



Communication role on perception and beliefs of EU Citizens about Science



Database of inspiring practices and recommendations on engaging scientists and communicators with science communication Deliverable 1.5



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5	Danmar	SME	Poland
6	Instituto de Ciências Sociais da Universidade de Lisboa	University	Portugal
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1. Summary of the project

CONCISE aims to generate a European-wide debate on science communication, involving a wide array of stakeholders, from media outlets to policy makers, from scientists to business companies, from science communicators to civil society organisations. CONCISE aims at providing qualitative knowledge through citizen consultation on the means/channels (media and social networks, life experience, relatives, religion, political ideology, educational system...), by which EU citizens acquire their science-related science knowledge, and how this knowledge influences their beliefs, opinions, and perceptions.

For this purpose, CONCISE will explore the understanding of 500 citizens (representing the 500 million EU citizens), regarding four selected topics: vaccines, complementary and alternative medicine use (CAM), genetically modified organism (GMO), and climate change. CONCISE will carry out a citizen consultation in five countries: Lisbon (Portugal), Valencia (Spain), Vicenza (Italy), Trnava (Slovakia) and Lodz (Poland), with the participation of 100 citizens in each country (selected volunteers and representatives of different social groups, considering gender, age, educational level, ethnic minorities, impaired people, and professional careers). Their understanding and position on these four scientific topics will be evaluated, validated, compared and analysed, in order to publish the results in open access by the CONCISE team.

Citizen opinions will be recorded; transcript and analysed with a corpus linguistics software in order to get different indicators that will help all stakeholders to have a more direct and fruitful communication, avoiding the danger of discourses that generate distrust and misunderstandings. CONCISE results will be scalable and its methodology could be applied to other European countries in order to increase the communication of science in terms of quality and quantity all over Europe.

To reach CONCISE's overall goal, the following sub-objectives have been established:

- **OBJ1.** To increase our understanding of **how beliefs, perceptions and knowledge of science- and technology-related issues originate** among European citizens (WP1).
- **OBJ2.** To **review the existing structural obstacles** that scientists and other R&I stakeholders, including policymakers, currently face when attempting to communicate science successfully (WP1).
- **OBJ3.** To **evaluate the existing models for teaching** science communication to communicators and scientists in Europe, and to analyse how to elaborate an action plan, including recommendations and the issues that should be explored (WP1).

- **OBJ4.** To enable **active citizen participation** in scientific research processes, in line with the concept of responsible research and innovation (RRI), by employing a public consultation methodology (WP2).
- **OBJ5.** To measure **the positive or negative perception** of citizens participating in the public consultation on a selection of stories related science (WP3).
- **OBJ6.** To **disseminate actively** the project results and activities, exploring new well-defined communication strategies (WP4).
- **OBJ7.** To **review and assess the work** carried out, such as the project **outcomes**, and to ensure that the consortium partners comply with their contractual obligations (WP5).

2. Introduction to this deliverable

The objective of the deliverable at hand is to summarize the main results from the Task 1.3 “Inspiring practices and recommendations” and present the contents of the CONCISE database, which has been constructed on the basis of the review. The main overall objectives of WP1 are to 1) review the existing hurdles and incentives for scientists, communicators and other R&I stakeholders, to engage in science communication, 2) evaluate existing models of teaching science communication to scientists and communicators in Europe and 3) identify good practices and questions to explore and elaborate recommendations, in order to improve the engagement in science communication of scientists, journalists and other R&I stakeholders.

The activities included in WP1 have been thoroughly outlined in previous deliverables (see Table 1). The work done in Task 1.1 and 1.2. came together in a database of inspiring practices on engaging scientists and communicators with science communication.

WP1 task	Associate deliverable	Brief description
Task 1.1	D1.1. and D1.3 “Hurdles and incentives to science communication in Europe”: preliminary and final report	In these reports we review the existing hurdles and incentives for scientists, communication and other R&I stakeholders to engage in public science communication. We present there the literature review, the methodology used, and summarize the obtained results of 26 individual semi-structured interviews with science communication researchers from 15 different countries and one online workshop with 18 science communication practitioners (journalists, communication officers, science museum directors etc.) from 16 different countries in order to identify incentives and barriers to engage in science communication.
Task 1.2	D1.4. “Teaching science communication in Europe”	This report summarizes the results of the literature review and 26 semi-structured interviews with science communication teachers from 15 different countries in order to study different models for teaching science communication to different publics and with different objectives.
Task 1.3	D1.2 “Guidelines for WP2 public consultations”	In this report we reflect about the public consultation methodology and propose specific instructions to conduct public consultations during CONCISE project; methodological approach, needs and concerns to be aware of, specific scripts on four socially relevant topics (climate change, vaccines, genetically modified organisms and alternative medicine), specific instructions to carry out different activities during consultation.

Table 1. Summary of Wp1 tasks and deliverables

This report outlines the objectives of Task 1.3 and the methodology behind the construction of the database. Following that, an overview of the cases compiled for CONCISE database is presented.

3. Context

During the last 20 years, scientific communication has undergone many changes and transformations. This can be seen in the large amount of information on the Internet, the increase in the number of information sources and content creators on scientific-technical topics. (Dietz 2013; Schäsingfer 2009). Furthermore, the citizens' consumption pattern of this type of information has also changed (Dietz 2013; Schäsingfer 2009).

Although many journalistic media have decreased resources to cover science or technology topics (Bauer and Bucchi 2008), many other organizations such as research centres, universities, research and innovation companies, businesses or civil society organizations not only have increased the amount of resources, but also their role in doing so is increasingly active. Indeed, social networks and digital platforms have now a more important role in information distribution. Furthermore, mass media algorithms and the immediate reactions of the audience are key in information flows.

One of the biggest changes that science communication has experienced lately is the different actors that take part in the process and the interactions between them. Modern science communication may involve journalists, professional science communicators, science practitioners, mediators, and other members of the general public, either peer-to-peer or between groups (Burns, O'Connor, and Stocklmayer 2003).

Relations between citizens and sources of information in science and technology has also changed. Surely the most prominent change in recent years is the progressive rise of Internet as a means of accessing information (Peters et al. 2014). However, we cannot say that Internet is replacing conventional media, since the main websites consulted belong to traditional media; newspapers, radio and television (de Semir and Revuelta 2017).

