### Organisers

| 4 |

### PCST Network

| 5 |

### Abstracts

| 9 |

#### Panels

| 11 |

#### Oral communications

| 75 |

#### Show, Tell & Talks

| 199 |

#### Videos

| 221 |

#### Workshops

| 235 |

#### Performances

| 245 |

#### Posters

| 251 |

### Index

| 297 |
Organisers

Museu da Vida, at House of Oswaldo Cruz, Oswaldo Cruz Foundation (Fiocruz) – www.museudavida.fiocruz.br

Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp) – www.labjor.unicamp.br

Chair: Luisa Massarani, Museum of Life, House of Oswaldo Cruz, Oswaldo Cruz Foundation, Brazil

Co-chair: Germana Barata, Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp), Brazil

Programme committee

• Luisa Massarani, Museum of Life, House of Oswaldo Cruz, Oswaldo Cruz Foundation, Brazil (chair)
• Brian Trench, Universidade Dublin City, Dublin, Ireland
• Dominique Brossard, Department of Life Sciences Communication, University of Wisconsin–Madison, USA
• Massimiano Bucchi, University of Trento, Italy
• Germana Barata, Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp), Brazil (invited member)

Local organizer committee

• André Bordalo, Museum of Life, House of Oswaldo Cruz, Oswaldo Cruz Foundation, Brazil
• Antonio Brotas, Research Center Gonçalo Moniz, Oswaldo Cruz Foundation, Brazil
• Carla da Silva Almeida, Brazil
• Catarina Chagas, Brazil
• Carina Garroti, Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp), Brazil
• Fabio Pimentel, Museum of Life, House of Oswaldo Cruz, Oswaldo Cruz Foundation, Brazil
• Fernanda Pestana, Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp), Brazil
• Frederico Peres, Oswaldo Cruz Foundation, Brazil
• Gabriela Reznik, Museum of Life, House of Oswaldo Cruz, Oswaldo Cruz Foundation, Brazil
• Giselle Soares, Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp), Brazil
• Graziele Scalfi, Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp), Brazil
• Luis Amorim, Museum of Life, House of Oswaldo Cruz, Oswaldo Cruz Foundation, Brazil
• Marcela Salazar Granada, student of Central University of Colombia and Labjor-Unicamp, Colômbia
• Marina Ramalho, Museum of Life, House of Oswaldo Cruz, Oswaldo Cruz Foundation, Brazil
• Maisa Maryelli de Oliveira, Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp), Brazil
• Meggie de Sousa Rodrigues, Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp), Brazil
• Milagros Varguez, PhD student of the Technological System of Monterrey, Mexico
• Mónica Lozano, Directora de Programas de Ciencia y Tecnología, Secretaría Ejecutiva del Convenio Andrés Bello
• Nelson De Luca Pretto, Faculty of Education, Federal University of Bahia, Brazil
• Rafael Evangelista, Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp), Brazil
• Rosicler Neves, Museum of Life, House of Oswaldo Cruz, Oswaldo Cruz Foundation, Brazil
• Sarah Schimidt, Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp), Brazil
• Simone Terezinha Bortoliero, Faculty of Communication, Federal University of Bahia, Brazil
• Vanessa Brasil de Carvalho, Postgraduate researcher, Federal University of Rio de Janeiro and Museu da Vida, Brazil
• Waldir Pereira Silva, Museum of Life, House of Oswaldo Cruz, Oswaldo Cruz Foundation, Brazil
• Yurij Castelfranchi, Department of Sociology and Anthropology, Federal University of Minas Gerais (UFMG), Brazil

Regional consultant committee for PCST Brazil

• Alejandra León-Castellá, Cientec Foundation, Costa Rica
• Anita Valdés, Centro Interactivo Ciencias, Artes y Tecnologías (CICAT), University of Concepción, Chile
• Antonio Carlos Pavão, Espaço Ciência de Recife and Federal University of Pernambuco, Brazil
• Bruce Lewenstein, Cornell University, EUA
• Carlos Vogt, Coordinator of Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp), Brazil
• Ildeu de Castro Moreira, University of Rio de Janeiro (UFRJ), Brazil
• Mariluce Moura, Pesquisa Fapesp magazine and Brazilian Association of Science Journalism, Brazil
• Norah Elizabeth Hoyos T., Maloka, Colombia
• Marcelo Knobel, Institute of Physics and Laboratory of Advanced Studies in Journalism, at State University of Campinas (LABJOR/Unicamp), Brazil
• Marcelo Leite, Folha de São Paulo newspaper’s columnist, Brazil
• Victoria Mendizabal, Association for Public Communication of Science, Health and Environment (ComunicaCiencias), Argentina

Conference Secretariat

Método Eventos
The international Network on Public Communication of Science and Technology (PCST) is an organisation that promotes discussion on the theory and practice of communicating science, and of public discourses about science & technology and their role in society.

The PCST Network has a constitution that sets out the rules of our organisation, including membership, elections and the responsibilities of the Scientific Committee and other sub-committees. The Network has a legal status as an incorporated association registered in Australia.

The Scientific Committee is responsible for managing the PCST Network. It is elected by members of the Network every two years, at the general meeting held at the conference.

Scientific Committee 2012–2014:
Toss Gascoigne, Australia (President)
Julia Tagueña, Mexico (Vice-President)
Marina Joubert, South Africa (Secretary)
Jan Risse, Sweden (Treasurer)
Dominique Brossard, USA
Massimiano Bucchi, Italy
Gultekin Cakmakci, Turkey
Donghong Cheng, China
Sook-Young Cho, South Korea
Michel Claessens, France
Suzanne De Cheveigné, France
Vladimir de Semir, Spain
Hak-Soo Kim, South Korea
Luisa Massarani, Brazil
Jenni Metcalfe, Australia
Steve Miller, England
Manoj Kumar Patairiya, India
Hans Peter Peters, Germany
Andrew Pleasant, USA
Kunungnit Pupatwibul, Thailand
Bernard Schiele, Canada
Brian Trench, Ireland
Masataka Watanabe, Japan
ABSTRACTS

Alphabetical order by the title

This program was completed on 20 March 2014. Information submitted after this date, therefore, was not included.
20439 - ADDRESSING THE CHALLENGE OF CENSORSHIP IN SCIENCE COMMUNICATION

Science journalists in Africa complain that the biggest threat to their livelihood is the lack of sources willing to speak to them. Research by SciDev.Net in 2012 indicates that a major structural challenge to engaging science sources is institutional policies which result in censorship. This however, is not a problem unique to one region. The World Conference on Science Journalism structured much of their sessions and the documentation of their plenaries around concerns about censorship and the Canadian science community has had to adjust to a new regime on public engagement under its current federal administration. The session attempts to map first the extent to which censorship is undermining a culture of science globally. It then seeks to explore tactics to address this in different contexts. The session will feature some reflection from geographical regions affected by censorship such as Canada and the MENA region as well as from those working in sectors which have been traditionally challenged with secrecy and intimidation such as the pharmaceutical industry. The session will also seek to feature activists working for press freedom asking them about the failures and successes of such campaigns. The panel is feature representation from the Article 19 (name tbc), the Arab Science Journalists Association and the African Association of Science Journalists. It will be coordinated by SciDev.Net Director, Nick Perkins.

Proponent of the session: NICK PERKINS
Institution: SciDev.Net
Country: United Kingdom
Moderator: Nick Perkins
Participants: Nick Perkins – SciDev.Net
Mohammed Yahia – vice-president of the directive board of the Middle East Association of Science Journalists, Egypt
Laura Tresca – Article 19

20353 - CAN OPEN ACCESS FREE ACADEMICS FROM THE IVORY TOWER?

Professional academics have to wear too many hats: that of grant writer, teacher, mentor, university faculty, and friend and family member. Across these ongoing roles, academics often expend the energy they might use to share their work with the wider world of policy makers and other audiences. Academics may cherish their role as carriers of the “torch of Knowledge,” but they too often pass the torch only amongst themselves via the traditional, cloistered, academic publishing apparatus. That is now coming into increasing tension with a world of media, communication and marketing that has been undergoing a revolution. There is an increasing range of communication channels that are hungry for “content.” Media outlets require journalists to source ever-greater amounts of original, valuable content to interest, entertain, and inform their audiences. These audiences are demonstrating measurable interest in news from the realms of research, originating in science communication media and events. Hence, we
have an unmet need for content and a surplus of cloistered, underutilized, new scientific knowledge. Can policies that promote Open Access, and the necessary accompanying advances in the virtual infrastructure, bridge the gap between academic progress and an unprecedented need for original media content? While technical and organizational aspects of Open Access are being addressed on a policy level, the cultural and societal context of this movement appears to have been neglected. For example: How do scientists, working in a competitive system, feel about sharing their research data? How will public debates about issues, such as climate change, energy and genetic modification, be affected by Open Access? Could Open Access lead eventually to a more open, more democratic and more interactive scientific system? This panel session explores barriers and drivers for Open Access from an anthropological, historical, sociological and science communication perspective. The panel session is being organized in preparation of an international conference later in the year 2014.

