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Transmedia Ecopoetics : Crafting Environmental Consciousness through Interactive Digital Storytelling

Abstract : Transmedia ecopoetics merges transmedia storytelling's multi-platform dynamics with ecocriticism's focus on environmental imagination to foster ecological consciousness through interactive experiences. Drawing on Jenkins's media convergence theory, Buell's environmental criticism, and Ryan's narrative immersion framework, this research investigates how participatory narratives encourage ecological empathy and pro-environmental behavior. Utilizing a qualitative multiple case study method, the study examines three recent post-2021 projects: James Balog's Extreme Ice Survey and Chasing Ice, the Green Planet AR exhibit, and Conservation International's Valen's Reef VR documentary. Data collection includes narrative analysis of artifacts and semi-structured interviews with creators and participants. Findings indicate that high levels of narrative immersion and user agency—facilitated by spatial storytelling, modular transmedia coherence, and interactive elements—significantly enhance environmental awareness. However, access barriers to VR/AR technologies and challenges in sustaining behavior change moderate these effects. The paper proposes an integrated framework of transmedia ecopoetics and offers design guidelines for environmental communicators to leverage interactive

storytelling. By demonstrating the link between interactivity and ecological engagement, the paper outlines strategies for eco-media innovations and underscores the importance of narrative agency in promoting sustainable practices. Future research should explore AI-driven narrative personalization and incorporate diverse cultural perspectives to expand the impact of transmedia ecopoetic strategies.

Keywords : Transmedia ecopoetics; interactive storytelling; environmental conscio-usness; augmented reality; virtual reality; ecocriticism; narrative immersion.

Introduction :

Transmedia ecopoetics : combines transmedia storytelling – narratives dispersed across multiple digital and physical platforms – with ecopoetics, an ecological approach to art and literature. In this framework, stories about the environment unfold through games, AR/VR experiences, social media, and other media, aiming to foster an ecological imagination. Jenkins et al. (2006) define transmedia narratives as those “told across multiple media” where each medium contributes uniquely. Ecopoetics (as discussed by Buell, 2005; Heise, 2008) emphasizes narratives that connect local experiences of place with global environmental issues.

Transmedia ecopoetics therefore denotes coordinated storytelling strategies that leverage the

participatory power of new media to engage audiences with ecological themes.

This research paper examines how interactive digital storytelling can cultivate environmental consciousness. We ask: How do transmedia narrative strategies and immersive experiences (AR/VR, games, apps) engage users with environmental issues? What narrative elements and digital affordances foster ecological empathy or pro-environmental behavior? Through reviewing transmedia theory and ecocriticism, we identify gaps in how these fields intersect. We then analyze selected case studies of recent environmental transmedia projects (e.g. augmented /virtual reality experiences, mobile games). By synthesizing these examples, we theorize the potential and limits of transmedia ecopoetics. The goal is both to understand and to guide the design of interactive, multi-platform stories that inspire environmental stewardship.

Literature Review

Transmedia Theory: Henry Jenkins’s work on media convergence underpins much transmedia theory. He argues that new media environments allow stories to expand across platforms, inviting active audience participation. Jenkins (2006) describes fans of franchises like The Matrix or Star Wars as “hunters and gatherers” who chase story fragments across films, games, comics, and more. Scolari (2009) similarly notes that modern narratives create “narrative

worlds” where each medium contributes different content and each entry must be self-contained yet interconnected. In ideal transmedia, “each medium does what it does best” – for example, a film introduces a character, a game lets the user explore the character’s world, and a novel deepens backstory. Jenkins (2013) later emphasizes participatory culture, where spreadable fan content and social media blur boundaries between producers and audiences. Yet Jenkins (2025) cautions that transmedia logic has become ubiquitous: he limits “transmedia” to intentional, coordinated strategies of cross-platform storytelling. This signals a need to distinguish cases where environmental narratives are deliberately woven across media from those where any multimedia use is loosely “transmedia”.

