"When playing a game, the goal is to win,
but it is the goal that is important, not the winning."
Reiner Knizia
Board Game Designer

IX. GAME MECHANICS (PART 3)

Can you keep up with the material so far? Great! Lots of things we want to share with you. In this section, we want to share how to balance your design since balanced gameplay is a must for the majority of players. Of course, you can't please everyone. But still, pushing the limit to produce an enjoyable experience for as many players as possible is what you expect as a game designer.

9.1 Balancing

Game balancing is a challenging task because every game has its unique features that require balancing. As a game designer, you need to identify the areas that require balancing and experiment with them until you achieve the desired gaming experience for your players.

1. **Fairness (symmetric vs asymmetric)**

- **Symmetrical Games**: Fairness is a quality that all players seek in games. They want to have an equal chance of winning and not feel like the challenges they face are impossible to overcome. One way to ensure this is to create a symmetrical game, where all players have the same resources and abilities. Examples of symmetrical games include chess and monopoly.
- **Asymmetrical Games**: However, it is also possible and often desirable to create asymmetrical games, where opponents have different resources and abilities. This can simulate real-world situations, provide players with different ways to explore the game space, offer personalization options, level the playing field, and create interesting situations. In Figure 95, the Vagabond character from Root, represented by a skunk, takes on the role of an adventurer who travels through forests and clearings to acquire items. On the other hand, the Marquise de Cat character, represented by a cat, requires the player to build structures and gather wood from sawmills to construct different types of buildings and add combat units to the game board. This version of the game was released by Leder Games in 2018 (Leder

Games, 2022).

Figure 95. The Root (digital) board game involves players competing as unique characters. Each character has their own abilities that determine how the player will approach the game.

2. Challenges (skill vs challenge)

Remember Csikszentmihalyi's Flow theory? Different players have different experiences - one may find it boring, another challenging, and yet another frustrating. To strike a proper balance, there are some common techniques to try:

- **Increasing Difficulty**: With every success, the difficulty increases, and each level becomes more challenging than the previous one. As players improve their skills and manage to finish a level, they are presented with a new one that poses an even greater challenge.
- **Layers of Challenges**: The game offers different levels of challenge for players. Novices may find it exciting to unlock the next level despite receiving an imperfect score. As they progress and complete all levels, they may challenge themselves to improve their scores on previous levels, creating multiple layers of challenge.
- **Challenge Shortcut**: One way to make a game more enjoyable for both skilled and less skilled players is by providing a shortcut through easy levels. Skilled players can quickly advance to more challenging parts of the game, while less skilled players can be challenged by the earlier levels. This allows every player to reach the part of the game that is personally more interesting to them.

- **Playtest with Variety of Players**: It is wise for game designers to test their game with a diverse group of players, including both skilled and novice players. By doing so, they can ensure that the game is enjoyable from the beginning, remains enjoyable over time, and continues to be fun even after extended play.

When designing a game, there are two opposing forces to consider: player skill and randomness. If there is too much randomness, it can negate the effects of player skill, and vice versa. The balance between these two elements determines the flavor of your game. To achieve this balance, ask yourself the following questions:

- As a designer, what should you prioritize? The player's talent (skill) or chance (randomness)?
- Is your game considered serious or casual? Skill is typically taken more seriously than chance.
- Are there any parts of your game that are boring or repetitive? Adding elements of chance make them more engaging. But, how much randomness?
- Are there certain parts of your game that seem too reliant on chance? Would incorporating elements of skill or strategy instead of randomness help the players feel like they have more control?

3. Meaningful Choices & Feedbacks (meaningful vs meaningless)

A quality game offers players the opportunity to make impactful decisions that affect the outcome. These decisions should involve a choice between playing it safe for a smaller reward or taking a big risk for a larger reward, making the game more intriguing and engaging. Let's take a look at the Figure 96 of Risk-Reward relationship below.

