: References for the mountains: blizzard, heavy snowfall, night time [8,9 ..., 12].

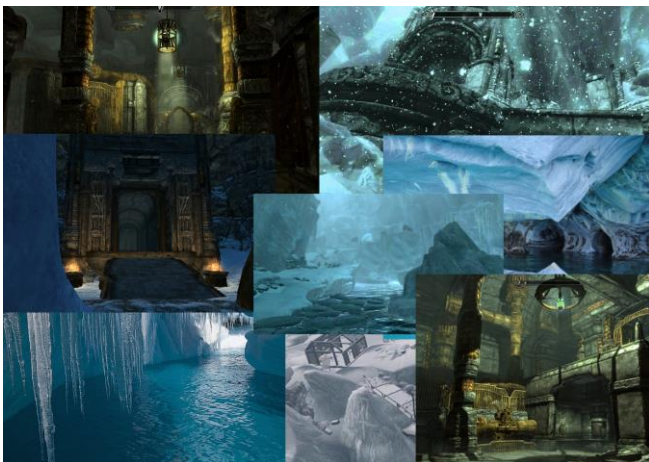


Figure 46: References for the forgotten cave: Dwemer ruins, ice caves, waterfall [13, 14, ..., 21].

Level Summary

Campaign

1) Context

“Trail of Tears” is a side level in the *Skyrim* universe and does not relate to the title’s main campaign. This level can take place at any point of the game’s story, as it does not involve its original main character (Dragonborn). In this regard, the world of *Skyrim* serves the purpose of providing a context for the Ixion’s and Reus’ emotional journey.

2) Backstory

Considering the aforementioned context, as Ixion, players start “Trail of Tears” in the boy’s farm, more specifically, in his house. After engaging situations where they learn the level’s core mechanics, such as finding ingredients for his mom’s recipe and helping his dad against the wild wolves, they experience Ixion’s tale (level’s biggest section).

3) Aftermath

After losing Reus and getting out of the Dwemer cave, Ixion follows the river trail to go back home. There, he finds his mom desperate thinking her husband and son were dead. Despite the sadness of losing Adam and Reus, Eva cheers up meeting her son again. Finally, they both move on with their lives.

Objective(s)

“Trail of Tears” has two major objectives:

- Survive the journey and return home, overcoming obstacles and threats – traps, and enemies
- Get out of the ruins. This includes:
 - Help Eva (mom), finding ingredients
 - Help Adam (dad), tracking the lost cattle and fighting wolves
 - Finding shelter after the bear’s attack
 - Solving puzzles utilizing Dwemer mechanisms to open gates and unlock doors
 - Using Reus to sniff important elements in the environment
 - Using Reus as a bait to lure enemies
 - Hurting and sacrificing Reus to kill the bear

