

Online Science-Media Training Schools: an organizational protocol

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Introduction - How to use this guide?

EuroScitizen COST Action is a research network which aims to identify targeted strategies that will raise levels of scientific literacy in Europe using evolution as a model. This Action leverages the strengths of diverse stakeholders — evolutionary biologists, science education and science communication researchers, teachers, scicommers, museum professionals, media professionals and policymakers — to generate and analyse approaches used to improve the public's scientific literacy.

One of the planned activities in the Euroscitizen Media Working Group (WG4) was to develop a Training School on Science and Media that was directed towards young scientists and journalists. By uniting scientists and journalists, we aimed to promote better communication between the two groups while giving advanced training in science communication.

We initially planned the Training School to happen at the University of Toulouse in Spring 2019, with five specialized trainers with different and complementary expertise (two science journalists, one public relationship specialist, one graphic designer and one science writer), 25 participants, one field trip, and three days of intensive (in-person) training.

The COVID-19 pandemic forced us to cancel the event. When faced with the need to offer this training school in an online format, we realized the necessity of adjusting the schedule and contents. In particular, instead of having training school lasting three full days, as in the planned in-person school, we decided to have several shorter sessions.

In June 2022, we offered a two-day session on the topics “Combining visual and written elements in science communication” with the trainers Filipa Vala and Gil Costa, and “Science journalism” with the trainer Peter Hyldgård. In September 2022, we offered a training with the duration of two half-days on “Science and the Media: A match made in Heaven” by the trainers Sara Sá, Renata Pinto. These were the same trainers we had previously invited for our in-person Training School.

Given the high number of participants interested in these sessions, later in the Fall and in the following Winter, we prepared three other training events in a joint effort with EVOKE network. We repeated the “Combining visual and written elements in science communication” session. However, we included two additional topics: “Low-cost science video: from production to communication” with Miguel Ferreira and “Writing about science for the media ” with Rita Ponce, both events with the duration of one and a half days.

We did not repeat the same “formula” every time. In fact, we made a few

adjustments in the schedules in response to the feedback we received from participants after each event. This feedback was very valuable: at the end of each session, we invited the participants to fill in an anonymous survey that, besides asking specific questions about the event, asked them what they liked the most and what they would change in the training, and asking about other topics they would like to have covered. We learned that all choices mattered: time-zone chosen, schedules, the topics, days of the week chosen for the activities, all had pros and cons¹. The same way as “general public” is a concept that is very vague, so is “scicomers in general”. Although online activities have inherent limitations, we managed to include a wider number of participants, cover more topics in the Training Schools. In addition, these events were done on a lower budget and required a simpler organization than the originally planned event.

We were also glad to verify that these events have contributed to the development of professional networking between participants, trainers, and organizers. Thus, when planning this kind of online event, after ensuring the quality of the formation, we suggest that priority should be given to include in the schedule time for debate, reflection, and group work.

Although now, in 2022, in-person events are possible again and many people may be suffering from “online meeting fatigue”, we believe that, when planned carefully, the online environment is a prosperous and inclusive opportunity for training.

In this short guide, we firstly share a brief description of training scientists and journalists in science communication (chapter 2). Further, we summarise the essentials and the objectives of each training school information, including the training materials and resources used (chapter 3). In the last section of this guide (chapter 4) we include a checklist we built for training school organisation, on which we place our main emphasis, which could be useful as an exploitation strategy for the planning of other training events².

We hope this guide may be useful to all organizing training workshops.

Rita Ponce & Szymek Drobnik

¹ Given that these events were part of an international network, all events were in English, allowing participants from different nationalities, however, we are aware that also may in some cases create a barrier.

² These have been presented by the authors as examples of good practice at two conferences - *SciComPt 2022* held in São Miguel, Portugal and in the *EuroScitizen sustainability meeting* held in Aveiro, Portugal.

A perspective on current status of science communication

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Introduction

One of the problems of today's society is the sheer pace of scientific and technical advancement, making it difficult for citizens to keep abreast of new developments. For this reason, in addition to scientific dissemination through research papers and conferences, it is essential that the results of research have a positive impact on general public.

The dissemination of scientific knowledge is highly fragmented across different national contexts and languages, with a long history that can be articulated in very different ways. Moreover, the dissemination of scientific is an inherently interdisciplinary task, potentially requiring knowledge of the natural sciences, physics, mathematics, astronomy, medicine, psychology, psychology, history, sociology, cultural studies and communication. Such fragmentation is also due to contrasting professional approaches to the task, with museum professionals and science journalists, for instance, not necessarily sharing the same objectives.

The main players

Media and journalists play a key role in science communication, whether in media with a specific focus on scientific issues, or in generalist media with sections dedicated to science news. They are responsible for informing society about scientific advances and debates in an honest and accurate way. It would appear that interest in health, social, political and economic issues aroused by the coronavirus crisis, together with the growth of scientific contents themselves, have led to science gaining prominence and coverage in the media.

