Science Communication Through Motion Design for Fulldome

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ABSTRACT

In 2015, the Porto Planetarium and ESAD – College of Art and Design developed a partnership in order to explore new ways to present scientific concepts for display through digital and immersive media. The result of this partnership was the production of several short fulldome videos, aimed at different age groups, covering topics in astronomy such as exoplanets, galaxies, spectroscopy, asteroseismology, dark matter, comets or constellations.

INTRODUCTION

The Porto Planetarium (hereafter Planetarium) completes 20 years in 2018. It was created in a very specific environment, built from the outset so that the creation of scientific knowledge in astronomy and astrophysics (A&A) lives in close connection to the promotion of scientific culture and the dissemination of knowledge and attitudes, especially to young people. It is still operated within this context, being run by Centre for Astrophysics of the University of Porto (CAUP) on behalf of the University of Porto. CAUP is also the host institution of Instituto de Astrofísica e Ciências do Espaço (IA), the largest Portuguese research centre in A&A, which scientifically supervises the Planetarium activities.

The Planetarium is a member of the Network of Ciência Viva Centres. This is a network of twenty science centres in Portugal, led by Ciência Viva, the National Agency for the promotion of initiatives for the public awareness of science and technology in Portugal. The network mission is to promote an active citizenship based on scientific knowledge.

Until the spring of 2014, when major overhaul works started at the Planetarium, including moving into a digital projection system, all planetarium sessions where own productions. The move to a digital system represented new opportunities, but also tremendous challenges regarding the in house production of fulldome digital contents.

ESAD – College of Art and Design argues that schools, in addition to awarding academic degrees, must be formative institutions in the full sense of the term, establishing themselves as communicating platforms between the civil society, industry and the market. The daily life of ESAD is intense, diverse and productive. Classrooms, workshops and studios are open to cross-cutting or specific activities and to interdisciplinary or specialized tasks. It is intended that students can experiment, test and produce in an assisted manner by teachers and technicians.

ESAD’s post-graduate course in Motion Design aims to prepare the students for the labour market, exposing them to a fast and continuous pace of task fulfilment, staying as close as possible to the reality of the work. The main goal of the course is to provide the students with comprehensive and consolidated theoretical-practical knowledge in the fields of communication, narrative and development of concept.

This is the environment that allowed for a partnership between the Planetarium and ESAD, experimenting with the production of short fulldome movies.

I. OBJECTIVES AND METHODOLOGY

In this experiment, developed in academic context, small groups of students from ESAD’S post-graduation in Motion Design were challenged to produce short fulldome movies conveying an astronomy subject or concept.
This work was articulated between the Planetarium, which seeks new ways to explore science communication in a fulldome environment, and ESAD where teachers and students defined the following specific objectives and methods, that materialized the transmission of scientific knowledge:
– an understanding of science as the foundation that supports the translation of concepts to visual representation, and its articulation with visual representations from different areas of knowledge;
– a reflection on the role of visualization in the knowledge transfer process, empowered by the immersive experience;
– a discussion between Studio and Client, on the proposals for alternative representations;
– a search for the means to fulfill the task, that represent a contribution both to the fields of Motion Design and Science Communication.

Creating motion contents for fulldome, as opposed to flat screen, requires methodologies and conceptualizations that present new challenges and ways of thinking and projecting. To that end, specific methodologies were developed using 3D modeling and animation software. An aspect that could not be overlooked was the immersive sound environment: from sound texture, to sound effects and, of course, narration.

There were eight weeks dedicated to the project, which represented an extra challenge, considering the project's process and methodology: from understanding the concepts, to the validation and creation of new visual languages; from illustration to animation; from representation to infographics; from the technological specificities of immersive sound environments; from exploring the fulldome narrative to the public presentation, discussion and evaluation.

II. CONCLUSION

This partnership has been mutually beneficial: on the one hand, students are presented with a real, motivational challenge, also in terms of skill acquisition (this ESAD post-graduation is a space where practice in real contexts is promoted); on the other hand, the Planetarium gets new contents and new approaches to science communication, that can be used for school visits and in shows for the general public.

As an example of this partnership and the work produced, we present at the IPS Conference 2018 a set of the produced fulldome short films.