



## MUSEUMS, SOCIAL MEDIA, AND TRANSMEDIA UNIVERSES Content Creation for Active Audience Participation

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*Social Media*  
*Museums*  
*Audience Engagement*  
*3D Sound*  
*Mapping*  
*Augmented Reality*

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### ABSTRACT

*Transmedia storytelling and social media platforms have emerged as crucial strategies for mobilizing content, cultivating followers, and addressing the challenge of diminished public engagement with museums. Conversely, the development of digital content and the extension of interaction across diverse platforms are adopted as measures to engage younger demographics and serve as educational initiatives. The potential of transmedia storytelling and social media to facilitate the dissemination of knowledge and promote societal change is highlighted through the creation of innovative content infused with scientific significance.*

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## 1. Introduction

This document explores and develops the topic of transmedia communication as a method for building audiences and expanding their opportunities for interaction. To achieve this, it draws upon the collaborative project undertaken with the La Salle Museum of Natural History in Bogota, Colombia. The museum is dedicated to the preservation of natural and cultural heritage and the dissemination of knowledge concerning the diversity and evolution of the natural world. Its overarching goal is to contribute to environmental conservation and the development of a society that is better informed, interconnected, and environmentally responsible. The museum houses biological, zoological, botanical, and anthropological collections, which are accessible to researchers and visitors for study, preservation, and education.

The museum's low attendance has necessitated the development of digital strategies, specifically transmedia storytelling, to attract new visitors. These strategies are supported by the dissemination of content through social networks and a content generation strategy based on transmedia narratives was implemented. This method enables the engagement of broad communities by weaving interconnected stories designed for various platforms and media. Such an approach facilitates content virality and widespread dissemination on social networks, thereby showcasing and promoting the museum's knowledge repository. Social networks offer multiple avenues for engaging with the public. Therefore, three types of content were devised and analysed to gauge their impact on the museum's social networks and to enhance the circulation of digital experiences created by the museum. To this end, three digital experiences (3D sound, mapping, and augmented reality) were designed to cater to diverse audiences and were shared across various social networks affiliated with the museum. These experiences serve as educational platforms and aim to highlight the museum's conservation efforts.

### 1.1. Transmedia Universes

In recent years, the term *transmedia* has become widely recognized and is utilized across various contexts, serving as a framework for developing a wide array of proposals, spanning from conventional to innovative approaches. Essentially, transmedia entails the development of an idea across multiple formats, which are interconnected through social networks. To illustrate, consider the process of transferring an idea into different mediums. For example, initially the idea may be conceived as a narrative story, adhering to the structural constraints inherent to storytelling. Subsequently, the decision may be made to adapt this narrative into a theatrical production. In this new format, dialogues may be expanded and previously unexplored aspects of the narrative may be introduced to suit the theatrical context. Building upon the narrative's inherent potential, further adaptations may involve the creation of a comic book publication, focusing on the adventures of specific characters within the narrative framework.

In this context, the narrative undergoes expansion across diverse formats, incorporating additional elements, descriptions, and adventures not present in other formats. The objective is not to merely replicate the same narrative across multiple formats, as such redundancy would lack coherence. Rather, the aim is to augment the purpose or components of the narrative, thereby enriching the storytelling process. A crucial aspect of this endeavour involves broadening the narrative universe and leveraging the unique qualities and merits of each format employed, whether digital or analogue. Transmedia, therefore, involves the integration of various media formats, harnessing the strengths of each to deliver a comprehensive experience that can be applied to both fictional and non-fictional narratives.

The construction of a transmedia universe can be conceptualised as a supersystem comprising smaller narrative components. Identifying the methodological framework underlying these individual pieces or the logic connecting the entire storytelling universe enables experienced designers or work teams to recognise that it is not merely individual actions, but rather the collective actions that constitute the narrative ecosystem. "Transmedia storytelling is a contemporary communicative logic that permeates various social practices through specific communicative dynamics" (Rampazzo et al., 2020, pág. 11).