Proponent of the session: FRED BALVERT
Institution: ERASMUS UNIVERSITY MEDICAL CENTER ROTTERDAM
Country: Netherlands
Moderator: Fred Balvert - Erasmus University Medical Center Rotterdam, Netherlands
Participants: Fred Balvert - Erasmus University Medical Center Rotterdam, Netherlands
Bruce Lewenstein - Cornell University, United States
Jacque Sarphatie Trama - Sarphatie Education Inc., United States
Peter van der Spek - Erasmus University Medical Center Rotterdam, Netherlands
William Douglas Rifkin - University of Queensland, Australia

20506 – CAN WEIGHT OF EVIDENCE STRATEGIES HELP AUDIENCES EVALUATE TRUTH CLAIMS IN CONTROVERSIAL SCIENCE?
Science communicators the world over fret over how to present truth claims in contested situations, particularly when the best evidence suggests that one claim is more likely to be true than others. Journalistic norms often limit a reporter's freedom to adjudicate these claims in stories, and audiences in many countries—habituated to the role of the journalist as a “translator” rather than an “evaluator” of evidence—also may react badly to stories that attempt to sort out the most valid claims. Charges of “biased reporting” often accompany such efforts, leading journalists to make strenuous efforts to distance themselves from validity judgments by, for example, giving equal space to all claims in a story or by concentrating solely on “accuracy,” defined here as achieving a good fit between what a source says and what the story reports. Given those challenges, this panel will examine strategies for building journalistic stories about contested science issues in ways that can enhance the ability of audiences to understand that not all truth claims are created equal and, ideally, can help readers/viewers determine which truth claims are likely to be more valid than others. Sharon Dunwoody School of Journalism and Mass Communication, University of Wisconsin–Madison, USA, Title: A Test of Weight-of-Evidence Reporting Journalists often have neither the knowledge nor the time to adjudicate truth claims, making stories that actually
evaluate the scientific evidence behind such claims rare. As an alternative, sharing with audiences how experts are arrayed along a continuum of truth claims may be one way to allow non-scientists to determine that some of those claims are more likely to be true than others. This talk will explain this “weight-of-evidence” concept and then will present the results of an experiment testing the ability of a weight-of-evidence narrative to allow participants to accurately determine what the bulk of scientists believe to be true in a scientific controversy. Beatriz Vianna, Department of Communication, George Mason University, United States, Title: A Heavy Weight to Bear: Can Weight-of-Evidence Narratives Succeed in the Face of Ideology? Recent research has suggested that weight-of-evidence narratives can successfully shift audience perceptions about what scientists believe to be true. Thus, weight-of-evidence strategies can be powerful tools in informing lay audiences about scientific claims. However, other researchers suggest that political ideology notions can affect the reception and processing of scientific and risk related information on a small subset of scientific topics (e.g. vaccines, climate change, evolution, GMOs, and several others). This talk will report on an experiment designed to test the power of a weight-of-evidence narrative in the face of such an ideological challenge. Jutta Milde, Interdisciplinary Research Group for Environmental Studies, University of Landau, Germany, Lars Günther and Georg Ruhrmann, Institute of Communication Research, Friedrich-Schiller-University of Jena, Germany, Title: Journalists’ Perceptions and Reporting on Scientific Uncertainty and Risks of Nanotechnology Journalists’ decision-making processes on how to report on science depend on factors such as attitudes, professional role conceptions, personal interests or perceptions of audience. These factors also determine how journalists perceive and cover scientific uncertainty and risks of new technologies. This study analyzes journalists’ perceptions of nanotechnology and their treatment of scientific uncertainty and risks via interviews and content analysis. Results suggest that the journalists and their stories reflect three categories: nano critics, nano ambivalents and nano advocates.

Proponent of the session: SHARON DUNWOODY
Institution: UNIVERSITY OF WISCONSIN–MADISON
Country: United States

Moderator: Sharon Dunwoody – University of Wisconsin–Madison, United States
Participants: Sharon Dunwoody – University of Wisconsin–Madison, United States
Beatriz Vianna – George Mason University, United States
Lars Günther – Friedrich–Schiller–University of Jena, Germany

20315 – COMMUNICATING RISKS AND UNCERTAINTIES OF GLOBAL ENVIRONMENTAL CHANGE AND EXTREME EVENTS
While environmental change will expose different regions to different impacts, the extent of those impacts and effective responses at the local level will be determined not only by the location’s sensitivity and vulnerability but also by local groups and individuals’ capacity, including their institutional links, social networks and motivation to action. In parallel, scientific information plays a critical and ambivalent role in informing environmental change adaptation by providing both an improved understanding of the climate risks and response
alternatives (Serrao-Neumann et al., 2013). Considering our analyses about communicating risks and uncertainties, in this panel session we propose four talks to debate the dialogue between the providers and users of science, focusing on the factors shaping the public concern and belief in environmental change. 1) How to engage the public on risk governance through a participative dialogue – In this talk Gabriela Di Giulio and José Eduardo Viglio argue that participative risk communication is a decisive element to integrate the public in the debate of global environmental change, and must be an integral part of the disaster response and emergency management, involving many forms of flow of information between social groups, and ensuring different modes of interaction and partnership. One of those modes which will be discussed by them is the focus group, a qualitative and participatory research method which joins the opportunity for both the identification of knowledge gaps and risk perceptions, and the support of a co-production and use of risk knowledge. Drawing on empirical studies in Brazil, the authors point out that generating a better understanding of the community's aspirations and capacities as well as issues that need to be addressed is critical to assist the decision-making process.

2) How to communicate the politics and science of solar radiation management (SRM) as a potential option to mitigate anthropogenic climate change. In this talk Phil Macnaghten argues that recent policy and science communication treatments of SRM have insufficiently addressed its potential implications for contemporary political systems. Exploring the emerging 'social constitution' of SRM, the author outlines four reasons why this is likely to pose immense challenges to liberal democratic politics: that the unequal distribution of and uncertainties about SRM impacts will cause conflicts within existing institutions; that SRM will act at the planetary level and necessitate autocratic governance; that the motivations for SRM will always be plural and unstable; and that SRM will become conditioned by economic forces. He will conclude by pointing to the challenges SRM poses for science communication – the potential for solar radiation management to negate democracy; the challenges of how to decide to initiate a global social experiment; and the anticipation of dynamics of geopolitical conflict that may ensue.

3) Communicating risks and uncertainties of climate change: IPCC's challenges – The researcher talks about one of the main challenges faced by IPCC: communicating risks/uncertainties of the climate change science to the public. Based on his/her experience, the researcher outlines that scientists have been called to respond how they can stimulate the dialogue with the society in a context of urgency and pressure. What is an acceptable risk in terms of climate change? How to make it clear with all scientific uncertainties that actions must be taken to reduce future risks associated with climate change? How to communicate that although our knowledge of climate change process is still limited, we need to act now because the possible future consequences can disrupt some critically important ecosystems?

4) Decision making towards climate change – Debates about climate change adaptation often overemphasize the need of good evidence and how that evidence is communicated to decision makers and the public. Increasingly more publications are now showing that it is less the knowledge as such but the trustful relationship between experts and decision makers that supports the 'co-
production’ of knowledge as a basis of good decision making. However, Jens Zinn will argue that local governments are used to deal with risks and uncertainties in decision making situations and have developed strategies to deal with them. In such context scientific evidence might not be the most important factor that informs decision making but political uncertainty and competing interests. Moderating the development of new governance frameworks that integrate and give more weight to emerging regional players might be as important as the development of a new regional narrative that could help to define a joined interest while competing interests remain. Zinn will report from a recent research project in Australia that examines decision making towards climate change in regional governance and planning.

