

Mandatory 4 Part 2

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Comments and explanation on the changes:

We have look to the feedback provided and we have been making the changes according it where it was necessary.

We have given an overview of the learning goals sooner and we have defined the learning goals more precisely on the following sections. we have added more examples to transmit our ideas in a better way where it was necessary according to the feedback.

Feedback talked about a mistake in our explanation of fish-Tank principle for our game.

We focused it on the mechanics, now, as the feedback suggest, we talk about simplicity and complexity of the learning goals and how the game simplify them in the first stages of the game.

We also added how it ensures the reflection we want is supported in the way it was thought.

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The game we have chosen to analyse and try to apply the principles of Gee is Trifecta, our game lab 5 game.

What is Trifecta?:

Trifecta is a 2D platforming game. The player has the ability to switch between three different characters. Using these abilities, the player can explore the platforming environment in creative ways and find “puzzle-rooms” that act as challenges for the player to complete. Completing enough puzzle-rooms rewards the player with a currency to unlock the next level as well as new and improved ability set upgrades that will let the player reach new hidden places with rewards and new levels. The main mechanic of the game is the cooperation between the abilities of the three characters, and here is where the strength of our learning goal is. The players will need to understand that the only way to complete and reach new areas of the game is by having all the characters “working together” for a common purpose, resolving different challenges that will need the ability set of each character to be completed. “Two (three in our case) heads are better than one”.

Gameplay Overview:

The player explores a large and open 2D environment to uncover entry points into so called “puzzle-rooms”. These rooms act as challenges that force the player to think ahead in order to complete them.

Exploring the level and discovering these entry points are essential to completing the level itself.

These rooms act as challenges and require the player to either utilize all three ability sets or focuses on a specific ability to challenge the player’s mastery of it. There is also a limit to how many times the player can switch between ability sets while in the puzzle-room. The nature of the puzzles are platforming elements where the player must manipulate and navigate the environment to progress.

A set number of soul shards are required to open the next exploration level. When exiting a level, the players can choose which of the currently unlocked levels he wants to explore, and they are free to go back to earlier levels to use their upgraded abilities to discover previously unavailable areas.

The player will find, for example, areas or puzzles where we will need to jump a high obstacle that any of characters can (with their jumping power). The player will know that there are one character that jumps higher and he will find a heavy box on the surroundings that will allow him to reach the summit off the obstacle with the extra height of the block, but this characters is too weak to move heavy blocks. The block is too far away from the obstacle to find it useful. In this way the player will need to change to the character known for be the stronger (one who has the ability of moving heavy), to move the block to a nearest place to the obstacle. With this extra height and with the extra jumping power of the previous character the player can reach the summit of the obstacle.

Other puzzles will also need the abilities of the wizard, to create safety platforms to move heavy blocks to one point to another or make appear platforming areas that only the jumping character can complete.

As we see in this example, difficulties can be overcome by cooperation between the different characters. By using the strengths of each character and their ability sets the player will understand that the game is all about the cooperation between the three characters. Cooperation, and working together, thinking as one is the better way to overcome the difficulties, and this is our learning goal.

Target group:

Trifecta can be enjoyed for people of all ages. The idea is to reach the maximum number of players. Despite that the game is going to be more enjoyable for 2D platform and “Metroidvania” lovers.

Learning goals:

As we explained before, Trifecta is about switching between characters to reach new places, to overcome the difficulties and at the end, to reach places and complete levels and puzzle rooms. The player then understands that by using only one of the characters would make the task of completing the game impossible. In this way we want to give the player a clear message. Cooperation and self-improvement are the keys of our learning goal.

Sometimes human stubbornness and pride lead us to face very big difficulties alone, and if we are not able to overcome them this can lead to frustration and sadness. We want to make the player understand or learn that sometimes is impossible to face some big challenges alone and that it is better to ask for help and having the cooperation of others, that can lead us to the success and the reinforcement of the co-operators’ bonds.

In the specific case of the game the player will realize that the only way to solve the problems and challenges the game “creates” for him, is the combination of the skills and strengths of each one of the characters in the game.

To sum up, our learning goals are: Make the player understand and reinforce the idea that everybody has his weaknesses and strengths and that cooperation and team working are fundamental for overcome difficulties and challenges as work projects too big to be reachable by one person, team sports, homework, make video games ...

Gee principles that we want and we don't want to follow

As we said, the game is already developed, so we can analyse the game using this principles and telling which ones fit better with our design (the ones we want), and which ones are far away from our game (the ones we don't want or the ones that we think they don't fit at all with our game and learning goals).