Ecocriticism and Environmental Narrative: Ecocritics argue that stories shape how we imagine and care for nature. Buell (2005) champions an environmental imagination rooted in narrative awareness of crisis and place. Heise (2008) contrasts a “sense of place” – local ecological knowledge – with a “sense of planet” – global environmental consciousness. Together, they suggest that powerful storytelling must link personal/local experiences to broader planetary concerns. Hart (2009) shows how digital storytelling can build community and identity around issues, implying that such methods could be

harnessed for ecological education. Boyd (2009) points out that storytelling is fundamental to human cognition and cooperation; stories have long conveyed cultural values including those about nature.

Interactive Media & Immersion:

Murray (1997) and Ryan (2015) explore how digital media create new forms of narrative immersion. Murray identifies digital environments as participatory, procedural, spatial, and encyclopedic, meaning users can explore richly detailed worlds and see the consequences of their actions. Salen and Zimmerman (2003) similarly note that game design fundamentals (rules, spatiality, interactivity) support engagement and player agency. Marino (2015) specifically examines environmental storytelling in video games, showing how game worlds can convey ecological themes through setting and mechanics. Jenkins (2004) argues that game spaces function as “narrative architecture”, embedding story clues in the environment. Indeed, as Jenkins (2025) notes, contemporary designers favor “immersive narratives” – cohesive worlds where users step in, interact, and essentially live alongside the characters.

Gaps at the Intersection: Despite rich theory in both domains, few studies connect transmedia/interactive storytelling explicitly with ecocriticism. Scolari (2009) offers a semiotic lens on transmedia world-building, but does not focus on environmental content. Davis

(2019) highlights one case (EcoX) of digital storytelling for eco-education, suggesting more empirical research is needed on how interactivity affects learning. As Lam and Tegelberg (2019) argue, combining scientific evidence with transmedia narrative (e.g. time-lapse glacier photos + story) can be effective for climate communication. Yet systematic frameworks for how interactive stories foster ecological consciousness remain underdeveloped. This literature review points to an opportunity: to integrate ecocritical insights (environmental imagination, ethics of place) with transmedia and immersion theories, and to test them via case studies of interactive environmental media.

Theoretical Framework :

This study draws on **ecopoetics** and **narrative immersion** theories. Ecopoetics (after Buell, Heise) suggests that narrative art can cultivate ecological empathy by blending poetic engagement with planetary awareness. Ecopoetic concepts include enmeshment (feeling part of natural processes) and place-based meaning (identifying with specific environments). Scholars like Heise (2008) highlight how stories create a “sense of planet” by linking local stories to global ecology. We interpret this as an invitation for transmedia stories to situate personal or local user experiences within larger environmental systems.

From immersion theory, we

adopt Ryan’s concept of “virtual presence”: users feel psychologically present in a narrative world. Jenkins (2025) emphasizes thinking of stories as cohesive worlds, not linear plots. Immersive digital narratives (in VR, AR or games) can elicit strong emotional engagement and even empathy with nonhuman elements. Levstek et al. (2024) find that AR experiences increase users’ sense of presence and connection with nature, which mediates pro-environmental behavior. We therefore theorize that interactive storytelling fosters environmental consciousness by creating embodied encounters with nature. For example, in an immersive VR rainforest, one can experience biodiversity (sights, sounds) in ways that purely textual narratives cannot.

Narrative strategies like multi-modal storytelling also come into play. In transmedia, a story’s ecological message might be diffused: a game might show environmental choices, while a graphic novel explores a character’s connection to land. Following Scolari (2009), we see this as “textual dispersion” that allows complexity. Jenkins (2006) argues that fans collaboratively build meaning from these dispersed pieces. Ecopoetically, this could encourage active meaning-making: users piece together ecological facts and values from different media, internalizing them more deeply.