Proponent of the session: GABRIELA MARQUES DI GIULIO
Institution: UNIVERSITY OF SAO PAULO
Country: Brazil
Moderator: Gabriela Marques Di Giulio – University of Sao Paulo, Brazil
Participants: Gabriela Marques Di Giulio – University of Sao Paulo, Brazil
José Eduardo Viglio – Universidade Estadual de Campinas, Brazil
Philip Martin Macnaghten – Durham University – Universidade Estadual de Campinas, United Kingdom and Brazil
Jens Zinn – Melbourne University, Australia

20631 - CULTURAL DIVERSITY AND SCIENCE COMMUNICATION: INTERCULTURAL MODELS FOR SOCIAL INCLUSION OF KNOWLEDGE
Description: Nowadays, in Latin American, the awareness that our societies are culturally diverse has been increasing. In this sense, the National project in each country should be developed with the involvement and participation of cultural groups present, including indigenous peoples and other sectors that are identified as a culture. The objective of this panel will describe, the role of science communication when cultural diversity is recognized and how communication of science combined with other types of knowledge are able to promote social inclusion. 1) Towards a multicultural model of science communication and technology: The recognition of traditional knowledge. One problem concerning science communication, is how to development its work considering the social issues that surround the scientific topics. In this way, I believe that not only is important to transmit scientific knowledge but also give rise to different types of knowledge immersed in multicultural societies as in Latin America. The main problem is the separation established between indigenous or traditional knowledge and science, with the implicit prejudices against traditional knowledge, that generates profound inequalities. The main objective of this work is outline a model of science communication in a multicultural society. In this regard, I present the main communication model of science and technology, with the objective of describing the problematic that exist in current models of communication within a multicultural society. I describe what is multiculturalism and what kind of democracy is more feasible to propose a multicultural model for communication of science and technology suitable for the recognition of traditional and local knowledge. 2) Science communication and Social Inclusion:
A multilingual approach for Mexican Indigenous Communities. This work shows the importance of science communication for the promotion, recognition and inclusion of Mexican Indigenous languages. The use of Indigenous languages in communicating science and technology is a way to remark that they are constantly changing modern languages and their speakers are integrated into a multicultural society that face various social and environmental problems at local, regional and national levels. In this paper we show the results of work focused on science communication in intercultural contexts and discuss the priority of such interdisciplinary approaches to promote scientific culture and the democratization of science and technology considering the cultural and linguistic diversity of Mexico. 3) Popular Science for social inclusion and political participation. According to authors such as Víctor Manuel Toledo, these ancestral cultures keep our historical memory as Humankind. For this reason, divulging these cultures' knowledge, activities and worldviews—how they see the world, how they see themselves in it and how do they understand it, their community epistemic systems, the diversity of activities in tropical, mild, arid and semiarid weathers, etc. is now a vital urgency. In this work, we present examples of the need of alternative approaches to communication of knowledge in the Mayan expressions of the Mexican Yucatán Peninsula. We discuss that social inclusion has consider the development of theoretical an methodological tools to construct the necessary infrastructure, space and communication channels to promoting to indigenous culture and theirs knowledge of its self-managed processes. To be able to recognize our Chíbal, our worldview, as a guarantee to teach the knowledge that would allows us to trigger agriculture development (in this case, in the Mayan Peninsula), to know, to value and to prove their worth to obtain our own food, dwellings, medicine. 4) The metaphors in science communication. Analysis of the metaphor “the book of life” in techno-scientific contexts. The use of metaphors in the communication of science is the subject of interest not only for their cognitive and philosophical value, but also by their role as communication tools, linking various speeches and providing a basis for the public understanding of scientific topics. In this aspect will discuss the metaphor “the book of life”, generally used by the media to replace the human genome. This research presents a review of two important theories of the metaphor: the replacement approach and comparative approach. Subsequently, is presented a historical review of the origins of metaphor and analyzes the implications of the metaphor “the book of life” in the visions of science that reproduce the Human Genome Project in the mass media. Finally, this analysis leads to review the commitments that have the science communicators to transfer metaphors, which obviously should not be chosen by interests, fashions, likes and levels of hearing, but should audience to a rational exercise in the pursuit of objectivity and professionalism in the communication of scientific topics.

Proponent of the session: LUZ LAZOS RAMÍREZ
Institution: UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO
Country: Mexico
Moderator: Luz Lazos Ramírez – Universidad Nacional Autónoma de México, Mexico
Participants: Xenia Rueda Romero – Universidad Nacional Autónoma de México, Mexico
This themed session of papers aims to focus on the role and function of the Science Media Centres. This session explores in depth some of the wider issues involve which are rarely discussed when exploring wider impact of the United Kingdom Science Media Centre’s. The SMC says that they are helping scientists to communicate better with the media but what impact does this have on the public? Does it matter who is funding them? How independent is the independence they claim to have and how do they choose the subject and angle of the stories they cover and what about the unspoken influences such as the political ideology? How do science journalists deal with the material from this powerful science PR agency? There will be a series of papers presented in this session that examine the actual reporting impact, the political and ideological impact as well as the implications for policy. 1. The Impact of the United Kingdom Science Media Centre (SMC) on Science Reporting: empowering or dis-empowering for the public? This paper will present the findings of a study on the impact and quality of the “briefings” which take place weekly at London’s United Kingdom SMC. The study will use the briefing material supplied by the Centre and will measure the impact of the briefings by analysing the content of the news stories that are published by the science reporters in the media. The study will analyse a range of media and types of science stories in a given period and look for evidence of churnalism, inaccuracy, hype and bias (political or scientific) or any other latent messages. 2. An Analysis of the History and Output of the United Kingdom Science Media Centre This paper examines the history and output of the United Kingdom Science Media Centre. It gives an overview of the ideas about science advanced by those who set it up, the milieu in which they operate and analysis of the organisations involved. The second part of the paper systematically analyses data on all of the ‘scientists and engineers’ cited on the SMC website over a ten year period. The aim is to 1. Analyse the background of the experts in terms of discipline and research topic; 2. Examine the extent of conflicts of interest among the experts and 3. To assess whether the SMC can be said to be ‘biased’ in a particular direction. 3. Selling Science This paper will examine the role of a broad coalition of science communicators, led by the United Kingdom Science Media Centre (SMC), in communicating the proposed practice of creating animal human hybrid embryos. It focusses on the implications such campaigns have on the quality and independence of science news and the role of scientific institutions and scientists in the provision of information about their work to publics and media. Drawing on data from 16 interviews (with specialist science journalists, PR operatives, and key news sources), and a content analysis of 427 United Kingdom newspaper articles, findings reveal that a powerful coalition of scientists, learned
societies, and charities won a clear victory on their own terms, using a range of PR strategies (issues management, relationship management, crisis management, etc), in a struggle against a less cohesive group of religious figures, ethicists, and campaigners. This victory can be explained with reference to a number of public relations approaches and tactics, but this persuasion-based PR success arguably came at a price for scientists, journalists, and publics because it encouraged: self-censorship among scientists in public debate; uncritical churnalism; and the simplification and “hyping” of complex scientific research of uncertain value.

4. Open research: can we move beyond ‘closed’ communication strategies?
The last twenty years has seen fairly consistent calls for greater openness and transparency by officials in a number of countries, often with the stated aim of increasing trust in the sciences. These calls are now writ large in the United Kingdom as researchers are required to demonstrate how they will engage with non-academics to generate research impact. On a similar timescale, the United Kingdom has begun to embed an open access agenda for research publications. Throughout this period news management strategies continue to endure with institutional support. This paper will explore some of the tensions surrounding the context for open research, exploring some of the implications for communication and engagement strategies.