Yet the world of journalism is undergoing extensive change. The economic crisis in the sector, the shortage of resources available to journalists, and the impacts of social media are just some of the factors that must be taken into consideration.

Professionals in science journalism consider their roles to include explaining scientific procedures and results, promoting science to society and, to the same extent, offering a critical perspective of science and scientists. They are also aware of the need to build relationships of trust with scientists in

order to access their work, to encourage audience participation, and to continuously develop their own knowledge and expertise.

Many scientists and experts are engaged in explaining and disseminating research in the media and on social media. They use strategies and working methods that have common elements with the practice of journalism and communication, but with their own logic and dynamics. Indeed, as the number of users of social media platforms grows, more scientific accounts are created and more specialised content is published. Social media have become a well-established tool for the dissemination of science, which leads to a certain degree of specialisation depending on each social media platform. Twitter probably provides a more dynamic coverage of scientific topics, while YouTube enhances certain audio-visual content. In any case, each specialisation depends on who is doing the communicating, and on the subject matter and type of content at hand.

All kinds of companies, institutions, organisations and associations, such as governments, museums, scientific associations, universities and NGOs, are involved in both science communication and popularisation, often conducting media campaigns on issues that arise from their institutional interests or from a social need that requires science to be solved. The notion of citizen science is also worth bearing in mind, a practice which involves the enhancement of scientific culture in a society in order to directly involve people in the development of science.

Formats, types and topics in science communication

There are many genres and formats possible in the field of science communication and the best choice depends initially on the communication channel selected: magazines, press, radio, television (in its various formats), podcasts or social media (Twitter, YouTube, Instagram, Twitch, etc.). With this choice made, a specific communication approach must then be applied, such as a news item, report or multimedia piece in the press, or a documentary, testimonial or explanatory video on YouTube.

In the same way, the topics covered in science communication vary widely. They include astronomical information (Mars, the solar system, life on other planets), the environment (climate change, the ozone layer, ecology), health (diseases, treatment, pandemics, and health crises), palaeontology (fossils, archaeological sites, the origins of human beings), food (diets, food), physics (energy, quantum physics, nuclear fission and fusion), geology (volcanism, earthquakes), and so on.

An example

The large amount of data and misinformation related to scientific topics are factors that define the current situation of science communication. Science and its dissemination mechanisms must ensure that opinion-makers maintain standards of quality, veracity and political or ideological independence. In any case, although science is gaining social prominence, society's scientific culture is not at the same level.

In the case of the Covid-19 crisis, various media outlets have made a chatbot available to resolve doubts about the coronavirus, using the World Health Organisation and various governments as sources. Likewise, the quality and presentation of news has been reinforced by infographics or multimedia articles with updated formats.

The presence of data journalism has also increased, and major journalism networks such as the International Journalists' Network (IJnet), the Global Investigative Journalism Network (GIJN) and the International Consortium of Investigative Journalists (ICIJ) have created special websites and provided open access resources. Much of these efforts have been directed against fake news.

In a complex society, it is necessary to strengthen and connect the various advanced training proposals aimed at people and institutions involved in science communication. Given the current state of the information and media ecosystems, it is timely to disseminate this knowledge, which plays a part in enhancing European citizenship. Science journalists need to maintain up-to-date knowledge of affairs as they are responsible for conveying and interpreting scientific advances to society and fighting disinformation. Scientists also need to be trained in this field as rigorous, comprehensible and quality scientific information is a clear indicator of social development.

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A summary of Euroscitizen science-media training events

Training materials, application form and final survey used

Within the Euroscitizen Media Working Group (WG4), we developed a set of independent but complementary science-media training events, covering visual, audiovisual, and written communication to different audiences and media. Within this section is a description of the list of science media training events, its scope and correspondent contents, and access to additional resources as training materials.

Combining visual and written elements in science communication

Trainers: Gil Costa, Scientific Designer and Illustrator, and Filipa Vala, science communicator with a PhD in Evolution and Ecology

Schedule: 1 day (8 hours), during a weekday

Contents:

- Basic principles of design and illustration for science communication
- Basic principles of scientific writing and narrative
- Combining visual and written elements for storytelling in sci comm
- Analysis of infographics
- Content production for infographics

Links to training materials:

<https://doi.org/10.5281/zenodo.7050833>

Communicating science

Trainer: Peter Hyldgård, science journalist, editor and biologist

Schedule: 1 day (6 hours), during a weekday

Contents:

- Science journalism
- Connecting to your audience

Links to training materials:

<https://doi.org/10.5281/zenodo.7050813>

Science and Media – a match made in heaven

Trainers: Renata Pinto, public relations specialist, and Sara Sá, science journalist

