

Environmental Storytelling: An Integrative Review of Storytelling Through the Environment in Digital Games

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Abstract. Objective: *This paper answers: how can Environmental Storytelling (ES) foundations be expanded through complementary frameworks? It performs an integrative review of “A narrativa por meio do ambiente”, examining ES methods. Methodology:* *An exploratory and analytical approach is adopted, expanding the theoretical framework with Nitsche, Brown, Feltham, Totten, and Hocking. The foundation is operationalized through qualitative analysis of case studies: BioShock, Dark Souls, The Last of Us Part II, and Gone Home. Results:* *Environmental Storytelling constitutes a complex narrative structure, whose effectiveness depends on the harmonious integration of World Building, Level Design, and environmental details. Overlapping Nitsche and Brown’s frameworks reveals the articulation between narrative, interactive, and presentation spaces. Successful applications (BioShock, Gone Home) and cases of ludonarrative dissonance (The Last of Us Part II) are identified, highlighting risks of misalignment between Environmental Storytelling and gameplay. Keywords* *Environmental Storytelling, Narrative, Digital Games, Level Design.*

1. Introduction

As with many forms of visual art, the environment helps convey the messages and stories intended by its creators. Films, theater, and music videos use set design to communicate with the audience without relying on expository dialogue. The well-known principle “show, don’t tell,” often attributed to Anton Chekhov [Baldick 2015], captures this technique, which favors action and sensation over explicit narrative.

In digital games, this principle is amplified: spatial ambiance is essential for player immersion, engaging senses beyond vision and hearing. Interaction, maps, architecture, and objects can narrate and set the tone independently, especially in a medium where the spectator is also an active agent.

Research on Environmental Storytelling (ES) has expanded considerably. Bevensee et al. [Bevensee et al. 2012] investigated how narratives can be conveyed exclusively through the environment, generating emergent narratives whose interpretation varies among players. Serelis [Serelis 2024] introduced “gradational environmental storytelling,” where progressively developing visual elements signify narrative change. Silva et al. [Silva et al. 2022] examined transhuman environmental narrative in Cyberpunk 2077. Studies such as these highlight the topic’s relevance and the diversity of approaches in the field.

It is within this context that the work of Freitas and Silva (2020) is situated; their article serves as the starting point for this integrative review, which expands its foundations with Nitsche [Nitsche 2008], Feltham [Feltham 2013], Totten [Totten 2014], and Hocking [Hocking 2007]. The review is structured into theoretical foundations, methodology, case study analysis, and conclusion.

2. Related works

The article “Environmental Storytelling in Video Games: Crafting Narratives beyond Words” [Cyran et al. 2025] offers a panoramic view of the evolution of Environmental Storytelling, from *Myst* to contemporary games, covering historical, technical, and psychological aspects of the technique. Ekvall [Ekvall 2024] examined the use of Environmental Storytelling in *Red Dead Redemption 2* and *Cyberpunk 2077*, applying Jenkins’ concepts to compare the narrative approaches of the western and cyberpunk genres. Roscoe [Roscoe 2024] analyzed *Dark Souls III* from the perspective of Environmental Storytelling, highlighting how gothic elements, architecture, and environmental items build the narrative without relying on explicit dialogue. He [He 2024] proposed a semiotic approach to ES, identifying best practices for conveying narrative through visual elements in the environment. Unlike these studies, which focus on specific games, genres, or techniques, the present work integrates multiple theoretical perspectives (Nitsche, Brown, Feltham, Totten, Hocking) to examine ES across different design contexts, identifying both successful integrations and tensions between narrative and gameplay.

3. Theoretical Background

3.1. What is Environmental Storytelling

The authors present Environmental Storytelling based on Carson’s concepts [Carson 2000], for whom the term has its roots in the creation of vivid environments in theme parks. This work adopts the definition put forward by Freitas and Silva [Freitas e Silva 2020], understanding ES as a layer of environmental details that suggests narratives, context, and emotions to the player, expanding or complementing the main story. To broaden this foundational base, it is essential to incorporate the contribution of Henry Jenkins, who popularized the term in game studies with his concept of “evoked narrative.” For Jenkins, space acts as a narrator, where the story is reinforced by immersive details, making the player an active agent in constructing meaning, beyond dialogues and cut-scenes [Jenkins 2004]. Jenkins (2004) proposes a fourfold typology of spatial narrative in games — evoked, embedded, emergent, and enacted — though this study focuses primarily on the concept of *evoked narrative*, as it most directly aligns with the Environmental Storytelling framework adopted by Freitas and Silva (2020).