- **Starter**: In the reward-risk category, players receive a low reward for engaging in low-risk activities. An example of this is when a player completes a tutorial level and the system provides them with initial items as a reward.
- **Bonus**: Players can typically expect to receive a bonus after completing a certain number of game rounds. This provides them with a chance to take a break and enjoy some valuable rewards after long and exhausting gaming sessions.
- **Meaningful**: The most valuable reward is one that is meaningful and justifies the risks taken to obtain it.
- **Worthless/ meaningless**: Finally, the least we want to create is a worthless reward; it simply gives the player an insignificant reward. However, you may still give the player some more common reward than nothing at all. For instance, in Dota2, a player will get a user XP (experience point) after a match, and if the player leveled up, they might get some in-game items. Most of the time, players will get common, sometimes even duplicated, items. Implicitly, it will make the item with a high rarity level more meaningful. Thus, compliment the "meaningful reward".

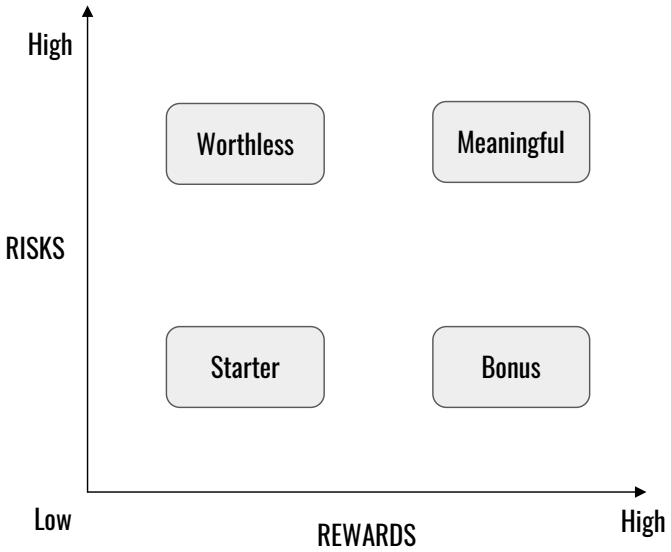

Figure 96. The Risks-Rewards diagram: The meaningful choice emerges from high risk and high rewards.

Games usually offer different types of rewards that are all designed to satisfy the player's desires, even though each type is unique in its own way. Based on the Risks-Reward diagram, we use it to categorize and show some examples of reward or feedback forms. We refer to them as feedback as the resulting reward or feedback is caused by the player's action waiting to get the response from the system. There are 3 channels of feedback:

- **Gameplay Feedback**: feedback to players related to gameplay dynamics. These include:
    - **Gateway**: As humans, we crave both validation and adventure. Game mechanics that unlock new areas when we succeed satisfy this desire. Winning a key or gaining entrance to a new level is often rewarded with a gateway prize. Usually, you will find after a tutorial level, you will get a starter bonus as an initial resource or supplies.
    - **Points**: In most games, points are used to measure the success of the player, which can be achieved through either skill or luck. Occasionally, points may lead to a larger reward, but more often than not, the knowledge of one's success is sufficient.
    - **Power**: In real life, people often desire to become more powerful. Similarly, in a game, having more power is likely to enhance the player's performance evaluation.
    - **Resource**: Rather than offering resources, certain games offer virtual money that players can use to purchase various items such as additional powers, extended play, and expression. These items are available for purchase with the virtual currency.
    - **Prolonged play**: Some games that have time limits offer rewards for players who extend their playtime. This is essentially the same as increasing the length of the game session. Having a

longer game session is attractive not only because it allows for a higher score and a feeling of achievement, but it also taps into our natural instinct to survive.

- **Aesthetic Feedback**: feedback to players related to aesthetic, including these examples:
    - **Gateway**: Just like in the gameplay feedback channel, a gateway also needs to have an aesthetic aspect that blends the mechanism into the overall gaming experience for players.
    - **Completion**: Achieving all the objectives in a game gives players a feeling of conclusion that is hard to come by when dealing with real-life challenges.
    - **Praise**: After completing a task in the game, you will receive positive feedback in the form of explicit messages, sound effects, or even in-game characters praising your performance. Take a look at Figure 97 below where a player may get praises for performing better.

