Creating a Taxonomy of Environmental Narrative for Video Game Design

By William Owen

Supervised by Helen Stuckey

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Chapter 1: Introduction

1.0: Introduction and Literature Review

This paper looks at environmental narrative techniques used in video games and presents a taxonomy of design techniques for game writers and environment designers. The taxonomy is designed to help form a better understanding of their usefulness as narrative devices.

In recent years video games have become one of the largest forms of entertainment media, and while players are drawn to games for many different reasons a large number of people play them for their stories. Despite this, little is understood about the intrinsic ways in which video games convey narrative. Currently games draw techniques from many different narrative fields, the primary of these being film. This influence is obvious in the still widespread use of cutscenes to present story in games. There is interest however in exploring narrative techniques that work a technique which many in the industry have been making efforts to move away from.

More recently, one of the areas that has received some critical attention is that of environmental narrative – the story told via the world and it's exploration by the player. This technique has been popularized within the the huge success of the games *Fallout 3* (Bethesda Softworks, 2008) and *Bioshock* (Irrational Games, 2007) which, employ this technique at the core of their narratives. This research builds largely on ideas presented at the 2010 GDC (Game Developer's Conference) discussing the importance of environmental narrative; in particular Matthias Worch and Harvey Smith's talk 'What Happened Here?': Environment Storytelling' Richard Rouse's presentation 'Environmental Narrative: Your World is Your Story' and Joel Burgess 'Level Designer Storyteller'.

Parallel to industry, game design is a rapidly advancing field within academic research, largely dominated by media anthropologists interested in the sociological implications of games as a medium. However less work has been done with the intent of providing resources for designers.This paper takes up the above threads developed in industry around environmental narrative. The first part of this paper classifies and develops a taxonomy of environmental narrative techniques. The aim is to locate the distinctive ways in which the design of environments are used to convey narrative.

The intent of the identification of a taxonomy of environmental narrative technique is to contribute to the wider question of a 'language of game design' .The discussion about a need for a language of game design goes back at least as far as 1994 and Greg Costikyan's essay *I Have No Words & I Must Design* (Costikyan, 1994). He posits that designers need a common language in order to properly discuss games critically.

> *We need a critical language. And since this is basically a new form, despite its tremendous growth and staggering diversity, we need to invent one.* (Costikyan, 1994, p.1)

Since then there have been a number of publications that take up this aspiration, including Doug Church's analysis of the challenges of building a formal abstract design vocabulary capable of addressing game design (Church ,1999) and the establishment of glossaries of terms such as those produced by Jesper Juul (Juul, 2005) and Katie Salen (Salen, 2007).

1.1: Defining the Separation of Plot From Narrative

In games there are often two stories. Firstly the story of the world, which is pre-established and of which the player has little control; and secondly the story of the player, that they are actively participating in the creation of . It is not uncommon, particularly for role-playing games, to feature several stories within the overall fiction experienced by a player. This most often occurs through side-quests which act like short stories that provide greater insight into the world's story, but can also take other forms such as *Lost Odyssey's* (Mistwalker & Feelplus, 2007) '*Thousand Years of Dreams*' a literal collection of short stories that are unlocked through play.

However this non-linear way of presenting a game's story is not just a product of these deviations from a central storyline, but is also a product of the participatory nature of games. Meaning the player learns more about the game world through as they explore and progress. As game and fiction writer Rhianna Pratchett explains
"...the role of the player is an active one, not a passive one, like a movie watcher or a reader. They are experiencing the story first-hand." (Pratchett, 2008) Given the fundamentally different way in which games can tell stories, it is valuable to consider the traditional definitions of 'plot' and 'narrative':

> **Narrative:** *An account of a series of events, facts, etc., given in order and with the establishing of connections between them; a narration, a story, an account.*
> (Oxford English Dictionary, 2011)

> **Plot:** *The plan or scheme of a literary or dramatic work; the main events of a play, novel, film, opera, etc., considered or presented as an interrelated sequence; a storyline.* (Oxford English Dictionary, 2011)

These definitions fit well into other mediums, but given the fundamentally different way in which games tell stories, they require some reworking in order to fit. The terms 'series of events', 'given in order' and 'interrelated sequence' cease to be as meaningful in a non-linear context. As such for this work I have defined plot and narrative as follows, in order to separate the two based on the most important element to a video game's story; the player-character.

> **Narrative:** *The overall literary construct of a work; including the setting, events and characters of the piece. ie: The story of the world.*

> **Plot:** *Any series of events involving or directly pertaining to the player-character. ie: The story of the player.*

Using these definitions makes it easier to separate the player's story from the story of the world. Although it is important to note that this separation is not absolute, and the player's story will most often influence the world's story.
However for the purposes of this research it is important to make this distinction because the stories told through environmental narrative techniques often have little to no direct relevance to the main plot and instead serve the greater narrative in order to provide a richer experience for the player.

1.2: What is Environmental Narrative?

Simply put; environmental narrative is any contribution to the overall narrative of a game made by the environment - be that mood, history or events. Environmental narrative is not the same as spatial narrative. Although the two are inextricably linked, spatial narrative refers to the way a player moves through and experiences a game world and the effect that has on the player; environmental narrative encompasses all elements of the world and the way in which they tell stories as the player explores them.