Overview Map

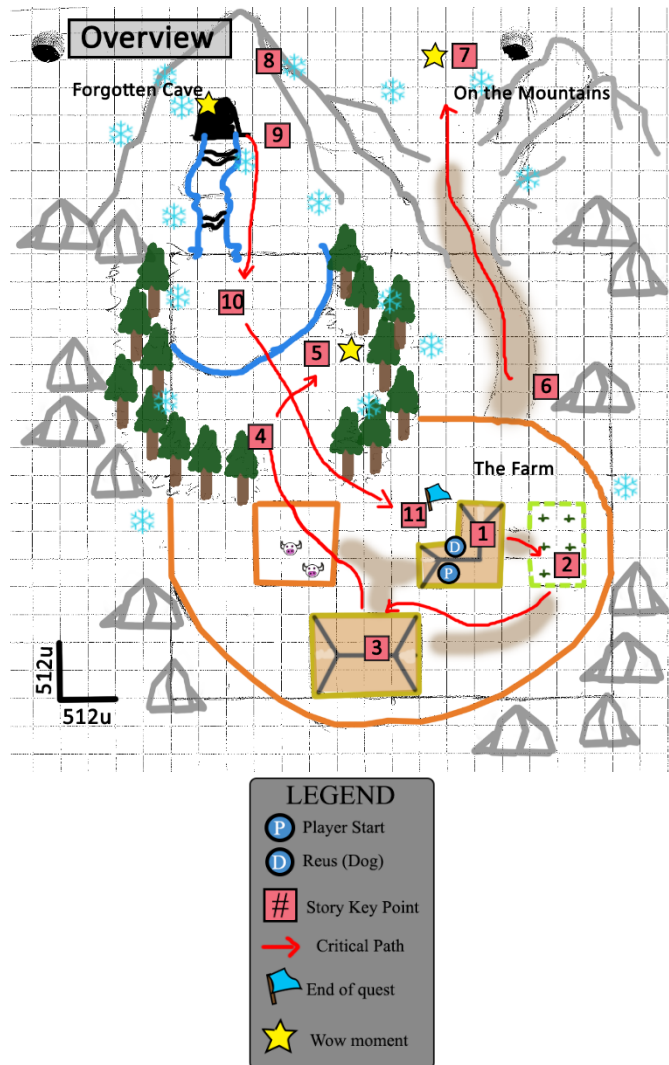


Figure 47: Overview Map (exteriors).

Level Flow

Flow Summary

1. Introduction: Players start the level in Ixion's house. They meet Reus and Eva (Ixion's mom)
2. Tutorial 1: Players have their first tutorial about Reus' non-combat behavior (finding items), looking for ingredients that Eva asked for
3. Tutorial 2: After going back to the house to bring the ingredients back to Eva, players meet Adam (Ixion's dad). Then, along with Reus, they follow Adam to the warehouse, where they have the second tutorial (about Reus' non-combat behavior – finding traps), while dad prepares them to look for wild wolves that attacked the cattle

4. Tutorial 3: Into the woods, players go with Adam, looking for the wolves. They find the first one and have the first tutorial about Reus' combat behavior (bark to taunt enemies). Moreover, they have their first exposition to using traps to lure enemies
5. Tutorial 4: Proceeding, they find two more wolves. This serves the purpose to teach them about Reus' combat ability to go to Ixion's location and hold it for a while. With this, they defeat the beasts
6. Transition: late at night, players meet Ixion's mom and dad in the farm's exit, before they leave with Adam to the town village. Then, Ixion and his dad leave, Reus following them
7. Turning point/call to action: on the mountains, a wild bear attacks the group. Players have to run away, hiding in a secret cave (Forgotten Cave) with Reus. The bear kills Adam
8. Development: Players get trapped in the ruins and have to find their way out:
 - a. Bear attacks Ixion and Reus, causing ice and stones to fall and trap them
 - b. Players need to go through a series of traps and enemies, trying to get out alive. Throughout this process, they must use Reus abilities, very likely, hurting the dog (Guilt moments)
 - c. As the level advances, there are more situations demanding Reus support (Guilt moments)
9. Climax: players encounter the bear again in the last room, where they have to sacrifice Reus to kill the beast and escape the cave through a cave's internal river, realizing they were looping back to the farm (WOW Moment)
10. Conclusion (part 1): Players jump from the waterfall to the lake, heading towards Ixion's home
11. Conclusion (part 2): Finally, they meet Eva (Ixion's mom) again, relieved to see her son alive