Concerning science journalism, staff cuts and lack of resources due to the economic crisis, added to the bad adaptation to the new digital panorama and the competition with non-journalistic media, have caused the decline of critical assessment and reporting of science (Nisbet and Scheufele 2009). In general, new media and tools prioritize the immediate impact which makes it difficult for communicators to invest time in their works. This barrier is difficult to overcome because the problem not only depends on journalists that deal with science, but also involves the whole communication system and the citizens' behaviour and information consumers. If clickbait works out well for sensationalistic headlines and superficial content, journalists have more pressure to cover topics in this way. For all these reasons, it is increasingly considered necessary that these professionals have proper training to report on scientific findings (Allgaier et al. 2013; Baram-Tsabari and Lewenstein 2017b, 2017a; Revuelta 2018; Turney 1994; UNESCO 2018).

For science communication professionals, incentives are important to support better practices in their work. Awards and public recognitions help to benchmark excellence both for the public and for professionals in the field.

On the other hand, scientists are increasingly present in the field of public communication either acting as sources of information or directly as communicators. Despite outreach activities being organized and managed by communication professionals, the participation of people representing the scientific community is also expected (Bauer and Jensen 2011). The implication of researchers in public engagement activities is one of the things that the public values most, because they talk from a first person perspective and with a deep knowledge of the topic (Revuelta 2014).

In this context, it is paradoxical that the vast majority of professionals from scientific disciplines have never received communication training (Brownell, Price, and Steinman 2013). Therefore, the only inputs will be their inner capacity for it or their years of experience. In recent decades, the risk of this situation has been highlighted and the need to promote the communication training of scientists has been raised (Baram-Tsabari and Lewenstein 2017b; Leshner 2007; Llorente et al. 2019; Mulder, Longnecker, and Davis 2008; Rensberger 2009; Sharon and Baram-Tsabari 2014).

In addition to the lack of training, other barriers can restrain the participation of scientists in communication such as lack of time, lack of support and lack of professional recognition (Sanz Merino and Tarhuni Navarro 2019; Besley et al. 2018; Illingworth and Roop 2015; Gascoigne and Metcalfe 1997). As a response, numerous initiatives have been issued to support scientists' communication activities. These initiatives range from adding dissemination requirements to grants to creating a more favourable social and professional context for communication. For example, rewarding researchers for their public engagement activities or using it as an evaluation criterion.

Moreover, there are contextual factors which may demotivate researchers from science communication involvement such as the increasing competitiveness in the research sector or the growing efforts necessary for scientists to get funds. In addition, it is still thought that, if researchers participate in outreach activities, they are losing their time, or that they are doing it simply to attract attention. Fortunately, this negative vision of the scientists that communicate the findings is disappearing, especially among the youngest ones.

For these reasons, sharing successful examples of initiatives that encourage the participation of different actors in science communication is key to inspire future actions that pursue similar objectives. In the last two deliverables of WP1 of the CONCISE project we have explored a) the different methods of teaching scientific communication and b) the existing barriers and incentives to encourage different actors to become involved in science communication. In this report we present a total of 25 inspiring practices that pursue the goal of fostering scientific communication.

4. Methodology

The objective of Task 1.3 is to develop a database containing selected parts of the evidence collected during Tasks 1.1 and 1.2.

The first step towards the development of the database has been to categorize the information collected during task 1.1. and task 1.2. through literature review and 26 semi-structured interviews with science communication researchers and teachers.

This process compiled a great amount of different information pieces all related to science communication engagement. **Of these materials a preliminary selection of potential cases for inclusion in the database was compiled by WP1 team.** These cases were selected following a categorization system based on the main barriers for scientists and professional communicators to engage in science communication identified in task 1.1 and outlined in D1.3 (see Table 2).

	Identified barriers	Findings
For scientists	Lack of rewards or recognition	<ul style="list-style-type: none"> • Not included in formal evaluation of scientific careers • Not included in governments, institutions or project objectives • Not enough promoted by research institutions, funding bodies or government
	Lack of time	<ul style="list-style-type: none"> • Excessive bureaucratic burden to get funds and projects • Competitiveness of science (publish or perish)
	Lack of specialized training	<ul style="list-style-type: none"> • No formal training in science communication included in research degrees
	Fear to be discredit by peers	<ul style="list-style-type: none"> • Fear to be considered less scientific • Have been considered less important
	Fear to be misunderstood	<ul style="list-style-type: none"> • Fear that public misunderstood their messages • Fear that journalists or communicators misunderstood their messages
For professional communicators	Lack of resources	<ul style="list-style-type: none"> • Lack of economic resources • Lack of time • Lack of stable job positions (especially in journalism)
	Lack of specialized knowledge	<ul style="list-style-type: none"> • Lack of scientific knowledge • Lack of knowledge on the social relevance of science • Impostor syndrome for non-scientists performing science communication • Lack of knowledge on how to do efficient science communication
	Lack of strategic support	<ul style="list-style-type: none"> • Lack of support from research institutions • Lack of support from mass media • Lack of support from governments

Table 2. Summary of Task 1.1 findings regarding barriers for scientists and professional communicators to engage in science communication

Taking into account all the barriers listed above, we identified five categories that included initiatives that offer possible solutions to overcome them. Figure 1 encompasses an overview of the final five categories of the CONCISE database. The complete description of the entries can be found in the following section.