Matthias Worch and Harvey Smith explain this as a question that the player asks of a game; *"What happened here?"*. Highlighting that environmental narrative is as much about the player asking and answering the question as it is about the designer's initial intention. The goal of this paper is to ask therefore to explore the question *"How can designers communicate to the player what happened here?"*.

Chapter 2: A Taxonomy of Environmental Narrative

2.0: Methodology

One of the first steps in exploring environmental narrative design was to uncover what techniques are being used in modern games, and then to define these techniques into as concise and flexible taxonomy as possible. Because this taxonomy is intended for narrative design purposes, the intent was as much as possible to separate them from technical terms unless it made reasonable sense to do so. This is because technical terms often vary between engines and will likely change with time and new technologies.

The method for uncovering these techniques was firstly one of simple observation; through playing as many games as possible and documenting through screenshots and notes the techniques used.

The next step was to analyse what was happening in each case and to categorise them into as few groupings as possible. This led to the creation of the following taxonomy.

Narrative	Props
• Event • Player Created Scene • Scene • Vignette	• Artifact • Decal • Effect • Poster - Graffiti
Ambient	**Navigational**
• Architecture • Atmospheric Effect • Colour • Framing - Vista • Geography • Lighting • Materials • Narration • Sound • Space	• Beacon • Signpost • Trail

Definition of Terms:

2.1: Narrative Elements

Narrative Elements are the highest level environmental techniques, and are created through the juxtaposition of the other techniques previously listed in this taxonomy. As such they are the most powerful techniques at an environmental designer's disposal. While the specific implementation of these techniques will often vary they will most often fall easily into one of the following categories;

2.1.01: Scenes

Scenes are the evidence of an event having occurred in the environment that the player is not witness to, but which is central to the main plot. As such, scenes are always contextualised to the player in some way.

Fig.2.1.01: A murder scene from the quest "Family Ties" in Bethesda's *Fallout 3* (2007).

2.1.02: Player Created Scenes:

Player Created Scenes are created as a direct consequence of the player's actions in and upon the environment, giving the player an opportunity to reflect upon what they are doing.

Fig.2.1.02: The aftermath of a fierce battle in Valve's *Left 4 Dead* (2008).

2.1.03: Vignettes

Vignettes are fundamentally similar to scenes in technique, but are differentiated by their narrative purpose. Where scenes are contextualised and central to the plot, vignettes are used to explore stories and themes separate from the game's main plot and as such are often left un-contextualised in order to invite interpretation on the part of the player.
However unlike scenes, a vignette can also be triggered in the same way as an event.

Fig.2.1.03: An old woman mops the concrete rough in 4A Game's *Metro 2033* (2010).

2.1.04: Events

Events are scenes that play out in front of the player, are tied to gameplay; and triggered as a direct result of a player's action. Most events are used to directly advance the plot, but can also be used to simply add a moment of excitement.

2.2: Props

Props are any object in the environment, which are not part of the level geometry or architecture.

2.2.01: Artefacts

Artefacts are any non-natural objects in the environment, and as such make up a majority of a level's set dressing. A single artefact can communicate volumes to the player about characters and events.

Fig.2.2.01: Spaceship playground equipment reflects the technologically optimistic society that existed before the war in *Fallout 3* (Bethesda Softworks, 2007).

2.2.02: Effects

Effects refers to smoke, fire, sparks; or any other kind of particle effect which are localised to an object. Effects describe the condition or state of an object. They are often paired with a light effect.

Fig.2.2.02: An effect shows the campfire as being lit in *Metro 2033* (4A Games, 2010).

2.2.03: Posters

Posters are any kind of signage or wall markings such as billboards and advertisements. They are often used as exposition because of their literal nature.

Fig.2.2.03: Posters introduce some core gameplay mechanics in *Bioshock* (Irrational Games, 2007).

2.2.04: Graffiti

Graffiti is similar to posters; but serves a much more immediate narrative purpose. While posters represent an institution, graffiti is the work of an individual and as such can tell more personal stories.

Fig.2.2.04: Graffiti scrawled on the walls by a mad test subject in *Portal* (Valve, 2010). "The cake is a lie" become one of the most famous lines from this game and was portrayed in this way.

2.2.05: Decals

Decals refer to any projected texture in the environment which are the result of an event; rather than being intentionally created by a character. The most common of these are blood splatter or bullet holes.

Fig.2.2.05: A blood splatter decal in Left 4 Dead (Valve, 2010).

2.3: Ambient Techniques

Ambient techniques are the core elements which make up any environment, and serve as descriptors of the world. Because of their nature any environment will include many if not all of these techniques.

2.3.01: Architecture

Architecture refers to the style and construction of the buildings in the environment; reflecting the lifestyle, technology level and aesthetics of the in-game society much as it does in the real world.

Fig.2.3.01: A building in *Morrowind* built from the shell of a giant crab, surrounded by several smaller mud structures. The majority of the interiors are underground, reflecting the desert location of this town. (Bethesda Game Studios, 2010).

2.3.02: Atmospheric Effects

Atmospheric effects are elements such as fog and rain which describe the climate of an environment.

Fig.2.3.02: An atmospheric effect used to create a snowstorm in
Call of Duty: Modern Warfare 2 (Infinity Ward, 2009).

