

Leveraging Transmedia Storytelling to support awareness about natural and cultural heritage of a peripheral tourist destination island

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ABSTRACT

Transmedia stories are becoming an increasingly important experience design technique for the tourism industry. They are successful tools to engage, inspire and gather audiences online and offline. In this paper, we describe the design and implementation of a bespoke Transmedia platform designed to encourage visitors to develop knowledge and awareness about the biodiversity of a touristic island. The platform is composed of two interconnected components: an online participatory portal (Há-Vita) and a mobile location-aware fiction (Fragments of Laura). Our efforts seek to highlight the cultural and natural richness of the island to a wide range of audiences while fostering awareness for the island's heritage.

Author Keywords

Transmedia storytelling; Tourism; Sustainability; Location aware multimedia; Interactive storytelling.

ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI).

INTRODUCTION

Tourism is now an activity within reach of millions. For many islands, tourism represents an economic catalyst to enlarge their economy and overcome the disadvantages of smallness [1]. However, the allure of islands is dependent on a blend of unique land formations, flora and fauna, and ocean and coastal resources. Irresponsible tourism activities can cause environmental degradation (pollution, erosion, etc.) in Islands which are host to fragile eco-systems.

In this paper, we propose that Transmedia Storytelling, due to its the immersive and participatory nature, can play an essential role in raising tourists awareness towards the context of island. Transmedia storytelling is described as

transferring and developing stories that can spread through various platforms. According to the definition of Henry Jenkins, transmedia storytelling is "a process where integral elements of a fiction get dispersed systematically across multiple delivery channels for the purpose of creating and unified and coordinated entertainment experience" [2]. On the storytelling side, stories can be powerful forces due to its narrative persuasion and character involvement techniques, helping us to understand the world and our role in it [3]. We can tap into the power and potential of stories to create positive social change by designing stories to educate and engage people on a wide range of issues, and ultimately even persuade them to take action [3]. On the other side, the transmedia aspect can entertain through participation, engagement, interaction or collaboration of the audience. This could translate into a new window of opportunity to bring closer tourists and locals providing "authentic experiences" [4]. Consequently, transmedia storytelling takes advantage of the rapid convergence of media and consumers to participate in rich virtual (and physical) environments that foster real emotional engagement. Transmedia storytelling not only adds a new level of entertainment to the tourist experience, combining fiction, local heritage and points of interests, but allows the creation of new channels for dialogue between locals and visitors. To pursue this goal, we designed and produced a bespoke Transmedia intervention, composed of a mobile location-aware fiction Fragments of Laura (FoL) and a participatory documentary style website Há-Vita (HaV), that connect the protagonist of the fiction with real events and information about the island historical and natural context. We loosely position our work in what Robert Pratten refers to as Transmedia for Change, (T4C) [5]. T4C engage audiences with positive messages that inspire and motivate better choices and solutions impacting in the real world. Part of the originality of our work resides on the exploratory approach of intersecting a locative playable fictional story: FoL with the web-based journalistic style interviews of HaV. The overall goal is to foster visitors awareness of island cultural and natural patrimony as well as generating dialogue between locals and tourist.

Tourism Sustainable Development and Authenticity

Tourism is one of the world's largest industries. Many islands depend heavily on sun, sea, and nature as tourist

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attractions. However, many of the problems that islands face are directly related to their insular geography and fragile environmental characteristics [6]. Although touristic islands are benefiting from increased economic gain from tourism, they are also experiencing many negative environmental, economic and social consequences, including loss of natural and archeological heritage in the face of rapid expansion; sea, land, noise and air pollution, just to name a few [6]. Fortunately, many islands destinations already started to implement policies that can assist with a path towards sustainable development. For example, the empowerment of the island community and culture as a necessary part of planning. Frameworks to protect and conserve the social and cultural structure are also necessary [7]. A building of cultural pride through storytelling and memory of traditions and a sense of identity are vital elements brought into novel transmedia storytelling and other technologically mediated experiences. Achieving a balance of respect for the culture and providing tourists with the opportunity to learn about and appreciate the culture is the core of the challenge. Furthermore, tourist and resident education is a critical part of island sustainability. On the one hand, residents need to learn about the impact tourism is having on their community as well as tourists need to learn about the uniqueness of the local context and appropriate behaviors [7]. In light of these facts, we envisage transmedia storytelling being a promising avenue to help in raising awareness and creating empathy in visitors towards local heritage and sustainable practices.