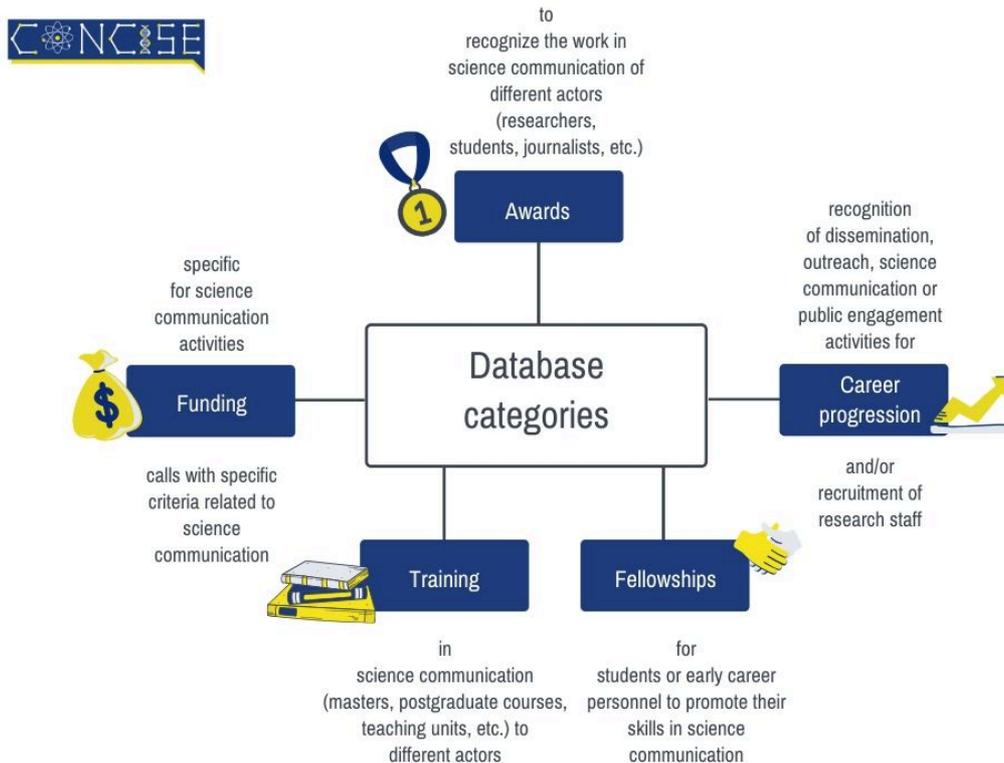
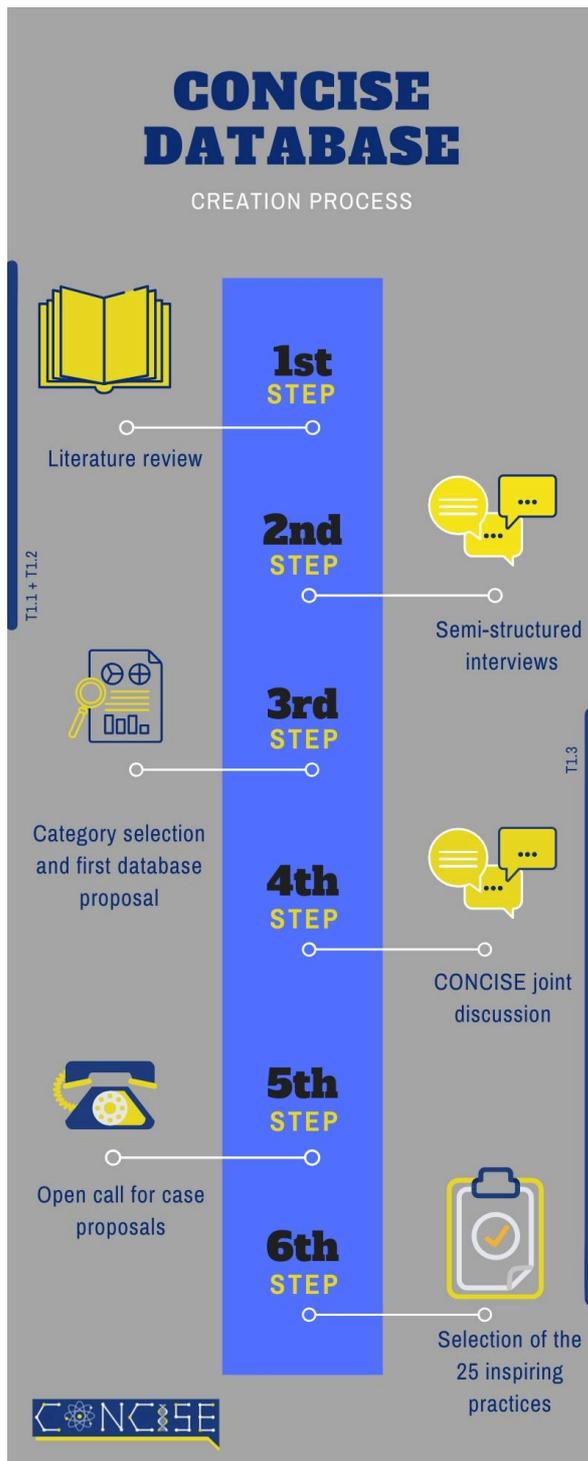


Figure 1. Overview of the five CONCISE database categories

Subsequently, the preliminary selection was discussed by the CONCISE consortium. We also launched an **open call for contribution** through Public Communication of Science and Technology (PCST) network, asking specifically for cases that potentially can be included in our database. After this process, **147 cases were proposed for presentation in the database (see Appendix I, II and III).**

After having selected the cases for the CONCISE database a simple template for filling and fitting the information was developed. **Finally, 5 entries per category were selected, thus the final CONCISE database was established with 25 inspiring practices to promote science communication.**



As a consequence of the multiple sources and heterogeneous character of the reviewed material, the selected cases are therefore not uniform and the database has been constructed to standardize the heterogeneity of the entries.

The final cases selected for the database were the ones considered to: 1) best illustrate conclusions of the findings on previous WP1 tasks (see Table 2), 2) the diversity of each category and 3) which were considered particularly relevant as inspiration for different actors' engagement in science communication.

The CONCISE database detailed in the following sections is not an exhaustive list of practices.

We know that there must be many more initiatives that could be included in our database worldwide. For this reason, we have created a form (see Appendix IV) that will allow us to expand the list of inspiring practices in any of the five identified categories.