The ones that fit:

Empowered learners:

- Co-Design, Customize and Manipulation.

Problem solving

- Well-Ordered problems, Information "On Demand" and "Just in Time", Fish Tanks, Sandboxes, Skills as Strategies

Deep understanding

- System Thinking

The ones that doesn't fit:

Empowered learners

- Identity.

Problem solving

- Pleasantly Frustrating, Cycles of Expertise

Deep understanding:

- Meaning as Action Image

The ones that fit:

Co-Design

At the beginning of the development we thought to implement things as ability trees customization and decisions in the gameplay in a way that the result or the ending would be different depending on the decisions and characters the player decided to improve more.

The idea was creating a gameplay in which the player will know more about the story of each character depending on which one he decided to use more or invest ability points on. The end of the game was thought to be a moment to decide which one of the characters the player wanted to be saved. This moment fit with the planned background story that we decide not to implement for timing reasons. Despite that it is not now on the game, maybe in a future we would include it. In addition, we think it is interesting to have this explanation of the Co-Design principle here because it was part of our first conception of the game.

Customize

In our game we give the possibility of exploring and finding new places that are only accessible if the player decides to change between characters. The player also has the possibility of going to the open levels using only one of the characters, but in that case, if he refuses to use the cooperation between characters, he will lose the possibility of finding new places and reach secret zones with rewards.

Manipulation

We want to give the player the feeling of having the complete control, not only of the character movement but of the environment. We are looking for a smooth control to make easier the change between characters and the use of their abilities. Each character has the possibility of using his abilities to change things on the environment to unlock paths and allow the player to continue advancing on the levels. It is the power of changing between ability sets and the possibilities these changes between characters bring with it the way we are looking for this manipulation principle.

Well-Ordered problems

We have built the levels trying to follow this principle and looking for a nice difficulty curve, giving the player on the first stages of the game the tools to advance and solve the problems that he is going to find in the rest of the game. We are looking for a level and game design avoiding the player to feel lost or get stacked.

At the beginning we are going to have challenges based only on the abilities of one character, there will be no need to combine them all, the player will have time in this way to know the actions each one can perform. In the following stages of the game the player will find challenges that will make them to combine two and even three of the characters to complete the levels.

At the beginning the player will find levels based only on platforming (for the jumping character) or based on making platforms or walls appear and disappear (ability of the wizard). On the following stages we will need to combine them, for example, make some platforms appear to allow the player face a platforming stage and forcing him to change again to the wizard in the middle of some jumps to make disappear walls that were on the trajectory of the jump, allowing the player to reach the next platform.

Information "On Demand" and "Just in Time"

In the same way we did following the well-ordered problems we have tried to follow this principle. The tools, the abilities and the way to use them are placed or presented when the player needs them. The objective is to avoid the players can feel they are obtaining things or possibilities he doesn't need or that can feel useless.

Fish Tanks

Our game is about cooperation and fight for a common purpose. At the beginning, especially on the first stages of the game and tutorial, the idea of cooperation is simplified. Some actions, as making platforms appear, will make the path easier to the jumping character. But those platforms will be not necessary at all, because the jumping character will be able to reach that point anyways, but going through a longer and rough path. Here, the idea of cooperation is simpler but in the following stages of the game the need of cooperation will be unquestionable. The player will find complex challenges that will require a mandatory cooperation of the different character.

In this way we are moving from the "you could ask for help" to "you must ask for help", having "you should ask for help" in the middle. We are moving from a simple idea of cooperation to another more complex and deeper.

Sandboxes

As designers we understand that one of the main learning experiences is the exploration. In our case our level design allows the player to explore a 2D environment looking for new areas and rewards in the ones that we have called "open levels". In those open levels the player will find the doors to access the different puzzle rooms and secret areas where they can obtain different rewards. In Trifecta, the idea of cooperation is reinforced with this principle, the way to reach these secret places and in some occasions the doors to the

puzzle-doors is to combine the abilities of the three characters, cooperation is the way to success.

Skills as Strategies

In Trifecta we have simple mechanics, but we can say it is possible to master the game by the skill. The idea of the puzzle rooms is to reach the end of the level with a limited number of changes between characters. So again, the only way to complete the puzzle rooms that allows the player to unlock new abilities and paths is using the skill to change quickly or efficiently. So, to sum up, in our game, the skill of changing between character (reinforcing again the idea of cooperation) is a strategy.

System Thinking

When we created Trifecta, we tried to design the levels according this principle and trying to show the player that each action and gameplay decision in the game has its result. We have tried to make each one of the abilities of the different characters to fit clearly with the way they work or interact with the environment, trying to make the player understand quickly how they work and how they fit into the game world.