Figure 97. In Taiko no Tatsujin, different types of rewards are displayed depending on how well the player hits the button. It's possible for a game to have multiple reward types. In addition to praise, this game also displays point rewards to inform the player.
(This screenshot is taken from https://gaming-age.com/2021/06/taiko-no-tatsujin-rhythmic-adventure-pack-review-for-nintendo-switch/)

- **Narrative Feedback**: feedback to players related to narrative aspect. Some examples of narrative feedback:
    - **Prolonged play**: Longer play duration will affect the player experience and the narrative aspect. Therefore, the prolonged play also occurs in the narrative channel.
    - **Expression**: A lot of gamers like to use unique clothing or accessories to showcase their personality when playing. Even though these items don't have a direct connection to the game, they can be enjoyable for the player and fulfill the desire to make an impact on the virtual world.

- **Spectacle**: As humans, we tend to enjoy things that are visually appealing and engaging. To enhance the gaming experience, music and animations are often incorporated as simple incentives. For instance, Pac-Man's "intermission" after level 2 was one of the earliest examples of this in video games. However, such rewards are not usually enough to keep players satisfied on their own, so they are often combined with other types of incentives.

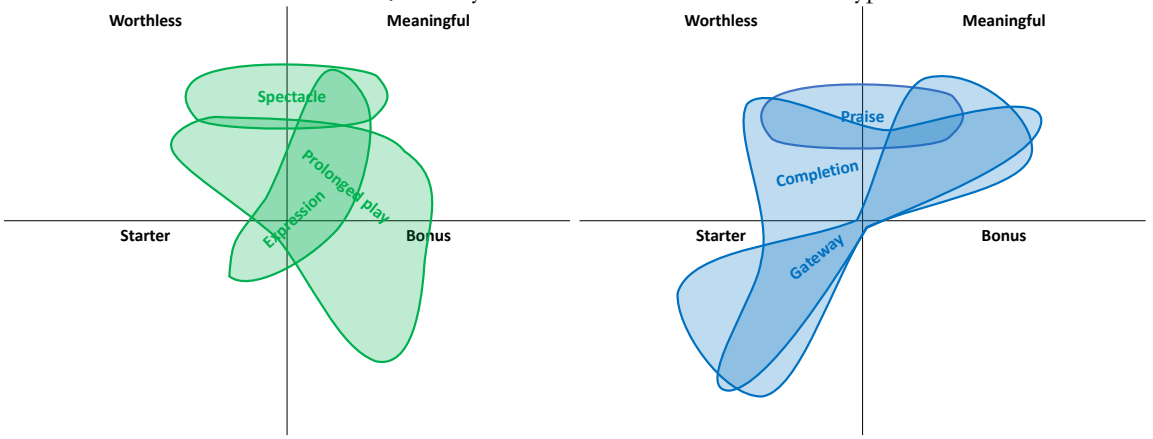

Figure 98. Left (greens): Narrative feedback examples; the feedback examples related to the narrative channel. Right (blues): Aesthetic feedback examples; the feedback examples related to the aesthetic channel.

