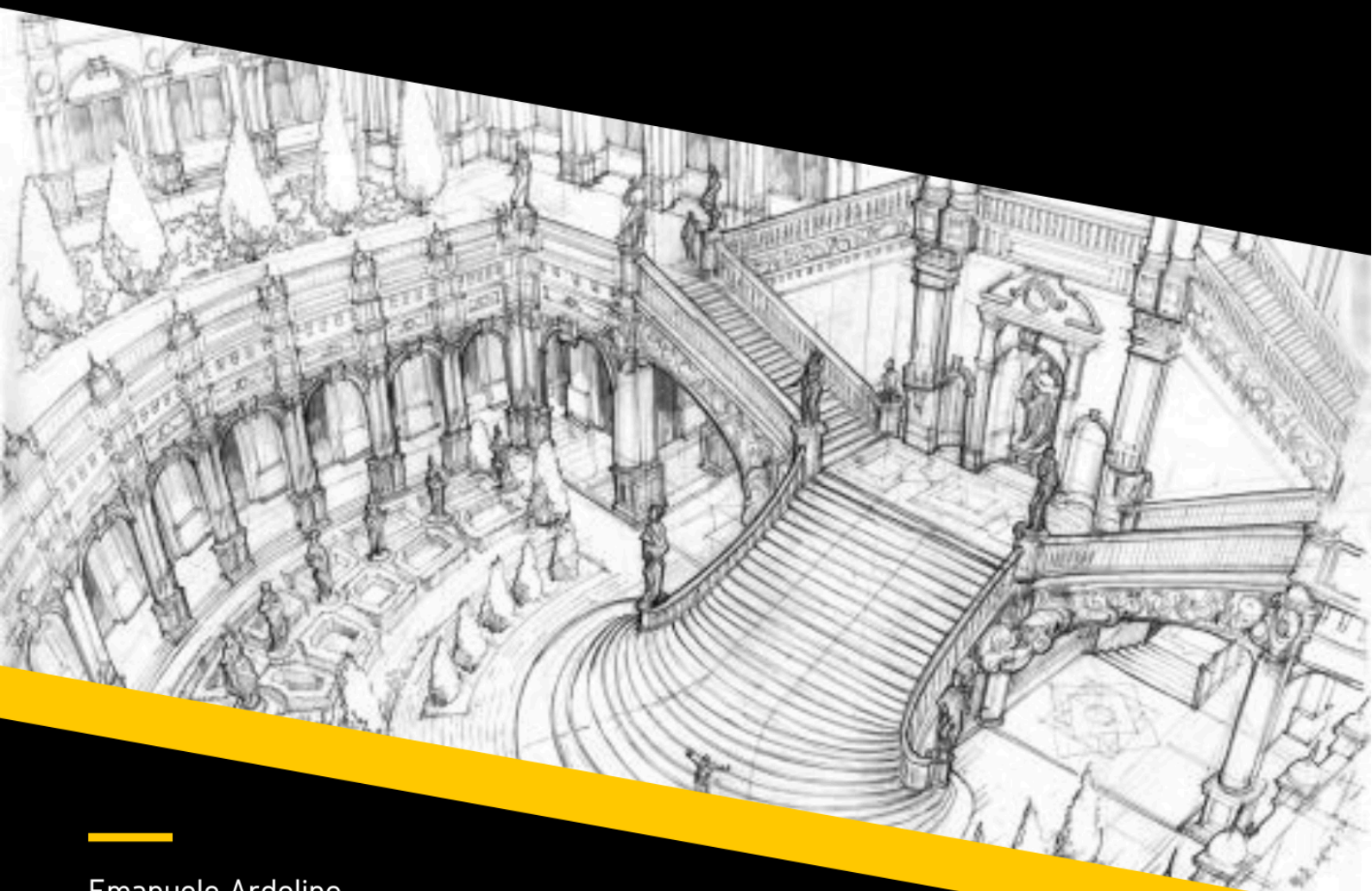# LEVEL DESIGN

GUIDANCE PRINCIPLES

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INTRODUCTION

When a level designer makes a level they are creating a *game space* that is functional to the *player experience*. Especially when designing a 3D space it is important to create an environment that is functional to the player and guide them through the experience.