Proponent of the session: CONNIE ST LOUIS
Institution: CITY UNIVERSITY LONDON
Country: United Kingdom
Moderator: Connie St Louis – City University London, United Kingdom
Participants: Connie St Louis – City University London, United Kingdom
David Miller – Bath University, United Kingdom
Andy Williams – Cardiff University, United Kingdom
Richard Holliman – The Open University, United Kingdom

20234 – EMPOWERING CHILDREN: CROSSING THE SCIENCE AND SOCIETY AND THE SOCIAL INCLUSION AGENDAS
The project “SiS Catalyst – children as change agents for science in society” (a EU funded project involving 20 partners from 16 countries for 4 years) is analysing the interrelationships between science communication practices and social inclusion, focusing on children perspective. If on one hand science is undeniably offering opportunities to overcome forms of oppression and exclusion, on the other hand the science education pathways can be implicitly at the origin of discriminatory process. In fact, it has been observed that a solid structured form of knowledge such as science can be perceived very differently by children with a higher socio economic level (for whom science can be an opportunity of success) and those coming from disadvantaged areas or local minorities (for whom science can be mainly an instrument of selection for progression into higher education, and something that strengthen the separation between a future “for them” and a future “for me”). It has then been hypothesised that a way to break this correlation is through empowering actions, that is, providing a space, an audience and an impact for listening to children in science in society activities involving them. SiS Catalyst analysed selected case studies of models of interaction between
children and science (for example, science festivals, children universities, science museums, media for children, etc.), identifying where and when children voice is taken into account, and where and when (and possibly why), on the contrary, a dialogue cannot occur, and children are de facto passive and unheard. A series of training workshops modules were developed and are currently being tested in 5 countries, focusing on children, scientists and science communication activity organisers respectively. These workshops are intended to provide reflections and practical tools on how to empower children in their relationship with science, helping them to progress toward a sense of ownership of scientific knowledge, that is, to see science as a tool to build the world they would like to live in. A training toolkit on these issues will be edited in 2014. At the PCST 2012 conference, we presented a paper with a plan of action for this project. Two years later, we propose a session that aims not simply at reporting on the progress made, but to pose what have been identified as fundamental questions, to the PCST participants, including some Brazilian experiences, thus widening and localizing the Sis-catalyst horizons. Three short presentations will open the round table: Matteo Merzagora (Traces, Paris France), leader of the SiS catalyst action on listening and empowering children, will introduce the concepts, the training schemes and the results of the evaluation of these trainings. Raul Araujo (Independent consultant and Mudança de Cena, São Paulo, Brazil), who contributed to the understanding of exclusion mechanisms, will present the approach used with children and training organisers and science explainers, based on theatre of the oppressed approach, adapted to a science in society perspective. Camille Breton (Association Paris Montagne) will present the results of various empowering activities carried out as part of the Science Académie programme targetting teenagers who are least likely to enrol in higher education, as well as their impact on the reflection of what social inclusion should and should not be. After 3 short presentations setting the theme, a discussion will be launched. Can ensuring that children voices are heard and acted upon trigger institutional changes? That is, can it help science communication contribute to a more inclusive society? This session will comlement the session “Science communication to/with children and teen: facing the challenges of diversity and social inclusion”, proposed by Débora d’Ávila Reis. In fact, these two sessions tackle the same core issue – participation and empowerement in science in society activities involving children – from two different perspectives (The children university perspective and the listening and empowering training schemes). If both are accepted, we will coordinate the discussion parts, so that they can enrich, complement and follow on each other, or be combined in a longer session, depending on the committe decision.

Proponent of the session: MATTEO MERZAGORA
Institution: TRACES – ESPACES DES SCIENCES PIERRE–GILLES DE GENNES
Country: France
Moderator: Matteo Merzagora – TRACES, France
Participants: Matteo Merzagora – TRACES, France
Raul Araujo – Mudança de Cena, Brazil
Camille Breton – Association Paris Montagne, France
20571 - ENGAGEMENT FROM WITHIN GLOBAL HEALTH RESEARCH PROGRAMMES (STORIES FROM AFRICA AND SOUTH EAST ASIA)

The Wellcome Trust is a global charitable foundation dedicated to achieving extraordinary improvements in human and animal health through supporting the brightest minds in biomedical research and the medical humanities. Our breadth of support includes public engagement, education and the application of research to improve health. The Trust funds five large research programmes which span Africa and South East Asia (Kenya, Malawi, South Africa, Thailand and Vietnam). These programme primarily research illnesses which affect the world’s poorest and most vulnerable populations. Setting up a research programme of an internationally recognised standard in such contexts is not without its challenges and the importance of engaging effectively and ethically with local stakeholders is a key concern. It is important in ensuring the research is ethical and that processes of informed consent are strong. Each of these programmes has an individual or team whose role it is to liaise with the public or local community through wide ranging programmes of work. They may have set up Community Advisory Board Structures, liaise with communities at community elders meetings, engage with local media and run engagement activities which the broader PCST community would recognise such as Science Café’s, Community Media and Schools outreach, however all take on unique shapes given the unique contexts and needs of the communities in which they are taking place. These overseas programmes are also involved in contributing to a growing body of social science research into community engagement and research ethics. The Wellcome Trust plans to bring representative from these programmes to the PCST conference for a satellite meeting. Participants would be eager to share stories about their programmes and the contexts within which they work, their communications and engagement strategies, objectives driving engagement and future project ideas. This panel discussion will get to the heart of what PCST is about. It will cover ethics of engagement, agendas around social justice and community empowerment and present some innovative approaches to engagement. Helen Latchem will facilitate it however the main presenters will be from across these programmes.

Proponent of the session: HELEN LOUISE LATCHEM
Institution: THE WELLCOME TRUST
Country: United Kingdom
Moderator: Helen Louise Latchem – The Wellcome Trust, United Kingdom
Participants: Helen Louise Latchem – The Wellcome Trust, United Kingdom
Alun Iwan Davies – KEMRI, Kenya
Astrid Jane Treffry-Goatley – Africa Centre, South Africa
Mary Chambers – OUCRU, Vietnam
Phaik Yeong Cheah – MORU, Thailand

20484 - ENGAGING SCIENTISTS IN SCIENCE COMMUNICATION: POLICIES AND PRACTICES

With the S&T progress and social development, the scientific research findings and their applications in real life have more and more significant impact on people’s daily lives. Therefore, the mutual interaction between science community and the public is playing an increasingly important role. On one hand, the democratization
of science requires the understanding and participating of the public. Only with the support and identification of the public, the scientific research could be able to be carried out smoothly and successfully. On the other hand, there is a pressing need for the public to understand the scientific research process to acquire the latest S&T achievements. Scientists play a very important role in responding to the public’s desire, not only because that the scientists undertake the duties and responsibilities of promoting the development of S&T and the society, but also for their unique advantage and authority in the activities of public communication of science.

In recent years, we have seen initiatives of the governments in some countries, as well as of the science community, in encouraging scientists to involve in science communication, considering the combination of scientific research and science communication as an important means of promoting the undertakings of the S&T progress and social development. However, as the operation and management mechanism have yet not been completed, we still have a long way to explore the method and complete strategies on getting scientists involved in science communication.

The panel session will explore the issue, in either general framework or a specific perspective from different angles as policies, researches, as well as case study, to share the experience of different regions and discuss about the ways and measures to promote the mutual development of scientific research and science communication. The proposed session will be organized as a panel with a moderator for about 80 min, which consists of 5 min brief introduction of the speaker and overview of the objectives of the session, 15 min presentation facilitated by the PowerPoint by each presenter, 20 min for panel and audience discussion, and 5 min conclusion in the end. The panel invites presenters from China, Mexico, and United Kingdom.

(i) Mobilising the troops: 25 years of training scientists to communicate.
When the movement that gave rise to the Public Communication of Science and Technology network was getting started, the demand was that the research community should be much more open with the lay public about the work that they were doing. But there was little in the formal training of young researchers that would prepare them for such activities. Therefore, to enhance the ability of scientists to communicate, activities – workshops, undergraduate courses, master’s degrees – were established around the world to give the research community the training that would help them to talk to their fellow citizens in ways that were appropriate and empowering. But as the years have gone on, so the demands on scientists have increased and developed. No longer is just straightforward “communication” sufficient. The mood is for dialogue, the task is engagement. And new demands are imminent. This contribution will draw on the presenter's 25 years' experience in science communication training, both in the United Kingdom and – more importantly – as director of two European networks (ENS-CoT 2000–2003, EScOnet 2005–2011). In particular, the European projects have left a legacy of science communication training modules that are freely available to the community under Creative Commons. This presentation will also flag up new efforts that aim to take such work into the area of responsible research and innovation.
(2) Mexican policies for public communication of science and technology

Very recently the Mexican law of science and technology was modified to include public communication of science, technology and innovation within the responsibilities of the National Council of Science and Technology (CONACyT) which is the head of the science and technology sector. As a result, new policies to foster scientific culture are being designed. Some of the strategies and possible outcomes will be discussed in this presentation.