Figure 2. Overview of the CONCISE database creation process

5. CONCISE database

5.1 Awards

Title	Brief description	Country	Target audience
<u>Prêmio José Reis de Divulgação Científica e Tecnológica</u>	Award granted annually by the National Council for Scientific and Technological Development to the institution, communication company (newspaper, magazine, television station, etc.) or individual, researcher or journalist, who has most contributed to the dissemination of science and technology in Brazil.	Brazil	Journalists, researchers, communication companies, Research institutions
<u>European Science Writers Award</u>	Award to editors and writers for their achievements for the promotion of science journalism in Europe since 2001. The senior prize so called “Award for Lifetime Achievements” and the two “Junior” prizes were awarded every two years at the EuroScience Open Forum (ESOF).	European Union countries	Science editors and writers
<u>FameLab</u>	Famelab is an international contest of scientific monologues. Its main objective is to promote the popularization of science by identifying, training and publicizing new talents, new spokespersons for science through an innovative format, the science monologue.	International	Researchers, journalists, scholars
<u>Premio Boehringer Ingelheim al Periodismo en Medicina</u>	Journalistic awards with the aim of promoting and recognizing the work of journalists and the media in disseminating and bringing public opinion closer to the advances that are taking place in the field of medicine and health.	Spain	Journalists
<u>Sentinel Awards</u>	Awards to recognize exemplary achievements in TV storylines that inform, educate and motivate viewers to make choices for healthier and safer lives.	USA	TV shows

The complete list of awards and recognitions considered as case-candidates for CONCISE database can be found in Appendix I.

5.2 Career progression

Title	Brief description	Country	Target audience
CSIRO	Science communication skills included as a criterion for recruitment and career promotion in science and engineering research positions.	Australia	Researchers
EU-LIFE	Science communication activities used to evaluate candidate's recruitment and career promotion in all EU-LIFE institutes.	European countries	Researchers
Conferencia de Rectores de las Universidades Españolas	Assessment guide with specific criteria for science communication activities of university research staff proposed by the Conference of Rectors of Spanish Universities (Conferencia de Rectores de las Universidades Españolas).	Spain	Researchers
University of Wisconsin - Madison	Science communication, outreach and public engagement activities included in the criterion for tenure promotion of research staff of the University of Wisconsin - Madison.	USA	Researchers
University of Birmingham	Science communication skills included as a criterion for recruitment to research staff positions.	UK	Researchers

5.3 Fellowships

Title	Brief description	Country	Target audience
International Institute for Applied Systems Analysis Science Communication Fellowship	The IIASA Science Communication Fellowship, established in 2016, provides the opportunity for one to two early-career science communicators to gain hands-on experience in the IIASA Communications Department each summer.	Austria	Graduate students
Knight Science Journalism Program at MIT	A nine-month fellowship program that brings together a small group of elite journalists from across the globe for two semesters of study, intellectual growth, and exploration at MIT, Harvard, and other institutions in Cambridge and greater Boston.	International	Science journalists
Erice International School of Scientific Journalism	The School is based on lectures, interactive sessions and other activities held by international experts in the fields of science, journalism and communication, and encourages a lively discussion on how to communicate scientific results in different ways and through different media.	International	Early career science journalists, science communicators, students
British Science Association Media Fellows	The British Science Association Media Fellowships provide a unique opportunity for practicing scientists, clinicians and engineers to spend two to six weeks working at the heart of a media outlet such as the Guardian, BBC Breakfast or the Londonist.	UK	Scientists, clinicians and engineers
Science News Internship	Science News, the award-winning magazine covering all fields of science for a general readership, is now accepting applications for its science writing internships. Interns work as full-time science writers under the guidance of Science News editors and writers. Internships are offered in fall, spring and summer each year.	USA	Journalism students

The complete list of fellowships, internships and summer schools considered as case-candidates for CONCISE database can be found in Appendix II.

5.4 Funding

Title	Brief description	Country	Target audience
European Commission	Demand for communication, dissemination and promotion of European Commission funded projects	European Union countries	Researchers
Fundação para a Ciência e a Tecnologia	Since 2016, Portuguese Foundation for Science and Technology funded projects must include a dissemination plan with a dedicated item in the budget. In some calls the dissemination costs have to be at least 15% of the total budget.	Portugal	Researchers
Fundación Española para la Ciencia y la Tecnología	Spanish Foundation for Science and Technology open yearly specific funding calls devoted to science dissemination and communication projects	Spain	Researchers and science communication professionals
Swiss National Science Foundation	The Swiss National Science Foundation funds specific projects to foster dialogue between scientists and society. It encourages researchers to communicate their current research to an audience of lay people.	Switzerland	Researchers
Network of funders	The Rita Allen foundation built in 2017 a network of funders who recognize and support the need to invest in productive public engagement with evidence-based science communication.	USA	Science communication professionals

5.5 Training

Title	Brief description	Country	Target audience
<u>Master Information et médiation scientifique et technique (IMST)</u>	Master program offered by the Université Bordeaux Montaigne that aims to study science, its discourse, its concepts, its relations with society, in its historical, philosophical, sociological, ethical and communicative dimensions.	France	Graduate students
<u>Science communication and Bionics</u>	Bachelor program on linking communication practice with rigorous research methodologies offered by the Rhine-Waal University of Applied Sciences	Germany	Undergraduate students
<u>Master in Science Education</u>	Master program offered by the Trinity College Dublin to give students the academic and practical skills they need to develop a critical understanding of the role of science education, research and communication in society.	Ireland	Graduate students
<u>Master's degree with a specialisation in Science and Public Engagement</u>	Stellenbosch University offers a Master program in the field of science and technology studies, with a specialisation in science and public engagement. The course content focuses on challenges associated with the communication between science, public audiences and stakeholder groups in society, with a special focus on Africa.	South Africa	Graduate students
<u>Máster en comunicación científica, médica y ambiental</u>	Master program offered by the Universitat Pompeu Fabra - Barcelona School of Management. This course combines theory and practice to provide students with the skills and critical thinking necessary to meet current job demands in all aspects of scientific, medical, and environmental communication.	Spain	Graduate students

The complete list of training programmes considered as case-candidates for CONCISE database can be found in Appendix III.

6. Summary

The cases selected to constitute the database of the CONCISE project are cases that exemplify different initiatives that can serve as inspiration to implement similar actions. All the initiatives that have been considered for the constitution of this selection respond to the objective of trying to solve the barriers that researchers and professional communicators face to get engaged in science communication.