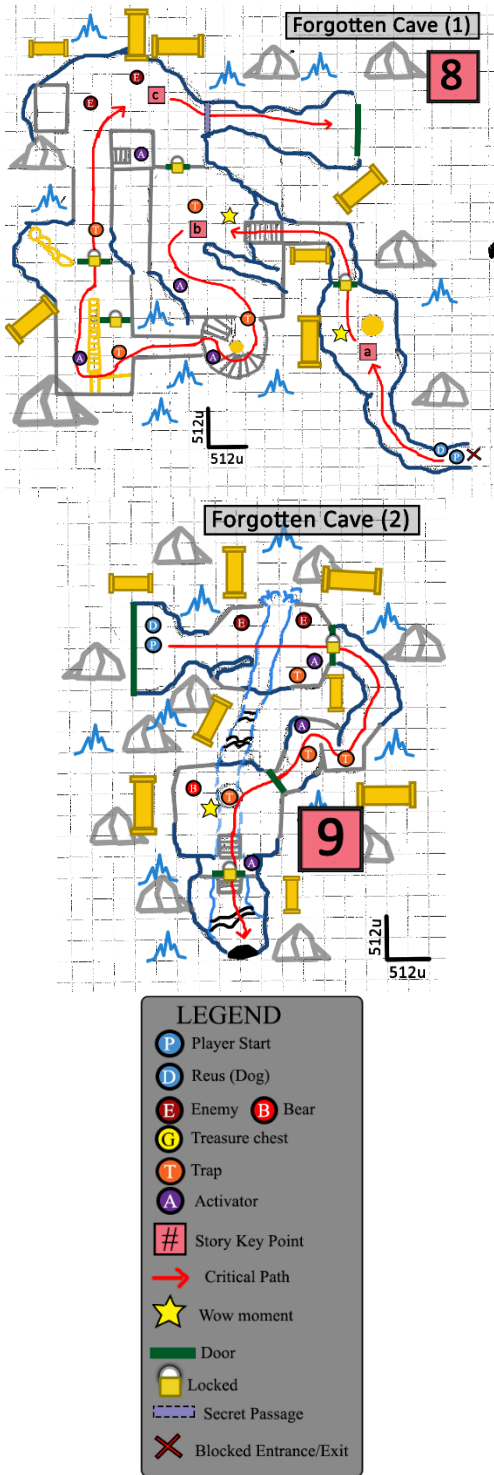


Figure 48: Overview Map (interiors).

Level Breakdown

The Farm: Beginning

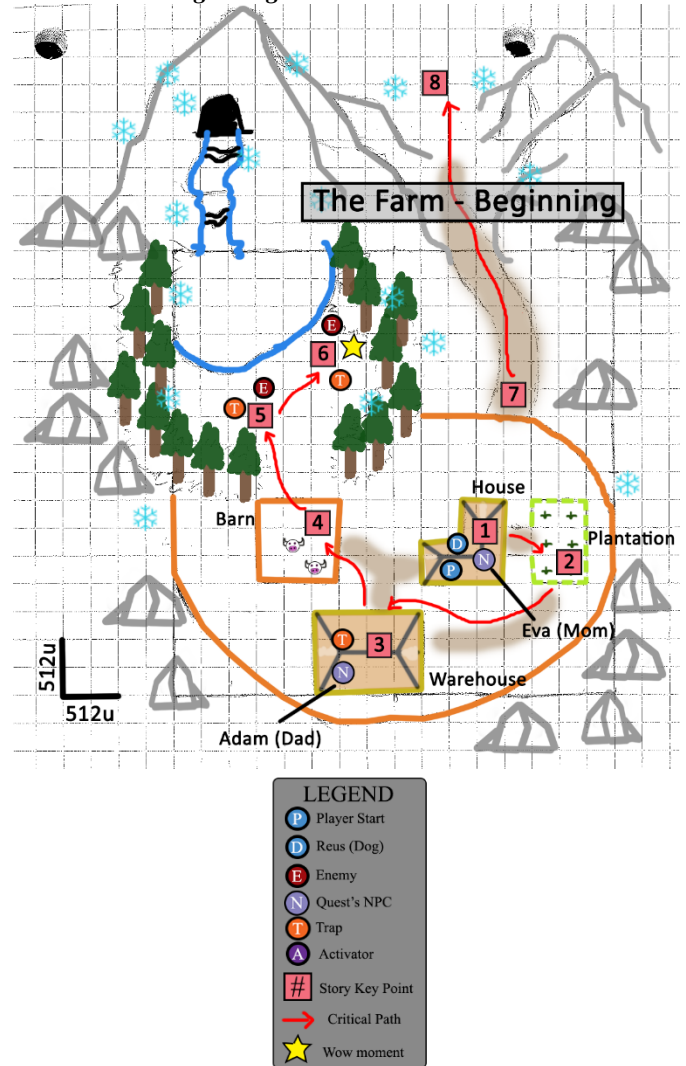


Figure 49: Detailed section: The Farm – Beginning.