For this reason, it is possible to highlight some **guidance principles** that help the designer to convey the experience. These principles are often already part of different disciplines or art forms, like architecture, design, photography or narrative. It is important to remember that even if these guidance principles are acknowledged by most, they are not necessarily applied in the correct way. Or rather, they are not necessarily recognized as such by the player.

It is important to verify through **playtesting** that these principles are effective and are perceived in the way intended. So, as with other aspects of game design, when you follow these principles, if they are not understood by the player in the intended manner, you have to iterate and make them more effective.

I decided to divide these guidance principles into three macro-areas using three different types of language: **psychological**, **visual** and **narrative** language. Of course, as video games are a mainly visual type of language, some of these principles overlap or are often combined together. Just as the **sound** can be used as a guide. However, I believe this distinction should be made, in an attempt to mark the difference that some guidance principles may be perceived differently by the player.

Finally, a level represents the culmination of a team effort, and some of these guiding principles require a joint effort of code scripting, art, and design. The use of these principles, as well as **environmental storytelling techniques**, help create a **cohesive and engaging holistic experience**.

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PSYCHOLOGICAL LANGUAGE

Affordance

"The term affordance refers to the relationship between the properties of an object and the capabilities of an agent that determine how the object could be used" – Don Norman.

In game design, affordances are what an element of the game allows the possibility of. It should take in consideration the **Cultural Affordance**, assumptions based on the player experiences outside the game, that could be different from person to person, and the **Inferred Affordances**, logical deductions that the player makes based on the game world and systems.

The **affordance** or **the denial of it** should be always clear to the player because it has a huge impact on the experience. Players need to be informed to act with intentionality. There is nothing more frustrating for a player than believing to be able to do something while it is not possible.

When designing a level, one must always take affordance into consideration. To verify that the principle has been applied in the right way, there is no alternative solution to playtesting.

Example: *Tomb Raider*, Crystal Dynamics, 2013

The position and direction of the cart works as a diving board and clearly invites the player to jump from that position. The concept is reinforced by the presence of the overhead rope that is used after the jump to reach the goal.

Resources:

- https://twitter.com/the_Norberg/status/1289888891068063745
- How designers silently tell you what to do? - Affordances and Signifiers - Game Design Theory

Landmarks

A landmark (or *weenie*) is a unique point of interest that has multiple functions: can peak the **player's curiosity** and draw into a location; can help the player to **determine their position** in the game world through a reference point. Landmarks can be human-made structures or creations of nature that stand out from the composition.

Example: *God of War*, Santa Monica Studio, 2018
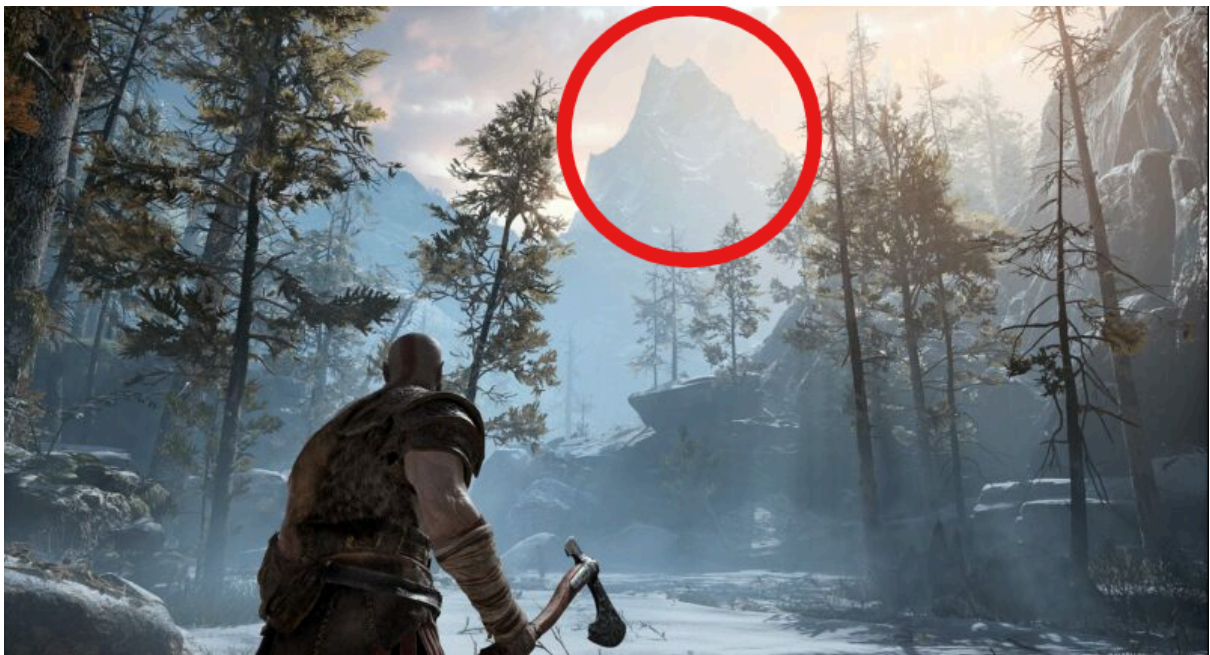
Reaching the top of the Mountain is one of the main goals of the game. The player is driven by the landmark and uses it to navigate around the region.