DIGITAL TOURISM

A large body of work has drawn attention to the impact, role, and value of digital technologies in supporting new demands of the tourist experience. The use of digital technologies to enhance the tourist experiences have fostered a transformation towards more meaningful complex and authentic ones [8].

Bridging the gap between Locals and visitors

In the wake of locative media, a current trend of applications and services caters for the connection between tourists and locals. Very recently, services such as *CityFlocks*, *AskLocal* and *Loqal* are concerned with providing recommendations and advice based on locals' opinions. In response to the tourist's quest for "authenticity" [9] locals are turned into guides, (see projects *vayable.com*¹, *Cool Cousin*², *Urban Buddy*³) offering travel experiences recommendations, reservations, and discounts with local businesses and even home dining opportunities. van Nuenen [10] is a publisher of travel guides curated by handpicked locals explains that "Spotted by Locals" guides are aimed at travelers who want to avoid the typical tourist spots. This avoidance, argues van Nuenen, is part of the modern discourse of anti-tourism, which consists of a desire of travelers to reach beyond superficial experiences that tourism industry fosters and connect to locals and local knowledge [10].

Entertaining and Meaningful Experiences

Due to the continuous improvements and uptake of mobile smart devices, urban spaces are augmented with layers of information and multimedia content [11]. In the past two decades, we have seen the rise of rich entertaining and educating experience provided through digital media associated with urban locations. The bulk of such experiences have materialized in location-based or augmented reality games and location-based storytelling tours with the main goal of, not only providing rich entertaining and educating experiences, but also to connect audiences and players with the local cultures and history. For example, urban settings and neighborhoods are augmented with locally inspired multimedia stories to attract tourists off the beaten tracks [12]. Other approaches combine history with character-driven gaming providing visitors with exciting scavenger and treasure hunts where (virtual) characters recount the history of the place and give background information through smartphones and location-aware applications [12]. These applications have been successful approaches in allowing participants to immerse themselves in the destination while supporting meaningful visitor engagement at a natural or cultural heritage site.

The potential of Transmedia Storytelling

Digital media technologies have afforded the means for stories to be created at lower costs and shared widely. Transmedia storytelling represents arguably a recent trend and a profound transformation in storytelling as it combines the capabilities of ubiquitous computing technologies, real-life experiences, and learner-focused pedagogy drawn from a rich ecology of content and media [13] into creating a unified entertainment experience. Many cultures have a rich oral tradition where folktales with moral messages are an integral part of people's non-formal education. Humans are innate storytellers and innately predisposed to be influenced by stories [2,3]. Audiences tend to be less resistant to socially responsible messages when these are conveyed via entertainment media, as the "selling" of the behavior is less obvious. Furthermore, involving audiences through narrative structures seems to offer an effective way to influence attitudes and behavior [14]. The involvement with narrative is often called transportation [2]. Besides, viewers are involved not only in the storyline but also with the characters. Research by Green and Brock [3] has revealed greater attitude change among readers who were "transported" into the narrative world: *"To the extent that individuals are absorbed into a story or transported into a narrative world, they may show effects of the story on their real-world belief"*.

Transmedia storytelling has been recognized as a prime tool in the tourism context, particularly suited to promote locations and their cultural heritage. It has recently been used to promote innovative forms of tourism across North America. The Roswell Experience, a location-based story

¹ <https://www.vayable.com/>

² <https://www.coolcousin.com/>

³ <https://www.citylab.com/life/2013/08/urban-buddy-turns-tourists-locals/6513/>

told across 32 locations in Roswell, New Mexico, uses a fictional alien character to introduce visitors to the area's rich and unusual history [5]. Bear 71 [16] a fully immersive, multi-platform interactive social narrative created by the National Film Board of Canada, traces the intersection of humans, nature and technology by having participants engage with the world of a female grizzly bear through webcams, augmented reality, geolocation tracking, motion sensors, social media, and other platforms and channels.