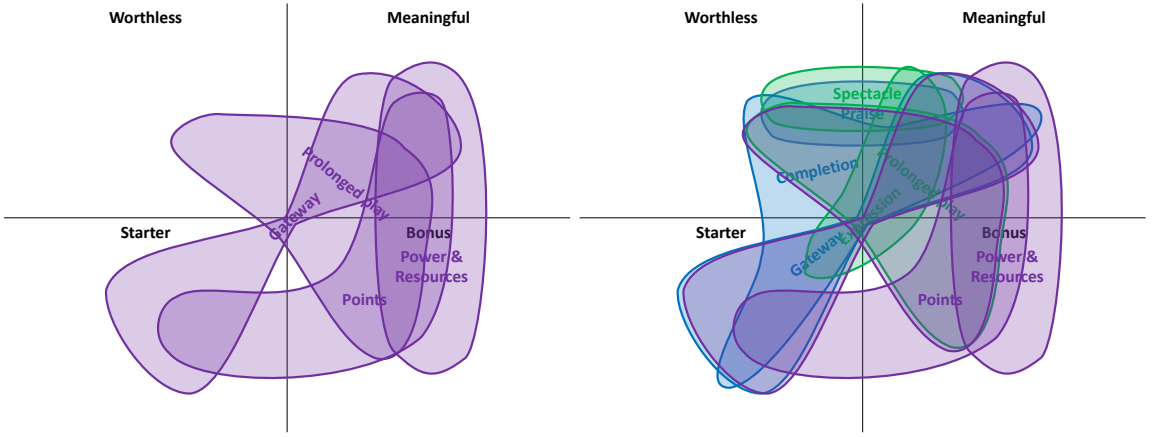

Figure 99. Left (purples): Gameplay feedback examples; the feedback examples related to the gameplay channel. Right (mixed colors): Feedback examples in a single game that may occur.

You may notice that feedback can come from various sources, such as gameplay and aesthetics or narrative and gameplay. When feedback is received from multiple channels, it creates a more cohesive and seamless

gaming experience for the players. This is definitely a positive, desirable outcome. See Figure 98 and 99 as the illustrations of feedback channels.

4. Punishment (negative feedback)

Actually, punishment can be considered negative feedback. Therefore, I should have written this part in a single section with the feedback. However, punishment can also enhance the overall enjoyment of playing games when used appropriately. Here are a few reasons why a game may choose to punish players:

- It creates an inherent value within the game.
- Taking risks can add to the excitement of the game.
- The potential for punishment can increase the level of difficulty.

Figure 100 shows one famous punishment from Dark Souls. Here are some examples of game punishments, but many of them could also be seen as rewards that can be undone if necessary. Check out these instances of negative feedback across different channels:

- **Gameplay Feedback**:
    - **Setback (power removal, resource depletion, place backtrack)**: In video games, a setback punishment is when you are sent back to the beginning of a level or the last checkpoint after you die. One way to eliminate powers fairly is to temporarily take them away, known as **Power Removal**. **Resource Depletion** is another form of punishment, which includes losing money, items, ammunition, shields, or hit points. This is a common form of game punishment.
    - **Point Loss**: Perhaps the issue isn't with the pain caused, but rather the fact that the value of points earned decreases when they can be lost by players.
    - **Reduced playtime**: Perhaps the issue is not necessarily the pain caused, but rather the fact that the worth of earned points decreases when players are able to lose them. However, in an open simulation game like Fall Guy, the duration of play does matter for player experience.
- **Aesthetic Feedback**: feedback to players related to narrative aspect. Some examples of narrative feedback:
    - **Shaming**: Notifications that are too explicit (such as "Missed" or "Defeated!") and negative animations, sound effects, and music can all be factors that contribute to a discouraging experience.
    - **Game Over**: The scene of telling the player that the game is terminated.
- **Narrative Feedback**: feedback to players related to narrative aspect. Some examples of narrative feedback:
    - **Shaming**: Again, you need a means to deliver the gameplay effect to player trough aesthetic and even narrative.
    - **Reduced playtime**: As we mention in gameplay channel.

Figure 100. This is probably the most scene you will get in Dark Souls. This game provides lots of obstacles and enemies in the strategic places so that can kill you easily. In this game, player is usually learning the tactic to encounter the obstacles after the player is dead. It feels like the designer intentionally want us to learn that "hard way".

5. Activities (physical vs logical)

It's important to remember that even games that require a lot of button-pushing also require strategy and thought. Balancing these elements is a matter of deciding how much of the game should be focused on executing difficult physical actions, like steering or button-pushing, and how much should be focused on thinking.

6. Grouping (competition vs cooperation)

Competing and cooperating are part of an animal's instinct, which is us. All higher animals feel the need to compete with each other to survive and establish their social status. Simultaneously, there's a natural inclination to work with others since a group with various skills and perspectives is always more potent than an individual.