Resources:

- [Landmarks in Video Game Level Design](#)
- [What are WEENIES in Level Design?](#)
- [Tommy Norberg](#)
- [Landmarks in Level Design](#)

Pinching

Pinching (or *funneling*) exploits angles shapes to guide the player's eye to a specific pinch point or simply provides a **single path to travel**. This technique allows the designer to guide the player without forcing the camera to look at the intended direction. This same technique could be used to push the player inside a narrow path right before a big reveal. This way, the vista coming out is even more impactful.

When using this technique, one must be careful, because by providing a single access route the risk is that the experience may be unengaging or predictable. Furthermore, while creating a composition you should avoid unpleasant **tangents** in it.

Example: *Doom Eternal*, id Software, 2020

All the lines converge to the open door where the player can easily recognize an enemy encounter at the end.

Resources:

- https://twitter.com/the_Norberg/status/1391158256240840709
- https://twitter.com/the_Norberg/status/1277862089584005120

Breadcrumbs Trails

Breadcrumbs are used to leave a trail of visual elements throughout the environment. A lot of elements can be used as breadcrumbs. **Gameplay elements** such as pick-ups and enemies, or **visual elements** like colors, patterns and lights.

This technique can be very effective because the player gets a **direct reward** from exploration. In this case, care must be taken not to abuse it because the player may feel deprived of a challenging experience.

Example: *The Witcher 3: Wild Hunt*, CD Projekt RED, 2015

The principle is used for the investigation mode where multiple elements guide the player to the goal.

Resources:

- https://twitter.com/the_Norberg/status/1391158256240840709
- Breadcrumbing in Level Design: Guiding your player from A to B

Baits & Seeking Safety

A bait can be any element that **catches the player's attention** and prompts them to reach for it. In the opposite way, the player can look for elements that make them **less vulnerable**. This technique can work in any genre, whether it is a multiplayer FPS or a stealth game.

It must be verified that the bait element is considered as such. And that the safe path is recorded by the player. Especially when using **light and shadow** within the level you have to make sure that both paths are perceived. The concept could be also overturned: in horror games the lights are perceived as a safe space while darkness is ominous.

Example: *Dishonored*, Arkane Studios, 2012

In this example, the exit is right in front of the player and serves as guide and bait. The player could use an aggressive approach and go straight or seek for safety and go on the right.

Resources:

- [Bait And Switch!](#)

VISUAL LANGUAGE

Framing

This technique drives the player's attention by blocking other parts of the environment. The **rule of thirds** is a composition technique that is also used in other visual arts. By dividing the frame in thirds, the subject is placed at one of the points of intersection of the lines. This produces a more dynamic representation that can give the player a moment of wonder.

This technique requires a high degree of precision, so the risk is that the composition may be unpleasant if not done properly.

Example: *Elden Ring*, FromSoftware, 2022

The scene is particularly evocative, but the framing helps identify the next destination to be reached.

Resources:

- [Composition technique: Framing in Video Game Level Design](#)

Color & Pattern Themes

Color perception and effect of colors are fundamental while designing an environment. Color theory and **contrasting colors** are studies from centuries and accessibility must also be considered.

Color can convey an emotion or guide the mood of the experience. Therefore, care must be taken when used in level design. The color should be **consistent** with the palette used. It must be **clear** to the player but at the same time **avoid being didactic** because it ruins the immersion in the experience.