These are promising projects that showcase how transmedia storytelling can be applied to enhance tourism. In our project, we envision to build on these approaches to expose tourists to content that is relevant to their current context while making them more aware of the local cultural heritage and biodiversity.

DESIGNING FRAGMENTS OF LAURA

While thousands of tourists visit the island of Madeira every year, attracted by its warm climate and clear waters, many of them overlook its rich local culture and traditions, as well as the value of what is one of the most unique ecosystems in Europe: the UNESCO World Heritage *Laurisilva Forest*, a primary or old growth forest, with many trees predating human settlement (c. 1420). The bi-spoke transmedia experience "Fragments of Laura"/"Há-vita" holds a wealth of information regarding the local natural heritage and ecosystem services and embodies many aspects of the Madeiran history, culture and touristic potential. While Fragments of Laura (FoL) leverages more on the potential of narrative persuasion and character involvement [6], Há-vita supports the exchange of information and relationship building between tourists and locals. Providing building blocks for mutual understanding [17, 18].

The design of this project has followed a rather experimental development process, from story conception to location-aware adaptation of the narrative, transmedia additions (journalistic style interviews with local scientists and residents) and, finally, participatory web elements. Several early prototypes and evaluations [18] have paved the way for the current development of the bespoke transmedia platform.

The narrative

We designed "Fragments of Laura" fictional story with a classic Aristotelian dramatic arc, where the protagonist undergoes a series of adventures culminating in a significant event that should set the audience off for their final quest of call for action. The story, set in the 19th century, invites the audience to embark on a quest to follow its heroine, Laura Silva. With a unique talent and passion for taking care of nature, she escapes a difficult childhood in a nun's ruled orphanage to study abroad as a naturalist. Eventually, she returns to Madeira to pursue her life's work studying, cataloging, and defending the local *Laurisilva*, Madeira's unique forest. Her notes and samples, kept in a vast herbarium – an annotated and illustrated book of medicinal plants, nonetheless, her work, ahead for the times, is not well received by everybody in the small island community and

often mistaken for witchcraft. By following this narrative, the audience learns how various local plants can be used as remedies and how the natural capital of the forest has been degraded and exploited in the past significantly exacerbated by widespread and rapid deforestation. The fictional story is based on the historical events that occurred during the times of this massive exploitation, weaving science, traditions and folklore of the Island. Despite being set in the 19th century, many of the situations the main character faces, such as natural disasters, invasive species and the endangered natural patrimony of the Island are still relevant to our times. By presenting the fictional story, our goal is to entice the audience to further contemplate the richness of the Island and reflect on the sustainability of its patrimony by linking the proposed fiction with the current reality.

Experience Design

The fictional narrative was produced as a location-aware multimedia story, where the audience is guided through the exploration of the physical streets of the city of Funchal to unravel the plot through seven distinct touch-points. At every touchpoint, information about the island natural capital and its history is delivered. Once the audience is close to a story rich location, the mobile phone vibrates triggered by a Bluetooth beacon, indicating content that can be visualized by pressing the corresponding icon on the map. Six touch-points of the story are realized as 2D video animations (see Figure 2 - Bottom), while one is an interactive 360 Mobile VR reconstruction of Laura's pharmacy (see Figure 1 –Top). Six audio clips (distributed across the main story path) serve to fill in background details of the story in the form of gossips of people who lived back then. In the 360 VR touch-point, the participant embodying the protagonist of the story, is asked by a secondary character to produce a medicinal drink. To complete the task, she needs to search through her establishment to find the right ingredients. During this process, the participant is informed about the qualities and benefits of such products. On the one hand, the 2D multimedia and audio allow the participants to understand Laura's story and drama, while the 360 Mobile VR scene, allows participants to have agency and act as a character in the story, and learn about the remedies known at the time. At the end of each one of the seven plot points, a video clip teaser, synthesized from in-depth recorded conversations with local scientists and knowledge holders, is proposed to the participant, who can choose to watch or save it for later viewing (see Figure 2 and 3). The content of the clip relates to issue exposed in the plot such as endemic fauna, flora, local remedies etc. Furthermore, the audience is invited to view the full version of the interviews clips on the "Há-vita" web platform.