7. Time (short vs long)

When choosing a game, it's essential to consider its length. Longer games allow players more time to develop and implement strategies, but excessively long games can lead to boredom and may discourage participation due to the time commitment required.

8. Chance (freedom vs controlled)

Interactive games aim to give players control and freedom over their experience. However, giving complete control can be burdensome for game developers and may even bore players. Additionally, it can be disappointing for players when the game abruptly ends without warning.

Chance is an important aspect of any enjoyable game since it implies uncertainty, and uncertainty implies surprises. Surprises are a significant source of human enjoyment and the key factor in having fun. To create an experience that is always full of tough decisions and exciting surprises, a good game designer must master chance and probability, shaping it to his will. The mathematics of probability is a good start to go to produce balanced statistics in your game design. Figure 101 gives an example of variable probabilities of obtaining a resource and its impact on other entities or attributes. You can also adjust the possibility to be more dynamic. Level 1 players, for example, have a 50% chance of performing a critical attack. However, by level 5, the chance of a critical attack drops to 20%. Figure 102 shows another tool called Machinations.io, a platform where game designer simulates the economic design of a game.

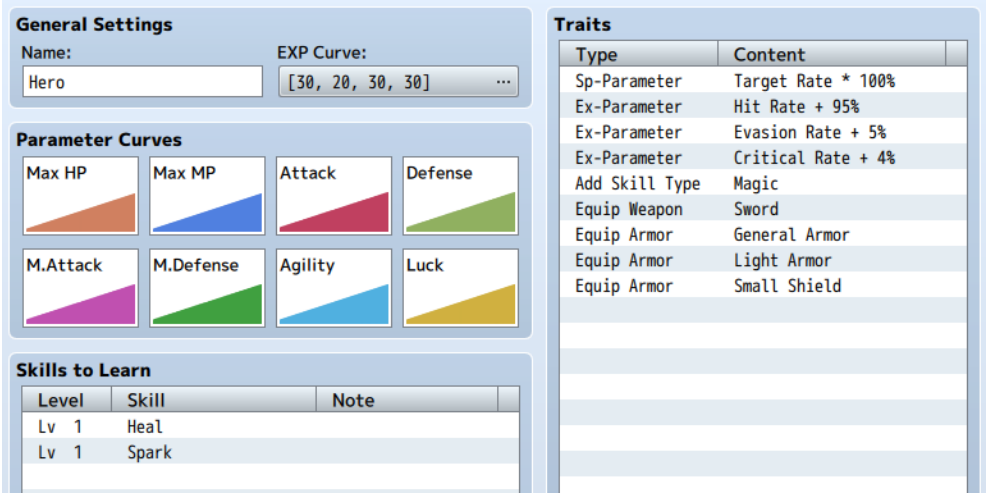

Figure 101. Status curves in RPG Maker VX Ace. Designers may choose a set of predefined curve designs or even create their own to fit the character's level of development.

