Research Results – Metroidvania Games

1. Genre

Sense of mystery and discovery on a spatial and mechanical layer

Interconnected world with plenty of secrets that the player slowly becomes familiar with

Joy in getting lost momentarily and finding the right way without the designer's intervention

Loop of creating a mental map of the world and its gates, finding new abilities or items, and returning to the gates to pass them

From the perspective of a designer, the game world of a Metroidvania becomes one giant puzzle

Exploration is the key aesthetic of the Metroidvania genre, the mechanics and dynamics have to be designed to support its emergence

Discovery can be created through a large, interconnected world, a set of interwoven mechanics, or both

Metroidvanias rely on guided non-linearity and utility-gated exploration, they create the sense of a pseudo-open world where the player just happens to not possess the right abilities to explore all of it

It's a strange genre because it defines neither the mechanics nor the perspective of the game

Combination of intense action and thoughtful exploration is a huge part of the appeal of Metroidvanias

Genre has loyal fans that buy multiple titles each year, however, there is also creative stagnation because most Metroidvanias are inspired by the same games and don't deviate from the established formula

Two inseparable components are at the heart of Metroidvanias: the evolution of the player character and the reinterpretation of the game world

The evolution of the player character has to be based on the acquisition of new mechanics, not on power-ups, new weapons, or the completion of tasks

In Metroidvanias, there's a clear and perceivable difference between the early, middle, and late game

2. Abilities

Most of them affect the movement, combat, or both

Are used to open gates in the level

Player must use the ability to get out of the place where he received it

Certain abilities, like double jump or dash, appear in almost every Metroidvania

Great abilities can be used in different ways (e.g., to attack, to block, and to traverse)

Great abilities create synergies with other abilities or radically alter their use case (e.g., throwing a projectile and using it for an extra dash in Ori 1)

Bash ability in Ori completely reinterprets the gameplay because enemy projectiles now represent opportunities for jumps to the player, it also leads to cinematic sequences where you jump through the air with no floor at the bottom anymore

Because of the special movement abilities, the designers can craft unique spaces with different central directions (e.g., once you get the gliding ability, a lot of the more vertical levels open up for you)

On the one hand, the design of the levels should tease the player about upcoming abilities, on the other hand, it shouldn't be obvious what the ability is going to be because that takes away the joy of discovery and surprise

Metroidvanias are low on tutorials and let the player discover the abilities and their utility themselves

To create a sense of discovery in gameplay, mechanics have to be designed orthogonally, i.e., to multiply the possibility space of the game

Game can give the player abilities from the beginning that are simply not explained, has to discover and master them himself

Sometimes, the player starts with all the abilities and has them taken away from him at the end of the prologue ("abili-tease")

Some games have optional abilities that serve as fantastic rewards for the most thorough players

Movement abilities like dashes and double jumps make the backtracking much more acceptable

There is often a special attack that is unlocked early on in the game and consumes some kind of energy resource when it's used

Metroidvanias like Ori let the player get through a large part of an area by using enemies or environmental mechanics to progress. Then, the player receives an ability that lets them progress without the help of enemies or the environment. The ability is granting the player independence from the level design

Player should already have some abilities at the start, otherwise the gameplay isn't fun and they might quit before getting to the good stuff (e.g., Ori 2 starts with the wall jump and wall climbing unlocked)

A lot of Metroidvanias have context-based movement mechanics that give the designers more control over the player's traversal of the level (e.g., double jump in The Messenger, swinging in Ori 2)

Central abilities are often guarded by hostile bosses

3. Rewards

Many different types of rewards to encourage exploration and help with the usually high difficulty of the game

Meaningless or too repetitive rewards destroy the sense of exploration that forms the foundation of the genre

A high number of collectibles doesn't lead to a sense of discovery, you need to add unique sights, characters, events and systems to the game

The rewards have to have an impact on the gameplay (skins in Jedi: Fallen Order didn't work at all)

Rewards gain their immense importance from the fact that the player is highly limited at the beginning (e.g., only three health points or two slots for passive modifiers)

The utility of certain rewards can be greatly increased by stretching out the time the player has to struggle without said reward (e.g., maps and abilities in Hollow Knight)

New abilities are the most important rewards

Other rewards include more maximum health, more maximum energy, money, items, regeneration, new combat moves, objects with passive effects, more object slots, more attack damage, shortcuts, save points, fast-travelling points, partial maps of a region, and lore information

Important rewards can be split into fragments (e.g., find two health cells to gain one additional max health) to allow for more rewards and easier balancing

Most Metroidvanias have one central resource that you receive for exploring the world and killing the enemies

Often, the player is forced to choose between combat upgrades, movement upgrades, and quality of life features

In order to uphold the sense of exploration and discovery, the rewards shouldn't be predictable (e.g., in Ori 1, the player could see the whole skill tree right from the beginning)

Several Metroidvanias couple lore information with gameplay rewards like money or experience points. Makes sure different player types appreciate the reward equally

4. Structure

Often starts in a more linear area

With more and more abilities, the world opens up and gives player different areas to explore simultaneously

Linear introduction -> open middle part -> linear ending

The middle part can represent a significant challenge because the player starts to become familiar with both the mechanics and the game world and if nothing changes, they no longer wonder what else the game has in store for them

Often, the middle part is about completing several similar sub-tasks in no particular order to unlock the path to the ending (e.g., find 5 items, kill 3 bosses, …)

Tend to have a central hub area, often with friendly NPCs, sometimes the player can evolve the hub (e.g., Ori 2)

That hub is located near the center of the world and the player explores outwards in different directions