Ha-Vita

The "Ha-vita" web platform (<https://havita.m-iti.org/>) is conceived to enrich the viewer's knowledge about local cultural and natural heritage while providing a direct bridge with the local inhabitants. In order to create opportunities for this dialogue, the platform functions as a repository of locally

collected video interviews highlighting many aspects of Madeiran island's natural capital and local culture. To tightly link the web-based repository of journalistic interviews with the mobile fiction, in a transmedia fashion, we connected Ha Vita and FoL fictional narrative through seven main themes, each one assigned to a plot point. These seven themes are: Laurisilva (medicinal and endemic plants), Madeira's fauna (endemic birds), Traditional Products, Hydrological Balance (of Laurisilva), Macaronesian Forests, Invasive Species, Natural Disasters. Each FoL plot point or episode, touches upon one of these themes and after viewing the fictional animation, the mobile application prompts the participant with a short video clip featuring locals' opinions and facts about the connected theme. Ha -Vita so far includes edited interviews with 18 local sources. The interviewees were chosen according to their expertise and local knowledge on those themes. In addition to the video interviews the Ha-vita website features a participatory aspect that currently manifests in the layered green sidebar and the "connect with the locals" button that appears at the end of the interview clip; the "connection" may assume different formats depending on the interviewee preferences. For example, Prof. Raimundo, Natural Disasters expert, is responsible for organizing several activities of reforestation. Viewers of the website can connect with him and possibly enroll in one of the reforestation activities contributing to replanting trees in the Madeira's mountains. This participatory approach enabled by the Há-Vita website offers the tourist an opportunity to act and connect directly with to content that they are viewing.



Figure 1. Fragments of Laura Content: 3D VR Pharmacy (Top); 2D Motion Comics (Bottom).

Moreover, drawing on principles of community journalism, Ha vita invites visitors and locals to send questions, comments, and any other kinds of user-generated content, such as photos or videos. The three green buttons to the right side of the site represent three levels of participation through different links: 1) Active (Get involved & Share with Há-Vita) – send us content - Share photos and stories about Madeira's nature and culture, we would love to have your contribution. 2) Passive (Contact us for great stories) –

Contact us if you have a great story about Madeira if you know someone who has great local knowledge. We will be very pleased to interview you or your friend. 3) Metastorytelling (Dialogue with us) - Send us stories about our stories - Did our stories change your point of view about Madeira? Share your experiences with us. See Fig. 4.



Figure 2. Upper part: Diagram of Fragments of Laura & Ha-vita Connections. Lower part: video clip interview playing on the mobile device after Laura plot point has ended.



Figure 3. Há-vita webpage: Laurisilva Topic expanded (Top); Interview with local (Bottom)

In the next few months, we envisage deploying the website design and testing it with the island inhabitants and tourist community to refine its participatory mechanisms and populate the site with local content and exchanges.

CONCLUSION

Digital technologies provide us with the tools to empower audiences to participate in new interactive storytelling experiences applied to tourism. In this paper, we described the design and implementation of a bespoke Transmedia platform, composed by two interconnected components: mobile context-aware fiction ("Fragments of Laura") and an online journalistic style portal ("Há-Vita"). With FoL mobile fiction, the goal is to engage the audience with its narrative qualities while exploring some city landmarks and learning about its history and natural heritage. The "Há-Vita" web-platform, on the other hand, delivers specific locally relevant information while fostering a connection with the local community, creating empathy and respect towards the Madeiran heritage. Our next research endeavor is to test "Há-Vita" participatory aspect, designed to encourage dialogue between locals and visitors and evaluate its impact on the tourist and the local community as well as test the persuasion power of Fragments of Laura fiction and its synergies with Ha Vita.

