

Open-world Game Design

Case Study The Legend of Zelda: Breath of the Wild

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ABSTRACT

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The purpose of this thesis was to create a critical analysis video concerning The Legend of Zelda: Breath of the Wild. The game's design was placed under a microscope during the making of the video. The objective was to determine if the developers had succeeded in fulfilling their vision and if their design philosophy was solid.

It came to light that in spite of Breath of the Wild's universal acclaim, Nintendo's game design was at odds with the final product. In the idea they dubbed "multiplicative gameplay", the gameplay loop involves the player being faced with situations and then coming up with their own solutions to them. This concept ended up only applying to some early parts of the game while later sections seemed like an afterthought.

Key words: game design, open-world, open world, breath of the wild

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Tämän opinnäytetyön yhteydessä luotiin kriittinen analyysivideo The Legend of Zelda: Breath of the Wildista. Pelin pelisuunnittelu asetettiin mikroskoopin alle videon tuottamisen aikana. Tavoite oli selvittää, olivatko pelikehittäjät onnistuneet visionsa toteuttamisessa ja oliko heidän näkökulmansa pelisuunnitteluun pitävä.

Kävi ilmi, että Breath of the Wildin suuresta suosiosta huolimatta Nintendon pelisuunnittelu oli ristiriidassa lopullisen tuotteen kanssa. Vaikka heidän ideansa sopi hyvin yhteen avoimen peliympäristön käsitteiden kanssa, ajatus tilanteiden ratkaisemisesta pelaajan omin keinoin päätikin lopulta vain joihinkin varhaisiin osiin pelistä siinä missä myöhemmät osat vaikuttivat toissijaisilta.

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GLOSSARY

art direction	an art style around which video game graphics are planned around
difficulty progression	the way a video game gets progressively more difficult as the player advances
downloadable content	game content that is bought separately and downloaded online
game asset	a singular picture or object of which a game is comprised of
game design	guidelines for the creation of video games
game mechanic	an individual system within a game that defines gameplay together with other such systems
intrinsically motivated	a person who makes their own fun in a video game, as opposed to being along for the ride
level design	the organised layout of a video game level, designed to rouse a specific experience
loading screen	a screen shown to the player while the game remains on standby, performing important functions
physics engine	a system that emulates real-life physics
zone	an area in a video game, separated from other such areas

1 INTRODUCTION

Open-world games have risen in popularity in recent years. Even large franchises are changing course towards more open gameplay. This thesis covers the successes and failings of the Zelda series upon its entry into the open-world genre. What were the developers' goals? How did their creation turn out in comparison to their original vision? What was changed to accommodate the shifts in perspective? The goal of this thesis is to answer such questions.

A longform critical analysis video was produced alongside this thesis. The video reflects my personal views and arguments on the game more freely, while the written thesis retains an objective, empirical point of view.

As a disclaimer, according to the data on my Nintendo Switch account, I played roughly 400 hours of Breath of the Wild to study the game for the purposes of this thesis, on top of another 400 hours I had played previously. Despite this, due to time constraints, I failed to meet my own standards regarding completion required to write about the game with a sufficient level of knowledge.

2 OPEN-WORLD

2.1 Introduction to Open-world

2.1.1 Terminology

The term "open-world" in the context of video games is colloquially used to describe a design philosophy and a set of aligned game mechanics. Several other phrases also refer to this concept, among them open air, which is what Nintendo calls their efforts on the genre (Otero 2016).

It is not rare for the phrase to encounter misuse as its definition often is not exact or known to general audiences. In some cases, non-open-world games that contain certain aspects or mechanics similar to those in open-world games may cause such confusion; games such as *Dark Souls* (2011) are often referred to as open-world games despite not including key descriptors. Another way to look at this phenomenon would be to say that open-world games exist on a spectrum (Moss 2017); however, this thesis will use the definition outlined in the following chapter.