On the first stages of the game the player will start using the abilities of each one of the characters, without needing the combination of the three characters to overcome obstacles. On the following stages the player will need to combine them as we saw in some examples, like using the wizard to make appear some platforms useful for the jumping character to reach higher places. By making the player get use to the abilities of each character separately on the first stages of the game, he will find easier to recognize where and when he has to use them, creating an optimal strategy by combining the abilities of all the characters to reach the end of each level.

For example: If the player sees a very high platform with a reward and the indicators of “magic platforms area”, he will recognize that by using the wizard he can make those ones appear. Then, he just has to change to the jumping character to jump between the different platforms to reach the end.

The ones that not fit:

Identity

In our game we want reinforce the use of the three characters and encourage the cooperation and the use of the abilities of each character. In this way it not makes sense to follow this principle because our objectives are far away from make the player identify himself with a unique character.

Pleasantly Frustrating

We wanted a game for all publics based on a simple platforming and trying to avoid frustration. We have tried to make the puzzle rooms enough difficult to make them interesting but easy enough to make them completable. Looking for pleasantly frustration would be looking for a game completely different to our game.

Cycles of Expertise

If we think about cycles of expertise, we think about practicing repeatedly one skill or mechanic to make it nearly automatic. We wanted to create a small game with multiple options in terms of gameplay and mechanics so thinking on this principle and trying to follow it would have had another level and game design as a result : Maybe a game with more content, or maybe the same amount of content but with less mechanics to give the player the chance to become an expert on them.

Meaning as Action Image

From our point of view this principle is one of the most difficult ones to follow. Make the player learn different things depending on their experiences implies to know very well your target group and maybe it also implies to reduce it to a concrete one instead of trying to reach, for example in our case, all publics. Looking for following this principle would imply a deeper concept and design, one that we find right now very difficult to reach with our skills.

Introduction to game heuristics

HEEG (Heuristic Evaluation for Educational Games) has proved to be a useful method to reduce the time of game production, detect early problems and make sure that the game produced is enjoyable and educative.

The HEEG is based on the HEP, PLAY and Game Flow heuristics.

The Heuristic Evaluation for Playability (HEP) is grouped in four categories (game story, gameplay, game mechanics and game usability) and only addresses specific characteristics of the game.

That is the reason why the PLAY (Principles of Game Playability) heuristic came, giving support to every phase in a game development process.

Finally, the GameFlow heuristic covers the enjoyment of the player. This is one of the most important ones because is the one that makes a player wants to play an educational game outside of his school environment.

To do this assignment, we are going to use some of the heuristic rules originated by the model we have been talking about recently in order to test that our game achieves the requirements and quality to be an educational game.

These heuristics are grouped in 4 different categories:

- *GamePlay*: rules related with the game experience of the player.
- *Enjoyment*: related with the fun of the game.
- *Usability & Game Mechanics*: verifies that the game has enough information to assist the player during the experience.
- *Educational Design*: tests if the game promotes learning in an appropriate way.

GamePlay

Enduring Play:

In Trifecta, the player must solve different puzzle rooms in order to unlock new abilities for his characters and new areas of the game. Every puzzle room is unique, and the player must face it in a different way. With these challenges we get to keep the player entertained offering to him new dares.

In these puzzle rooms the number of changes the player can perform are limited, but they are enough to complete the level, even though the player lost a couple of changes.

We do not want to penalize the player excessively when he fails a room and he could restart the level (resetting the changes he can perform) quickly to face it in the correct way.

Challenge, Strategy and Pace:

We achieve this heuristic giving the player different challenges and rewards after completing a puzzle room. In addition, as the player progresses, he will earn new abilities which are necessary to complete the next levels.

Varying the different levels and the abilities that have to be used to complete the puzzle rooms we try not to fatigue the player with the same activity every time.

Goals:

In the game, the player has to achieve a main big goal presented at the beginning, which is to complete the different puzzles to go to the next level.

To complete these puzzles, the player must learn he can't overcome all the challenges by himself, he needs the help from other people (in this case, the other souls).

The different puzzle rooms presented in the game act as small challenges for the player to let him learn how to cooperate with the other souls in order to complete the puzzles.

Once he has completed the small puzzle rooms, he will be able to go to another level with more elaborated puzzles.

We have chosen to put these small puzzle rooms as smaller objectives than passing to the next level, which is the main goal, to not make the player feel overwhelmed in his learning process.

Enjoyment

Immersion:

We are going to implement visual and auditory feedback for every action of the player in order to increase his immersion. Some examples about the feedback we can add are a sound for the jumping or to turn the sprite of the player into red colour for some seconds when he gets hurt.