In this case, the use of a **pattern theme** helps because it makes evident a motif that is recognized by the player and attracts their attention.

Example: *Uncharted 4: A Thief's End*, Naughty Dog, 2016
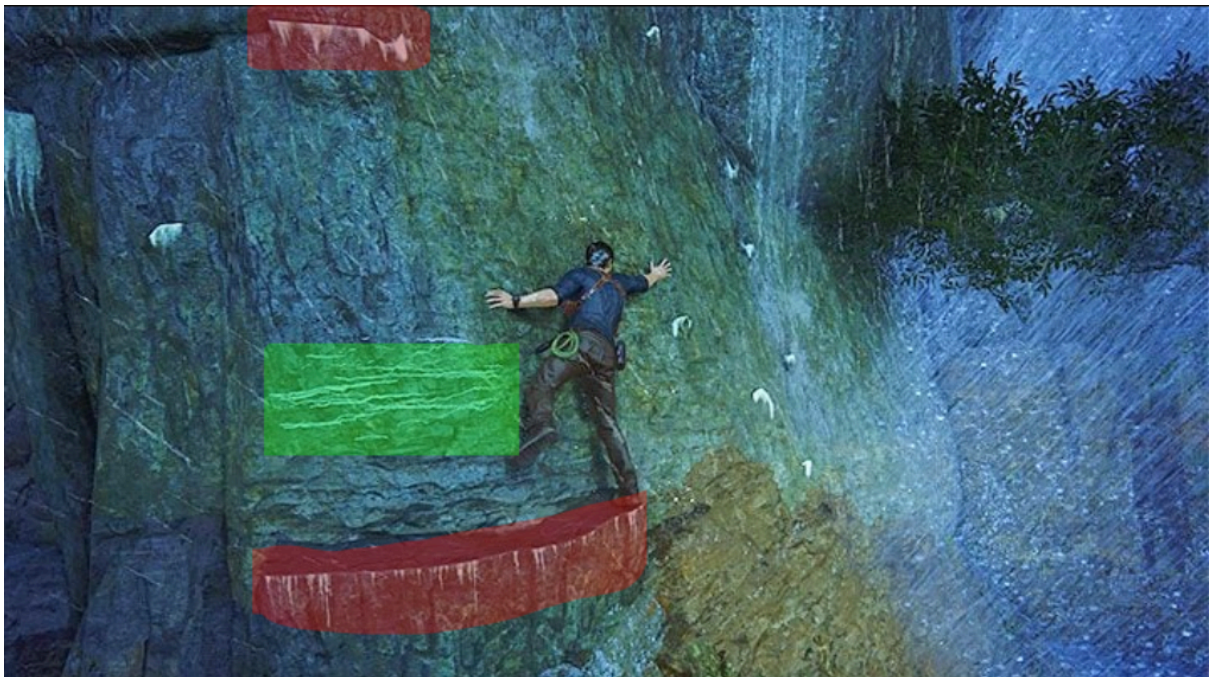
In this example, the climbable surfaces can be clearly identified by the use of white and the use of a pattern on the surface.

Resources:

- [Getting Started With Colour Theory | Basics for Beginners](#)

Shapes

Shape Psychology

Similar to **colors**, shapes can have a meaning and influence the player's mind. This technique is often used in UI, but can be used also for level design.

Geometric shapes like rectangles, triangles or circles bring different feelings and emotions. The same works for **Natural shapes** or **Abstract shapes**. However, the meaning is contextualized and connected to culture and personal knowledge.

So when using shapes as a guiding principle, you have to take into consideration the kind of **emotion** you want to convey or that will be perceived by them.

Example: *Control*, Remedy Entertainment, 2021

In this example, the use of basic geometric shapes that go into abstract patterns contributes to a feeling of uncanny to the player.

Leading Lines
Similar to **pinching**, this technique guides the player's eye toward a specific element. The difference is that the line could also follow a curved shape driving the player to the intended direction that doesn't appear immediately on the screen.