2.1.2 Definition

An open world is a nonlinear virtual world in which the player has the agency to roam freely and tackle objectives in the order they choose. Such worlds have the tendency to be extremely large in scale, often up to dozens of virtual square kilometres. (Codex Gamicus n.d.a). Obstacles can typically be overcome in multiple ways in order to facilitate player freedom and to achieve a heightened sense of player agency.

While the concept of open-world has been around for several decades, the games it applies to have achieved considerable mainstream success since the late 2000s and the genre has since become something of a trend in the video

game industry. (Wilson 2017.) Grand Theft Auto III (2001) often receives credit for setting the modern standards for open-world video games (image 1).



IMAGE 1. A screenshot of Grand Theft Auto III (Grand Theft Auto III 2001)

2.2 Crafting an Open World

2.2.1 Connectivity

Cohesion is an essential keyword in open-world game design. This implies that the world is not divided into zones between which the player transitions. Rather, the world is borderless with little to no bottlenecks or loading screens separating one location from the next. (Codex Gamicus n.d.b.) A consequence of this is the player's ability to see long distances and to spot faraway points of interest, feeding back into the core ideas of open-world design.

In a truly open world, the player's movements are not arbitrarily limited by the environment and in theory the player character can stand on any surface or object, should they be able to reach it. Physics are typically the only judge to decide where the player may or may not go.

2.2.2 Abstraction

Abstraction in video games is akin to a layer of suspension of disbelief between the game and the player. The player does not actually see a story unfold, but rather game assets and mechanics standing in to represent those events (image 2). For example, looking for a specific item in an inventory menu can be an abstraction of the player character searching through their backpack for that very item.



IMAGE 2. Chess can be considered an abstraction of a battle (Taxmen 2018)

Open-world games often make an attempt to avoid abstraction, as it tends to infringe on the player's freedom, agency and control over their character. However, all video games are abstractions to different extents - trying to avoid it altogether is a futile effort. (Ponce de Leon 2015.)

2.2.3 Procedural Generation

Creating a massive open world is a daunting task for a developer. Placing countless game assets by hand may prove an insurmountable ordeal. Thus, when making virtual worlds of a large scale, developers often turn to methods such as procedural generation in order to aid with development costs and to save resources.

With procedural generation, a virtual space is created by utilising an algorithm instead of manually. In addition to being beneficial by allowing resources to be allocated elsewhere, computer-generated randomness is adept at simulating believable and realistic landscapes and environments. The developers pass their desired parameters, assets and set pieces to the algorithm and the processor does the rest.



IMAGE 3. The game world of No Man's Sky contains over 18 quintillion procedurally generated planets (No Man's Sky 2016)

Different kinds of open-world games have distinct applications for procedural generation. Some games have their algorithm-based needs generated in-house, while others generate the world right in front of the player's eyes as they begin

playing, providing for a less predictable experience. The algorithmically generated parts of a game are often contrasted by handcrafted ones, wherever in the virtual world a human touch or particular design is deemed necessary. In other words, procedural generation excels at filling in the blanks between human-made pieces of content. (Lillah 2016.)

2.2.4 Level Design

The role of level design in an open-world game is markedly different from its conventional counterpart, often taking a backseat to player freedom, world design and other associated concepts. A form of level design is still present in the background, determining things such as locations of points of interest and the distances and obstacles between them, as well as working together with the scenario to lead the player along. In my experience, in a well-designed open-world game attention is paid to the player's ability to always have visible points of interest regardless of their location in the game world. Linear segments, if present, tend to subscribe to a more classical approach to level design.

Open worlds are known for having large expanses of empty space where the player has few possible options to interact with their environment (image 4). While this has accumulated criticism from some, others have praised the very same element as promoting a sense of freedom and adventure (Nintendo World Report TV 2016). Other purposes for this space are to pace and punctuate points of interest and to maintain a sense of a realistic, large world. Such space is often created procedurally. Human-generated pieces of the world are generally far denser in content than their algorithmic counterparts, so it follows that it is standard for important locations in the game world to be handcrafted.