2.3.03: Colour

The colours used in an environment can describe the world, create mood and aid in navigation. An overall colour palette can reflect the tone and themes of the overarching plot.

Fig.2.3.03: Double Fine's *Psychonauts* uses bright neon colours to differentiate their mental environments from the ones taking place in the real world.(Double Fine, Productions, 2005)

2.3.04: Framing

Framing is the way that objects in the environment are composed on-screen as the player moves through the world. The technique works the same way as framing in cinema or photography.

While sometimes this is achieved through taking control of the camera away from the player, most modern games achieve this through the use of techniques such as moving the player through a tight space such as a door or through the use of a beacon.
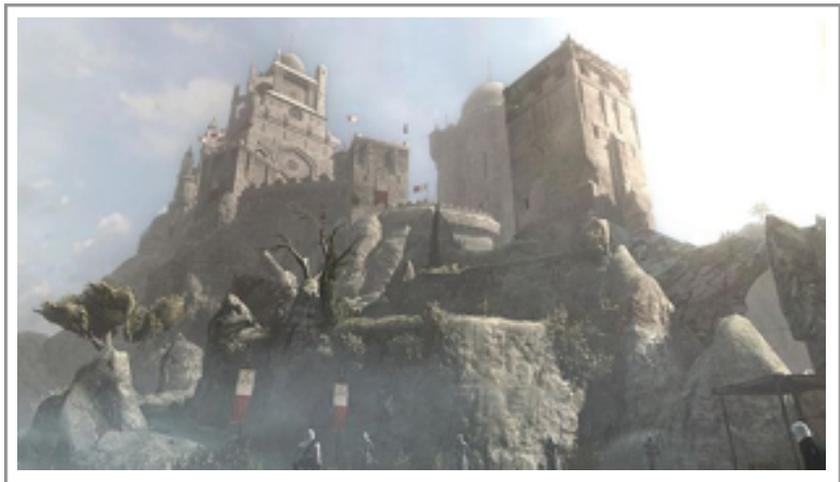

Fig.2.3.04: The approach to this castle in *Assassin's Creed* (Ubisoft Montreal, 2008) frames it from a low angle, making it appear to dominate the environment.

2.3.05: Vistas

Vistas are a form of framing that provides an expansive view of the game world. They are notable because they most often serve one of two narrative purposes distinctive to games. In open-world games vistas are used to instil a sense of exploration into the player and draw them into the environment; while in games where the player is kept on a path they are used to give the player a sense of the world beyond what they are experiencing first hand and lend a sense of scale to the player's narrative.

Fig.2.3.05: *Gears of War* (Epic Games, 2008) uses vistas to give the player a
sense of what exists beyond it's tightly confined play areas.

2.3.06: Geography

Geography refers elements of the natural world such as land and vegetation. In Earth-based
environments it informs the player as to what part of the world they are in. This extends to most
alien environments as well as these are often facsimiles of real world locations.

Fig.2.3.06: *Crysis's* (Crytek Frankfurt, 2007) Pacific location is
immediately recognisable thanks to the games geography.

2.3.07: Lighting

Lighting refers to the design of how the environment is lit and shaded. Lighting design is most often
used to describe the environment, create mood and aid navigation. Lighting, along with sound,
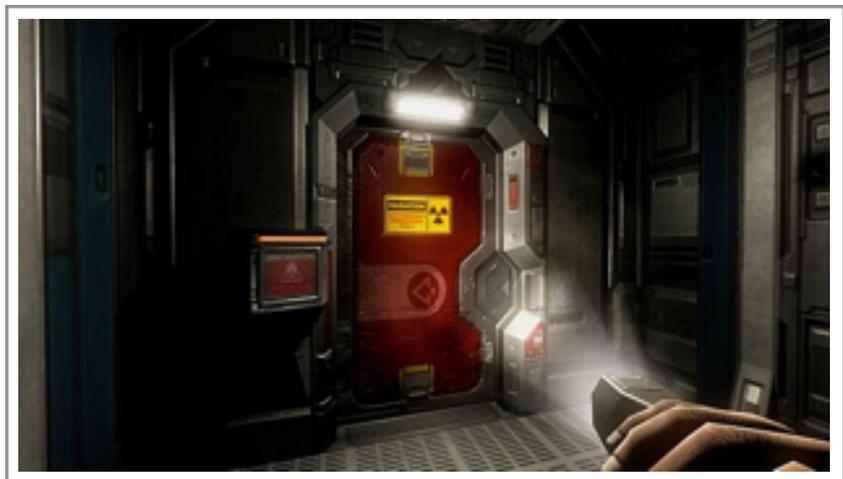frequently overlap or work in conjunction with other techniques.

Fig.2.3.07: *Doom 3* (id Software & Splash Damage, 2004) uses
dark environments as a central theme of it's narrative and environment.