We want to create a really alive world, where the player can use his powers every time he wants. Furthermore, every power that each character can perform has its own animation set and sounds.

In addition, all the world we want to create around the game is going to have its specific sounds and animations.

To achieve this heuristic is really important for us, because is the one that influences the player to enjoy the experience and avoid thinking that it is another educational game.

Concentration:

In this game, we are going to give some freedom to the player, letting him to choose which puzzle room he wants to complete first. With this freedom, we want to get that the player has a more customized experience, where he can choose the objectives that are more interesting for him.

We are also going to have different type of rewards for the player at the time he completes the puzzle rooms. Most of the times they are going to be shrines that help him to achieve the big goal of unlocking the next level, but in other cases, he will receive a new ability for one of his characters.

In addition, each puzzle room is going to be separated from the rest of the “Open Level”, offering to the player another space with less distractions to stimulate his concentration.

In this game, we are trying to give the player objectives that are worth enough to him at the same time we try to give him a little freedom to be able to choose and prioritize his goals.

Usability & Game Mechanics

Documentation / tutorial:

We are going to introduce the player into the game with a tutorial level which shows him the basics.

This tutorial level will not take so long to complete it and the player could be able to use three of the six available powers in the adventure.

Giving the player some of these powers at the beginning of the game is a decision we think that will make the tutorial level funny and enjoyable for the player because he will learn the basic mechanics at the same time he experiments with his powers.

The game is going to be played using a controller, and we want to follow the standard controls of the industry for this type of games.

This allows us to have probably the most comfortable controls for our game, because the industry has been testing different ways of controlling the character for this type of adventures during the years until establish these standard controls.

In this way, if our player is a usual gamer, he won't have any problems to dominate the controls.

However, if our player is a non-experienced gamer, it will take him more time to assimilate the controls, but in the end, he will get it.

Game Provides Feedback:

In this game, we want to give the player as much feedback as we could. As we said before, we are going to implement visual and auditory feedback for all the actions the player can perform.

For instance, when he moves a box, the box will turn into green or when he uses the power to change the environment, an animation of the player using his sceptre will be triggered.

We are also going to include feedback in other parts of the game, to give the player some useful information. For example, the puzzle rooms that has been completed will be illuminated in a different way, when the player stays in front of them, then the ones which are not completed yet.

In addition, the player will be able to see the shrines he has in every moment, the changes he can perform in the puzzle rooms or if he can unlock a new ability or not.

As we said before, we consider the feedback a key part for any game to make the player feel interested in the game and improving his immersion.

Screen Layout:

The interface of our game is going to be simple, because we do not want to saturate the player with a lot of information.

Our goal is to show only the relevant information for the player, the rest of the information, like the puzzle rooms completed or the feedback which warns the player that he can unlock a new ability, is going to be given as a part of the game world, with this idea we mentioned about illuminating in a different way the puzzle rooms completed than the other ones that are not.

Our interface will show the current health of the player in every moment, if he is in an open level or in a puzzle room.

However, when he enters a puzzle room, we will also show the number of shrines he has collected and the number of changes he can perform.

Related to the art, we want a consistent colourful art that turns to darkest tones as the player advances in the adventure, this progressive change in the art style is justified by the story we want to tell.

Nevertheless, in all the menus of the game we are going to maintain the colourful tones because we think that when the player is in a game menu, he should not be under stress.

About the dialogues and typography, we want to use an original font that fits with the game theme. Furthermore, every dialog in the game will be triggered only when it is necessary and can be skipped quickly by the player if he wishes.

Navigation:

The navigation and interaction between the player and the menus is meant to be effortless and intuitive, removing any kind of distracting elements that could confuse, using clear and consistent distinctives for the buttons (purple background) and visual feedback to make obvious its interactivity, marked even clearer with small texts that sum up the button's utility.

In regards of the UI in-game, the main objective was also readability without being overwhelming, which is accomplished by, for example, reducing the different used characters to their main colours, present in the left-top corner, with their separate lives following the colour scheme and highlighting clearly the currently used character, making all this constant information available and easy to read at all times.

To sum up, both menus and UI were thought to have only the necessary information always available to the player in an easy-to-read way, without any specific UI teaching needed.

Error Prevention:

To prevent players to commit unintended errors, when a new game is loaded there is a short tutorial scrolling where the main mechanics and abilities are taught through background text and put into practice right away with the level design, using the principle of fish tanks, where a specific mechanic or behaviour of the game is taught on its own so the player can figure it out and understand it without repercussions.