1. Reus barks, waking up players. Ixion’s mom talks to them, asking for a couple of different ingredients outside, so she can finish the meal for their travel. Eva also tells players to use Reus’ great sniffing abilities to find them (Tutorial 1 – teaching Reus’ non-combat behavior – items)
2. Players go outside and Reus helps them finding the ingredients in different locations. They bring the ingredients back to Eva. Adam enters the house, saying that wolves attacked the cattle again and he needs Ixion’s help to find the beasts
3. Players follow Ixion’s dad outside the house, to the warehouse. There, dad tells them about possible traps on the way and about how to tell Reus to detect them

(Tutorial 2 – teaching Reus’ non-combat behavior – traps)

4. Then, players move to the Barn, where they see dead cattle and a trail of blood leading to the forest. From there, they follow Adam deep into woods
5. In the forest, they find a first wolf, and face it along with Reus and Ixion’s dad. Adam explains to them how Reus can bark to taunt enemies. There, they also use Reus to detect and activate traps. After, Adam kills the wolf and they proceed (Tutorial 3 – teaching Reus’ combat behavior – taunt)
6. Next to the lake, players find two more wolves. This time, Adam is not able to kill them because he is outnumbered. He explains players they need to use Reus as a bait to lure the wolves into a nearby trap. Players successfully do that, killing the beasts (Tutorial 4 – teaching Reus’ combat behavior – holding position). Adam tells them to hurry back, as that night they go to the town village to sell their products
7. At night, Adam, Ixion, and Reus say goodbye to Eva and begin their journey. Even with Ixion’s dad saying that Reus cannot go; the dog finds its way to follow them. Players can walk around and talk to the NPCs

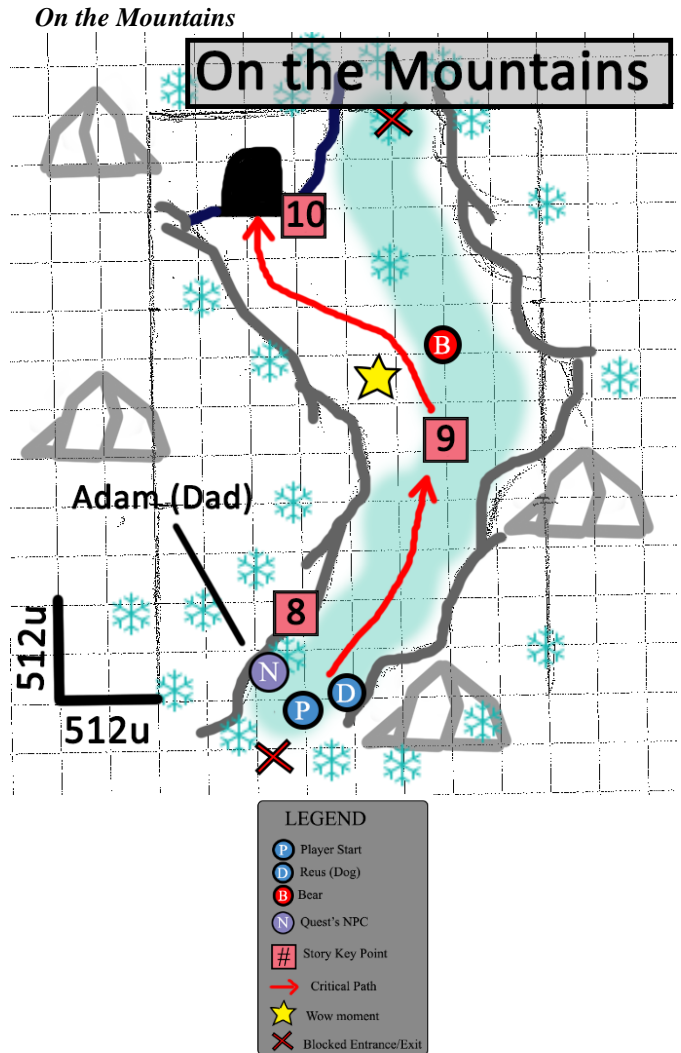


Figure 50: Detailed section: On the Mountains.