IMAGE 4. The Mojave wasteland in *Fallout: New Vegas* (*Fallout: New Vegas* 2010)

Due to the nonlinear nature of open-world games, points of interest are designed to be approachable from multiple directions and perspectives. One's point of view when approaching an objective will define their means of interaction with obstacles around said objective, further reflecting the player's own playstyle and creating divergent player experiences. Different types of players and ways to play are often identified by developers in advance and then taken into consideration and accommodated when designing the actual environments.

2.3 Open-world Mechanics

2.3.1 Emergence and Systems

The concept of emergence or emergent gameplay refers to situations not explicitly intended by the developer but that still emerge from intersecting systems in the game. In *The Elder Scrolls V: Skyrim* (2011), all non-playable characters (NPC) are assigned an array of factions they belong to. Rather than programming in vast amounts of interactions, the NPCs instead react to each other based on the factions they belong to. In this case, the framework for the interaction is explicitly designed but the interaction itself is not, rendering this a form of emergence (*The Elder Scrolls V: Skyrim* 2011). Other examples could be something

akin to house rules in a competitive game or even a glitch making an artificial intelligence behave unexpectedly. Emergence provides players with unique and unpredictable scenarios.

Open-world games have proven a natural fit for emergent and systemic gameplay. It is advantageous for developers to lean on systems while designing as filling an entire open world with meaningful, hard-coded content is a massive task in terms of resources.

2.3.2 Nonlinear Progression

One of the greatest challenges in developing a nonlinear game is how to impose a dramatic plot on the player without stepping on the toes of basic open-world values like freedom and agency. Developers have come up with different solutions to counter this challenge, such as splitting up the storyline into a mission-based structure. The crux of working around this hurdle is minimising the number of gates, or pivotal events that the player needs to understand in order to make sense of the story (image 5). The concept of gates extends to the realm of gameplay design as well, referring to sections of the game the player cannot access without completing other parts first. The more gates the game has, the less open it can be considered. Consequently, open-world developers actively attempt to limit the number of such gates. (Savant 2019.)

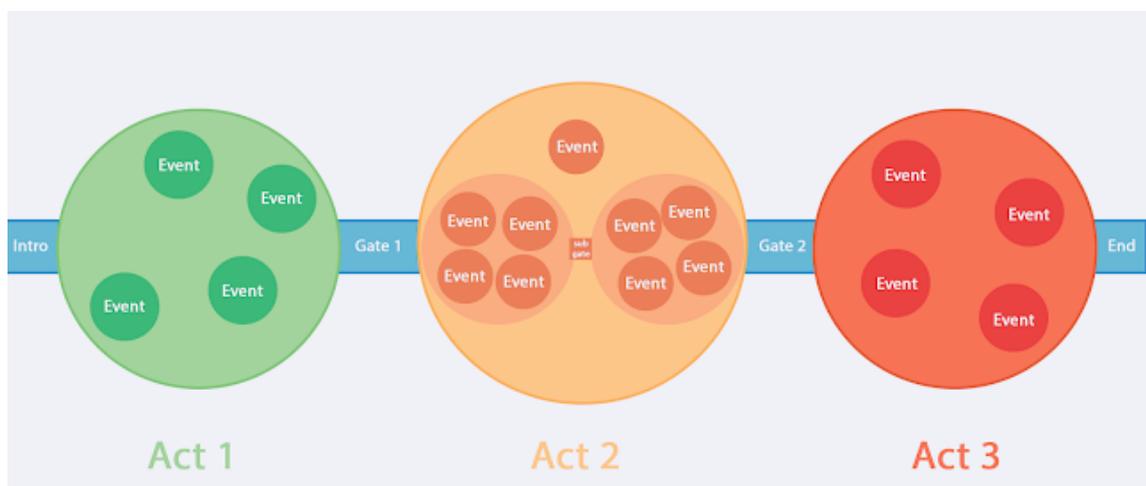


IMAGE 5. A nonlinear progression model (Savant 2019)

Difficulty progression is another stumbling block. As the player is granted the ability to travel to all areas at all times, a linear difficulty curve is impossible to uphold. A now antiquated means to respond to this is to simply balance the game's various regions around a linear progression, but let the player break the sequence at their own risk. Developers have since come up with solutions like difficulty scaling, in which the difficulty of the entire game world starts off balanced for a beginner and then proceeds to gradually become more difficult as the player progresses. As a result of this, the difficulty can be tailored to the player's current skill level and their character's capabilities.