2.3.08: Materials

Materials describe how the surface of objects looks and feels. It can inform the player of the texture, condition or material that an object is made of.
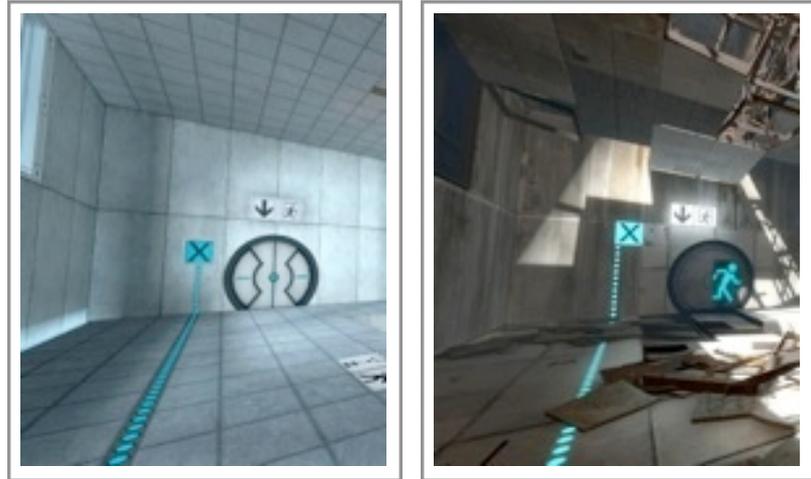

Fig.2.3.08: *Portal 2* (Valve, 2011) uses materials to show the passage of time and wear on the environments since the first game, *Portal* (Valve, 2007)

2.3.09: Sound

Sound is one of the most powerful tools available to a game designer, and exploring it in depth is unfortunately beyond the scope of this project.

In a general sense sound effects can be used to describe individual objects; whereas ambient sounds and the way sound reacts to the (i.e. echoes) environment can give the player a sense of mood and space.

Fig.2.3.09: *Morrowind* (Bethesda Game Studios, 2002) uses ambient sound to make their worlds feel more tangible and alive; in spite of it's technical limitations visually.

2.3.10: Narration

Because it features dialogue Narration is not an environmental technique. It does however deserve a special mention because it is often used in conjunction with the environment to give context to the player's immediate surroundings.

Fig.2.3.10: *Bioshock* (Irrational Games, 2007) features narration used in conjunction with vignettes; employed through the use of audio tapes which can be discovered by the player through exploration.

2.3.11: Space

Space is a term taken from the practice of architecture that refers to how the player moves through and experiences an environment. The experience of space can have a powerful effect on the mood of an environment. Spatial narrative techniques would fall under this term.

Fig.2.3.11: The spaces in *Shadow of the Colossus* (Team Ico, 2005) are huge and imposing; instilling the player with a sense of being in a place not meant for humans.

2.4: Navigational Techniques

Navigation elements are props intended to guide the player to where the designer wants them to go. While their main purpose is often gameplay-related these techniques can be important in drawing players towards narrative elements and providing player motivation.

2.4.01: Signposts

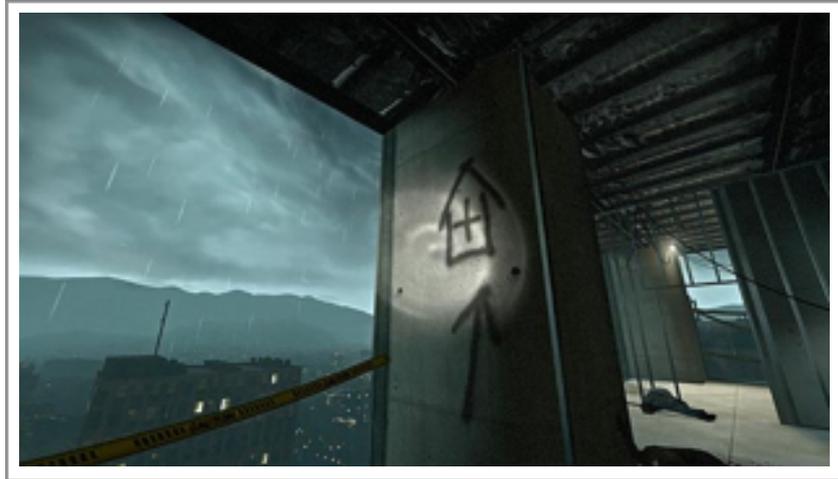Signposts are very literal signs, pointing the player in a direction.

Fig.2.4.01: A fantastic example of a signpost in *Left 4 Dead* (Valve, 2008) which points the player while still making narrative sense.

2.4.02: Beacons

Beacons are any kind of focal point used to grab the player's attention with the intention of drawing them closer towards it; often in order to set off a trigger.

Fig.2.4.01: A light beam and rose petals acting as a beacon in *Amnesia: The Dark Descent* (Frictional Games, 2010), which triggers an event when you move close to it.

2.4.02: Trails

Trails are a series of elements used to draw the player along a path, creating waypoints for the player to follow. They can also be used to link plot elements in order to create more complex juxtapositions.

Fig.2.4.02: Decal blood splatters used to create a trail that bridges two areas in *Fallout 3* (Bethesda Softworks, 2007).

Chapter 3: Case Studies

3.0: Life and Death in the Wasteland: The Skeletons of *Fallout*

The two most recent games in the Fallout series, *Fallout 3* and *Fallout: New Vegas*, feature open-world environments set among the ruins of a long dead society destroyed by nuclear war. These environments are littered with vignettes.

Figs.3.0.1&2: (Left) Two skeletons in *Fallout 3* (2007) in a position reminiscent of the embracing skeletons found at Mantua (Right).

One of the most prevalent motifs in these vignettes are the skeletons of people who have died in the wasteland. By juxtaposing the skeletons with other artefacts the stories of their deaths can be reconstructed by the player. Some skeletons appear to have died peacefully in their beds, others suffering violent deaths. It is common to see skeletons holding pistols, in such a way to imply suicide.

Fig.3.0.3: Not all skeletal vignettes are serious.

What separates these vignettes from scenes is that they have no bearing on the player's actions, they simply paint a narrative of the desperate way of life and death in the wasteland. They help provide a deeper understanding of the tragedy and devastation of the society, which is difficult for the character to directly experience through gameplay.

Figs.3.0.4&5: (Right) A skeleton found in a locked shelter, the gun and blood splatter imply he commited suicide. (Left) Not all death vignettes feature skeletons, some are more fresh in order to reflect the more immediate dangers of the wasteland.

3.1: Triggered Vignettes VS Events: The Metal Detector

In my research, one of the classifications I had the most trouble with was a metal detector in *Call of Duty: Modern Warfare 2's* (Infinity Ward, 2009) highly scripted level 'No Russian'.

Fig.3.1.0: Armed A.I characters set off the metal detectors in *Call of Duty: Modern Warfare 2* (Infinity Ward, 2009).

I had come across another metal detector in *Left 4 Dead* (Valve, 2008), which upon the player walking through it triggering an alarm that attracts a wave of enemies must defend against. This case was clearly an event as it tied directly into the gameplay. However the metal detector's alarm in Call of Duty simply beeps as the player walks through it, triggering no gameplay or story event as the alarm has already been raised. This led to the distinction of a triggered vignette from an event. In this scenario, the metal detector simply reacts in a way the player would expect; adding a sense of realism to the world.

3.2: An Implied Presence: Teddy Bears in Gaming

Fig.3.2.0: A teddy bear left at a shrine in *Bioshock* (Irrational Games, 2007).

In environmental narrative artefacts are often used to symbolically represent their owners. One of the most poignant uses of this technique is the teddy bear. It allows designers to imply the presence of a child, without having to actually show them. This is a good solution as showing children, especially as the victims of violence, in a game can greatly increase it's rating, which can lead to bans from sale in some countries. Further when an adult is seen with a teddy bear, it may imply that character is the parent of a young child.

Fig.3.2.1: A bear lies next to the body of a slain man
in *Call of Duty: Modern Warfare 2* (Infinity Ward, 2009).

Fig.3.2.2: The presence of a bear implies this skeleton belongs to a young girl.

Chapter 4: Project Work

The next step in my exploration of environmental narrative was to develop a series of environments utilising the environmental narrative taxonomy to examine how these techniques are implemented.

I chose to create a series of environments, using the *Unreal Development Kit* (Epic Games, 2011). This is a popular engine for many high-profile games, including many of the ones presented in this paper, it is recognised for its ability to support richly detailed and mimetic environments.. All of the environments created exist as if the player is coming across them after the events have occurred. This removed much of the need for animations and events, which given the time constraints were beyond the scope of the project.

4.0: Frankenstein's Laboratory

Fig.4.0.1: Dr. Frankenstein's desk, including anatomical sketches and mixed chemicals.
I also included the journal that the monster tears the pages out of in the novel.

For the first environment I chose to create an interpretation of Dr. Frankenstein's laboratory from the novel *Frankenstein; or The Modern Prometheus* (Mary Shelley, 1818). This environment was chosen to test how well environmental narrative can be used to portray a well-known story.

However as it turns out, much of the iconography people associate with *Frankenstein* comes from the many movies, which are only loosely based on the novel. In fact, Shelley spends very little time describing Dr. Frankenstein's work environment or the process through which is monster is created. The famous lightning bolt, that brings the monster to life is little more than a passing reference to the study of galvanism in the book. As such I chose to design an environment as a mix of Shelley's novel and the classic films. Using elements of the character from the book and taking classic imagery such as the operating table and gothic architecture from the films.
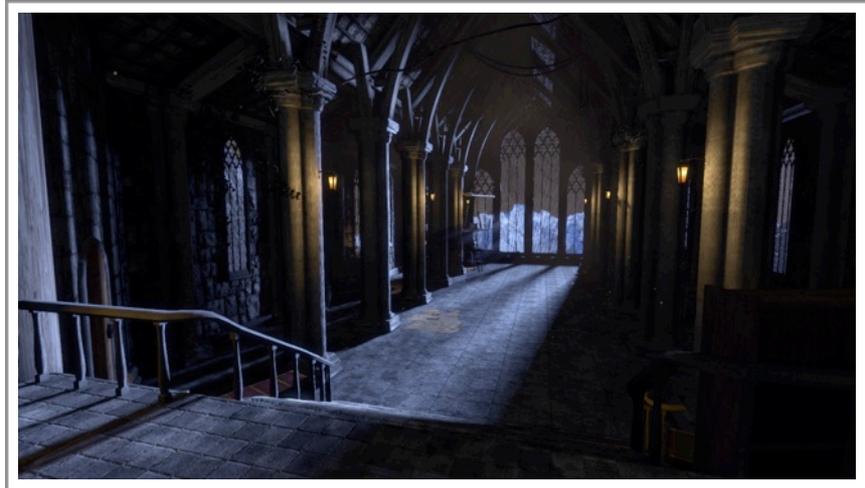
Fig.4.0.2: I took the gothic style represented in the films, but reworked it into a space more reminiscent of a cathedral. Drawing attention to the large gothic windows through which the player can see the storm in one direction; and the working area in the other.

In trying to answer "What happened here?, I chose to focus on the process of creating the monster. In the book Frankenstein's main studies are surgery and chemistry so I made them central to the design. I also included galvanism, the study of the effect of electricity on muscle tissue and the supposed catalyst for life in both the novel and films. This made the three central themes of the environment electricity, chemistry and surgery.

I implemented these themes in several ways. I employed chemistry equipment, bottled chemicals and surgical tools as artefacts to represent the themes of surgery and chemistry. I also added anatomical drawings as posters to reinforce the surgical theme. For electricity I chose lightning as both a lighting and atmospheric effect.
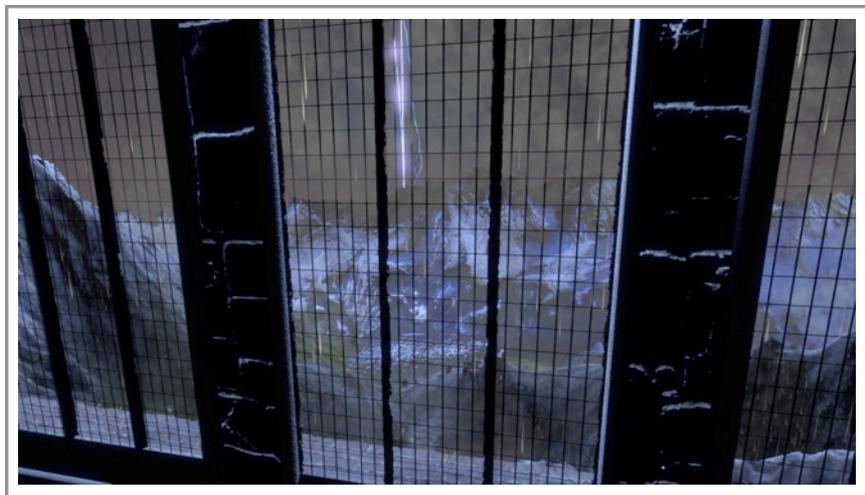
Fig.4.0.3: I used a vista to give the player a sense of being in a castle tower high above the mountains. A good view of the storm and lightning can also be seen here.

To reinforce these themes, each has a single specific artefact which relates to them. These are a brain being kept alive in a mysterious green liquid for chemistry; a mysterious electrical apparatus, which sparks with energy hanging from the ceiling for electricity, and the famous operating table to represent surgery.
Put together these three elements create a scene which is unmistakably *Frankenstein.*

Fig.4.0.4: Another workbench, this one geared more towards mixing chemicals. The paintings are used to show aspects of Dr. Frankenstein's character, such as the portrait of a young woman put in a place of prominence. This is intended to be Elizabeth, the woman Dr. Frankenstein loves.

Fig.4.0.5: Some artefacts are more hidden, to encourage the player to explore. In a dark corner sit several empty coffins; collected by Frankenstein in his search for body parts. I found this a good way to represent dead bodies without having to explicitly show them.

Fig.4.0.6: The electrical apparatus hanging from the ceiling, the brain in the jar on the workbench to the right and the classic operating table with restraints. These 3 artefacts create a vignette that identify this as Dr. Frankenstein's lab.

Fig.4.0.7: I used scaffolding, rubble and dead vines to show that the tower had been empty and abandoned before being occupied by Dr. Frankenstein. The scaffolding implies the building was in such bad condition he needed to do repairs before he could begin work; leaving the scaffolding standing testifies to the hurriedness of these repairs.

4.1: The Apollo 11 Lunar Landing Site

For my second environment I decided to move away from fiction and explore environmental narrative employed in a documentary sense. For this I chose the Apollo 11 lunar landing site because the large amount of documentation relating to the event made recreating the environment in a truthful way easier.

Fig.4.1.1: A classic view of the Apollo 11 site, featuring it's two most recognisable objects. The flag and the lander.

Exploring a documentary narrative was also of interest because of the increasing interest in using game worlds for the purposes of education. Because there were no major themes to explore, I focused my early attention on recreating the landing site as realistically as possible. The base of the lunar module, the flag and the experiments are all in their approximately correct locations relative to one another. I then tried to focus on lesser known elements of the story, such as the discarded boots and PLSS[1] packs to both encourage the player to explore and examine the space, and make the environment more true to life.

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[1] PLSS: *Primary Life Support System*

Fig.4.1.2: The discarded PLSS units bear the names of the astronauts who used them.

These elements allowed me to include details such as names of Aldrin and Armstrong on the PLSS packs and the Apollo 11 plaque, which give a greater sense of the people who were there. Because these objects are less well documented, I was able to take more license in order to better tell the story. For example: the Apollo 11 plaque is actually wrapped around the strut of the lander but this would be impossible to read in-game so I chose to attach it to the lander's ladder instead.

Fig.4.1.3: The Apollo 11 plaque. Although it's location has been changed to make it more readable in-game, it is a faithful reproduction of the real plaque left on the moon.

Finally, in order to give the level a sense of weightlessness and prevent it from feeling static and unrealistic; I added the subtle atmospheric effect of moon dust. Despite the moon having no real atmosphere to speak of. This subtle motion actually makes the level feel more still, as it changes it from a static environment to one that feels more lifelike.
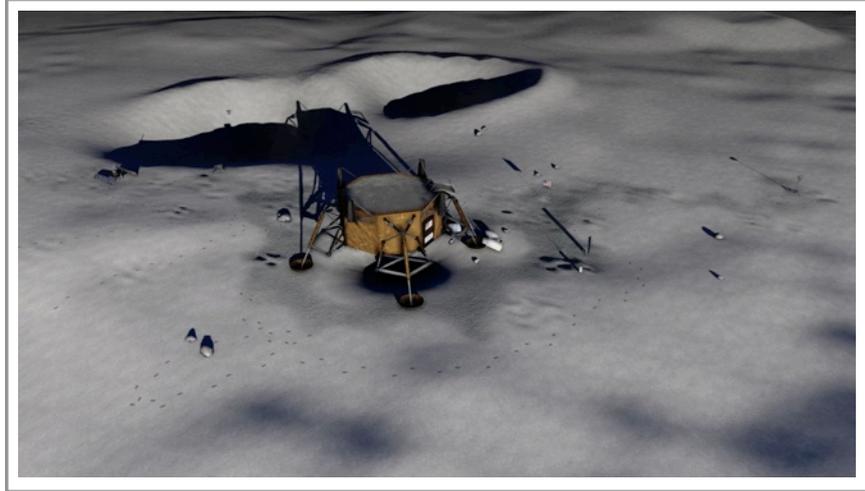
Fig.4.1.4: This screenshot from above shows how the artefacts a positioned
in relation to one another, which is approximate to the actual locations.

Fig.4.1.5: I used an actual photo of the Earth taken on the Apollo missions
to create the material for the Earth model in-game.

4.2: Table Settings

Fig.4.2.1: A basic table setting.

As my first two environments had used existing narratives, for my third I chose to focus on looking at environmental narrative given without context, which was therefore open to interpretation. For this part, I decided that rather than create another environment I would create a series of vignettes telling stories around the central theme of a café table. Doing this allowed me more room to experiment with

different stories, while reusing many of the assets; which is common in most games.

The aim of this was to explore how effective environmental narrative is, when used away from the context of a known story or other storytelling techniques.
As such the environments are presented without so much as a title; although I have included my own interpretations of each vignette below.
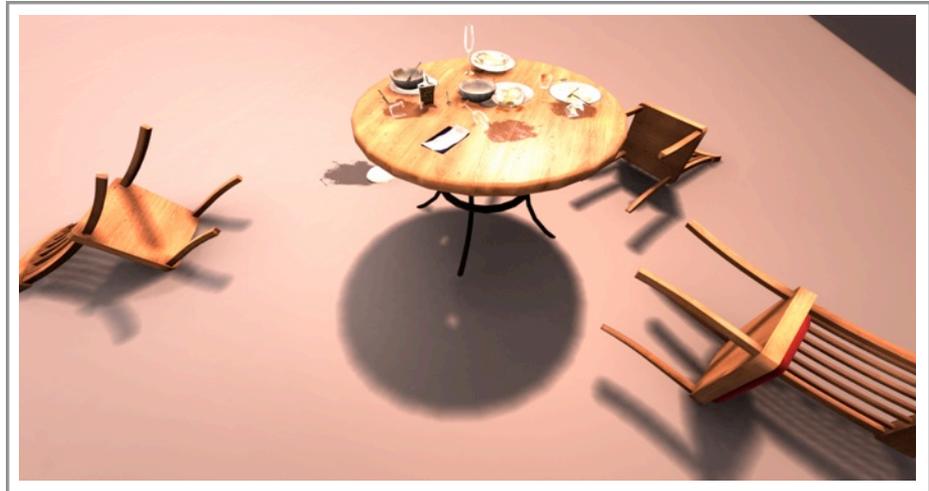
Fig.4.2.2: The dine and dash. An unpaid bill has been left sitting on the table.

Fig.4.2.3: A simple murder scene.

Fig.4.2.4: Perimeter tape and evidence markers where all that was needed to turn the murder scene into a crime scene. This also gives a greater sense of time having passed since the initial event.

Fig.4.2.5: Placing the chair on top of the table signifies the restaurant is closed.

Fig.4.2.6: An engagement. An empty ring box sits next to empty plates and champagne glasses.

Fig.4.2.7: A failed engagement. The crushed man sat at the table drinking heavily and eventually vomiting.
It's difficult to see in this image but the ring has been left sitting next to the ring box on the table. I faced the woman's chair away from the table to try and give a sense of the characters turning away from one another.

Fig.4.2.8: The tables and chairs used as a makeshift ladder for a graffiti artist.

Fig.4.2.9: A shootout. I found events with a lot of big movement left the most engaging vignettes.
Violence being especially easy to convey.

Fig.4.2.10: Chairs stacked on top of a table to make a castle tower at playtime.

Fig.4.2.11: A poker game. Examining the cards reveals that one player is cheating.

Fig.4.2.12: Taking the card table, the addition of a blood decal was all that was needed to add another layer of events to the story.In this scenario the cheated man stands up and shoots the cheater where he sits, knocking his chair over in the process. Placing objects carefully rather than simply scattering them can be a good way to create motion in a static scene.

Chapter 5: Conclusions

5.0: Techniques and Relationships

One of the first things that became apparent through researching the techniques of environmental narrative is that while they are distinct from one another, it is rare for them to work independently from each other.

As an example, all artefacts will have a material; as will everything else on screen. They simply would not appear in game without one. In a less rigid example; navigational elements will usually be made with props but could also be a product of techniques like lighting or sound.
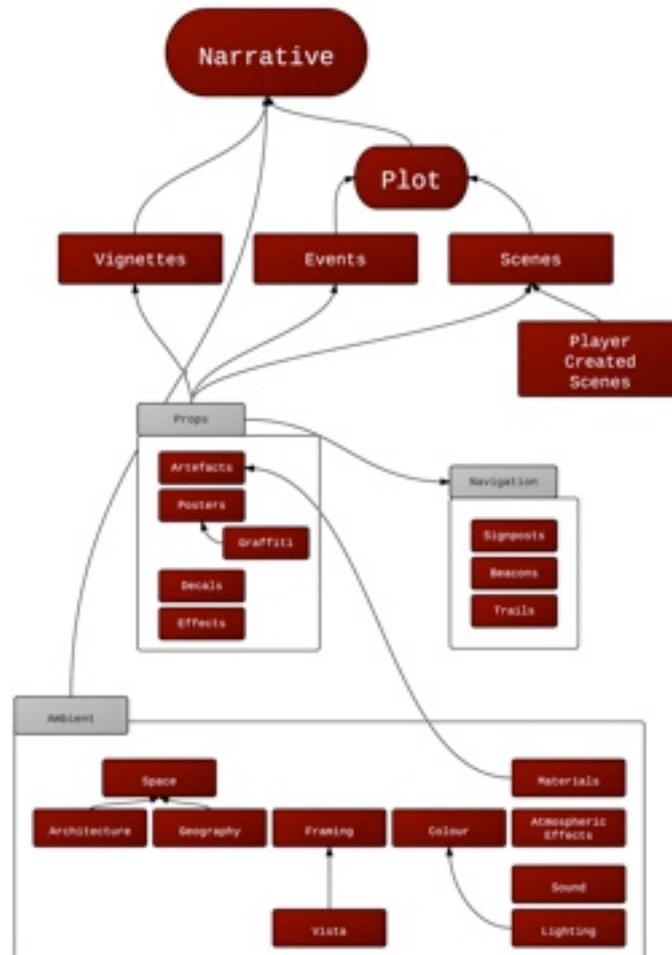
Fig.5.0.1: A rough diagram showing the major
relationships between environmental narrative techniques.

It is also common for techniques to work as a support, or in tandem. For example; a campfire artefact will only appear lit with the addition of a flame effect. Scenes and Vignettes are impossible to create without a juxtaposition of one or several techniques.

5.1: Context, Intention and Interpretation

One of the strengths of environmental narrative is that it invites the player to reconstruct the story for themselves, giving them an opportunity to find their own meaning. This enables the player to be come more involved in the story, while at the same time rewarding them for exploration.

However this also means that a designer cannot be sure the player will interpret the environment in the way they intend; especially with more complex narratives. This mainly becomes an issue when a story is intended to be interpreted a specific way. At this point the environmental narrative benefits from context provided from other narrative sources; such as narration or text. This is especially important when working within the confines of an existing narrative; such as working on a licensed project.

This context doesn't necessarily have to be detailed. In my Frankenstein's Laboratory and Apollo 11 Lunar Landing environments, the titles alone provide enough context to point the player in the direction of the intended meaning. Focusing the player on a central idea, which they then relate to their environment. However this is only an observation based on my own experience and would require further study to prove.

5.2: Conclusions and Future Work

The goal of this project was to identify what the techniques are used in environmental narrative. The current definitions of these techniques are rudimentary. Details of how each of these techniques work and how they interact with one another is something that will require further research and testing; as it was beyond the scope of this work.

Specifically, further research needs to be taken into how lighting and sounds techniques fit into environmental narrative. Their current position under ambient techniques is far from ideal, and is simply a case of that being the best grouping for them in the current version of this taxonomy. My supposition is that there exists a wide enough range of distinct techniques to form new groupings separate from the ambient group.

Finally, more work needs to be done in testing these techniques for their effectiveness. The environments created in this work are design experiments; used in an attempt to understand their implementation. How successfully environmental narrative tells stories is something, which will require more study, and testing particularly in the form of surveys.

My hope is that creating this taxonomy is that it provides a flexible yet robust groundwork from which further research into game narratives can be taken. In addition to providing a useful resource to help environmental designers create more engaging interactive environments. The construction of story in video games is an area of significant interest, and environmental narrative is only one piece of the puzzle. But if video games are to be taken seriously as an art form and a story telling media then it is vitally important to gain an understanding of what separates them from more traditional mediums.

I also hope that this paper has provided the reader with a greater understanding of how game environments tell stories, and given them a greater appreciation for the care and effort that goes their creation; so that they may better enjoy exploring video game narratives in the future.

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