

# hsci2014

University of Aveiro, Portugal

21 - 25 July



## 11th International Conference on Hands-on Science. Conference booklet.

Science Communication *with* and *for* Society



AGÊNCIA NACIONAL  
PARA A CULTURA  
CIENTÍFICA E TECNOLÓGICA



The Hands-on Science Network [H-SCI]

## Audiovisual Participatory Content for Science Communication

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**Abstract.** *The need science centres and museums feel to renew their languages and means of communication opens opportunities to the development of new interaction and media solutions.*

*In this paper, participatory contents in science centres and museums and a practical use case, developed in a Ciência Viva science centre in Portugal, are discussed. The guidelines of the research were focused on the cooperation on knowledge communication among visitors and their engagement in the production of audiovisual (AV) content. The goal of this project was to present a participation model where collaborative science videos can be produced with the contribution of the visitors. With the aim of identifying different levels of participation and participatory models that could be adopted, this work started with the analysis of some use cases with similar goals. It was followed by the development of different prototypes that propose different levels of participation.*

*The study was designed taking in consideration, the main interests of users and their enthusiasm towards AV content. Therefore, a "Participatory Design" approach using bidirectional techniques was adopted: visitors were invited to watch and produce their own scientific explanations in video. Four stages of observation were implemented to evaluate the categories of preference of the audience (children). Each stage was structured into sessions targeted at various classes from different schools for two months. The prototypes included the presentation of concepts/questions about science complemented with options that allowed to evaluate the target preferences for: an active role (answering), a passive role (viewing answers from other children or scientists (male or female) or making*

*questions. These prototypes were presented on a computer. The analysis and adjustments on the prototypes were made between sessions. The set of participations has shown that children tend to prefer by this order: answer, hear the explanations of scientists (male) and finally to make their own questions. The preference was always towards video content.*

*It was concluded that there was collaboration and mutual support among peers. Children showed total willingness to participate, specially to answer, being however curious to hear the other presented options. Based on the analysis of the results a proposal for a participatory model was developed, involving visitors in providing and receiving audiovisual contributions to help clarify science concepts. The proposal also offers some relevant indicators for a potential implementation in a Ciência Viva science center.*

**Keywords.** Audiovisual contents, science exhibitions, knowledge communication, collaborative production, participation.



## How a Sustainable Way of Collecting Bivalves Becomes Unsustainable: Case Study in Ria de Aveiro

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**Abstract.** *Ria de Aveiro is a popular place where professionals and the population who lives nearby go to collect bivalves (the population does that as an economic complement). The species collected are: cockle (*Cerastoderma edule*), grooved razor shell (*Solen marginatus*), pullet carpet shell (*Venerupis senegalensis*) and grooved carpet shell (*Ruditapes decussata*). This work study is based on the observation which has been carried out for the last 10 years in the area and concludes that:*

*The legislation applied to this activity was and is thought in order to keep the sustainability of Ria de Aveiro. In this context, the majority of the capture of these bivalves is being performed by hand or with small tools, according to the law. Although the impact is thought to be almost none (both in the environment and with the species), compared to some other capture techniques, the reality shows that these bivalves are being collected far below the legal size by adulterating the tools used in the process. Also, some legal tools are not the best to use in the collection of bivalves because they cause damage to the intertidal bottom of Ria de Aveiro. Both situations endanger the sustainability of the biodiversity of bivalves in the area.*

**Keywords.** Collection cockle, bivalves, clam.

## New Color Pencils, for a New Drawing

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**Abstract.** *This short essay attempts to summarize a dedicated, courageous, passionate and comprehensive work by a young engineer in the Environment City of Portugal, seeking that it can be just as inspiring to more and better work (and does our country need it!). Keeping in mind the citation recorded in memory: "A Country without the participation of young people, is a bankrupt country", this is also a work by, for and with Young. More competitive cities will also give a better, fairer and more balanced country, in defiance of a complete experience.*