2.3.3 Audio Design

The effect of open-world design can also be seen in seemingly unrelated parts of the games and among them, audio design. The music that plays in sizable areas should strive not to be repetitive or loop too early lest they risk annoying the player over time. Often developers opt to include minimalistic pieces that mesh well with the sounds of nature in an endeavour to immerse the player in the game world. Additionally, developers place randomised parallel musical themes for the purpose of avoiding repetition.

3 CASE STUDY

3.1 Overview

3.1.1 Breath of the Wild

The Legend of Zelda: Breath of the Wild was released simultaneously on the Nintendo Switch and Wii U consoles on March 3rd, 2017 (image 6). It is an open-world action-adventure game developed and published by Nintendo as part of the long-running Zelda franchise, the earliest of which was released all the way back in 1986. Nintendo received help creating the topography of the open world from Monolith Soft of Xenoblade Chronicles (2010) fame (Casey 2017). Downloadable content for the game was supplied posthumously, containing two separate content packs: The Master Trials and The Champion's Ballad.



IMAGE 6. The PAL cover art for The Legend of Zelda: Breath of the Wild (Nintendo 2017)

Breath of the Wild represents a significant change in formula for the series, breaking several conventions that had over time become synonymous with Zelda. None of the earlier Zelda games are open-world games in the same vein as

Breath of the Wild. The game can be considered a sort of return to the series' roots, as the gameplay bears some similarity to the original Legend of Zelda (image 7). This change may be one of the reasons why the release was met with great critical acclaim, lauding the game as one of the greatest games ever made. (Metacritic n.d.).



IMAGE 7. The original Zelda game on the Nintendo Entertainment System (The Legend of Zelda 1986)

The game's plot revolves around the amnesiac protagonist Link who wakes up 100 years after being grievously wounded in battle. The kingdom of Hyrule he calls home has been reduced to ruins by his nemesis Calamity Ganon and the people he used to know are long gone. Ganon threatens the existence of the entire world, only being contained in Hyrule Castle by the princess Zelda. It is revealed to Link that 100 years ago as he fell in battle, Ganon took over an army of ancient machines, including four giant mechanical Divine Beasts who are still presently under his control. Link's task is to gather his strength, free the Divine Beasts and storm Hyrule Castle to help the Zelda in defeating Calamity Ganon once and for all.

3.1.2 Development

The game was released after five years of development, including two delays due to problems with the implementation of the physics engine. Plans to release on multiple platforms came up midway through development. The original intention was to release the game as a Wii U exclusive in 2015, but the game ended up coming out as a launch title for the Nintendo Switch. The change in platforms prompted changes in the design of the game. Plans to implement the touch screen on the Wii U gamepad were scrapped due to this as well as due to logistical problems with having to look down at the controller during gameplay (Otero 2017).

3.2 Core Elements

3.2.1 Principles

According to director Hidemaru Fujibayashi (2017), the goal of Breath of the Wild would be to achieve what he refers to as an “active game”. A component of this would be to realise a type of emergent, systemic harmony he calls “multiplicative gameplay” as opposed to something that could be considered “additive” like that of previous games in the series. (GDC 2017.) This concept consists of the player being faced with an obstacle or situation and then having the player themselves come up with the solution.

This was actualised in the game in several ways. Breath of the Wild definitively diverges from its peers in the open-world genre through some of these elements. A central axiom that the game follows is turning obstacles into alternate paths, a decision that grants the player new dimensions of freedom. (GDC 2017.)