According to the article, ES seeks to create a vivid setting, that is, a scenario that makes the player move through it naturally and realistically. In real-life settings like movie theaters or restaurants, players would have a sense of how to get to well-known spots, such as entrances, exits, rooms, or kitchens, based on their real-world experience. Therefore, a game becomes capable of telling a story, presenting perspectives, and conveying feelings through good environmental design alone.

3.2. Spatial Structure: Nitsche

The first is Narrative Space, which presents the context of the game's story and how it integrates with environmental interaction through diegetic elements such as audio, text, and cutscenes. This is where the story unfolds, even if some areas are non-explorable.

The second, Interaction Space, is governed by mechanics and rules that shape spatial experience. It is the functional layer where player actions yield consequences, defined by physics, AI, puzzles, collisions, and objectives.

Finally, Presentation Space is the audiovisual representation of the game world as displayed on screen, mediated by technology such as monitors, sound, and user interfaces. It is not the game's actual space but its projection, subject to conventions such as viewpoint (first-person, third-person, or isometric), screen framing, lens effects, and HUD elements.

From a theoretical perspective, applying Nitsche's lens (2008) reveals that Environmental Storytelling operates predominantly within Narrative Space, while relying on Interaction and Presentation Spaces for support. The assertion that "the environment provides narrative context"[Smith e Worch 2010] thus acquires greater depth, comprising the sum of evoked narrative, player action possibilities, and audiovisual representation.

3.3. Tools and Methodologies

3.3.1. Emotion and Intensity Graphics (Feltham)

Beyond analytical frameworks, the article also addresses practical narrative design methodologies, such as the Emotion and Intensity Graphics developed at BioWare [Feltham 2013]. This level design tool organizes a list of target emotions, such as hope, despair, or triumph, tied to different acts within a level, planning an emotional intensity curve for the player's experience.

3.3.2. Architectural Approach (Totten)

The practice of structuring space to guide the player's emotional experience finds strong support in the architectural approach presented in Christopher W. Totten's book "An Architectural Approach to Level Design"[Totten 2014]. In his book, Totten argues that principles of real-world architecture, such as sightline control, path manipulation, and the creation of focal points, are vital for structuring Level Design..

3.4. The Environmental Narrative Pyramid

Beyond emotional experience, Freitas and Silva draw on Mark Brown's Environmental Narrative Pyramid, a hierarchical structure of three interdependent layers organizing macro and micro spatial narrative. At the base, World Building constructs the fictional world and its rules. In the middle, Level Design translates these rules into playable spaces. At the top, Environmental Storytelling inserts narrative details — objects, inscriptions, traces — that tell stories through the environment. This hierarchy makes clear that Environmental Storytelling does not operate in a vacuum but on the solid foundations of World Building and Level Design..

By overlaying Nitsche's analytical lens onto Brown's Pyramid, we can gain an even richer and more integrated understanding of environmental narrative in games. Brown's World Building, at the base of the pyramid, largely corresponds to Nitsche's Narrative Space, or the 'imagined plot' that contextualizes the fictional world. Level Design, the middle layer, is what materializes this world into playable rules and geometries, shaping the Interaction Space. Finally, Environmental Storytelling, at the top of the pyramid, does not merge with the Presentation Space, but is revealed through it: in the visual detail, in the diegetic sound, in the textures of the walls, or in the misplaced object where the story of the environment becomes perceptible to the player. It is at this point of contact between the Narrative Space, the story of the place, and the Presentation Space, its audiovisual manifestation, that Jenkins' concept of 'evoked narrative' takes place: the narrative that the player builds by interpreting the details and traces scattered throughout the scenery.