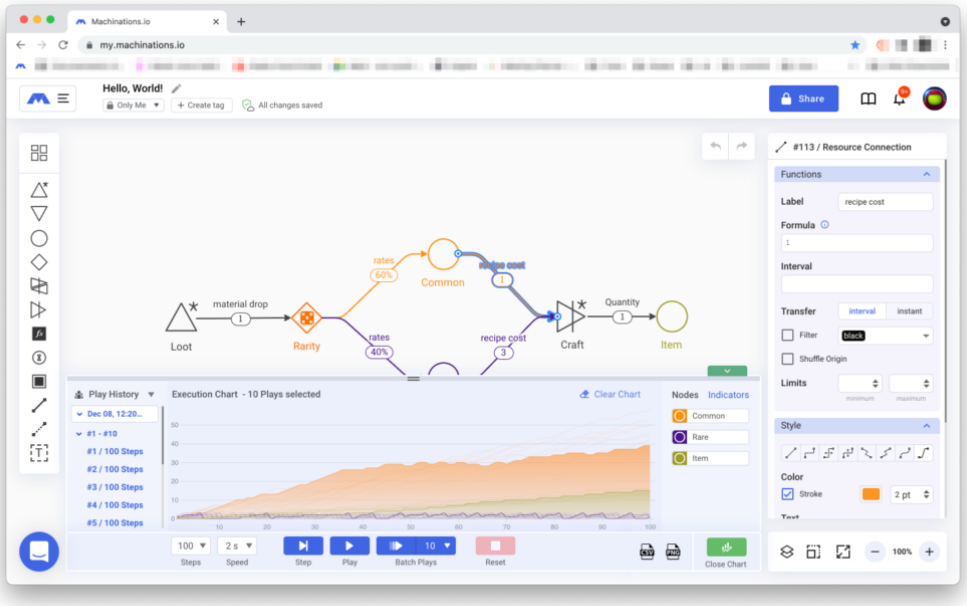

Figure 102. The screenshot of machinations.io shows the mechanism of the looted and crafted item's rarity design. In this newer-commercial version, you can even see the analysis of the resulting simulation. (This screenshot is taken from machinations.io)

9. Cognitive Load (simple vs complex)

The level of complexity in games can have both positive and negative effects. Some games are criticized for being too complex, while others are praised for their intricate features. To create a successful game, it's important to find the right balance between simplicity and complexity, avoiding poor complexity. Game designers have noted that difficulty and complexity are not the same. By using simple mechanics, a game can still be challenging, and vice versa. There are two types of complexity in games. Innate or built-in complexity occurs when the rules become overly complicated. On the other hand, emergent complexity is the type of complexity that players appreciate.

9.2 Sound & Music

Choosing the right music for your game can be challenging as it can impact the workload of your team. In video games, there are generally two types of music: original and licensed. Original music is specifically created for your game, while licensed music involves paying a one-time fee for the rights to use existing music. These licenses are valid for a few years or the entire product's lifespan, and the cost per song can range from $2,500 to $30,000 or more. However, with digital game platforms like Steam, developers can now sell the original soundtrack as a companion to the game, increasing revenue.

1. Typical Themes

To start, create a list of your musical needs. Determine the number of levels, environments, chapters, racetracks, and unique encounters in your game to help with this. Dynamic scoring, inspired by the musical practice of leitmotif, associates a specific musical theme with a certain character or situation. This information can also be found in the game design document. Here are some common themes for dynamic scoring:

- **Mystery**: When the player finds themselves in an unexplored and mysterious location.
- **Warning**: Sinister or threatening music will play when the player is approaching a dangerous area or about to face enemies.
- **Combat**: Exciting music sets the mood during battles. This also includes a chase like in racing games, while chase scenes or fast movements have faster-paced music.
- **Game end**: When the player wins, celebrate your player's achievement with a sound effect that signifies success. But when the player loses, start to play melancholy background music.
- **Footsteps**: Hearing the sound of footsteps will enhance the player's immersion in the game world.

2. List of Sound Effect (SFX)

As you develop your characters' and enemies' move sets, make sure to also create a list of accompanying sound effects. Start with organizing the essential sound effects for your primary character.

- **Movement**: To make your character feel more connected to the game world, start by incorporating sounds of walking, running, and splashing through different surfaces such as stone, gravel, metal, and water. It is important to provide audio feedback for actions such as jumping, landing, rolling, and sliding to inform the player that they have successfully executed the motion.
- **Attack**: To make swings and kicks sound more outstanding, adding a "swoosh" sound can enhance their effect.
- **Impact**: In order to enhance the impact of a punch or kick, it's important to deliver a solid "whack!" sound. Furthermore, to indicate that a player has successfully landed a hit on something or someone, weapons, spells and explosions should generate loud and dynamic sounds. Including the vocal hit responses. Record "Oof!", "Ouch!", and "Aargh!", as they could sound comical. It will be better if you also include audio cues like grunting, to show that you're working hard when you push movable blocks or pull obstinate levers.
- **Game End (win & lose)**: To indicate success to the player, utilize sound effects for both music and vocals.