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REFERENCES

- [1] R. R. Croes, "A paradigm shift to a new strategy for small island economies: Embracing demand side economics for value enhancement and long term economic stability," *Tour. Manag.*, vol. 27, no. 3, pp. 453–465, Jun. 2006.
- [2] H. Jenkins, *Convergence culture: where old and new media collide*, Updated an. New York, NY: New York Univ. Press, 2008.
- [3] M. C. Green, T. C. Brock, and G. F. Kaufman, "Understanding Media Enjoyment: The Role of Transportation Into Narrative Worlds," *Commun. Theory*, vol. 14, no. 4, pp. 311–327, Nov. 2004.
- [4] P. L. Pearce and G. M. Moscardo, "The Concept of Authenticity in Tourist Experiences," *Aust. N. Z. J. Sociol.*, vol. 22, no. 1, pp. 121–132, Mar. 1986.
- [5] R. Pratten, "Transmedia for Change."
- [6] R. Scheyvens and J. Momsen, "Tourism in Small Island States: From Vulnerability to Strengths," *J. Sustain. Tour.*, vol. 16, no. 5, pp. 491–510, Sep. 2008.
- [7] S. Gossling, "Tourism, Biodiversity and Information: Edited by Francesco di Castri, Venkataraman Balaji, Backhuys Publishers, The Netherlands, 2002. 501 pp.; ISBN 90-5782-107-9," *Ecol. Econ.*, vol. 46, no. 1, pp. 195–196, Aug. 2003.
- [8] B. Neuhofer, D. Buhalis, and A. Ladkin, "A Typology of Technology-Enhanced Tourism Experiences," *Int. J. Tour. Res.*, vol. 16, no. 4, pp. 340–350, Jul. 2014.
- [9] N. Wang, "Rethinking authenticity in tourism experience," *Ann. Tour. Res.*, vol. 26, no. 2, pp. 349–370, Apr. 1999.
- [10] T. van Nuenen, "The production of locality on peer-to-peer platforms," *Cogent Soc. Sci.*, vol. 2, no. 1, p. 1215780, Dec. 2016.
- [11] M. Bell et al., "Interweaving Mobile Games with Everyday Life," in *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 2006, pp. 417–426.
- [12] V. Nisi, I. Oakley, and M. Posthuma De Boer, "Locative Narratives as Experience: a new perspective on Location Aware Multimedia Stories," 2010.
- [13] A. Garcia, "Transmedia: Redefining Where and How Stories Are Told," *J. Adolesc. Adult Lit.*, vol. 60, no. 6, pp. 715–717, May 2017.
- [14] E. Moyer-Gusé, "Toward a Theory of Entertainment Persuasion: Explaining the Persuasive Effects of Entertainment-Education Messages," *Commun. Theory*, vol. 18, no. 3, pp. 407–425, Aug. 2008.
- [15] R. Pratten, "The Roswell Experience – transmedia storytelling for America's small towns," Jul-2012.
- [16] K. Makarechi, "Bear 71": Interactive Film At Sundance Tells Dark Side Of Human Interaction With Wildlife. 2012.
- [17] J. E. Davis, *Stories of Change: Narrative and Social Movements*. SUNY Press, 2012.
- [18] C. Stivers, "Reflections on the Role of Personal Narrative in Social Science Telling Lies in Modern American Autobiography . Timothy Dow Adams Jessie Bernard: The Making of a Feminist . Robert C. Bannister <i>Revealing Lives: Autobiography, Biography, an," *Signs J. Women Cult. Soc.*, vol. 18, no. 2, pp. 408–425, Jan. 1993.
- [19] M. Dionisio, V. Nisi, N. J. Nunes, and P. Bala, "Transmedia Storytelling for Exposing Natural Capital and Promoting Ecotourism," in *Interactive Storytelling: 9th International Conference on Interactive Digital Storytelling, ICIDS 2016, Los Angeles, CA, USA, November 15--18, 2016, Proceedings, 2016*, pp. 351–362.