According to Rampazzo et al., (2020), transmedia storytelling can be examined from two angles: a) as the dissemination of information across multiple platforms, and b) as the expansion of the narrative through various formats. Furthermore, we assert that transmedia storytelling serves to foster social connections, which constitutes its core objective. Hence, it is not confined solely to digital platforms;

rather, numerous analogue experiences play a crucial role in shaping the social fabric within the transmedia realm. The essence of transmedia storytelling lies in generating interactions and fostering connections among human groups, irrespective of the medium employed. Crucially, effective planning precedes the execution of such endeavours.

One of the paramount characteristics of transmedia storytelling is the requirement for each narrative product to be self-referential. This means that each product can be experienced, enjoyed, or consumed independently. Consequently, it is not obligatory to engage with or experience other products to comprehend the story. Instead, one can derive satisfaction from each individual product or the entire narrative universe. Each product thus serves as a gateway to the broader narrative universe.

Constructing a universe centred around a theme or story presents a range of challenges in communication and implementation strategies, as well as in the design of overarching narratives and individual story components. These challenges include the design challenge, where each experience (such as videos, games, catalogues, etc.) must ensure independent enjoyment or consumption. Simultaneously, when multiple elements of the universe are experienced, a comprehensive understanding of content, formats, and story expansion can be achieved. However, experiencing only a single product should still convey a complete narrative. Also, there are two levels of creation and consumption. The first involves the initial narrative managers, whereas the aim is to cultivate relationships among target audiences, encouraging their participation, interaction, and creation of new content. This dimension encapsulates the concept of prosumer audiences.

Current dynamics have empowered audiences, moving away from the passive spectator role. As Hernández & Zamora (2016, p. 2) assert, individuals accustomed to the contemporary media landscape are no longer content with mere perceptual experiences. They seek active involvement and communal participation in the cultural productions they consume. This desire transcends the limitations imposed by traditional vertical models. Additionally, the architecture of transmedia universes finds application in various domains, including commercial strategies, fictional narratives, educational experiences, community transformation initiatives, and the dissemination of socially relevant information, as observed in journalism.

Authors such as Corona (2016) have raised questions about the essence of transmedia, shifting the focus from "What is transmedia?" to "When is it considered transmedia?" This change in perspective directs attention towards the functions performed by transmedia storytelling in specific contexts and moments, rather than merely examining their conceptual characteristics. "Shifting the focus from characteristics to functions implies recognising that objects can hold multiple meanings depending on the moment and circumstances in which their significance is interpreted" (Corona, 2016, p. 34). Likewise, it is important to highlight that the active participation of audiences is a fundamental element of transmedia structures that have become laboratories for mediation "the displacement observed in many of these new contemporary medialabs of the word "media", which goes from a traditional concept of "technology" to a more current one of "mediator". So many current medialabs are actually mediation laboratories, as opposed to the previous laboratory of technologies." (Ruiz & Alcalá, 2016, P. 101).

What emerges from the foregoing is the correlation between the expansion of narratives and the intertextual relationships among various narrative products and their formats, which has been termed a system of transmedia relations. As Montoya et al., (2013, p. 138) assert, "At least three elements are reconfigured: firstly, different narrative and textual forms; secondly, different technologies for recording memory; and finally, new ways of participating in the construction of collective histories." The same authors draw attention to the work of Marcha Kinder, who, in the 1990s, analysed the case of the Teenage Mutant Ninja Turtles. Kinder identified a range of intertextual and transmedial practices and relationships, leading him to posit that "(...) it facilitates not only the understanding and memory of stories, but also the development of complex schemes of stories that differ in conflicts, characters, and modes of production of the image" (Kinder in Montoya et al., 2013, p. 143).

Over the years, increased interaction with digital media has underscored the capacity of transmedia to strengthen connections with long-term memory. This occurs through experiencing or perceiving stories in novel ways and by enriching narratives to create more complex universes capable of expansion, whether through conflicts or characters.

At this juncture, two interrelated dimensions come into play. Firstly, some narratives encompass both the stories themselves and the methods of storytelling. Secondly, there are devices and

technological advancements that either enable or constrain storytelling methods or the evolution of experiences.

Building upon the concepts outlined in the transmedia system (Montoya et al., 2013, pp. 147-148), the authors suggest an analytical framework influenced by the perspectives of Marsha Kinder and Gerard Genette. This framework comprises two axes. There is a vertical axis, which identifies the formats in which resonances of the story are produced without necessarily altering or extending it. The horizontal axis introduces elements to the narrative, resulting in narrative expansions that introduce new conflicts, characters, and relationships previously unknown or that contribute to the structural complexity of the story.