As we have already mentioned, it is not an exhaustive list, nor do we intend to compile all the initiatives of this type that are being carried out today. The main value of this database resides in giving possible solutions to the problems identified in previous tasks of this project.

In general, the work that has been carried out in the WP1 of the CONCISE project and, specifically, the results of the work that is compiled in this report can be a starting point for reflection. Individuals, entities and even large institutions linked to the governance of science can find inspiration here to foster actions to promote science communication at different levels.

As we mention previously, we have created a form (see Appendix IV) that will allow us to expand the list of inspiring practices in any of the five identified categories that will be available for the community of people who are dedicated to science communication. The idea behind this form is to offer the possibility to the community to make us aware of initiatives different from those considered in this database in order to increase the inspirational potential.

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8. Appendix I. Awards expanded list

Title	Brief description	Country	Target audience
Premio Periodismo Científico del MERCOSUR	The call is aimed at professionals and students of journalism and related careers, as well as researchers from different areas of science, who have forays into journalistic spaces in MERCOSUR member and associated countries, who wish to present their journalistic works.	Argentina, Brazil, Paraguay, Uruguay, Venezuela	Journalism students, science degrees students
Prêmio José Reis de Divulgação Científica e Tecnológica	Award granted annually by the National Council for Scientific and Technological Development to the institution, communication company (newspaper, magazine, television station, etc.) or individual, researcher or journalist, who has most contributed to the dissemination of science and technology in Brazil.	Brazil	Journalists, researchers, communication companies, Research institutions
Prix Hubert-Reeves	This award recognizes Canadian author(s) of a popular science book written in French and published in Canada. The subject of the book may relate to pure or applied sciences, human sciences or technology. It may also relate to history or science ethics or aspect regarding social issues.	Canada	Researchers
H. C. Ørsted Medal	It is a medal for scientific achievement awarded by the Danish Selskabet for naturlærens udbredelse (The Society for the Dissemination of Natural Science). Named for the society's founder Hans Christian Ørsted, it is awarded chiefly to Danes. The medal is awarded in three versions: gold is for outstanding original scientific work in physics or chemistry published during the previous year; silver is for outstanding writing of science for a popular audience over several years; and bronze is for outstanding popularization of science through non-written methods, such as in museums or through business.	Denmark	Journalists, researchers, research institutions, science centers, science communication professionals
European Science TV and New Media Festival and Awards	The European Science TV & New Media Festival and Awards showcases the best of European science programming and brings together the worlds of Science and TV/AV Media to discuss current issues in science and its communication.	European Union countries	TV shows, films and new media

European Science Writers Award	<p>Award to editors and writers for their achievements for the promotion of science journalism in Europe since 2001. The senior prize so called “Award for Lifetime Achievements” and the two “Junior” prizes were awarded every two years at the EuroScience Open Forum (ESOF).</p>	<p>European Union countries</p>	<p>Science editors and writers</p>
Public Engagement with Research Award	<p>The European Research Council’s (ERC) Public Engagement with Research Award is designed to recognize and celebrate ERC grantees who have demonstrated excellence in public engagement and outreach.</p>	<p>European Union countries</p>	<p>ERC grantees</p>
FameLab	<p>Famelab is an international contest of scientific monologues. Its main objective is to promote the popularization of science by identifying, training and publicizing new talents, new spokespersons for science through an innovative format, the science monologue.</p>	<p>International</p>	<p>Researchers, journalists, scholars</p>
John Burroughs Medal	<p>It is awarded each year in April by the John Burroughs Association to the author of a book that the association has judged to be distinguished in the field of natural history.</p>	<p>International</p>	<p>Writers</p>
Kalinga Prize	<p>The Kalinga Prize for the Popularization of Science is an award given by UNESCO for exceptional skill in presenting scientific ideas to lay people.</p>	<p>International</p>	<p>Writers, editors, lecturers, film producers, radio/television programme directors or presenters</p>

9. Appendix II. Fellowships expanded list

Title	Brief description	Country	Target audience
International Institute for Applied Systems Analysis Science Communication Fellowship	The IIASA Science Communication Fellowship, established in 2016, provides the opportunity for one to two early-career science communicators to gain hands-on experience in the IIASA Communications Department each summer.	Austria	Graduate students
ESO Internship-Science Journalism	Internship opportunities offered throughout the year. In ESO ePOD you work with the preparation of ESO and ESA/Hubble news and photo releases, publications, web pages, video scripts, exhibition panels and other products. You will also be able to learn how to present planetarium shows yourself in the dome.	Germany	Science, science communication or science journalism students
Knight Science Journalism Program at MIT	A nine-month fellowship program that brings together a small group of elite journalists from across the globe for two semesters of study, intellectual growth, and exploration at MIT, Harvard, and other institutions in Cambridge and greater Boston.	International	Journalists
Erice International School of Scientific Journalism	The School is based on lectures, interactive sessions and other activities held by international experts in the fields of science, journalism and communication, and encourages a lively discussion on how to communicate scientific results in different ways and through different media.	International	Young science journalists, science communicators, students
The Scientist Internship	The Scientist offers a full-time internship program. Successful applicants start writing immediately, quickly becoming integral members of The Scientist staff. Interns work from home on their own computers and must keep US East Coast business hours.	International	Graduate students
Ciência Viva no Laboratório	Summer internships in research laboratories for secondary school students. During July-August each year, dozens of research centres (70 in 2019) host young people for one or two weeks, giving them the opportunity to participate in research activities alongside scientists. The programme started in 1997.	Portugal	Scientists
SteMadrid	STEM Education combines the areas of science, technology, engineering and mathematics, creating an integrative and	Spain	Researchers, journalists, organizations , scholars