3.2.2 Climbing

Breath of the Wild’s climbing system is touted by critics to be a revolution among open-world games. While climbing mechanics are no rare sight in such games,

the manner in which Breath of the Wild carries it out is decidedly different – instead of being able to climb pre-set, specific walls or routes, the player may choose to climb almost any surface in the game.

As Link comes into contact with a wall, he enters a climbing state. While climbing, his stamina depletes at different rates depending on how steep the surface angle is in relation to gravity (image 8). While remaining idle, his stamina ceases draining. This can be done even if the action makes no clear logical sense, such as with smooth walls at sharp angles. Only certain walls of specific materials are exempt from this.



IMAGE 8. When the green circle empties, Link will fall (The Legend of Zelda: Breath of the Wild 2017)

Generally, walls in games can be considered an obstacle to be circumvented, but Breath of the Wild turns this on its head. Walls become a possible path for the player to take. (GDC 2017.) The only limitations on this are Link's stamina and the player's own patience, the former of which can be worked around by increasing his maximum stamina, using consumable stamina restoratives and learning how to climb optimally. However, towards the end of a playthrough the resources needed for climbing accumulate and become effectively infinite, rendering other options and playstyles inefficient or even irrelevant.

3.2.3 Paraglider

While airborne, Link may pull out his paraglider to nullify any damage that might be sustained from hitting the ground. While hanging on the glider, Link's falling velocity is reduced and his forward momentum increases.

Similarly to how players are generally restricted from easily going upwards, getting down from high places is also a constraint placed on the player. By introducing a stamina-powered paraglider, Nintendo not only bypasses this issue, but expands the player's freedom by virtually granting them the ability to fly. (GDC 2017.) Together with the climbing mechanic, the paraglider tames the Y axis to be freely accessible to the player like the X and Z axes typically are, removing the element of adversity from verticality.

3.3 Interaction Engines

3.3.1 Physics

Havok's physics simulation engine is another of Nintendo's answers to the question of multiplicative gameplay. A majority of the gameplay elements fall back on the physics in some manner as part of a vision of all objects being able to interact with each other dynamically. (GDC 2017.)

Some of Link's main abilities run on the physics engine (image 9), such as Stasis, which stops any physics-enabled object in time for a short while. Any force that applies to the object during this time is stored in the object, simulating the law of conservation of energy. Once this duration runs out, the force gets applied and the object flies off according to the stored vector.



IMAGE 9. Another of Link's abilities is creating bombs that can be either spherical or cubic, determining their physics interactions (The Legend of Zelda: Breath of the Wild 2017)

For intrinsically motivated players, the systems provide constant opportunities to be creative with objects in the environment. An example using Stasis is activating it on an object such as a rock, hitting it multiple times from the desired direction and then proceeding to cling onto it, resulting in flying away with the rock. However, since this kind of elaborate play is not explicitly incentivised with in-game rewards, yielding the same results as not engaging with the options at all while consuming more effort and resources, this might leave certain types of players cold (Matthewmatosis 2019).

3.3.2 Chemistry

In a presentation at Game Developers Conference (GDC) 2017 (image 10), technical director Takuhiro Dohta told an anecdote about the birth of the concept of a chemistry engine. Physics engines are commonplace in game development – why are chemistry engines not? Such a system was developed to further implement the ideas of an active game. (GDC 2017.) The engine proved a creative and flexible way to provide content and holds much untapped potential in other kinds of games as well.



IMAGE 10. Director Hidemaro Fujibayashi, technical director Takuhiro Dohta and art director Satoru Takizawa at GDC 2017 (Nintendo of America 2017)

The chemistry engine classifies objects into elements and materials. Materials are solid objects like rocks, weapons or even Link himself, whereas elements can change materials' states - they are things like fire or electricity. A "fire" element can grant the state "burning" to a material with the "flammable" attribute. A "conductive" material may get "electrified" when near an "electricity" element. Rainy weather, as a manifestation of a "water" element, may extinguish "fire" elements, as well as apply a "wet" state to surfaces, making them difficult to climb. (GDC 2017.)