3.5. Limitations and Critiques: Ludic Dissonance

A pertinent discussion for evaluating Environmental Storytelling is ludic dissonance. Hocking [Hocking 2007] describes the conflict when a game's narrative conveys a message while gameplay rewards contradictory behaviors. In a war game, Environmental Storytelling may use scattered bodies, smoldering ruins, or unsent letters to convey horror. Yet if gameplay rewards spectacular and pleasurable enemy elimination, a tension arises between environmental narrative and player action. This dissonance is not a flaw in ES itself, but a symptom of narrative-ludic misalignment, highlighting the need for coherence between environmental narrative and gameplay.

4. Methodology

This research is an integrative literature review, following the framework proposed by Mendes, Silveira, and Galvão [Mendes et al. 2008]. The methodological path consisted of six stages: (1) problem identification; (2) inclusion and exclusion criteria; (3) definition of the information to be extracted; (4) search and selection of materials; (5) critical analysis; and (6) synthesis of results.

The choice of integrative review as a method is supported by established references in the methodological literature. According to Snyder (2019), the integrative review aims to critically review, synthesize, and integrate literature on a topic to advance theoretical frameworks or create new conceptual models, requiring careful selection of literature and a high level of conceptual thinking, but with methodological flexibility appropriate to the research objective [Snyder 2019]. Unlike the systematic review, which seeks to exhaust all production on a specific question, the integrative approach is particularly suitable for emerging topics or those requiring reconceptualization, as is the case with Environmental Storytelling in digital games [Snyder 2019]. Paul and Criado [Paul e Criado 2020] reinforce that literature reviews are legitimate scientific articles and that their acceptance in high-level conferences has increased, provided there is methodological clarity. Templier and Paré [Templier e Paré 2015] complement this by proposing that the evaluation of a review should consider its purpose, and that the criteria of systematic reviews should not be applied to other types of reviews.

Although the core method is an integrative review, the selection of case studies followed a different procedure from the one used for the literature. While the literature

was identified through database searches with explicit criteria, the games were chosen based on qualitative criteria, described in subsection 4.2. This distinction was adopted because game design research often requires different criteria for selecting empirical objects.

4.1. Problem identification and research question

Based on the base article “A narrativa por meio do ambiente” [Freitas e Silva 2020], the research question was defined as: how can the theoretical foundations of Environmental Storytelling in digital games be expanded and integrated through the analysis of complementary frameworks and methodologies?

4.2. Inclusion and exclusion criteria

Included works comprised those cited in the base article [Carson 2000, Feltham 2013, Brown 2017] as well as relevant complementary frameworks [Nitsche 2008, Totten 2014, Hocking 2007]. Excluded were studies focused exclusively on cutscenes, expository dialogue, or narrative without significant use of the environment.

For the selection of case studies, qualitative criteria were adopted, distinct from those used for the literature. The games were chosen based on: (i) critical recognition as ES examples; (ii) diverse narrative and mechanical approaches; (iii) availability of analysis in the literature; and (iv) representation of different genres. Based on these criteria, four games were selected: BioShock (narrative ES integrated with level architecture), Dark Souls (systemic and emotional ES), The Last of Us Part II (tension between narrative and gameplay), and Gone Home (ES as the sole foundation of the experience). This selection was not exhaustive, but grounded in the literature and thematic relevance to the research question.

4.3. Search and selection of materials

The search was conducted in March 2026 using **Google Scholar**, complemented by the **CAPES Journal Portal** for access to full texts in subscribed databases. The **snowballing** technique was used [Hirt et al. 2024], starting from the references of the base article by Freitas and Silva, to locate works not indexed in the consulted databases.

Two search strings were tested. The broader string — ("Environmental Storytelling"OR "narrative architecture") AND ("games"OR "digital games") — returned approximately 6,980 results. To narrow the scope, a more specific string was adopted: ("Environmental Storytelling"OR "narrative architecture") AND ("games"OR "digital games") AND ("ludonarrative dissonance"OR "level design"OR "Totten"OR "Nitsche"OR "Jenkins"), which yielded approximately 4,600 results.

From this refined set, articles were selected based on relevance and the inclusion criteria described in subsection 4.2. Approximately 15 articles were identified as potentially relevant; eight were read in full and included in the synthesis. The remaining articles were excluded for not directly addressing ES or for falling outside the scope of this review. In parallel, approximately 15 frequently cited games were identified. Applying the same criteria, four were selected for analysis; the others were excluded for not meeting the criteria or due to thematic redundancy.