Example: *Marvel's Spider-Man*, Insomniac Games, 2018
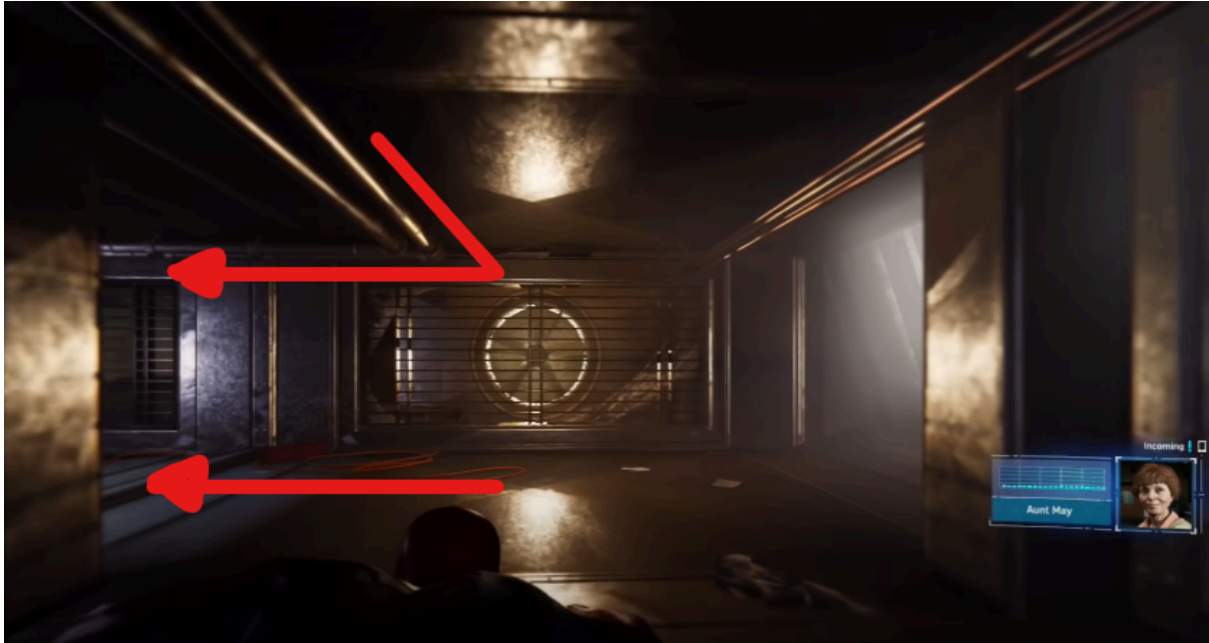
In this example you can see pipes on the sides. While on the right side they continue straight to the closed passage, on the left side they continue to the intended path. The guide is also reinforced by an orange cable that stands out due to its bright color and follows the same direction.

Signs and Arrows
As in real life, signs and arrows are a clear way to give guidance. This technique could also be used through elements that work as signposts like scrapes or textures in general.

Example: *Star Wars Jedi: Fallen Order*, Respawn Entertainment, 2019

The signs are pointing to a narrow space. To make clear to the player that the space is traversable there are other lines pointing in that direction.

Resources:
- [Level Design Library - Shape Theory in Level Design](#)
- [The Gestalt Principles | Basics for Beginners](#)
- [Golden Ratio Theory | Basics for Beginners](#)
- [Fractals and symmetry by group 3](#)

Lighting

Lights play a fundamental part in Level Design. Placing properly the lights guarantee **information** and **guidance** to the player. As opposed to light, shadows can function as a **safe space**.

As with colors and shapes, lights contribute to the atmosphere thus infusing the emotions felt by the player. So also in this case, one must be careful that the guiding lights are used consistently in relation to the level.

Example: *Supraland*, Supra Games, 2019

In this example, the candle provides light to illuminate the environment but is also a guide for the player on where to go.

Resources:

- Level Design Workshop: Blockmesh and Lighting Tips

Visual Effects

Atmospheric elements or particle systems could be used to catch the player's eye. Like **breadcrumbs**, if a visual effect is used as a guiding principle it should be very noticeable. For this very reason, it should be used sparingly depending on the situation otherwise the risk is that it loses effectiveness or creates an unpleasant visual noise.

Example: *Dishonored 2*, Arkane Studios, 2016

In this example, visual effects are used to emphasize a power up. As is often the case, these collectibles serve to reward exploration.

UI

The most didactic way to guide the player is through the UI. It can be a **minimap**, **radar**, or **text** that shows the **intended path** or goal.