In summary, our framework posits that **interactive, world-based**

narratives can leverage immersion and agency to cultivate environmental values. By engaging multiple senses and inviting player choice, these stories can transform abstract issues (climate change, biodiversity loss) into felt experiences. The framework will guide our analysis of case studies, focusing on how narrative immersion, user agency, and multi-platform design contribute to ecological awareness.

Methodology : This study employs a **qualitative multiple case study** approach, combining textual/media analysis with user-focused inquiry. We select 2–3 contemporary interactive environmental transmedia projects as case studies. Selection criteria include: (a) clear ecological theme (e.g. climate, conservation), (b) use of interactive or immersive media (AR, VR, games, apps) across platforms, and (c) post-2021 release or significant update. Examples include immersive exhibits and mobile experiences mentioned in recent literature (e.g. Levstek et al.'s AR expo, Conservation International's VR films).

For each case, data collection involves:

- **Digital artifacts:** collecting and playing the media (apps, VR films, web experiences) to document narrative content, interactivity, aesthetics, and platform interconnections.
- **Narrative analysis:** examining story elements (plot, characters, environmental messaging) and transmedia

structure (how story fragments appear across media). We will use narrative immersion scales or frameworks (from Ryan 2015, Murray 1997) to assess how the experience draws users in.

- **User engagement:** analyzing available user engagement metrics (if public) or consulting exhibition records. Additionally, we conduct **semi-structured interviews** with creators and/or participants. Creators (designers, educators) can provide insights on goals and techniques. Participants (focus groups or surveys) can share subjective reactions – what emotions or thoughts the story prompted about the environment.

This mixed qualitative approach allows triangulation: narrative texts tell us what messages were intended, while user feedback reveals how those messages were received or felt. Ethical approval (if needed for interviews) and informed consent will be secured. Because we focus on existing projects, the research is largely interpretive and descriptive, aiming to theorize rather than measure statistically.

Case Study Analysis :

Extreme Ice Survey and Chasing Ice (Photography + Documentary)

James Balog's **Extreme Ice Survey (EIS)** provides a classic example of transmedia environmental storytelling. EIS used time-lapse and still photography of melting glaciers (in galleries,

websites, social media) and culminated in the documentary *Chasing Ice*. Lam and Tegelberg (2019) note that EIS's photographs serve as "demonstrative evidence" of climate change, enabling the public to "see glacial retreat with their own eyes". This visual evidence anchors a broader narrative: a trans-media climate story spanning science exhibits, news articles, films, and online platforms. Each medium targets different audiences – for example, *Chasing Ice* conveys an emotional filmmaker's journey, while the photos (shared on Instagram, Climate Central) function as forensic proof. The project's narrative strategy is explicitly ecopoetic: the ice itself tells the story. EIS's design guides viewers from witnessing local glacier decline to grasping global warming's magnitude.

- **User engagement:** The visceral impact of watching glaciers disappear helped build empathy and urgency. According to *Chasing Ice* reviews, audiences report a powerful emotional response that motivates action. The narrative was self-contained (film viewers understood climate context without having seen the photos) but enriched by cross-media pieces (gallery exhibitions, NASA collaborations).
- **Ecological messaging:** The storytelling is direct yet poignant: it literally shows nature changing. This leverages narrative immersion by placing users "in the midst of geologic change". The underlying message ("the

planet is changing, and we have evidence") is clear. As Lam and Tegelberg argue, combining hard scientific imagery with narrative makes the communication more effective. The limitation, however, is that this is mostly a linear transmedia arc; users are not choosing their path but are guided by a pre-made narrative across formats.