	illustrative method that facilitates learning in these disciplines from one's own experience.		
British Science Association Media Fellows	The British Science Association Media Fellowships provide a unique opportunity for practicing scientists, clinicians and engineers to spend two to six weeks working at the heart of a media outlet such as the Guardian, BBC Breakfast or the Londonist.	UK	Scientists, clinicians and engineers
Science Media Center	The Science Media Centre has an active and popular internship programme for those looking to gain experience in science-media relations. The programme gives a flavour of working on the front line between science and the news media.	UK	Graduate students
The Economist Richard Casement Internship	Write full time for the science and technology section of The Economist for 3 months out of the London office.	UK	Journalism students
AAAS Mass Media Science & Engineering Fellows Program	This 10-week summer program places science, engineering, and mathematics students at media organizations nationwide. Applicants must be enrolled as students (upper level undergraduate or graduate) or postdoctoral trainees at a university — or within one year of a completed degree — in the life, physical, health, engineering, computer, or social sciences or mathematics and related fields.	USA	Science, engineering, and mathematics students
AAAS Minority Science Writers Internship	Internship program for minority students interested in journalism as a career and who want to learn about science writing.	USA	Undergraduate students
Chemical and Engineering News Internship	The intern will work right alongside seasoned reporters, developing by lined news and feature stories for C&EN's online site and weekly print magazine.	USA	Chemistry students
Fermi National Accelerator Laboratory Internship in Science Writing	The nation's premier particle physics research laboratory, offers internships in the Office of Communication for students, writers and other candidates who love science, good writing and working in an environment where no moment is ever dull. Interns may also write for other laboratory publications and Fermilab's websites. They also give interns the opportunity to assist with media events, social media and general public relations activities. Fermilab is located about 35 miles (an hour's drive) west of Chicago.	USA	Science, English, journalism, communications students
Science News Internship	Science News, the award-winning magazine covering all fields of science for a general	USA	Journalism students

	readership, is now accepting applications for its science writing internships. Interns work as full-time science writers under the guidance of Science News editors and writers. Internships are offered in fall, spring and summer each year.		
Science News Writing Internship	Science magazine offers an internship program for news writers. Science accepts applications for four 6-month periods: January through June, April through September, July through December, and October through March.	USA	Graduate students

10. Appendix III. Training expanded list

Title	Brief description	Country	Target audience
Master of Science Communication	Master program offered by the Australian National University that combines theoretical and practical aspects of science communication to train future science communication professionals.	Australia	Graduate students
Master of Science Communication	Master program offered by the University of Western Australia to graduate students who wants to become science communication professionals	Australia	Graduate students
Master Science-Technology-Society	Master program offered by the Universität Wien to graduate students who wants to become science communication professionals.	Austria	Graduate students
The Sciences in Historical - Philosophical and Cultural Contexts	Master program offered by the Universität Wien that combines historical, philosophical and cultural studies of the sciences in international and transnational context and brings together the natural sciences and mathematics with the humanities in a common curriculum.	Austria	Graduate students
Animation - Communication - Culture et Enseignement en Sciences de la Vie et de la Terre	Master program offered by the Université Montpellier that combines animation and communication studies with life and earth sciences.	France	Graduate students
Master Information et médiation scientifique et technique (IMST)	Master program offered by the Université Bordeaux Montaigne that aims to study science, its discourse, its concepts, its relations with society, in its historical, philosophical, sociological, ethical and communicative dimensions.	France	Graduate students
Master Information e mediation scientifique e technique	Master program offered by the Université Aix Marseille that allows scientific students to orient themselves towards the professions of management and transmission of scientific and technical information.	France	Graduate students
Parcours de Communication et Culture Scientifiques et Techniques (CCST) du master information et communication	Master specialization offered by the Université Grenoble Alps to graduate students who wants to become involved in professions of scientific mediation and scientific culture or in communication professions specialized in the scientific field.	France	Graduate students

Licence professionnelle Médiation Scientifique et Education à l'Environnement	<p>Professional license offered by the Université de Tours that aims to train pedagogical instructors and scientific mediators capable of designing, contracting and animating information, initiation and education actions for audiences very diverse in the fields of science, technology and the environment.</p>	<p>France</p>	<p>Undergraduate students</p>
Master Information et médiation scientifique	<p>Master program offered by the Université de Lille/Academie de l'École supérieure de journalisme de Lille (ESJ Lille) that allows scientific students to orient themselves towards the professions of management and transmission of scientific and technical information.</p>	<p>France</p>	<p>Graduate students</p>
Master Audiovisuel - journalisme et communication scientifiques	<p>Master program offered by the Université Paris Diderot is open to students who wish to train in the field of relations between science and society, capable of mastering the mediatization and popularization of scientific knowledge, of innovating in scientific communication, of contributing to the citizen debate on all questions which involve both scientific expertise, political choices, and the plurality of knowledge and cultures.</p>	<p>France</p>	<p>Graduate students</p>
Master Histoire - philosophie - sociologie - médiation des sciences	<p>Master program offered by the Université de Strasbourg aims to train students and professionals from various disciplines to reflect on the nature of the sciences and to understand their philosophical, socio-political, ethical and cultural. It apprehends the epistemological and societal questions posed by the sciences in their entirety and their complexity, beyond the particularities of each discipline.</p>	<p>France</p>	<p>Graduate students</p>
Parcours mineure Mediation Scientifique	<p>Master program offered by the Sorbonne to graduate students who wants to become science communication professionals.</p>	<p>France</p>	<p>Graduate students</p>
Science communication and Bionics	<p>Bachelor program on linking communication practice with rigorous research methodologies offered by the Rhine-Waal University of Applied Sciences</p>	<p>Germany</p>	<p>Undergraduate students</p>
Master in Science, Technology and Society Studies	<p>Master program offered by the University of Klagenfurt to understand interactions between science, technology and other societal areas, such as economics, politics, and media from new perspectives.</p>	<p>Germany</p>	<p>Graduate students</p>