(3) Scientists voicing in hot issues: A case study on ‘scientists and media - face to face’ programme

The ‘scientists and media: face to face’ is a program initiated by famous scientists in China aiming at delivering a prompt and concise voice by the science community to the public through media to smash rumors and help the public return to a more sensible level when necessary. The presentation will share several successful cases, such as, a) for releasing the latest science and technology achievements, like Bei-Dou double star navigation system, Heavenly Palace 1 and Shenzhou VIII docked in outer space; b) for scientific explanations on hot issues, such as food safety, PM 2.5; c) for coping with emergencies, like Understanding Nuclear Radiation, Scientifically Counter the Big Flood, On Haze, On Influenza (H7N9), etc.

The impact of the initiative and its further development are also to be covered in the presentation.

Proponent of the session: DONGHONG CHENG
Institution: CHINA ASSOCIATION FOR SCIENCE AND TECHNOLOGY
Country: China
Moderator: Cheng Donghong - China Association for Science and Technology, China
Participants: Cheng Donghong - China Association for Science and Technology, China
Steve Miller – University College London, United Kingdom
Julia Tagueña - Consejo Nacional de Ciencia y Tecnología, Mexico
Wang Dapeng – China Research Institute for Science Popularization, China

20774 - HOW DID MODERN SCIENCE COMMUNICATION EMERGE IN DIFFERENT COUNTRIES ROUND THE WORLD? SESSION 1

Five presenters from different countries will outline the steps their country worked through, in moving towards a system of modern science communication. They will identify important dates and events in a national timeline, such as the first national science week, the first training and research courses for science communicators, the formation of national associations for journalists and communicators, and the first interactive science centres.

What caused this interest in science communication? Were there any special triggers of events that stimulated science communication, like the Exploratorium in San Francisco? Was there a government report, a special initiative, or a new approach taken by some university?

The presentations will allow us to begin the process of charting the emergence of modern science communication internationally, and the development of the theory and practice of science communication.

Proponent of the session: TOSS GASCOIGNE
Institution: PCST NETWORK
Country: Australia
20775 - HOW DID MODERN SCIENCE COMMUNICATION EMERGE IN DIFFERENT COUNTRIES ROUND THE WORLD? SESSION 2

Five presenters from different countries will outline the steps their country worked through, in moving towards a system of modern science communication. They will identify important dates and events in a national timeline, such as the first national science week, the first training and research courses for science communicators, the formation of national associations for journalists and communicators, and the first interactive science centres.

What caused this interest in science communication? Were there any special triggers of events that stimulated science communication, like the Exploratorium in San Francisco? Was there a government report, a special initiative, or a new approach taken by some university?

The presentations will allow us to begin the process of charting the emergence of modern science communication internationally, and the development of the theory and practice of science communication.

Proponent of the session: TOSS GASCOIGNE
Institution: PCST NETWORK
Country: Australia

Moderator: Brian Trench – Dublin City University, Ireland
Participants: Mariechel J. Navarro – Global Knowledge Center on Crop Biotechnology, Philippines
Manoj Kumar Patairaya – Department of Science and Technology, India
Steve Miller – University College London, United Kingdom
Gemma Revuelta – Universitat Pompeu Fabra, Spain
Suzanne de Cheveigné – Centre Norbert Elias, Marseille

20776 - HOW DID MODERN SCIENCE COMMUNICATION EMERGE IN DIFFERENT COUNTRIES ROUND THE WORLD? SESSION 3

Five presenters from different countries will outline the steps their country worked through, in moving towards a system of modern science communication. They will identify important dates and events in a national timeline, such as the first national science week, the first training and research courses for science communicators, the formation of national associations for journalists and communicators, and the first interactive science centres.

What caused this interest in science communication? Were there any special triggers of events that stimulated science communication, like the Exploratorium in San Francisco? Was there a government report, a special initiative, or a new approach taken by some university?

The presentations will allow us to begin the process of charting the emergence
of modern science communication internationally, and the development of the
theory and practice of science communication.
Proponent of the session: TOSS GASCOIGNE
Institution: PCST NETWORK
Country: Australia
Moderator: Germana Barata – Labjor / Universidade Estadual de Campinas, Brazil
Participants: Arko Olesk – Tallinn University, Estonia
Bruce Lewenstein – Cornell University, United States
Jean Fleming – University of Otago, New Zealand

20373 - HOW TO GET POLICY-MAKERS TO LISTEN TO SOCIAL SCIENTISTS
The challenges of today and tomorrow – climate change, poverty and gaps in
democracy, welfare and education, for example – demand solutions involving
humanities and social sciences (HSS). Nonetheless, policy makers often choose
to consult think tanks and lobby groups, rather than HSS researchers. These
researchers, for their part, seldom communicate in a way that policy makers
understand, or themselves approach the policy makers. How can this be changed?
Solutions to the problem will be discussed by a panel including Jenny Björkman and
Hanna Köllerström of Riksbankens Jubileumsfond (RJ), Sweden; Robert Frodeman,
Director of the Center for the Study of Interdisciplinarity at the University of North
Texas; and Melanie Smallman, who uses to be an advisor to the Chief Scientist at
the United Kingdom Department of Environment, Food and Rural Affairs (Defra).
RJ is a Swedish foundation that provides funding for HSS research. Since its
inception in the 1960s it has involved policy makers and practitioners in decisions
and discussions on research. Annually since 2007, RJ and other HSS funders
have arranged get-togethers (SAMspråk, ‘Conversation’) for policy makers and
researchers, to promote the former’s understanding and knowledge of the latest
findings with a bearing on everyday political issues. Jenny Björkman and Hanna
Köllerström will in their presentation discuss how a research funder can organise
researchers and policy makers and help to connect them.
In his paper, Robert Frodeman argues that the humanities can serve as a bridge
between the STEM disciplines (science, technology, engineering and mathematics)
and policy formation. Without disparaging the vital roles played by science and
technology in policy makers’ decisions, he contends that the humanities, too,
have a significant part to play in the decision-making process. Many of the
areas in which science and technology are so obviously important (healthcare,
defence, national security, space exploration and the environment, for example)
are interwoven with broader societal interests. Several areas of policy-making
concern not only science and technology, but also ethics and values, metaphysics
and theology, aesthetics and culture. By addressing these dimensions of decision-
making, humanities-oriented policy opens up new possibilities for decision-
makers, broadening their horizons and making more options available to them.
Frodeman’s vision of such policy also requires scholars in these fields to be ready
to move in new directions: using humanities for policy requires a new policy
for the humanities. His paper discusses scope for moving forward in involving
humanities in discussions of global challenges, such as climate change. He also
addresses how ethicists and humanities scholars can generally help policy makers to understand, and thereby avoid, hidden ethical problems.

One panellist will represent the team behind History & Policy. This online collaborative venture has long held seminars and meetings for historians and policy makers, to enable knowledge to be conveyed to politicians. Melanie Smallman is a researcher looking at how views feed into policy-making. Prior to this, she spend 8 years in the United Kingdom government’s environment department, as science communications advisor to the Chief Scientist, handling issues from climate change to bird flu. She will give some insight from her research and experience, into how policymakers access and use research findings and what lessons can be learned for social scientists.

Proponent of the session: JENNY BJÖRKMAN
Institution: RIKSBANKENS JUBILEUMSFOND
Country: Sweden
Moderator: Jenny Björkman - Riksbankens Jubileumsfond, Sweden
Participants: Robert Frodeman - University of North Texas, United States
Jenny Björkman - Riksbankens Jubileumsfond, Sweden
Melanie Smallman - University College London, United Kingdom

20630 - IMPACT ASSESSMENT OF SCIENCE COMMUNICATION INITIATIVES AND POLICIES: WHAT DO WE KNOW ABOUT IT?

Impact Assessment of Science Communication Initiatives and Policies: what do we know about it? Evaluation and assessment are seen by many as something being forced on all activities, including those of science communication. But the study of the outcomes and impacts of science communication initiatives and policies (SCIP) can help us gain knowledge about their value and also about their weaknesses. Beyond evaluation of the individual results and effects of a single SCIP at a specific time, it is also important to strength research about the effects of SCIPs across broader spectrums of geography, history and groups of initiatives and policies. This is precisely what is meant when we speak of the measurement or assessment of “impact”. In recent years, networks of science communication (such as ECSITE, ASTC, EUSEA, ASDC, REDPOP, etc.), as well some funding organisations (such as the EC) and researchers in the field of science in society, have started to dedicate a considerable effort to assessing the real impacts of SCIPs and to develop strong methodologies and indicators. Traditionally, studies have been centred on the educational value of SCIPs but now some other effects are being analysed, such as their emotional and inspirational value, the economic impact for the region, the impact on media attention to science, the influence in local policies, the effects on the professional careers of scientists or teachers taking part. This panel will explore: Which kind of effects do SCIPs have and on whom, and how can they be measured? Panel Session moderated by: Brian Trench (Dublin City University, participant in development of PLACES Toolkit for the Impact Assessment of Science Communication Initiatives and Policies) - Eric Jensen. Limitations of Current Public Engagement Evaluation Practices: The Case for Quality Impact Evaluation in Science Communication Associate Professor (Senior Lecturer), Department of Sociology, University of Warwick -
Science, technology and innovation (STI) plays a major role in the global economy, and new tools and instruments for public and societal engagement are needed to boost the quality, capacity and legitimacy of STI governance worldwide. In Europe, more effective and socially acceptable decisions on STI are called for to solve the looming problems related to the grand societal challenges, as delineated in the new EU Framework Programme for Research and Innovation, Horizon 2020. To support a healthy renewal in this field, the European Commission has funded a research project PE2020 – Public Engagement Innovations for Horizon 2020 that aims to identify the most innovative public engagement (PE) tools in Europe and beyond, and develop a tool for science policy actors that helps them identify, evaluate and successfully transfer innovative PE practices between countries. In so doing, new opportunities can be found for countries to mobilize the capacity of their citizens and scientific systems to solve urgent societal challenges pressing their societies, and possibly to accelerate research-based innovation processes and make them more effective. In this session, presenters and participants will discuss the state of the art and trends in the field of PE, with a particular emphasis on discussing promising approaches to identifying and analyzing innovative PE tools and instruments that might contribute to dynamic governance of science in society. There will be four presentations in this session, each discussing the theme of PE innovation in science from different angles and regional perspectives:

1. Towards an inventory and typology of innovative European PE practices – This paper presents a preliminary list of 50 examples of particularly innovative PE
tools and instruments in European STI policy. Examples have been harvested from previous cross-European efforts to monitor PE activities, and the paper will explain and discuss the procedure for selection, and propose a strategy for typologizing PE activities in the European context. Dr. Niels Mejinggaard, Director of the Danish Centre for Studies in Research and Research Policy, Aarhus University, Denmark o Ph.D. fellow Tine Ravn, the Danish Centre for Studies in Research and Research Policy, Aarhus University, Denmark 2. Participatory performance in research program context – ‘Participatory performance’ refers to level and quality of public dialogues on STI. Factors contributing to participatory performance have been modeled at the level of national performance, including supportive resources, demand conditions, governmental strategies and other factors. This paper opens a critical debate about such factors at the level of research programs. Dr. Mikko Rask, Senior Researcher at the National Consumer Research Centre Finland, Academy of Finland Post-Doctoral Researcher o Dr. Saule Maciukaite Zviniene, Head of Higher Education Policy Analysis Unit at Research and Higher Education Monitoring and Analysis Centre in Vilnius. 3. Distributed, collaborative 21st century approach to participatory technology assessment (pTA) in the United States. Constituted independently of the government, the ECAST model integrates citizen participation, deliberation, expertise and assessment into government policy making, management, research, development, informal education and dissemination at the national and international levels. This approach connects independent, non-partisan and non-profit organizations into a nationwide network. Gretchen Gano, Doctoral candidate, Human and Social Dimensions of Science and Technology Program, Arizona State University, David Sittenfeld, Program Manager, Forum, Museum of Science, Boston 4. Recent Trends and New Approaches of PE in Japan – This paper discusses recent national level participatory processes, including a deliberative poll on national energy choices, the first-ever participatory and deliberative process that directly informed national policy making in the country, and a new workshop program, where people can casually deliberate on trans-scientific or science-in-society issues, to be developed in collaboration with high schools and science centers and seeking possibilities of creating spheres of dialogue on science and technology nationwide. The adaptation, achievements and challenges of these initiatives will be discussed. A tension between the purposes of awareness raising and citizen empowerment is among the key themes underlying the recent efforts to introduce innovative PE tools to STI governance. Balancing strategies and trade-offs between these dual purposes will be discussed in this session.

Proponent of the session: MIKKO TAPANI RASK
Institution: NATIONAL CONSUMER RESEARCH CENTRE
Country: Finland
Moderator: Mikko Tapani Rask – National Consumer Research Centre, Finland
Participants: Niels Mejinggaard – Danish Centre for Studies in Research and Research Policy, Aarhus University, Denmark
Tine Ravn – the Danish Centre for Studies in Research and Research Policy, Aarhus University, Denmark
Mikko Tapani Rask – National Consumer Research Centre, Finland
20690 - INSPIRING AND CULTIVATING SCIENCE AWARENESS IN YOUNG AUDIENCES THROUGH DIALOGUE AND ASTRONOMY

The purpose of this roundtable is to share different experiences on science outreach with children and teacher training. First, each speaker will present their experience for 15 minutes, followed by 25 minutes of discussion between the presenters and the audience. Three projects will be discussed: UNAWE, UFSCar and ZabUnited Kindomi. UNAWE is a project that aims to engage and inspire young children, specially the underprivileged, ranging from 4 to 10 years old by using Astronomy as a tool and the beauty of the Universe as the theme. The main objective is to show how fun and wonderful science can be – and, also, that they are part of this Universe and of a wider international community. Hands-on activities are developed to be worked with mainly in schools – and the project’s website also offers tools and resources to teachers from around the world. The discussion in the roundtable will include the experiences of UNAWE so far and how they were developed. UFSCar is a federal university in São Carlos, Brazil, where several initiatives of astronomy popularization are under course. The objective is to widen the access to Astronomy knowledge among Middle and High School students and also offering teacher training. Besides hands-on activities developed with children and teenagers in São Paulo state. The project also produces a weekly videocast, “O Céu da Semana” (This Week’s Sky), with information about the main celestial events of the week – and where to look at in order to see them. The conversation topic will focus on the reach of these activities and the making of “O Céu da Semana” and its receptivity among the public. ZabUnited Kindomi is an Science Café for kids aged 7 – 11 years old, started in 2008 by a group of volunteers in Deventer (NL). The first café, with 70 kids attending was a success, and ever since about 70 kids visit ZabUnited Kindomi cafés each month. In addition, each year a successful two-day festival is organized for children. In 2012, two ZabUnited Kindomi cafés have started in other Dutch towns. In this presentation the set up of the ZabUnited Kindomi cafés will be discussed and compared including the role and the way various parties – such as the children, the parents, companies and others – are or get actively engaged. Thereafter, possible keys for the success of the ZabUnited Kindomi cafés will be discussed.

Proponent of the session: GUSTAVO ROJAS
Institution: UNIVERSIDADE FEDERAL DE SÃO CARLOS
Country: Brazil
20452 - LONGITUDINAL MASS MEDIA INDICATORS OF SCIENCE CULTURE (MACAS II)
The Indo-European network (MCAS funded by ESRC-DFG-ISSRC, 2012-2015) will construct a system of science culture indicators based on news analysis measures. The system should enable us to track science news retrospectively and inform a system of potentially prospective monitoring (1990-present and beyond; intensity, positioning, issues) as part of analysis of wider trends in public attitudes to science. The idea is to map science news in general on the basis of a systematic sample. The session will present preliminary results from a comparative effort of constructing a comparative corpus of data that spans the past 20-years. The teams involved in this project will work with a common framework and use QDA Miner as their software platform to support the analysis. The presentations will assess the construction of the text corpus so far and present preliminary results comparing the language of science news on a number of linguistic indicators. The session will be chaired by Rajesh Shukla – United Kingdom [Human Development Institute (HDI), India], Con(di)vergence features of scientific and public discourse? Science in the UNITED KINGDOM mass media, 1990–2010 (Bankole Falade (LSE) & Martin William Bauer (London School of Economics, UNITED KINGDOM), German media coverage of science, 1990–2010: observations on trends and characteristics of discourse (Petra Pansegrau, Bielefeld), Mobilising the country for science? The functions of press coverage of science in India 1990–2010 (Subhasis Sahoo, Allahabad, and Rajesh Shukla – United Kingdom, IHD, Delhi), Science in the Italian media: the longitudinal perspective (Neresini Federico & Andrea Lorenzet, Observa & Padua, Italy).
Proponent of the session: MARTIN WILLIAM BAUER
Institution: LONDON SCHOOL OF ECONOMICS
Country: United Kingdom
Moderator: Martin William Bauer – London School of Economics, United Kingdom
Participants: Martin William Bauer – London School of Economics, United Kingdom
Rajesh Shukla – United Kingdom – Human Development Insittute, India
Bankole Falade – London School of Economics United Kingdom
Petra Pansegrau – University of Bielefeld, Germany
Subhasis Sahoo – Univeristy of Allahabad, India
Federico Neresini – University of Padua & Observa, Italy
Andrea Lorenzet – University of Padua and Observa, Italy

20328 - MAPPING THE CULTURAL AUTHORITY OF SCIENCE (MACAS EU-INDIA)
Modern societies perform their understanding of issues in public debates, conferences, opinion polling, scoping exercises, everyday conversations and mass media where scientific research is granted variable cultural authority. ‘Authority’ shall mean that pronouncements of fact and evidence are taken on
the word only. This cultural asset of the scientific community in society cannot be taken for granted; it is a feature that varies in time and space. An Indo-European network (funded by ESRC-DFG-ISSRC, 2012-2015) will construct a system of science culture indicators based on news analysis and social attitude measures. The system should enable us to track science news (1990-2010; intensity, positioning, issues) and trends in public attitudes to science (interest, image, attitude, knowledge, engagement). For this purpose we will mobilise existing survey data (Eurobarometer and Indian surveys, 1989-2010), conduct comparative analysis and develop the Science Culture Index (SCI). And we construct a longitudinal media indicator system, retrospectively and prospectively for continuous science monitoring. Science is a globalized activity, while the cultural contexts remain diverse. Our joint effort with colleagues in Europe and India, and affiliates in China and Brazil is moving this agenda forward: what do we know about the cultural context of science, how has this been shifting over the past 50 years, and how does it compare across contexts in terms of attention to, enculturation with and attitudes to modern techno-science. The key question remains universal: what is the state of the cultural authority of science in 21st century? A Thinking again the culture and authority of science (MACAS i) This session will explore key notions of science culture, the authority of science and review the Indian concept of ‘scientific temper’. The purpose of this session is to open a discussion on key concepts that concern the field of PCST. The Authority of Science – revisited (Pansegrau & Weingart o The Culture of Science (Vogt), The ‘scientific temper’ in Indian debates about modern society (ShUnited Kingdomla & Sahoo), Common Sense and the Culture of Science (Bauer).

Proponent of the session: MARTIN WILLIAM BAUER
Institution: LONDON SCHOOL OF ECONOMICS
Country: United Kingdom

Moderator: Martin William Bauer - London School of Economics, United Kingdom
Participants: Petra Pansegrau - University of Bielefeld, Germany
Peter Weingart - University of Bielefeld, Germany
Carlos Vogt - LabJor/ Universidade Estadual de Campinas, Brazil
Rajesh Shukla - United Kingdom - Insitute of Human Development, India
Subhasis Sahoo - Allahabad University, India
Martin William Bauer - London School of Economics, United Kingdom

20276 - MODELLING CULTURE CHANGE TO EMBED PUBLIC ENGAGEMENT WITH RESEARCH WITHIN UNITED KINGDOM UNIVERSITIES: USING RESEARCH AND PRACTICE TO SHAPE STRATEGY AND ACTION

Public engagement with research has come a long way in the UNITED KINGDOM since 2000. The pace of change has quickened significantly following: the establishment of the National Co-ordinating Centre for Public Engagement (NCCPE)[1]; the completion of the Beacons for Public Engagement programme[2]; the embedding of research impact within Research Council grant applications[3] and the Research Excellence Framework (REF)[4]; and the publication of the RCUNITED KINGDOM’s ‘Concordat for Engaging the Public with Research’[5]. Whilst each of these developments was important, the publication of the RCUNITED KINGDOM Concordat[5] was a watershed. In effect, the Concordat’s
Four principles delivered a mandate for embedding public engagement within the United Kingdom’s research culture. These principles closely align with the RCUK’s Public Engagement with Research Catalyst programme[6]. Funds secured under this programme are supporting eight project teams who are tasked with embedding public engagement with research within their respective universities. Each project team has tailored their approach to embedding public engagement within the research culture of that university. However, common themes, strategies and issues have become apparent through programme-wide meetings, not least a commitment to assessing university strategies and support mechanisms for public engagement with research. This session will focus on these assessments, and consider how the findings have informed initial interventions.

Towards research with people at the centre: Valuing senior manager perspectives to engaging publics with research
Richard Holliman, Richard Holti & Anne Adams, The Open University
We will document the findings from an interview study, involving senior research managers from across the university. 15 interviews were conducted with Associate Deans for Research and Research Centre Directors. The key findings will address two emergent themes: defining and valuing excellent public engagement with research; and how public engagement with research could be supported in the future.

Public Engagement vs. Public Communication: tensions and overlaps
Helen Featherstone, University of Exeter
Using data from several sources including interviews with researchers, Heads of Colleges, and job, award and grant applications we will reveal how multiple agendas work to conflict and support each other. Within the science disciplines at the University of Exeter public engagement is associated with outreach, widening participation, impact, media communication, and career advice alongside research quality, accountability and governance. The future is RED: Modelling Researcher Engagement and Development to promote culture change
Kenneth Skeldon & Lucy Leiper, University of Aberdeen
We are implementing a Researcher Engagement and Development (RED) strategy underpinned by the principle of progression, applied wholly to the researcher career journey, but also to pathways of real-life public engagement opportunities. The emphasis is on building creative, communication, leadership and management skills. This approach enables our institution to be responsive, indeed pre-emptive to the guiding principles of national concordats and frameworks[5,7] and has led to a step change in attitudes towards engaged practice. We will present case studies and data from surveys to illustrate our approach.

Facilitating mutual learning between science and engineering engagement & the humanities and social sciences
Joanna Coleman & Ed Stevens, University of Bath
We have taken an approach focussed around networking and creating opportunities for researchers to learn from each other across disciplines, as engagement styles and audiences differ greatly between our Faculties. This includes formalised networks, special interest groups, training programmes, discipline-specific workshops and a new Institute for Policy Research. We will present case studies and reflect on the challenges and outputs from these interventions, reviewing data from surveys, interviews and discussion groups.

References

Proponent of the session: RICHARD HOLLIMAN
Institution: THE OPEN UNIVERSITY
Country: United Kingdom
Moderator: Richard Holliman – The Open University, United Kingdom
Participants: Richard Holliman – The Open University, United Kingdom
Helen Featherstone – University of Exeter, United Kingdom
Kenneth Skeldon – University of Aberdeen, United Kingdom
Lucy Leiper – University of Aberdeen, United Kingdom
Edward James Stevens – University of Bath, United Kingdom

20284 - MODELLING THE MODELS OF SCIENCE COMMUNICATION
This panel reviews the discussion of models of science communication, particularly the supposed rejection of the Deficit model and the proposal of various alternatives to it, and it aims to explore whether we are going through a linear evolution of models or cyclical trends. On the panel are writers and researchers who have sought to interpret or contribute to the debate of the merits and drawbacks of particular models in various contexts. They have also given attention to defining models of science communication with a view to facilitating better-informed practice and conceptually clearer research and reflection. Drawing information from published studies, from science communication programmes proposed for various cultural contexts, and from contributions made to recent PCST conferences, the panel will explore: Is the Deficit model as dead as so many commentaries insist? Is the Dialogue model an evolutionary step forward? Can the Deficit and Dialogue models co-exist? Should they? What is the range of possible models beyond the “big two”? Are there national or regional preferences for some models over others? Could we be going through a cycle of reaffirmation of the Deficit model? What factors govern the choices of model? Is fashion one of those factors? What can we learn from other fields of practice and study in seeking to understand better how models of science communication emerge? Can we develop a model of models which helps us understand which ones are used in which contexts? The panellists are three authors who have contributed to the revised edition (2014) of Handbook of Public Communication of Science and Technology, plus a fourth panellist whose practice and research has also related centrally to models of science communication: Massimiano Bucchi, Italy, co-
editor of and contributor to Handbook of Public Communication of Science and Technology, Maja Horst, University of Copenhagen; author of papers on dialogue practices in Denmark, Carmelo Polino, Centro REDES, Argentina; author of studies on scientific culture in Latin America countries and contributor to Handbook of Public Communication of Science and Technology, Brian Trench, Ireland, co-editor of and contributor to Handbook of Public Communication of Science and Technology (panel moderator).