3.4 World Design

3.4.1 Map

Like any true open-world game, the map in *Breath of the Wild* takes centre stage. The map is split into fifteen regions, whose maps are obtained separately by

climbing a specific tower in each region. This is a common method of map acquisition in open worlds. There is one key difference, however: unlike most similar setups, *Breath of the Wild* only hands the player a topographic map of the region, devoid of map markers for points of interest. It is left up to the player to decide for themselves what their personal goals are; map markers only show up after the player visits the corresponding location.

To ease in reaching the player's destination, pins and stamps are at one's disposal. Stamps can be used as custom map markers, while placing a pin makes it show up on the head up display map indicating the general direction of the objective. Pins may also be placed in a first-person view during gameplay.

Hero's Path mode is a special map function included as downloadable content. When active, the path taken by the player during the last circa 200 hours of gameplay is drawn on the map in green. This mode is intended to help players find areas they have yet to visit, as it might prove challenging to remember an entire open world in detail.

3.4.2 Goals

One of the main forms of progression in the game is completing the 120 shrines hidden throughout the game world. Each one hides away a Spirit Orb, after collecting four of which can be traded for a permanent health or stamina upgrade. In a majority of the shrines, the player must complete a trial before the Orb is acquired, while sometimes the challenge is finding or getting inside the shrine itself.

Also hidden around the world are 900 hiding places of the Korok, mischievous forest folk (image 11). Their hiding places can be any eye-catching oddity in the environment, such as a strange formation of rocks. Finding a Korok yields a special seed that can be traded to permanently upgrade inventory space. In a curious piece of game design, the developers clearly are not intending for the player to find every single seed. Rather, their large quantity is meant to guarantee that

players find at least some of them to assist with inventory management (Arlo 2019).



IMAGE 11. A world map of Breath of the Wild. Shrine and Korok locations have been marked on the map (Sneezes 2017)

3.4.3 Encounters

Combat encounters can be classified in two types: predetermined and randomised. Despite being randomised, the latter type tends to happen during specific circumstances, like during night-time or in particular climates. Predetermined ones tend to take the form of enemy camps and outposts out in the wilderness.

While randomised encounters are mainly present to produce noise and variety, the hand-placed kind is wrapped in interesting design. Hostile settlements and the like are surrounded by parallel options for taking the enemies down. More often than not, the player can find large boulders uphill from the foes or there

might be a stack of explosive barrels right next to them. Unfortunately, the practicality of such design falls off the further you progress in the game, as come even as early as mid-game, environmental damage will not even be enough to scratch enemies. This is due to content scaling, which will be covered further in chapter 3.6.2.

As the player defeats the predetermined encounters, the emptied enemy camps are left deserted until the next blood moon occurs. Included in an effort to tie in game mechanics and story as well as due to technical constraints, blood moons occur at midnight every few nights, respawning the slain monsters and returning objects to their original positions. (UNDERSCOREY 2017.)

3.5 Inventory Systems

3.5.1 Expendability

The inventory in *Breath of the Wild* subscribes to a concept of expendability. The player may hunt and gather all kinds of flora and fauna in their travels, but few things are unique or permanent.

This also applies to the selection of weapons. The weapon durability system remains highly divisive even among those who shower the game with praise as newly found tools may break after just a few swings. However, the mechanic is well justified when designing with nonlinear progression in mind. Weapon durability allows the player to accidentally find powerful weapons early without irreparably breaking the progression and difficulty curve.

Ripples of this decision can be seen even in other aspects of the game. In particular, enemies are consciously designed to be able to wield different sets of weaponry so the player may loot them upon the foe's defeat. Some critics have said that this choice actively hurts the diversity and variety of enemies in the world of *Breath of the Wild*, since the enemies must be able to wield weapons.