Communication and Media Management	Bachelor program offered by the Karlsruhe University of Applied Sciences that connects the fields of linguistics and communication, visualization/design, IT, and the fundamentals of natural sciences and technology.	Germany	Undergraduate students
Master in science communication/science museum interpretation	Master program offered by the Eötvös Loránd University to train professionals in a variety of fields related to Science Communication.	Hungary	Graduate students
Master in Science Education	Master program offered by the Trinity College Dublin to give students the academic and practical skills they need to develop a critical understanding of the role of science education, research and communication in society.	Ireland	Graduate students
Master in Science and Health Communication	Master program offered by the Dublin City University to train graduate students in science communication, science policy and public engagement in health sciences.	Ireland	Graduate students
Master in climate change: policy - media and society	Master program offered by the Dublin City University to train graduate students in science communication, science policy and public engagement in climate change.	Ireland	Graduate students
Master in Comunicazione della Ricerca e Didattica delle Scienze	Master program offered by the Università di Bari to give students the academic and practical skills to understand the role of science education, research and communication in society.	Italy	Graduate students
La Scienza nella Pratica Giornalistica	Master program offered by the University of Rome "La Sapienza" that has the aim of providing students with theoretical and practical training aimed at knowing the languages and communication strategies of science.	Italy	Graduate students
Master in giornalismo e comunicazione istituzionale della scienza	Master program offered by the Università di Ferrara which offers models, methods, tools and experiences in the field of science communication, ranging from scientific journalism to the institutional and didactic field.	Italy	Graduate students
Master in comunicazione delle scienze	Master program offered by the Università di Padova to graduate students who wants to become science communication professionals.	Italy	Graduate students
Communication of Science and Innovation	Master program offered by the Università di Trento offers a deep understanding of the theory and strategy behind impactful science communication, and which provides an understanding of the role and	Italy	Graduate students

	significance of contemporary media in shaping the public discourse about science.		
Master in Comunicazione della Scienza “Franco Pratico”	Master program offered by SISSA to train future science communicators able to fit into sectors such as journalism, institutional communication, museology, publishing and the organization of events such as authors, editors, designers, consultants and facilitators.	Italy	Graduate students
Master in Communication - Management and Health	Master program offered by the Università della Svizzera italiana that combines communication skills learning in the health sector with a broad understanding of how business and marketing functions operate.	Italy	Graduate students
Master in Communication of Science and Sustainable Innovation	Master program offered by the University of Milano Bicocca to train future professionals capable of communicating effectively to various scientific audiences and of promoting communication between universities, research bodies, schools, museums, businesses, local administrations, local agencies and public opinion.	Italy	Graduate students
European Master’s Programme on Society - Science and Technology	Master program offered by the European Inter-University Association on Society - Science and Technology that aspires to train students in such a way that they are able to explore and understand the interrelated worlds of society, science and technology in Europe and the world at large.	Netherlands	Graduate students
Science in society	Masters’ specialization on Science in Society offered by the Radboud University to equip students with the knowledge, tools and skills to be a professional intermediary between science and society whilst getting a broader societal perspective.	Netherlands	Graduate students
Communication - Health and Life Sciences Master programme	Master program offered by the Wageningen University and research that aims to teach practical and theoretical skills to understand the role of communication in complex social problems around food, health and environment from various perspectives.	Netherlands	Graduate students
Science education and Communication	Master program offered by the Utrecht University to train students in theoretical insights and practical skills in science education and science communication.	Netherlands	Graduate students
Science education and communication	Master program offered by the Delft University of Technology to help prepare scientists to fill key roles as communicators who can link the world of science and technology to society at large, and as	Netherlands	Graduate students

	educators who teach young people about science and technology.		
Biology and Science Communication and Society	Master program offered by the Leiden University that offers one full year of research training in Biology, followed by a year of courses, internships and research in the field of science communication.	Netherlands	Graduate students
Mathematics and science communication	Master program offered by the Leiden University that offers one full year of research training in Mathematics, followed by a year of courses, internships and research in the field of science communication.	Netherlands	Graduate students
Biomedical science communication	Masters' specialization offered by the Leiden University that combines research training in Biomedical sciences and research practical skills in science communication.	Netherlands	Graduate students
Master's programme in Philosophy of Science - Technology and Society	Master program offered by the University of Twente on philosophy of science and technology and its interaction with society.	Netherlands	Graduate students
Science Education and Communication	Master program offered by the University of Groningen that aims to teach a solid foundation in the science, theory, and practice of innovative teaching and effective communication in science and mathematics.	Netherlands	Graduate students
Mestrado em Comunicação de Ciência	Master program offered by the Universidade do Minho aims to train staff to promote communication in institutions that have a scientific and technological component in their activity.	Portugal	Graduate students
Mestrado em Comunicação de Ciência	Master program offered by the Universidade Nova de Lisboa to train future professionals in all different forms of science communication.	Portugal	Graduate students
Mestrado Cultura Científica e Divulgação das Ciências	Master program offered by the Universidade de Lisboa that aims to train professionals to develop strategies to promote the scientific culture of citizens assuming different degrees of depth and scope.	Portugal	Graduate students
Science Communication	Master program offered by the ITMO University to train multiskilled, versatile specialists possessing a wide range of competencies at the intersection of science and communications and capable of conducting the following kinds of professional activity	Russia	Graduate students

Science and Technologies in Society	<p>It is a joint Master's program by ITMO University and the European University in Saint Petersburg. The students will learn to critically assess the relations between science, technology and society, discern political, social and cultural factors and consequences of development of new technologies.</p>	<p>Russia</p>	<p>Graduate students</p>
Governance of Science - Technology and Innovation	<p>Master program offered by the Moscow Higher School of Economics that aims to teach competences that are frequently in short supply at companies and public institutions, primarily a global perspective on science, technology and innovation and the ability to make evidence-based assessments in the field of science, technology and innovation policy and management.</p>	<p>Russia</p>	<p>Graduate students</p>
Master's degree with a specialisation in Science and Public Engagement	<p>Stellenbosch University offers a Master program in the field of science and technology studies, with a specialisation in science and public engagement. The course content focuses on challenges associated with the communication between science, public audiences and stakeholder groups in society, with a special focus on Africa.</p>	<p>South Africa</p>	<p>Graduate students</p>
Máster en comunicación científica, médica y ambiental	<p>Master program offered by the Universitat Pompeu Fabra - Barcelona School of Management. This course combines theory and practice to provide students with the skills and critical thinking necessary to meet current job demands in all aspects of scientific, medical, and environmental communication.</p>	<p>Spain</p>	<p>Graduate students</p>
Máster online en comunicación científica, médica y ambiental (online)	<p>Online master program offered by the Universitat Pompeu Fabra - Barcelona School of Management. This course combines theory and practice to provide students with the skills and critical thinking necessary to meet current job demands in all aspects of scientific, medical, and environmental communication.</p>	<p>Spain</p>	<p>Graduate students</p>
Programa de postgrado en periodismo y comunicación científica (online)	<p>Online master program offered by the Universidad Nacional de Educación a Distancia(UNED) to train specialized communicators in science.</p>	<p>Spain</p>	<p>Graduate students</p>
Postgrado en comunicación científica	<p>Master program offered by the Universitat de Vic that aims to prepare students to carry out various professional activities</p>	<p>Spain</p>	<p>Graduate students</p>