In theoretical conceptions, terms such as the “core work” and the “seminal work” are delineated for the analysis of fictional transmedia systems. Each term corresponds to distinct production stages and impacts on target audiences. The seminal work denotes the original product or initial idea developed as a narrative, whether in the form of a short story, novel, comic, spatial intervention, park, etc. Conversely, the core work refers to the work that garners the greatest reception or impact among audiences. For instance, a series based on a book may become the most popular work due to its narrative strategy, thus assuming the role of the core work. In this document, we opt to discuss the concept of the “source work”, which denotes a strategy for social, educational, or environmental intervention motivating a sequence of subsequent actions. It is also intertwined with the higher purpose driving the development of the transmedia system, serving as a didactic and pedagogical tool to raise awareness among target audiences.

This aspect forms a component of the didactic and strategic framework of transmedia storytelling. It involves the creation of narrative products tailored to diverse audiences, intending to establish both rational and emotional connections in alignment with the intended communication objectives.

## ***1.2. Enhancing Social Engagement: Museums and Social Network Interaction***

The phenomenon experienced by some museums worldwide is well-documented, wherein audiences have disengaged from visiting them due to either the absence of interactive features or the perceived distance from the exhibited works or materials. Consequently, museum design and educational teams have been compelled to devise novel strategies to engage younger audiences. In recent years, museums have strived to craft experiences marked by increased interaction, utilising both physical and technologically mediated strategies, thereby prioritising the user's engagement. This effort transcends age or role, encompassing researchers, children, adolescents, and adults. Consequently, efforts are directed not only towards the conservation of historically significant collections but also towards fostering awareness and catalysing social transformation among both new and existing museum visitors.

For Wagensberg (2018) "The museum serves as a catalyst for change, facilitating both individual and societal transformation. It holds an indispensable role in the initial stages of the cognitive process, guiding individuals from a state of indifference towards a desire for acquiring knowledge". This represents a significant and pivotal shift across all societies and cultural landscapes, underscoring the importance of encouraging visits, interactions, and visibility of the collections, objects, and processes housed within museums. These endeavours, aimed at preserving history and heritage, necessitate the adoption of novel communication strategies. These strategies should be capable of dissemination across diverse platforms, enabling broader outreach and engagement.

Crafting Memorable Learning Experiences (MLE) for both analogue and digital environments is increasingly important across various domains, including the workplace, educational institutions, museums, entertainment venues, and service sectors. Consequently, the design of experiences, whether for educational, communicative, or entertainment purposes, must transcend mere circumstantial considerations. It should be a deliberate endeavour encompassing the orchestration of thematic elements, utilisation of formats, and envisaged mediation approaches. In this regard, Palencia (2023) has proposed a matrix that delineates not only the design pathway but also the emotive and cognitive potentials inherent in the user experience. This matrix is presented below.

**Table 1.** Matrix for the design of Memorable Learning Experiences (MLE)

Designing Memorable Learning Experiences-MLE					
Contents	Formats	Mediations (Stimuli)			
		Physical (Manual Interaction)	Mental (Mental Interaction)	Sociocultural (Cultural Interaction)	
Thematic interest or need for exploring information	Digital	Tactile	Purpose of Exploration	Stimulated Memory	Affective Experiences
		Sound	Curiosity	Semantics	Identities (collective/individual)
	Physical/ Analogue	Gustative	Contemplation	Episodic	Reflection (dialogue in the mind)
		Visuals	Reflection	Operational or Working	Conversation (dialogue with another)
		Olfactory	Joy of Learning	Procedural	Gatherings (everyone speaks and participates)
	Objects	Motor	Understanding Ideas		Empathy
				Human connection	

Source: Palencia, 2023.

This proposal facilitates the identification of elements pertinent to both analogue and digital interactions, alongside the intended reinforcement or achievement of a particular purpose, as well as considerations regarding the stimuli that will be engaged in pursuit of that purpose. These stimuli encompass physical, mental, and socio-cultural aspects. The matrix for designing MLE offers guidance for architects of products in crafting deliberate experiences aimed at sensitising or stimulating users.

On the other hand, social networks can be defined as a collection of applications enabling user-generated content interaction (Claro-Montes et al., 2024), which can also be shared among users based on their interests. It is noteworthy that social networks are progressively utilised by both individuals and organizations. In this regard, the internet has played a substantial role in fostering horizontal relationships.

Similarly, social networks facilitate a significant increase in contacts at a reduced cost, saving time, and establishing multiple channels or platforms for interaction, which may complement or replicate the disseminated content. "Many non-profit organisations seek to receive support, raise funds, build community and develop efficient and effective communication strategies on social networks" (Claro-Montes et al., 2024). These platforms serve as valuable tools for cultivating public relations, promoting initiatives and content, engaging audiences, and encouraging participation in various experiences.

For their part, Fernández et al., (2021) examined the social media communication strategies employed by certain museums during the pandemic, offering insights into various opportunities. These include identifying the preferences and interests of followers, which can inform strategies aimed at enhancing interaction between museums and their audiences as well as devising a digital strategy, necessitating the involvement of specialists in virtual communication and content creation. Another aspect to consider is that the pandemic prompted many museums to generate digital content to foster engagement with their audiences. However, once the period of lockdown had elapsed, social media and digital interaction were, in numerous instances, neglected, with a predominant focus on physical spaces. This resulted in a disproportionate emphasis on visitors at the expense of online followers.

On the other hand, strategies for creating digital content enables museums to broaden their audiences and devise experiences and content with enhanced novelty and accessibility. The utilisation of various formats by museums facilitates the expansion and retention of their audience-followers with the use of photographs, emoticons, GIFs, texts, or brief phrases, among other communicative products. This aims to foster a sense of community and stimulate interaction among followers through "likes", content sharing, and comments. In contrast, Fernández et al., (2021) advocate for "the necessity of incorporating new research that focuses not only on the presence and activities on networks but primarily on the content and its usage by museums." The same authors underscore that effective



communication on social networks should be centred on "generating engaging content and promoting equal participation".

Museum publications on social networks are based on two aspects: the type of publication (meme, video, graphic, audio, GIF, etc.) and the content and its intended purpose, whether it is to be shared, viewed, or commented on. Much of the content created by museums for social networks revolves around promoting activities or driving traffic to the museum's website, which, while legitimate, may necessitate a strategy to enhance the value of the content disseminated on the museum's social platforms.

## 2. Methodological Framework

Regarding the methodological framework, the integration of two strategies is proposed: firstly, constructing transmedia narratives, and secondly, exploring the impact generated by the creation of memorable learning experiences, as well as their visibility on social networks. In this context, a qualitative approach is favoured, aligning with previous research recommendations. Notably, many studies examining social media use in museums have predominantly utilised quantitative methodologies, concentrating on various metrics such as the number of social media profiles, publications, followers, engagement levels, and multimedia utilisation. However, as Viñarás-Abad & Cabezuolo-Lorenzo (2012, p. 89) emphasise, there is a pressing need for more qualitative investigations that delve into the discourse itself and the contextual factors shaping it (Fernández et al., 2021).

The proposal outlined below is based on the contextual factors for the development of the narrative or transmedia content, its structural layout, and the strategic methods for its visual presentation, going beyond solely relying on quantitative data from social network metrics.

**Phase 1. Construction of Narrative Universes:** Three stories about the room called the "Origin of Life" were developed, serving as the foundation for generating narrative products/content in the subsequent phase's format. To achieve this, collaborative exercises involving the scientific and pedagogical teams were conducted to delineate the content and its scope.

**Phase 2. Content Creation:** Based on the three narratives introduced in the initial phase, adjustments are tailored to three formats or platforms for subsequent production, adhering to the MLE design matrix (Palencia, 2023). The aim is to engage target audiences effectively, ensuring that the communication products (3D sound, mapping, and augmented reality) resonate with users and facilitate various interactions within a freely accessible space for all audiences. This entails establishing a correlation between the nature of the narrative, its attributes, and technical potentialities afforded by the design of a product for sound, video, or augmented reality.

**Phase 3. Visibilisation on Social Networks:** Having materialised the narratives in three distinct formats (3D sound, mapping, and augmented reality), we now shift to fostering interaction through social networks and workshops. These activities, comprising both in-person and virtual engagements open to all audiences, are orchestrated to amplify the museum's content and digital experiences across various platforms.

## 3. Results

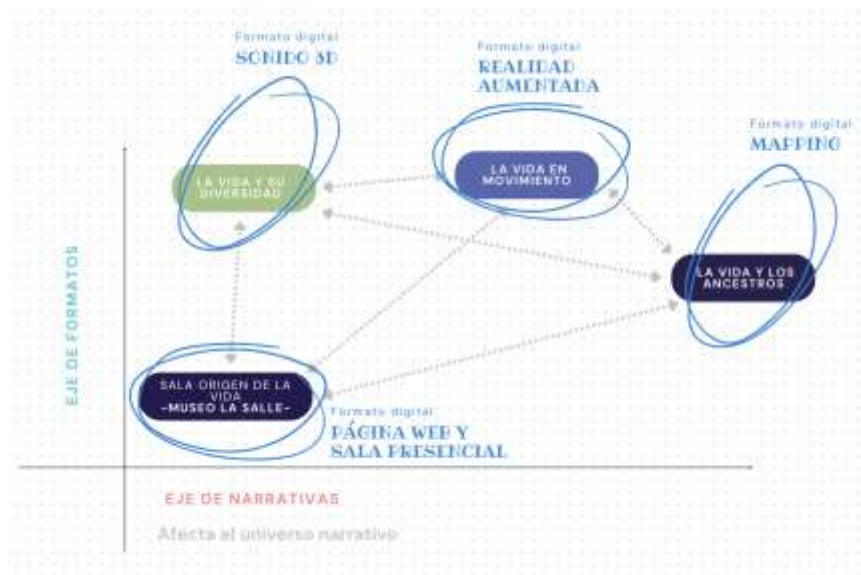
The results can be analysed by dissecting each phase, as every stage contributes elements of content design, the experience of the three transmedia formats, and the impact of the products on the audiences.

### 3.1. The Construction of Narrative Universes

The initial phase focused on crafting narratives concerning the natural and cultural realms, particularly regarding evidence of evolution and life's beginnings. This was done in a section of the museum titled "The Origin of Life," where three narratives were tailored and developed, addressing: 1) life and its diversity, 2) life in motion, and 3) life and its forebears. Subsequently, the second phase involved creating three digital experiences to complement the content. These memorable learning experiences were designed using three formats: a) 3D sound or holophonic sound, b) augmented reality, and c) a mapping experience, each aligned with the respective narratives, thereby constituting the digital encounter at the La Salle Museum.

Below is the diagram illustrating the transmedia experience, which connects formats such as 3D sound, augmented reality, and video mapping with stories related to the origin of life.

**Figure 1.** Transmedia formats and stories



Source(s): Author's elaboration.

The corresponding experiences are aligned with the narratives created in the design of the Memorable Learning Experience. Thus, the three stories serve as the conceptual foundation for constructing the narrative universe, encompassing both the museum and the digital content propositions.

### 3.2. Construction of Transmedia Content

In constructing the transmedia experience on digital formats, three digital tools were employed to narrate and immerse in the experience. These include 3D sound or holophonic sound, augmented reality, and the creation of a video mapping experience, with certain aspects interlinked among the three formats.

**3D Sound or Holophonic Sound:** This technique is used to impart a sense of spatial perception to the brain through the recording of 360-degree sounds. By employing this recording method, the nervous system is stimulated to perceive spatial dimensions such as proximity, distance, elevation, and direction in relation to the sound. The notable characteristics and potential of 3D sound lies in its ability to capture sounds in a three-dimensional manner, enabling the users or listeners to immerse themselves in a narrative scenario and perceive the spatial origins of the sound, along with its acoustic effects and nuances. This technique is particularly advantageous for inclusive processes and for creating a realistic simulation of how sound is perceived by the ear. Using a binaural head that replicates the human ear and the perception of wave particles, it becomes feasible to record stories and sounds that evoke the sensation of being in a genuine listening environment.