3.5.2 Crafting

While the game lacks a traditional crafting system as they appear in many other open-world games (image 12), cooking is featured in *Breath of the Wild*. In addition to how the chemistry engine may bake or freeze foodstuffs exposed to the elements, special cooking pots can be found in pre-set areas and used to prepare meals that provide temporary power-ups.



IMAGE 12. The other instance of crafting in the game is an upgrade system for Link's equipment, using materials found in the game world (McFerran 2017)

The cooking system introduces an aspect of survival in the wilderness. Players must prepare in advance for potential harsh climates by either dressing up for the occasion or preparing dishes and elixirs that help withstand heat and cold. In the absence of traditional conflict provided by difficult terrain and verticality in the environment, this becomes key in maintaining engagement in the player. To reward exploration, cooking the gathered ingredients is also the main avenue through which the player obtains ways to restore lost health.

3.6 Progression Model

3.6.1 Gating

Another feature in *Breath of the Wild* that received high praise was its approach to gating, or the lack thereof. There are few consequential progression gates in the game. The first and by far the most meaningful one is leaving the tutorial area upon its completion – after it is done, the game can be finished by traveling straight to the final battle if the player so chooses (image 13). Even freeing the Divine Beasts only gates the ability access certain shrines and other optional content, despite their plot relevance. The other gates involve unlocking the camera feature and acquiring the ability to swim up waterfalls. The player is actively pushed towards the former and the latter is comparatively negligible.

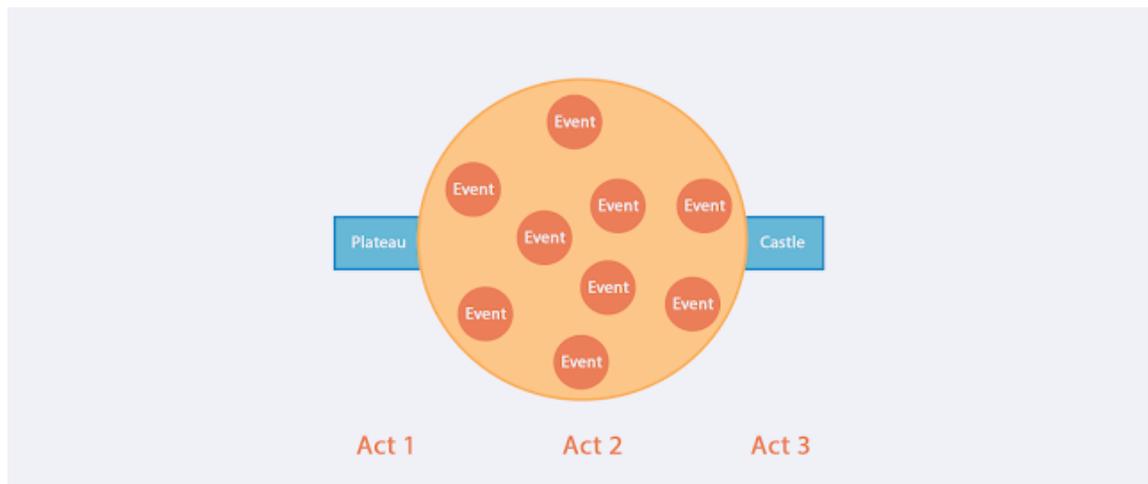


IMAGE 13. The primary structure of *Breath of the Wild*. Compare with image 5 (Savant 2019)

3.6.2 Scaling

In the background, *Breath of the Wild* counts the total number of defeated enemies of each variety. As these numbers increase, the world scales up the overall difficulty level. (_KERO_ 2017.)

Monsters are divided into tiers based on their colour. With the increase of the kill count, predetermined encounters get replaced by stronger variants. Red enemy types – the lowest tier – get replaced by blue ones. Monsters that used to be blue become black, after which the following tier is silver, the final one. On top of this, the enemies start wielding more powerful weapons.