Schedule: 2 half days, on two consecutive Saturdays (total 8 hours)

Contents:

Different types of media outlets, different types of languages
How to communicate to your audience – different types of audiences
How does a press room work
Relation Scientist/Journalist (the road to a happy marriage) – cooperation, conflict and pitch, posture, trust and flexibility
What is considered news (the different criteria)
The importance of Storytelling
Different communication channel (press release, media article, opinion, social media)
Tips to consider when writing an article/press release
Preparation of article or press release

Links to training materials:

<https://doi.org/10.5281/zenodo.7064884>

Low-cost science video: from production to communication

Trainer: Miguel Ferreira, Researcher and Science Communicator

Schedule: 1 and a half days, on two consecutive Saturdays (total 12 hours)

Contents:

Audio-visual and Science Communication
Audio-visual tools to communicate science
Research on science videos
Pre-production of your film
Practical exercise 1: how to write a script for your science video?
Video production of your film
Post-production of your film
Dissemination of your film
Practical exercise 2: produce your own science video.

Links to training materials:

<https://doi.org/10.5281/zenodo.7050768>

Writing about science for the media

Trainer: Rita Ponce, evolutionary biologist and science writer

Schedule: 1 and a half days, on two consecutive Saturdays (total 12 hours)

Contents:

Science — the route from the bench to the newspaper
News articles, press releases — contents and structure
Adjusting the content to audiences and different media
The importance of fact-checking
Preparation of a news article

Links to training materials:

<https://doi.org/10.5281/zenodo.7050776>

The following pages provide printouts of the registration and evaluation forms that can be used when organising similar training opportunities.

Planning checklist for online training events

Beforehand:

- Decide on topics to cover and contact trainers
- Agree to the details with the trainer: dates, payment, session duration (hours), number of participants (max and min), if sessions will be recorded
 - Salary: always be open about limitations (e.g., some funders do not allow salaries for trainers)
 - Establish a priori a strategy for sharing trainers' materials (licence, permissions to share, agreement to brand them with funder/project logos)
 - If inviting several trainers, make sure they meet and agree on the planned content to avoid repetition and facilitate collaboration
- Together with the trainer(s), define a title, timetable and expected outcomes
- Ask the trainer for a short description of the course, the final programme, a short bio and a photo of the trainer (ideally also an image that may characterise the training events). This information is necessary for dissemination.
- Confirm with the trainers that the schedule includes a welcome or an icebreaker and regular breaks (and, if the topics allow, it is a good idea to include group activities and moments for general discussion)
- Define selection criteria for participants
- Create a form (such as a Google form) to receive applications (make sure to include necessary information, but no more than that)
- Allow enough time between the closure of applications and the event to process the applications and send information to participants
- Prepare dissemination materials such as communications texts (do not forget to indicate the closing date for applications)
- Create a website for the event
- Communicate through channels (mailing lists, colleagues, social media)
- Open applications
- Send reminders about applications before closing

- Close application forms on the indicated date (Google docs can display a note after closure, for instance)
- Select participants. Keep in mind that numbers will frequently include some no-shows
- Send an email to selected / non-selected applicants asking for confirmation of attendance by a determined date
- Send a reminder email to non-respondents (optional)
- Contact people on a waiting list if there are vacant spots
- Update trainers about number of participants and their backgrounds
- Create a zoom link and a waiting room for participants; make the trainers hosts too using the option menu in session; and disable the signing in noise (which can be distracting)
- Besides the trainer, there should be at least one host present (to help with keeping the schedule and assisting hosts and participants if any technical problems arise; the host may also help managing questions and chat)
- Make sure the host and trainer have a good internet connection
- Create the evaluation survey
- Create a template for participation certificates

Example of retro-planning¹: event date << sending of acceptance confirmation: 1 month earlier << sending registration reminder 2: 1.5 month earlier << sending registration reminder 1: 2 months earlier << opening of registrations: 3 months prior << start of advertising of the event: 4-5 months earlier << inviting trainers: 5.5-6 months prior

2 days before

- Send session links to trainers and participants
- Check for additional applications (and send all the information to new participants) or cancellations (contact people on the waiting list, if there is one)

¹ Note: This is an example of retro-planning, but different settings may allow tighter schedules or need more time

On the day(s) of the event:

- The host should login a few minutes before the start
- Show planned schedule at the start
- During the event, take a group picture (if participants agree)
- Tweet about it
 - Find out what are the trending hash-tags in the field
 - Tag relevant organisations or networks
 - Tweet regularly in small chunks, engage with your audience
- In the case of talks, consider recording (obtaining clear consent from trainers to do so)

After the end of training session:

- Send a thankyou email to trainers (with survey if appropriate)
- Send a thankyou email to participants with a link to the evaluation survey
- Send certificates to participants