This also is achieved by having clear UI where it can be seen at any point the game data (life's left, character in use, changes left, and so on) and a pause menu with important information gotten "on demand" (the game controls) if it is needed.

In addition, the tutorial parts are short enough to not be annoying for more experienced players and, while teaching the new abilities acquired during the game, they blend with the level design, mixing slowly a new set of moves with the ones previously learnt.

Control:

Right from the beginning, the game establishes to follow traditional platformer conventions, using game controller with the left joystick for movement and the buttons and triggers for interactions with the world. This means that any medium-experienced player will know the basics interactions without the need of a tutorial and the newcomers won't have trouble either since a image of the movement controls is the first view of the game.

Other more specific mechanics (like the character swapping) use intuitive controls (right shoulder to go to the next character, left shoulder to go to the previous one) that even if they have to be taught, they are easily rememberable through the game.

Because of this and the instantaneous response of the character, the player will always feel in control of them, going where they want when they want and failing on their own, not because the game is "unfair" to them.

Educational Design

Supports Active Learning:

As any other game, is problem-solving based, in this case, finding through the levels enough soul shards to upgrade your abilities and discover new map areas as well as reaching the exit of the puzzle rooms, main goal of the game.

To achieve the end of the puzzle room, each player can figure the path, though slightly guided by design, on its own, making trial and error the way of progressing in the game,

learning from your mistakes, trying different strategies for the same obstacle depending on the player's mindset.

This game encourages trying different options, combining the variety of abilities at the player's disposal in any way they can think, with the handicap of limited changes per room.

Everything goes hand in hand with the learning goal: cooperation and self-improvement, since the player needs to combine different characters to solve the different puzzles, not being enough to use just one and be "on your own", utilizing their different powers in specific ways to break through the level with every character alive or just moving around the main map, finding new ways of opening paths with different combinations.

Engenders Engagement:

As exposed in previous point, in this game curiosity and creative thinking are keys to solve the different levels with a combination of the different ability sets within each character, since after all, without trying something, how can you know if is possible or not? Or what exactly the consequences are?

The level design is meant to be solved in a couple of ways, the main point being learn the newest ability unlocked, offering the opportunity to master it, but some other options are also available. It's not offered full freedom, but there is always more than one choice to carry on with the game, which is something that platformer players acknowledge.

For these reasons, the learning environment is also controlled by the game designer, that although certain freedom is left, it is "fake freedom" since there is just so much that can be done to progress.

Appropriateness:

Trifecta seems like an appropriate game since allows personal reflection on the characters and gives a subconscious learning about teamwork and lean on each other's abilities to reach a greater level than the one possibly achieved alone, telling that each of us is completely valid and having different origins and specialties is what makes us get further.

With this said, it appears as a good choice for a game for learning, as exposed in the points above, since it has a wide possible audience and a exposes in a simple way a concept as complex as relying on each other's masteries to get to "the next level".

Also fits with the evaluation because of all the levels and study dimensions that can be used as study lens, having a complex mechanic exposed in a simple way and summed up in "character swap", it has way more depth and can be understood as improving over time (with the upgrading ability behaviour) or working with each other (character swap itself).

Supports Reflection:

The real world reflection is, as said earlier, the deep inside understanding that people can't do everything alone, that asking for help is normal and usually better than working on our own, ensured by the fact that the characters are clearly differentiated and have different strengths and weaknesses, balancing each other.

This is also reflected in almost every adulthood scenario, where in workplaces, assignments, etc. is most likely that a team is needed, a varied team with a different approach and mind for the same problems and tasks. Working in this way is an everyday aspect, being so common that is almost taken for granted when, really, is an organization and communication challenge for everyone involved, making the skill of adapting to someone else's view is so important and was reflected in this game this way.

Provides Equitable Experience:

As a platformer, makes use of the general knowledge in regards of the controls, movement and level design (being able to move around the map to both ends and usually upwards, starting at one end of the map and having the exit at the opposite end, and so on). This might appear as an inconvenience for completely new players that don't have any experience, but the level design encourages exploration and the maps are not big enough to get lost, so in the worst case scenario, a newbie will only need a couple of minutes more than a gamer to figure out the next step.

On the other hand, it uses several buttons simultaneously (up until 3 or 4 consecutively almost instantly and at least 2 at the same time), which means less experienced players might have trouble with fast successions of patterns, but they are rarely used and have minimum punishment since the game is not meant to be suffered but thought and enjoyed.

Thus, it is meant to be accessible for all kinds of people, being achievable by both experienced players and completely new players, making sense with the target group, being this as wide as possible.