Similarly, some weapons are subject to a tier-based system. The game determines the result of opening a treasure chest containing one of these tiered weapons based on the same values. Scaling works in tandem with expendability and inventory expansion to create a kind of inventory progression system, with which the game can balance the content around how far along in the game the player is as well as their skill level. Despite this, Link and the player can both become disproportionately powerful and skilled respectively towards endgame, shattering any illusions of challenge.

3.7 Visuals and Audio

3.7.1 Art

With careful consideration, the development team decided on an art direction after searching for one with a good balance of realism and abstraction. In art director Satoru Takizawa's (2017) words, they needed a style that made it easy to lie. This means not breaking the player's immersion with convenient abstractions like game turning into slabs of meat directly or logs transforming into firewood in a single hit. They also had to consider the reality aspect as the art should not look like something that cannot be taken seriously. The final product reflects all of this. (GDC 2017.)

3.7.2 Sound

The minimalist style of open-world audio design is present in *Breath of the Wild*. While some songs in the sweeping, epic style of past *Zelda* games are still present, what the player hears for a strong majority of game time is comprised largely

of silence. This silence is accompanied by slightly randomised piano arpeggios with long breaks in between. The more high-profile songs are reserved for special scenarios or towns, begging the question if resources were allocated optimally in this case (Super Marcato Bros 2018).

To support the decision of largely absent background music, the sound design takes a more active role. The soundscape of wind, birdsong and footsteps conveys the idea of an open world full of nature. Most actions with even minute differences to others have their own separately recorded sound effects, creating a massive library of sounds (Scruffy 2019).

4 DELIBERATION

In the process of comparing *Breath of the Wild* to the vision Fujibayashi (2017) describes in GDC, the game can be deemed a failure at what it set out to do. In the game, the gameplay loop of multiplicative gameplay – being faced with situations and having to come up with strategies to solve them yourself is only realised towards the beginning, particularly during the tutorial, after which it appears all but forgotten. This can be observed in multiple facets of the game: unlocking the paraglider, increasing Link's stamina gauge and accumulating a surplus of stamina restoratives effectively turn the game world flat while the enemy scaling completely invalidates most strategies for taking on enemy camps. The game gets progressively simpler as it goes on in what can be described as an inverted difficulty curve. The finished product feels like a game intended to last hundreds of hours yet designed to be played for a dozen. These factors leave the game enigmatic and contradictory in its design. In conclusion, the early game seems like a technical demonstration for revolutionary ideas, but the game suffers from diminishing returns due to its mechanics actively hurting its longevity.

Seeing multiplicative gameplay through to the end is a herculean task in which one needs to innovate and tread much foreign ground. In a perfect game that implements such concepts, there cannot be a right solution to the presented situations – the answers must be parallel. *Breath of the Wild* gives the player a handful of options that are linearly superior to others, such as climbing and the paraglider. On the other hand, putting in more effort should yield higher returns: the game needs to acknowledge the difference between repeatedly tapping the attack button and devising and executing a complex plan of action. Should it neglect to do so, it risks alienating extrinsically motivated players, which is a considerable number of them.

I personally believe that while its goals are lofty and principles are noble, the idea of an active game or at least Fujibayashi's vision is fundamentally misguided. Turning obstacles into paths strips the game of adversity, an important element that also fails to be fulfilled by the narrow degree of enemy variety.

At the start of the bachelor's thesis process, my mind was thoroughly set on the game. However, I began finding redeeming qualities as I kept writing, particularly from the early segments where a lot of the game mechanics still matter and something of a fruition of multiplicative gameplay is achieved. In that sense, the game is both a failure and a resounding success.

During Electronic Entertainment Expo (E3) 2019, a sequel for Breath of the Wild was announced. Not much is known about its gameplay as of the time of writing, but Nintendo has had plenty of time to seek solutions to their previous shortcomings and time will tell if their vision will be fulfilled this time. However, judging by general audiences' reception of the game, it presently seems unlikely and perhaps even unwise for Nintendo to stray too far from what they created in Breath of the Wild.

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