3. Priorities

Be mindful of playing too many sounds at once. It's important to prioritize sound effects in order to prevent the room from becoming too noisy. Your sound programmer can help you classify sounds into three groups:

- **Local sound effect**: The sound effects should only play when the player is near its source. Examples of these sources could be an enemy growling, the sound of a babbling brook, a ticking clock, a ringing phone, or the hum of machinery.
- **Distant sound effect**: Players can hear certain sounds even when they are far away from the source.

These sounds may include the approach of a truck engine, explosions, or the howling of wolves. Those will enhance the player's immersive through the ambience.

- **Priority sound effect**: Priority sound effects are always played no matter where the player is located. These sounds provide important information to the player, such as footsteps, swimming strokes, wing flaps, health loss, treasure or item gathering, core or combo increase, power-up or countdown timer, successful enemy hits, and death. In short, this type of sound will overload the other if needed.

9.3 Cutscenes

A cutscene is an animated or live-action segment used to further the narrative, generate spectacle, and offer dialogue, character development, mood, and clues in the game. Although some players would also skip it. However, following the story by watching the cutscene for some narrative nerds is always a pleasure. That is why sometimes the developer makes the cutscene, mostly the important one, which can't be skipped. Making a cutscene can be done in a variety of ways:

1. **Animated/ Full Motion Animation**

The game's engine transforms an animated cutscene into a video format or video-like (or movie-like) that can be viewed during the title and story scenes. This type of animation creates a seamless transition between actual gameplay and the cutscene. For example, take a look at the game Life is Strange as shown in Figure 103, where the end of the cutscene is the actual gameplay, and the designer tells us that the cutscene is finished by camera rotation to the main character.

Figure 103. The transition from the cutscene (left) to the gameplay (right) on Life is Strange is extraordinarily seamless.

2. **Prerendered Cutscene**

Cutscenes that are pre-rendered use cinematic cameras and high-resolution copies of the game's character and environment models to create visually striking and dramatic images. These cutscenes often feature enhanced graphics compared to the in-game visuals. This type of cutscene was commonly used in PlayStation 1 games, such as Final Fantasy. However, some players, including myself, may not enjoy pre-rendered cutscenes because they don't always meet our expectations in terms of matching the quality of the gameplay graphics (see Figure 104 and 105).

Figure 104. The comparison of in-game graphics (top) vs pre-rendered (bottom) cutscene in Kingdom Hearts franchise.

Figure 105. The comparison of Final Fantasy VII's Aerith in a cutscene (left) versus the actual game model (right).
(Taken from https://tvtropes.org/pmwiki/pmwiki.php/Main/PreRenderedGraphic)

3. Full Motion Video

Full-motion video (FMV) is a storytelling method used in video games that involves using pre-recorded video files to depict game action instead of sprites, vectors, or 3D models. While some games use FMVs to display information during cutscenes, full-motion video games (also known as interactive movies) primarily rely on FMVs to present their content. Because of the significant resource demands, producing FMVs typically requires outsourcing to a production company. The FMV implementation in Her Story, shown in Figure 106.

Figure 106. In Her Story, the player utilizes the FMV mechanism to investigate a missing person case. The gameplay involves sifting through a database of fabricated police interviews in order to solve the mystery.

4. Puppet Shows & Scripted Events

Cutscenes in video games are created using in-game resources such as characters and environments. These are referred to as puppet shows due to the unnatural movements of the characters in earlier versions, resembling marionettes.

In some games, scripted events are like puppet shows. They use game materials to create animated sequences, but players can only interact with the game during certain parts. This type of event is common in RPG Maker games, where cutscenes are actually scripted events. Take a look at Figure 107 for the scripting event in RPG Maker where we set the player to move and to be followed by companions.

Contents:

```
@>Set Move Route: This event (Wait)
 :                : $>Script: $game_player.follow(10)
 :                : $>Move Down
 :                : $>Move Down
 :                : $>Move Down
 :                : $>Move Down
 :                : $>Move Down
 :                : $>Script: $game_player.stop_follow
```

Figure 107. The scripted event in RPG Maker engine.