8. On the mountains, it is snowing very strongly and Adam decides to stop and find a shelter. Players follow him, along with Reus. Blizzard winds prevent them from getting out of the playable space
9. As they walk, a giant bear attacks them. The bear focuses on Adam and Reus. Players walk around and use Reus abilities, but they cannot harm the bear. Adam tells them to look for a place to hide, while he keeps the bear distracted
10. Players explore the area and find a cave entrance. They get in, followed by Reus – the fight between Adam and the bear does not stop

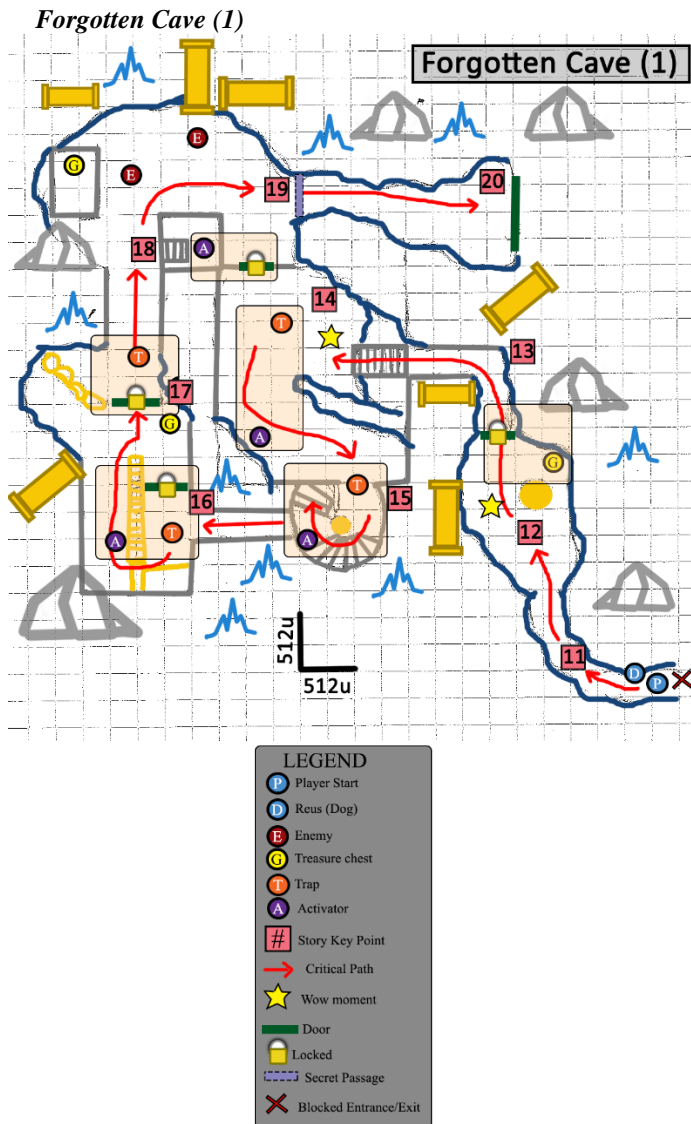


Figure 51: Detailed section: Forgotten Cave (1).

11. Right after they get into the cave, the bear follows them, forcing players to run deeper into the cave – so far, the scenario is mostly ice and stones, with some old excavation tools
12. Once players go to a larger area, the bear stumbles against the area entrance, too big to get in. Because of that, stones and ice fall from the ceiling, blocking that path (WOW Moment). Players start exploring the area, trying to find their way out
13. Then, players find a locked door. They can use Reus to find a hidden chest, containing the door's key and progress
14. Players walk up the stairs, realizing they are actually in Dwemer ruins (WOW Moment). In that area, there

is a locked door – its opening mechanism resides in other room – a trap, with its sensor and activator. Players need to be careful, but not necessarily use Reus to avoid the trap