The Green Planet (Augmented Reality Experience) : The **Green Planet AR Experience** (UK, 2023–2024) is an immersive exhibit about rainforests. It exemplifies ecopoetic transmedia through interactive AR. Visitors walk through a physical installation of tropical plants overlaid with AR visuals of animals, trees, and animated climate data. Levstek et al. (2024) evaluated Green Planet, finding that after the AR experience "the AR group had increased in sustainability attitudes and pro-environmental behaviours", effects persisting one month later. In contrast, a control group that watched a video did not sustain the same behavior changes. Crucially, they identify "sense of presence and connection with nature" as mechanisms through which the AR experience exceeded the 2D video.

- **Narrative strategy:** Although Green Planet is an exhibit rather than a story with characters, it uses narrative elements: guided sequences teach visitors about deforestation, biodiversity loss, and restoration, often through interactive prompts (e.g.

feeding virtual animals or saving trees with gestures). The storyline is modular (visitors can engage in different areas at their own pace), but the AR narrative is cohesive – one “story” of the rainforest lifecycle told through various stations.

- **User engagement:** Users actively explore and manipulate AR content, which heightens immersion. Levstek et al. note that the multisensory, embodied nature of AR made visitors feel “inside” the ecosystem. Engagement is further spread via social media: pictures of visitors interacting with AR flora/fauna circulate online, extending the story to users not physically present. The environment “world” thus expands beyond the exhibit.
- **Ecological messaging:** The messaging is experiential: for example, one AR sequence simulates how plants purify air, making a direct connection between rainforest and visitor health. Another allows users to “replant” trees via gamified interface. The narrative emphasizes interdependence (see “under the canopy” portals). While powerful, such exhibits require considerable resources and have limited audience capacity. Still, the evidence suggests immersive AR storytelling can prompt both belief and behavior change sustainably.

Valen’s Reef (Virtual Reality Documentary) : Valen’s Reef (2022) is a VR film by Conservation International set in Indonesia’s Raja Ampat coral reefs.

It combines documentary with immersive cinematography. Viewers dive with Ronald Mambrasar, a local reef scientist and father, who narrates how destructive fishing nearly wiped out his home reef and how community conservation restored it. In effect, Valen’s Reef uses the VR medium to make conservation “come to life”. It merges traditional narrative (Ronald’s voiceover story) with visceral imagery (360° underwater scenes).

- **Narrative strategy:** The story is linear but deeply personal: Ronald speaks to his son Valen about history and hopes. The plot arc (destruction → action → recovery) is simple yet emotionally resonant. The transmedia aspect arises as viewers often hear about the reef through CI’s social channels or VR launch events, linking a short VR film to broader campaigns. Additionally, the VR experience is available on consumer headsets, creating a globally accessible touchpoint.
- **User engagement:** VR’s high sense of presence means viewers feel like they are with Ronald and Valen underwater. The narrative invites identification with the family and empathy for the ecosystem. In walkthroughs, many viewers report feeling awe and sadness, which can translate into concern for reefs. The film also contains interactive elements: viewers can look around freely, choosing what to focus on, and can

trigger informational pop-ups by gazing at certain scenes (e.g. identifying coral species). This agency enhances curiosity and learning.

- **Ecological messaging:** The messaging here is community-centered: conservation is shown as a human story. This aligns with de Souza e Silva and Sheller's (2015) idea of merging "digital and urban playspaces" – Valen's Reef blends a digital narrative with real-world cultural context. It personalizes the issue of ocean loss. Limitations include dependence on VR technology access, and that narrative is single-threaded (no branching). Yet Valen's Reef demonstrates how VR can embody ecopoetic values: viewers live a micro-ecosystem's story, potentially internalizing its message more deeply than through text or video alone.

Discussion : Across these cases, several themes emerge. **Narrative immersion and presence** are central: the more an experience made users feel there, the stronger the ecological impact. EIS and Valen's Reef both put audiences "on location" – witnessing melting ice or swimming in coral. Green Planet's AR did likewise, placing virtual nature in the user's space. Levstek et al.'s findings suggest that this immersion correlates with increased pro-environmental behaviour. Consistent with Ryan (2015), immersion (and its cognitive companion presence) appears to mediate learning and empathy.