Biomes have vastly different looks to help with orientation

Exclusive environmental mechanics shape the identity of biomes

No consistent movement direction for the player, they have to go left, right, up, and down (difference to sidescrollers)

Way back is regularly locked behind the player to force them to find and learn a new ability

Sometimes soft gates that can be traversed without the corresponding item/ability if the player puts in enough effort (e.g., a dark cave where the player's sight is severely limited until you obtain a lantern item)

Areas should be connected to multiple other areas so there's always more than one way to reach the goal

Fast-travelling points are needed if backtracking takes too long

Arrangement of the areas should make sense narratively (e.g., the lake above the city in which it's always raining in Hollow Knight)

Player unlocks shortcuts (often they can only be unlocked from one direction) and thus discovers how areas are connected

The level design makes use of loops and shortcuts. Once the player has proven his skill by getting somewhere, going back should be as easy as possible

Secret sections of the level that look slightly different than the rest, player must either go there or attack suspicious walls to find them

Places for later in the game must stand out to the player, for example, through impressive visual landmarks

The structure of the level teases the player by showing them lots of gates they cannot pass yet (question marks on the player's mental map)

Showing gates early heightens the sense of discovery as the player is travelling the world, constantly imagining what lies behind that gate they couldn't traverse

Relationship between player and game world changes as they acquire more and more abilities

Good Metroidvanias send the player through the same area multiple times and vary the context to create a completely different play experience (e.g., suddenly there's a timer or there are enemies on the way back)

Metroidvanias sometimes allow the player to reach an area that is way too difficult for them at the time

Game designers have to be careful with player guidance. If overdone, it takes away from the desired experience of players focused on exploration

Landmarks from other areas in the background create the illusion of a three-dimensional world and give the player a sense of achievement

Often in Metroidvanias, the way to the goal is quite short but because of the gates, the player is forced to take a long detour to get there

Designers must ensure that the size of the world doesn't exceed the player's cognitive-spatial capacities

Good Metroidvanias give the player several options as to where they can go next (Ori 1 didn't feel like a real Metroidvania because the structure was too linear)

The levels tend to be structured around levers, doors, and elevators that prevent the player from backtracking

Metroidvanias often have buildings in the background that the player can enter and leave by pressing a certain button

The map is a central part of navigating a Metroidvania. Some games automatically highlight gates and other points of interest on the map. In other games, the player can unlock markers they can place themselves

Lots of Metroidvanias have save points in the level that you have to activate. They restore the player's health, save the game, and respawn the enemies

Puzzle sequences are used occasionally to add variation to the action and exploration-based Metroidvania genre

5. Game feel

The game feel of the movement and combat makes or breaks Metroidvania games, you have to get the basics right

Several elements work together to create great game feel: finetuned controls, polished animations, impactful visual effects, sound effects, UI animations, enemy flashes, screen flashes, recoils, camera shakes, force feedback (controller vibration), error prevention mechanics (e.g., coyote jump), slow-motion, and freeze frames

Most games use 4-6 of these elements at the same time

To avoid repetitiveness, alternative animations and sound effects are added for common actions like dashing or attacking

Metroidvanias constantly give the player opportunities to use the main mechanics, even if it's completely inconsequential (e.g., slashing the grass in Hollow Knight or destroying the lanterns in Ori, activating triggers with the attack, destroying doors and barricades with your weapon)

Attacks can usually be combined with various forms of movement to give the player options (e.g., attacking while in-air)

For a better sense of control during combat, some games allow the player to attack in any of the four directions

Metroidvania games are meant to be played with a gamepad and they're optimized for these types of controls

Even if the abilities sound cool, they have to feel great to use, else the player will avoid them (problem with lots of grappling hook mechanics)

6. Story

Often no clear goal/story at the beginning

Gameplay starts right away and story slowly catches up

In general, genre is more driven by mechanics and world design than by story

Metroidvanias often take place in a fallen world, in which both the history of the world and the role of the protagonist are mysteries that slowly unravel throughout the game

Story is commonly told through dialogue boxes, sometimes they are voiced in a fantasy language to immerse the player deeper in the fictional world

Generally, story information is kept very brief so that the player is not distracted from the gameplay for too long

NPCs that are on their own adventure and appear in different areas of the game world (Ori 2 and Hollow Knight)

Often two endings: the bad ending you discover pretty quickly and the true ending that requires the player to do a lot of hard extra stuff

7. Miscellaneous

Tough bosses, a growing map, and the need for backtracking are considered common elements of Metroidvanias

Map is central part, but games vary as to which features are unlocked from the start and which you must unlock yourself

Often there are NPCs or objects in the biomes that improve your map by showing some of the rooms of this area you haven't yet explored

In some Metroidvanias, the map displays the percentage of things the player has found in a given area (very useful for completionists)

Some games force the player to make a choice between upgrading their map and upgrading their movement or combat

Metroidvanias have to teach player right aways that there is no consistent central direction and that backtracking is part of the game

It's important for the gameplay that the background and foreground are clearly separated artistically

Metroidvanias handle falling into environmental hazards differently—some instantly kill the player, some just remove one life and make them invincible for a while, some let the player respawn nearby and remove one life

Whereas some games offer a seamlessly connected world, others split their world into various screens which is less immersive but also helpful for orientation

A black, blurry foreground can be used to add atmosphere and foreshadow things that will happen later in the game (e.g., important characters moving through the foreground in Ori 1)

Death is often punished by taking away some of the player's central resource or weakening his combat abilities until he has returned to the location of his corpse

Optional bosses are a great way of challenging the player and rewarding them for their exploration with new content that other players might miss

Often bad ending that can be avoided by completing a bunch of difficult, optional content that leads to the true ending