4.4. Data extraction and analysis

The qualitative analysis consisted of overlaying each theoretical framework onto the selected case studies, examining how these concepts apply to different game contexts. For each game, environmental elements were identified and interpreted through the corresponding frameworks to understand their contribution to narrative and player experience.

4.5. Synthesis of results

The integration of frameworks enabled a dialectical movement between theoretical foundation and practical observation, making it possible not only to describe the concepts and tools of ES but also to carry out a critical analysis of their application and effectiveness in the construction of narratively rich gaming experiences.

5. Analysis and Discussion

5.1. BioShock: Synthesis Between Nitsche and Brown

The synthesis between Nitsche (2008) and Brown (2017) becomes evident in BioShock. The World Building of the collapsing underwater utopia — a society destroyed by its own selfishness — establishes Narrative Space and provides the fictional rules that underpin the entire experience. Level Design materializes Rapture through its Art Deco corridors, plazas, and plasmid systems, creating Interaction Space that encourages exploration and tactical combat. At the pyramid's apex, the synthesis is completed: Environmental Storytelling, such as bodies embracing on mattresses (Figure 1), audio messages, and toys in an abandoned nursery, occupies Presentation Space to evoke Jenkins's (2004) "evoked narrative."



Figura 1. The bodies of a couple embraced on a mattress. Bioshock

The audio diaries scattered throughout Rapture deserve particular attention. While Jenkins' (2004) concept of *evoked narrative* helps explain how the city's Art Deco architecture evokes a lost utopia, the audio diaries themselves function more precisely as *embedded narrative* — stories built directly into the environment through found objects and recordings, waiting to be discovered by the player.

These details do not recount the main story; rather, they bear witness to its human consequences, transforming Rapture from a mere backdrop into a silent testament to the ideology that precipitated its downfall. Here, Nitsche's three spaces and Brown's three layers function in perfect hierarchical harmony: World Building imbues Level Design with meaning, which in turn supports Environmental Storytelling, ultimately humanizing World Building itself.

5.2. Dark Souls: Systemic and Emotional ES

5.2.1. Emotional Aspect: Feltham's Curve

In games with non-linear structures, such as Dark Souls, the emotional curve is built through the player's relationship with the hostile environment and systemic challenges, showing that the principle of planning the emotional experience through space is universal, even if its execution strategies vary radically. The opening sequence in the Northern Undead Asylum illustrates how Environmental Storytelling operates in this context. The game orchestrates a journey that begins with the claustrophobic curiosity of the dark cell where the game starts, without any dialogue, conveying a condition of imprisonment and abandonment. Further on, the ceiling collapses and the wide, illuminated arena where the Asylum Demon awaits presents not just a fight, nor merely the peak of despair in that encounter, but also narratively suggests that this place was once a grand main hall, now defiled by a colossal creature.

Upon finding the first bonfire, placed in a corridor of worn stone, surrounded by broken pillars and traces of previous wanderers, such as bones, extinguished torches, and a sword stuck in the ground, the elements that make it up do not only guide gameplay; each of them inscribes a small story into the scene: a makeshift sanctuary used by those who, like the player, sought rest before moving on. It is these environmental details, not the emotional rollercoaster itself, that constitute the Environmental Storytelling of Dark Souls. The feelings of oppression, relief, and triumph experienced by the player are responses to this silent narrative, driven by the architecture, the suggestion of past events, the placement of enemies, and the strategic location of safety and danger.

5.2.2. Systemic Aspect: Totten's Structure

In Dark Souls, the strategic placement of bonfires clearly illustrates the principles presented by Totten (2014) regarding path manipulation and the creation of focal points. Bonfires placed in dangerous corridors become focal points of relief; after defeating a boss, they become focal points of reward; before a major fight, they become focal points of tension and preparation. This architectural and functional layer of Level Design does not, by itself, constitute Environmental Storytelling, but rather the structure that supports it. It is upon this carefully constructed space that the environmental narrative details, such as the traces of wanderers, the swords stuck in the ground, and the extinguished torches, can be inserted and read by the player as small, silent stories.

5.3. The Last of Us Part II: Ludic Dissonance

In The Last of Us Part II, Environmental Storytelling constructs a brutal and despairing world where violence appears as a traumatic and destructive cycle. Bodies suspended

from poles, farewell messages scrawled on walls, and empty spaces. Each environment bears traces of interrupted lives, composing a silent narrative of constant loss and the human cost of survival. This Environmental Storytelling declares that violence proves tragic and destructive, a cycle that consumes all.

In parallel, the narrative surrounding the protagonist, Ellie, seeks to make the player feel appalled by the violent acts committed during her journey of vengeance. Yet gameplay emphasizes stealth through highly polished and, in many respects, gratifying tactical combat. Leveraging the environment for ambushes and successfully eliminating enemies constitutes a rewarding mechanic—one that many find inherently enjoyable, which the game both encourages and refines. Dissonance emerges precisely in the gulf between these two discourses: the environment narrates the horrors of violence, while player action celebrates its efficient execution. This misalignment, between what the environment conveys and what gameplay evokes, establishes ludic dissonance.

While often framed as a flaw, this tension has also been interpreted as a deliberate design choice. Ferrari and Soraci argue that the dissonance in *The Last of Us Part II* is intentionally employed to challenge the player's moral compass, fostering a reflective experience rather than merely an inconsistent one [Ferrari e Soraci 2022]. In this reading, the conflict between environmental narrative and gameplay is not a failure, but a strategy to make the player complicit in the very violence the environment condemns — a productive tension that deepens the game's thematic concerns with vengeance and its consequences.

5.4. Gone Home: Environmental Storytelling as Foundational Experience

In contrast, whereas the previous case illustrates the risks of misalignment between Environmental Storytelling and gameplay, certain games achieve organic integration—titles that ground the entire experience in Environmental Storytelling without conflicts arising from other layers. *Gone Home* exemplifies such integration.



Figura 2. Gone Home living room

The Greenbriar mansion functions as a living narrative archive: each room unveils layers of family history through everyday objects such as forgotten letters, diary notes, cassette tapes left in a recorder, books, or even the house's architecture, with 1990s features, establishing temporal or cultural context. The living room (Figure 2) exemplifies

this principle, with its objects and layout inviting interpretation. No enemies require combat, nor do cutscenes demand viewing; narrative emerges solely from exploration and interpretation of environmental traces. This case demonstrates that Environmental Storytelling can sustain a complete narrative experience independently, without reliance on complex mechanics or ludic conflicts.

6. Declaration of Generative AI and AI-assisted technologies

The authors declare that no generative AI or AI-assisted technologies were used in the writing process, concept generation, or data analysis of this manuscript. The entire work was conceived and written exclusively by the authors.

7. Conclusion

This review demonstrates that Environmental Storytelling is more than decorative: it is a complex narrative structure whose effectiveness depends on the harmonious integration of different layers of game design.

Drawing on Carson (2000) and Jenkins (2004), ES can be understood as a narrative evoked by space. Nitsche's framework (2008) further unfolds this experience into three complementary dimensions (Narrative, Interaction, and Presentation Spaces), while Brown's Pyramid (2017) hierarchically organizes the relationship between World Building, Level Design, and ES, emphasizing that environmental details only function when supported by solid foundations. The analysis also identified specific problems when ES and gameplay convey conflicting messages, as demonstrated by the ludonarrative dissonance in *The Last of Us Part II*. In that case, the environment portrays violence as tragic, while gameplay rewards it as enjoyable, a misalignment that weakens the narrative coherence. In contrast, games like *Gone Home* show that ES can, by itself, sustain a complete narrative experience when operating in harmony with other layers.

Its immersive potential is fully realized when there is conscious mastery of its multiple dimensions — from world building and level design to interaction and presentation. This coherent orchestration reveals the true power of the environment as a storyteller.

Future work could explore how ES operates in AI-mediated environments, where assumptions about predetermined spaces may not apply. Additionally, the frameworks discussed here could be extended to analyze liminal spaces in games, such as environments of transition and uncertainty, and to educational games, where ES could serve as a tool for immersive engagement with historical, cultural, or scientific content.

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