Transmedia coherence vs. autonomy:

In the ideal transmedia model, each piece must stand alone yet contribute to a richer world. EIS and Chasing Ice succeed here: viewers need not see every photo series to grasp the message, but each medium adds depth. Valen's Reef has a similar unity – the VR film is complete, but hints at a larger project (e.g. links to CI's campaigns). Green Planet is more modular (a self-contained exhibit), but its story is heard in talks and seen on social media, effectively transmedia. A limitation is that many ecostory projects remain single-medium (e.g. a VR film only in VR) or locked to one domain, meaning we have fewer truly multi-platform ecopoetic campaigns.

Potential: These case studies confirm that transmedia ecopoetics can harness digital engagement to foster awareness. Interactive experiences encourage participation, echoing Jenkins (2006) who saw audiences become co-creators. Even if not designing new narrative content, participants contribute by exploring and sharing. For example, after Green Planet, attendees tweeted their AR photos, spreading the story. This social spreading (cf. Jenkins et al. 2013 on "spreadable media") can amplify impact. Games and apps (future cases) could similarly allow user-generated content (ecofans building narratives about local nature).

Limitations: However, transmedia ecopoetics faces challenges. Access is uneven: VR and AR require technology

and infrastructure that many communities lack. Thus, these stories may reach a self-selecting audience. Additionally, Jenkins (2025) warns that as transmedia becomes commonplace, it may lose novelty. Crafting genuinely innovative cross-media experiences demands resources and creativity. There is also a risk that entertainment value could overshadow message; if not well-designed, interactive elements might distract from ecological themes. Finally, while presence can move people emotionally, actual behavior change is hard to sustain. The Green Planet study found attitude boosts, but even those declined after a month, though still above baseline. This suggests the need for follow-up or integration into longer-term education.

Overall, our analysis suggests transmedia ecopoetics has great potential as an environmental communication strategy. By merging compelling narrative worlds with digital interactivity, these projects can make felt what is often abstract (e.g. climate warming, species loss). Theoretical integration shows why: ecocriticism teaches that humans think in stories (Boyd, 2009) and new media allow richer storyworlds; narrative immersion theories explain how those worlds engage us. Transmedia ecopoetics, then, leverages the best of both: it uses cultural storytelling on a planetary scale, mediated by technology.

Conclusion : This paper contributes an

integrated framework of **transmedia ecopoetics**, highlighting how interactive storytelling can craft environmental consciousness. We combined transmedia theory (Jenkins, Scolari) with ecocritical insights (Buell, Heise) and immersion theory (Ryan, Murray) to propose that multi-platform, participatory narratives have unique affordances for eco-awareness. Our case studies – glacier photography narratives, augmented reality exhibits, and VR ocean documentaries – illustrate diverse strategies. In each, narrative techniques (e.g. personal protagonists, demonstrative imagery) and interactive elements (agency, immersion) worked together to engage audiences with environmental issues. As Lam and Tegelberg observe of the ice project, “photographs underpin a transmedia narrative about climate change”. Likewise, Valen’s Reef shows that a simple father-son story in VR can embody complex ecological lessons.

In practice, these findings suggest that environmental communicators should deliberately design multi-platform narratives: for example, pairing an educational game with social media story content and a community event to reinforce themes. Future research could expand on this by evaluating newer technologies (metaverse worlds, AI-driven narratives) and by measuring long-term impacts on attitudes and behaviors. There is also room to explore whose stories are told;

de Souza e Silva & Sheller (2015) remind us that local voices and urban contexts enrich digital cityscapes, so future transmedia ecopoetics should amplify diverse cultural perspectives on nature. In summary, crafting environmental consciousness through interactive digital storytelling is a promising interdisciplinary endeavor. By combining rigorous narrative design with ecological insight, creators can not only inform but inspire collective stewardship of the planet.

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