15. Going to the next room, there is another trap, which players cannot avoid. They have to either trigger it themselves (getting hurt), or use Reus to do it, hurting the dog (Guilt Moment). Down the stairs, players can use the activator to experiment and trigger the trap again
16. The following area has another locked access. However, players can jump over some debris and go around the gate – something that Reus cannot do*. They can use an activator on the other side to open the locked access. However, this triggers a trap, damaging the dog (Guilt Moment)
*if players decide to, they can try to progress without Reus, but the next challenge prevents them from succeeding
17. This section has a chest containing health items that players can use to heal Ixion, but not Reus. Ongoing, players cannot proceed, as there is another locked gateway. On the side, there is a hole large enough so Reus can move through. Players must use Reus' abilities to activate a trap in the next room that also opens the gate. This trap, though, does not hit Reus
18. Then, players advance to a larger area of the map. They can use Reus to find a hidden chest with healing items and to detect the eminent ambush (Dwarven spiders). This area's activator opens the gate connecting it to one of the already visited rooms. Players can either rely solely on Reus combat to kill the enemies or use the dog's abilities to lure them into some nearby trap
19. After the combat, players need to use Reus to track a secret passage and proceed to the next area
20. Players and Reus transit to the next area (going down into the ruins)

Forgotten Cave (2)

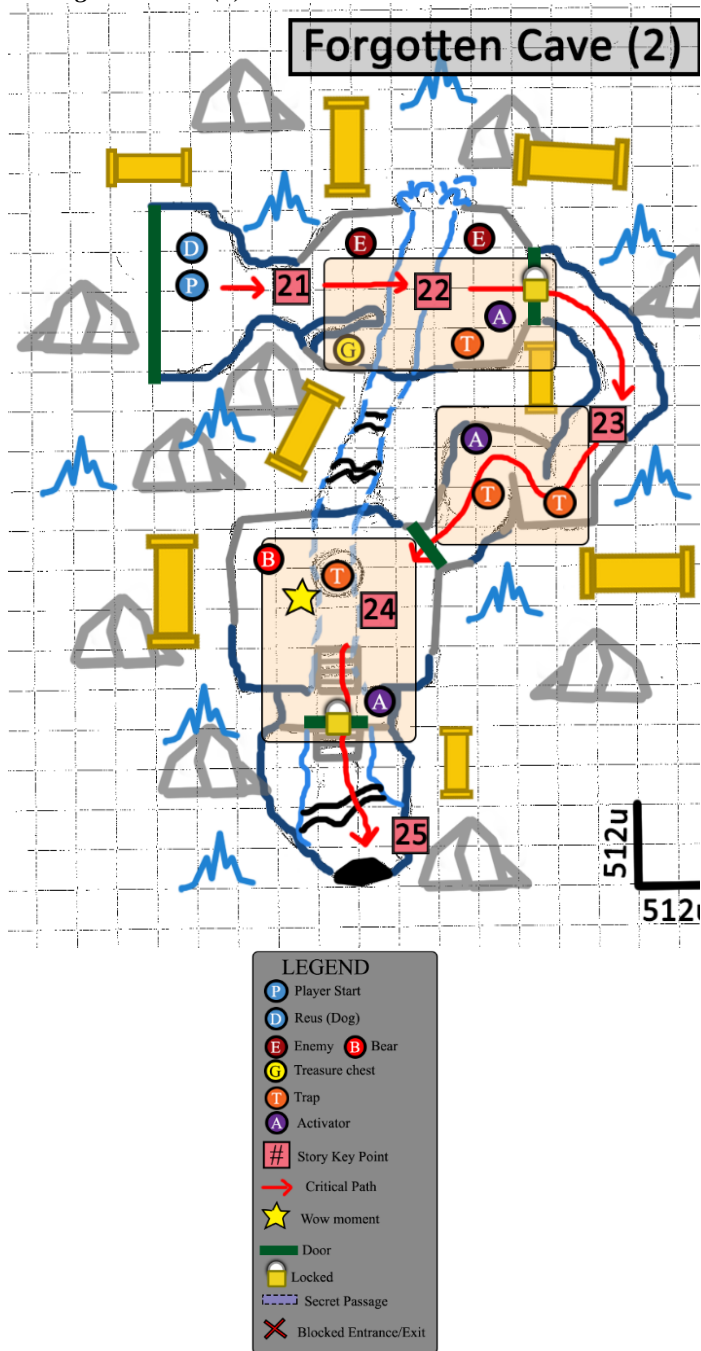


Figure 52: Detailed Section: Forgotten Cave (2).

21. Deeper in the cave, they see a river flowing below the old structures. Players also find the next door locked. If they try to use the activator nearby, they trigger a trap, hurting them and/or Reus – depending on their positioning*. In this case, players have to use Reus to find the door's key

* Players can use Reus to detect the trap nearby

22. Once they reach the key, two enemies ambush them* (a Dwarven sphere and a Dwarven spider). Along with Reus, players can use the activator to damage enemies – but possibly also hurt Reus (Guilt Moment)

* Players can use Reus to prevent the ambush

23. After killing enemies and opening the door, players move to the next area: corridors with a couple of dangerous traps. Although it is not required, players have a higher chance of survival if they use Reus to detect traps. There is also an activator that allows them to trigger traps to kill any remaining enemies
24. Players advance to the level's climax: they enter into a larger area – which is also above the river – and find the giant wild bear, which attacks them again (WOW Moment). The door to the previous corridors locks and the other one available is inaccessible as well. However, players can see a line connecting it to a platform. Next to the locked door, there is also an activator. When players use it, golden bars raise, creating a kind of cage, followed by spears that pierce whatever is inside (trap). After realizing they have to use the trap to kill the bear, players take a while to understand that using Reus as a bait is the only way to keep the beast enough time in the trap area, in order to activate the trap effectively. Then, they do it, piercing both dog and bear (Guilt Moment). They both die, their blood flows through tubes, opening the so far locked gate
25. With the gate open, players, now alone, go to the next area, which is flooded. They jump into the cold water, exploring the area and finding an exit from the cave

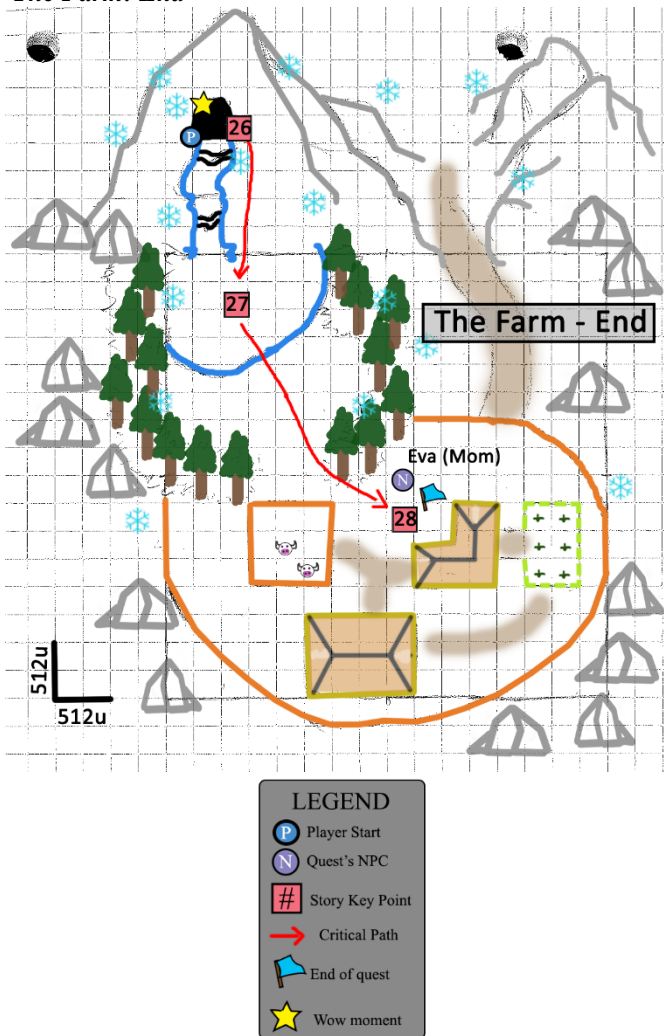
The Farm: End

Figure 53: Detailed section: The Farm – End.

26. Out of the cave, they see Ixion's farm, the forest, and mountains around it (WOW Moment)
27. They jump down into the lake, heading towards home
28. Finally, players go through the woods and get near Ixion's home. There, they find Eva who hugs them (Ixion), relief to see her son back again. She explains that people found Adam's dead body in the mountains and assumed Ixion was dead too. So, although Reus' death was also tragic, she felt happy for meeting her son again (Level End)

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