	related to science communication, such as science journalism, editing scientific communication content in various formats.		
Máster universitario en comunicación social de la investigación científica (online)	Online master program offered by the Universidad Internacional de Valencia to graduate students who wants to become science communication professionals.	Spain	Graduate students
Máster universitario en historia de la ciencia y comunicación científica	Master program offered by the Universitat de València to teach graduate students in historical research on science and studies on communication and scientific dissemination.	Spain	Graduate students
Master's Degree in Journalism and Science, Technology, Environment and Health Communication	Master program offered by the Universidad Carlos III to train journalists, as well as disseminators of science, technology, health and the environment that satisfy the professional profile increasingly demanded by companies, research centres, universities, the media and public administrations.	Spain	Graduate students
Máster universitario en estudios de la ciencia, la tecnología y la innovación	Master program offered by the Universidad de Oviedo	Spain	Graduate students
Máster en Historia de la Ciencia: Ciencia, Historia y Sociedad	Master program offered by the Universitat Autònoma de Barcelona that explores the social and cultural dimensions of science, technology, and medicine. It offers two specializations: research and professional.	Spain	Graduate students
Comunicación científica	Elective course in Science Communication in the Human Biology degree offered at Universitat Pompeu Fabra.	Spain	Undergraduate students
Sustainable Communication	It is a Media and Communication master's program offered by the Jönköping University and designed for students who want to deepen their understanding of the significant role of media and communication for global sustainability.	Sweden	Graduate students
Environmental Communication and Management programme	Master program offered by the Swedish University of of Agricultural science aimed to give students the opportunity to develop skills to, using social science theories and methods, understand and analyse environmental communication as it appears, its function and role in	Sweden	Graduate students

	environmental management in society, and to use this knowledge when working with sustainable development and environmental change, in research and in practice.		
Master in Science - Technology and Policy	Master program offered by the Eidgenössische Technische Hochschule Zürich intended to equip students originating from natural sciences and engineering curricula with skills for analyzing complex societal problems at the interface of science, technology, and policy.	Switzerland	Graduate students
Science communication	Master program offered by the University of Kent that includes both practical and critical aspects of science communication.	UK	Graduate students
Art and science	Master program offered by the University of the Arts that investigates the creative relationships between art and science and how to communicate them.	UK	Graduate students
Science - technology and society	Master program offered by the London's Global University aimed to study the main contexts of contemporary science and technology, a broad base in science policy, communication, sociology and .	UK	Graduate students
Master in Science Communication	Master program offered by the Imperial College aimed to develop your creative and intellectual abilities, working on ideas that communicate science, technology and medicine in original and effective ways and to a professional standard.	UK	Graduate students
Science Communication	A degree offered jointly by the School of Journalism, Media and Cultural Studies of the Cardiff University, and Science Made Simple, a science communication organisation based in Cardiff. The course aims to offer knowledge and expertise relating to the organisation and funding of scientific research, the reporting of scientific innovation and controversy, and the role of citizens, experts and the media in decision making.	UK	Graduate students
Science Communication	Master programme offered by the University of the West of England. It is directly informed by current practice to combine theory and practice, and gives students access to industry links.	UK	Graduate students
Scientific research and communication	Master program offered by the University of Warwick that combines English language teaching with advanced scientific teaching and research to teach students how to use	UK	Graduate students

	these skills to communicate science to various audiences.		
Chemistry with scientific writing	Master program offered by the University of Warwick to teach students the ability to effectively communicate often complex chemistry concepts to different audiences.	UK	Graduate students
Science and Environmental Journalism	Master program offered by the University of Lincoln that is designed to offer the practical and theoretical training needed for those wishing to communicate science and environmental issues to the public.	UK	Graduate students
Science communication	Master program offered by the University of Sheffield aimed to teach practical skills to communicate science effectively to a general audience.	UK	Graduate students
Curating science	Master program offered by the University of Leeds aimed to develop an independent academic and curatorial practice at the intersection of art, museum studies, and social studies of science and communication.	UK	Graduate students
Public engagement and science communication	Master program offered by the University of Hull aimed to equip students with communication and critical thinking skills to effectively and efficiently explain complex issues in a way that is appropriate and relevant to the audience.	UK	Graduate students
Science communication and future media	Master program offered by the University of Salford. This course bridges the creative and digital skills gap in an era where digital literacy, critical thinking and creative innovation make professionals stand out from the crowd.	UK	Graduate students
Master in Science Communication	Master program offered by the Manchester University aimed to develop the skills needed for a career in science and health related media, science policy, museums, outreach and many other sectors, as well as research.	UK	Graduate students
Master in Science Communication and public engagement	Master program offered by the University of Edinburgh to learn about the contexts for science communication, how the practice of public engagement has emerged over the last 15-20 years and you will develop awareness about the current landscape of these fields.	UK	Graduate students
Master in Science Communication and public	Online master program offered by the University of Edinburgh to learn about the contexts for science communication, how the practice of public engagement has	UK	Graduate students

engagement (online)	<p>emerged over the last 15-20 years and you will develop awareness about the current landscape of these fields.</p>		
Master in Science and Technology in Society	<p>Master program offered by the University of Edinburgh. This program offers a comprehensive introduction to the interdisciplinary field of science and technology studies, and is intended for students wishing to develop a theoretical and practical understanding of the role of science, technology and innovation in society.</p>	<p>UK</p>	<p>Graduate students</p>

11. Appendix IV. Form to expand the database

Category: (select one)

Awards/Career progression/Fellowships/Funding/Training

Title:

Brief description:

Country:

More information (link):

Target audience: