

"Is transmedia the key to biodiversity conservation? Unravelling the role of natural science exhibitions and collections in the future"

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Introduction

The role of natural science museums is especially relevant nowadays. We live in a world where climate change, habitat destruction and the loss of biodiversity are the order of the day. For this reason, there is a pressing need for a conscious, critical and committed population, as well as, empathetic to nature and to life itself to promote biodiversity conservation. In order to create the highest impact on the public, the natural heritage dissemination should be done through a scientific engagement and a transdisciplinary approach.

In this talk, it is intended to analyse the educational outreach of natural sciences exhibitions, the cornerstone to raise awareness about the importance of biodiversity through promoting the natural heritage conservation. The scope proposed is innovative, with future projection, even though this is a field widely studied. By means of the multiple and rich synergies between scientific disciplines, arts and emotions, we are focused on the use of modern narrative resources as transmedia storytelling and its application in museology. The interest in the use of transmedia is in its own definition: "Use all available mediums and resources". These complete narratives comprehend analogue and digital media, as well as rational and emotional tools. Consequently, it's explored their potential to integrate the audience into the exhibition, making the experience as immersive as possible, while promote through environmental awareness, the active role of society in content development and citizen-science. This will be shown through providing concrete examples and resources already seen in other medias or museum institutions around the world, along with some original proposals. In addition, it will be put ethical, sociological and scientific topics back on the table as sustenance for thought, and questions to think about.

Objectives

- Reflect on the role of natural sciences exhibitions as an essential educational and informational resources and its future outreach as drivers of the environmental challenges.
- Research the role of *transmedia storytelling* application in natural sciences exhibitions as a complete narrative tool that creates the highest impact on the public, while promote a social engagement to foster biodiversity conservation.

- Analyse the *transmedia* museum potential as a cultural and scientific hub, inside a sustainable society. As well as, examine its capability for the dissemination of the natural heritage through a scientific engagement and a transdisciplinary and holistic approach.
- Search for the multiple and rich synergies between scientific disciplines, arts, museography and *transmedia storytelling*. Strategies to facilitate an active content development are explored, bringing the scientific interests and modern society together to make the public involve.

Background

Krishtalka & Humphrey (2000) established the fundamental challenges to face by natural history museums during the twenty-first century, related with their relationship with the biodiversity crisis, education, public programs, management and leadership. Biological collections are being used to characterizing global diversity and addressing issues related to the environment (Lacey et al., 2017; Sunderland et al., 2012; Kress, 2014; Pinto et al., 2010) and they provide a better understanding about the changes the planet Earth has experienced throughout time (Hromada et al. 2015). Therefore, natural sciences exhibitions are invaluable spaces to the production of knowledge and they represent the nexus between sciences, culture and social awareness.

As recently issued by the journal *Nature* (Dance, 2017) , scientists working in modern museums have a range of public-engagement tools at their disposal, including new technology, social media, the printed or spoken word, and citizen-science projects (Averett, 2017; Dance, 2017; Flemons & Berents, 2012). With the aim of create the highest impact on the public, institutions disseminators of the natural sciences should pursue excellence. Hernández (2015) stated that scientists have to charm the public, arouse curiosity and interest in learning more about, through an original panel, a fascinating interactive game, a striking image or an intriguing collection piece. To accomplish this purpose, natural science museums have been evolved through history, expanding the frontiers and exploring new focuses, in order to approach the public and to adapt to the development of science itself.

At this point, it is when the concept of *transmedia* and its application in museums came into the equation. *Transmedia* (or *transmedia storytelling*) is defined as narrative which unfolds across multiple mediums and communication platforms, with each making a distinctive and valuable contribution to the whole, where consumers play an active role (Scolari, 2013; Jenkins, 2006). Its use has been successful to get remarkable results in other disciplines, but still not explored enough in science museology. *Transmedia* museum would be the one that contemplate all the available types of media, utilising the specific narrative tools from each of them, to reach its target or potential audiences. Then,

the contents of these mediums can be complemented together, creating an ensemble that can be enjoyed as a whole (Moreno, 2015).

Methodology

An in-depth bibliographic review from all possible sources allied with an extensive search about graphical and theoretical information of natural sciences museums are the pillars of the methodology behind this work. Historical development of museums has been thoroughly studied, they have their roots in “Cabinets of curiosities” and have evolved over time to date as the centres of dissemination as we know.

Different topics has been explored, for instance, the use of art as a mean to evoke emotions and stimulations, in order to encourage environmental awareness. Also, the importance of natural history collections, used not only to chronicle the history of species but also as sources of new information and cutting-edge research to gain insights into everything, from the history of infectious diseases to the evolution of specific traits (Watanabe, 2019) and challenging phylogenetic studies. How ICTs (Information and communications technology) are shaping science communication were revised as well. Even the processes of gamification, which are more and more frequent inside a society looking for the most immersive experience possible.

Throughout many years, a wide variety of museums and exhibitions has been visited around the world: International reference museums as the Natural History Museums of London or New York and regional museums in constant development as the Museum of Nature and Archaeology of Tenerife (MUNA). Temporary exhibitions of high impact as “After the end of the world” that was hosted by Barcelona Centre of Contemporary Culture (CCCB) or the special exhibition “Artefakte” in Museum Fur Naturkunde of Berlin. This, combine with a particular interest for all the artistic disciplines (old and modern, from painting and music to cinema and videogames) has led to the search of transdisciplinary and existing synergies between scientific disciplines, arts, museography and *transmedia storytelling*. Interviews were carried out, as well as visits to museums and universities and attendance at conferences, courses and seminars, for example, “Connected Audiences” conference that took place in Berlin this year or ICOM Kyoto 2019 itself.

Conclusions

- Importance of natural sciences museums as educational institution is increasingly growing. In order to face actual and future environmental challenges as climate change, and biodiversity loss; new frontiers, the use of new technologies and all reachable narrative means must be explored.

- Every single compound of the potential audience of the natural science exhibition has to be considered as a dynamic and unique entity. Each individual has a particular wealth of knowledge and interests, depending on their age, culture, formation or passions...
- In the globalised world where we live, there is an increasingly need to “disseminate the dissemination”. An exhibition does not differ before a videogame or a piece of art, the most you can get the public immersed and emotionally involved, the outreach is wider. Visitor should be a part of the solution, so the research about the ways to promote the collaborative role of the society in content development it is desirable, and this could lead to a rising expansion and deeper insight of the natural sciences museums.
- With collections and sustainability as a scientific foundation and transmedia to connect with the public, it is possible that the future is in the hands of the transmedia museum, and the exhibitions as a nexus between natural sciences, culture and social awareness.

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