Like any *user interface* element is something that must be very clear and quickly readable by the player. It depends on the target audience, the genre, or the type of experience you want to provide but the UI as a guiding principle can make the experience can deprive the player of satisfaction from exploration. It is therefore a good practice to ensure that the UI can be turned off in the option menu to provide a more engaging or challenging experience if the player so desires.

Example: *Firewatch*, Campo Santo, 2016

In this example, the use of the map is well integrated into the game experience. There are no HUDs in the game, and the only way for the player to orient themselves is through the use of a map and compass.

Resources:
- https://twitter.com/the_Norberg/status/1290548444508098565

NARRATIVE LANGUAGE

Narrative elements reinforce the lore of the game but can provide information to guide the player within the level.

Environmental Clues

The most common way to use this technique is through text, but it can be used through less overt elements that contribute to the narrative.

It can be engaging to learn information in this way. At the same time, care must be taken that these clues are perceived and followed. Alternatively, one must be careful that they are optional elements, which even if not used do not block the progress.

Example: *Red Dead Redemption 2*, Rockstar Studios, 2018

In this example an entire quest is connected through clues spreaded around the world map. The player connects the dots to reach the goal of the mission.

Resources:

- ['Real World Level Design' & 'Playgrounds and Level Design'](#)

Dialogue Instructions or Hints

Dialogues with NPCs can provide more or less useful information for plot development. In some cases, dialogue provides direct instructions; in other cases, dialogue provides less overt hints.

As with **environmental clues**, one must consider the possibility that this information may be skipped.

Example: *Dishonored*, Arkane Studios, 2012

You're out! Good for you. Cut some throats!

In this example, the NPC invites you to use a specific approach. The concept is even reinforced if the player places the body of a guard in front of the prisoner cell because the NPC will add more comments.

Resources:

- Level Design Workshop: Balancing Action and RPG in Horizon Zero Dawn Quests

Emotional Tugs

Emotion can act as a lever to guide the player. This type of interaction relates to the type of character or approach the player uses.

This kind of principle can have a very strong impact on the player. It must therefore be used sparingly to gain very high value within the overall game experience.

Example: *Fallout 3*, Bethesda Game Studios, 2008

In this example, the player has the choice of whether or not to destroy an entire city. Of course, the consequences of this decision are profound for the development of the story.

Resources:

- [Games with Heart](#)

Follow NPCs

Following an NPC can be an engaging technique, especially when used within a **challenge**. For example, following an NPC while avoiding detection by them. Or keeping an ally alive to guide you to the next objective. Overall, **movement** is a powerful guide.

In other cases, this technique provides an opportunity to familiarize yourself with the environment while **dialogue provides instructions or hints**.

Example: *Cyberpunk 2077*, CD Projekt Red, 2020

In this example, the introduction to the game world is guided through a NPC.

Resources:
- Building Relationships in Level Design

Cut Scenes

A cut scene is typically a non-interactive portion of the game that helps to build the narrative. It can give the player a moment of rest or enjoy a movie-like experience. If used as a guiding principle, it can provide information that the player can use as they explore the level.

Example: *The Elder Scrolls V: Skyrim*, Bethesda Game Studios, 2011

This example shows a strong climax because the character is about to be executed but the execution is interrupted by an unexpected event.

RESOURCES

- *An Architectural Approach to Level Design*, Christopher W. Totten, CRC Press, 2014
- *Preproduction Blueprint: How to Plan Game Environments and Level Designs*, Alex Galuzin, CreateSpace, 2016
- GDC talk: Holistic Level Design in Dishonored 2 and Immersive Sims
- Spatial Communication in Level Design
- Ten Principles for Good Level Design
- Stop Getting Lost: Make Cognitive Maps, Not Levels
- Bubble Diagrams - Planning for Level Design
- LD - In pursuit of better levels
- Clever Level Design: More than Meets the Eye
- LEVEL-DESIGN.org
- Composition in Level Design
- Theory And Concepts – LEARN LEVEL DESIGN
- Radiator Blog: Dark Past
- Game Level Design: 35 Ways to Guide The Player | by Jacob Ryan Wheeler
- Blockmesh Tips From David Shaver
- The Door Problem of Combat Design | Andrew Yoder
- PRACTICAL GUIDE ON FIRST PERSON LEVEL DESIGN