**Augmented Reality:** Augmented reality (AR) is defined as a format that incorporates animated or graphic elements into mobile devices, seamlessly integrating them into the real-world image captured by the device. Consequently, virtual information is superimposed onto the real-world image, resulting in an amalgamation of real and virtual elements, thereby forming a new composite image. With this understanding, our objective was to develop an AR experience using the components found within the "Origin of Life" room, allowing users to gain an enhanced perspective of the narratives presented within this space.

**Video Mapping Experience:** Projectors are used to cast videos, animations, or images onto large-scale surfaces or specially designed volumes intended as projection screens. Augmented by an artistic component, interactive experiences can be crafted to engage the audience in this manner. Mapping projections are realised in various scales and serve diverse purposes, encompassing commercial, artistic, restorative, and architectural objectives. This format has gained widespread popularity in recent years owing to its striking visual impact and the narrative opportunities it affords.

### ***3.3. Impact on Social Networks***

The initial challenge was to generate new communicative products for the museum. This involved delivering content related to the scientific collections while offering three innovative experiences to the public, both in terms of format (3D sound, video mapping, and augmented reality) and content. The aim was to provide the public with a fresh approach to museum experiences and to expand outreach to new audiences. Achieving this objective would have been difficult without a multi-platform outreach strategy, including social media.

The products were promoted on the museum's social networks, and their launch was coordinated with a project from the Mayor's Office of Bogotá called Night of Museums. This festival opens its doors to all city inhabitants, providing access to a special programme free of charge to enjoy the collections and experiences offered by participating museums. In this context, Night of Museums served as an opportunity to launch the event, which was further reinforced on social networks.

Facebook and YouTube were utilised to promote the contents of the La Salle Museum website. The impact was limited but highly appreciated by participating users who noted the novelty of the communicative products. While social networks present an opportunity, they also impose certain constraints. These limitations relate to the capacity for content virality among human teams within museums. These teams often comprise small groups that are highly specialised in collection-related themes, but not necessarily in communication strategies.

On the other hand, distinctions emerge between the creation, dissemination, and consumption of content. Although the content holds significance and there is a dedication to innovation in both narrative and material format, dissemination and consumption remain detached from the museum's strategic initiatives and the potential impact on social transformation and learning processes.

## **4. Conclusions**

In conclusion, this article contributes substantially to the topic of transmedia communication, particularly within the context of the La Salle Natural History Museum in Bogotá, Colombia. The collaboration with this museum has demonstrated its efficacy as a tool for audience development and the broadening of interaction domains. Utilising digital strategies, particularly through transmedia narratives, the project aimed to tackle the challenge of low visitation rates at the museum.

Transmedia storytelling, which weaves interconnected stories tailored to diverse platforms and media, has facilitated the engagement of fresh audiences and the widespread dissemination of content via social networks. These platforms have offered numerous avenues for interaction with the audience, thereby facilitating the spread of digital experiences crafted within the museum.

The development of three digital experiences (3D sound, mapping, and augmented reality) has functioned both as an educational instrument and to showcase the museum's conservation efforts. Tailored to various audience demographics, these experiences have been shared across multiple social media platforms affiliated with the museum to assess their efficacy and enhance their outreach capabilities.

In summary, the use of transmedia storytelling and social networks have proven to be effective strategies for promoting knowledge and appreciation of the natural and cultural heritage of the La Salle Natural History Museum, thus contributing to its mission of conservation and environmental education.

However, there is a need for enhanced dissemination of transmedia content created for the museum, integrated within a communication strategy extensively propagated across social networks. This seeks to establish a connection between physical attendees and virtual participants in the future. The surge in social media followers may correlate directly with a rise in museum visitors, though this is not invariably



the case. Many museums worldwide boast a greater virtual following than physical visitors. Nonetheless, this enables museums to remain in the forefront of their followers' minds.

It is important to acknowledge the significant effort made by museums in Bogota and across the country to establish academic and socially transformative platforms, often shared via social networks, albeit with varying degrees of reach and impact. However, these efforts are predominantly hindered by budgetary constraints faced by museums. Additionally, the utilisation of diverse online resources to engage new audiences and facilitate the consumption of museum-created content is noteworthy.

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