Proponent of the session: BRIAN TRENCH
Institution: DUBLIN CITY UNIVERSITY
Country: Ireland
Moderator: Brian Trench – Dublin City University, Ireland
Participants: Brian Trench – Dublin City University, Ireland
Maja Horst – University of Copenhagen, Denmark
Carmelo Polino – Centro REDES, Argentina
Massimiano Bucchi – University of Trento, Italy

20671 – NATIONAL POLICIES ON PUBLIC COMMUNICATION OF SCIENCE AND TECHNOLOGY
The panel, organized by the Brazilian Association for the Advancement of Science (SBPC) and the Red POP, the Network for Popularizing Science and Technology for Latin American and the Caribbean, aims to map out national policies for science communication in different countries, with the objective of knowing which path was chosen by each country, what are the main challenges they face and the main lessons learned. Activities of science popularization done by scientists and communicators got in the last decades a large scale increase in public and private institutions. Either through internet, new science museums, science weeks, street mobilizations, scientific videos and theater, etc., new ways summed up with the traditional science communication activities through mass media and institutions as science centers, aquariums, planetary, science museums and so on. The public reached by the new science communication wave is estimated to be ten times larger than in the previous decades but is still small if compared with the population of the big countries, especially in the Third World. A big challenge is to reach ten times more people: how and in which direction should be oriented the national and international policies in science communication, in both spheres public and private? In the last ten years numerous countries had created systems, councils or agencies to coordinate their science popularization policies. One of the questions to be issue addressed in the panel is to make a balance of the results obtained through such organisms. Other countries that have not yet created such systems could learn with the best practice of these countries and hopefully not to repeat the same mistakes. One of the objectives of the panel is to discuss how the countries with a longer tradition, experience and resources can support other countries to create their national policies and organisms for improving science communication. There are other questions that will be discussed in the panel proposed: i) how to improve and expand the national science popularization programs and to establish international cooperation in this field? ii) how to handle, in science popularization activities, with the so-called ‘traditional knowledge’? iii) how to deal with the people’s fears
and attitudes in relation to science? iii) how to consider, in the PCST activities, the ethical challenges posed by the development of S&T such as human cloning or environment’s pollution impacts; iv) how to discuss with young people about the uses of S&T as tools in the war and the transgressions of human rights? India, China, Brazil, Japan and Germany already confirmed the participation in the panel. As other countries were contacted (for example, Portugal, Australia and UNITED KINGDOM) it is likely that two sessions will be necessary for addressing these sessions. The following participants are confirmed: 1) Prof. Dr. Hans Peter Peters, Forschungszentrum Jülich, Ethics in the Neurosciences (INM-8), Jülich. GERMANY; 2) Masataka Watanabe, professor in Public Relation Office, University of TsUnited Kingdomuba, adjunct professor in Nara Institute of Science & Technology and Nihon University, and adjunct research fellow in National Institute of S&T Policy and Japan S&T Agency, Japan; 3) Yin Lin, associate professor, China Research Institute for Science Popularization (CRISP), China. The coordination of the panel will be made by Professor Ennio Candotti, director of the Musa Museum in Amazon and vice president of the Brazilian Society for the Advancement of Science (SBPC). The presence in the PSCT Conference of science communicators of different countries and with different national policies testimonies offer a unique opportunity to discuss such questions and suggest new ways to be pursued by public communication in science and technology for the next decade.

Proponent of the session: ENNIO CANDOTTI
Institution: MUSEU DA AMAZÔNIA AND SOCIEDADE BRASILEIRA PARA O PROGRESSO DA CIÊNCIA
Country: Brazil
Moderator: Hans Peter Peters – Forschungszentrum Jülich, Germany
Participants: Ennio Candotti – Sociedade Brasileira para o Progresso da Ciência – Museu da Amazônia, Brazil
Masataka Watanabe – University of TsUnited Kingdomuba, Japan
Ildeu de Castro Moreira – Institute of Physics Federal University of Rio de Janeiro, Brazil
Yin Lin – China Research Institute for Science Popularization, China
Hans Peter Peters – Forschungszentrum Jülich, Germany

20492 – NEUROSCIENCE IN THE PUBLIC SPHERE
With an ever-increasing understanding of the brain mechanisms associated with core human attributes and values, there is increasing pressure for neuroscientists to engage their research and the societal implications of their findings with the public. Recent years have seen a surge in popular discussion of neuroscience in the public sphere and this session considers the implications of different types of engagement, attitudes of neuroscientists to engagement activities and the role of the media in shaping public attitudes to, and the governance of, neuroscience. Art and Science on the Brain: engaging the public and scientists with neuroscience, Dr Amy Sanders. In 2013, the Wellcome Trust, British Neuroscience Association (BNA) and The Barbican Centre came together to programme Wonder: Art and Science on the Brain, a season of events for the public, coinciding with the BNA’s major scientific conference. The events attracted over 15,000 people and included...
a Street Fair, dance, comedy and cabaret performances, talks, walks and film screenings. Wonder presented a number of firsts for the partners: it was the first time the BNA had included public events alongside their academic conference, the first time the Barbican had programmed an art and science season, and the first time Wellcome Trust had supported a cohort of over 200 neuroscience researchers to engage with the public. I will reflect on the benefits and challenges of pairing an academic conference with a public programme, the pros and cons of art and science collaboration, and tips on how best to support researchers in engaging with the public. Engaging Brains: Neuroscientists on public engagement Simon J Lock and Karen Bultitude Building on previous studies of scientists’ attitudes, this paper explores the attitudes of neuroscientists to public engagement activities. The Wonder: Art and Science on the Brain – a unique hybrid scientific/public space combining the British Neuroscience Association’s biennial conference with a major public engagement programme – provided a unique opportunity to contrast public and researcher expectations, rationales and involvement in the engagement activities held in tandem with what is usually a closed scientific space. We report the results of an online survey; face-to-face interviews with researchers delivering public engagement activities as well as public participants and conference delegates interacting in an ‘audience’ capacity; and structured observations of specific events. We found differences between the ways in which public engagement was framed in general – often as a didactic, and one way process of communication – to the ways in which researchers involved in specific public engagement activities discussed their rationales for doing it – where more two-way and mutually beneficial framings were dominant. We also found that the theme of animals in research was perceived by researchers as a considerable barrier to communicating about neuroscience. Do the media play a role in the governance of science? Sharon Dunwoody & Hans Peter Peters One longstanding assumption is that public visibility increases political support for science. The question we explore here is whether links between public visibility and access to resources (or other impacts) also exist regarding specific research projects. Two possible governance effects of media could be envisaged. First, access to resources could be influenced by public visibility; second, in their attempt to control public and policy perceptions of their research, scientists might actually modify decisions about how to conduct and publish research. We will illustrate our arguments using results from studies in the field of neuroscience that explored the relationship between public visibility and research decision-making. We conclude that while the media are a factor in the decision-making of scientists, most governance effects of public visibility are mediated by the science policy context.

Proponent of the session: SIMON J LOCK
Institution: UNIVERSITY COLLEGE LONDON
Country: United Kingdom
Moderator: Simon J Lock
Participants: Simon J Lock – University College London, United Kingdom
Karen Bultitude – University College London, United Kingdom
Hans Peter Peters – Forschungszentrum Jülich, Germany
Sharon Dunwoody – University of Wisconsin–Madison, United States
Amy Sanders – Wellcome Trust, United Kingdom
Science communication has been enriched by reflections generated within social studies on science and technology. However, many of these contributions have not been articulated with practice. Moreover, there was limited success in integrating them in theoretical proposals that allow for a reflection from our own perspective, in the context of a changing global scenario where diverse ways of seeing the world coexist and there is a need of constant dialogue between different cultures and social sectors, between diverse and plural forms of knowledge. This situation has resulted in a situation in which the ways of doing science communication have been restricted to a theory of deficit, which does not allow us to recognize and consider how the individuals both possess and create knowledge in many social sectors and culturally different people. It is necessary to analyze this situation, since to merely abandon deficit theory does not imply a true reflection. Nowadays, we mostly see the construction of a new perspective based on techniques of marketing and political communication that answers to a desire of convincing and seducing the subjects, more than to the need of educating them, let alone stimulate their free association. Moreover, the requirements of international competition favor decision making by experts in charge of developing a kind of investigation destined to the global market of innovation. As a consequence, often the ‘participation’ is reduced to a tool of scientific marketing or is used as a way of exploiting local knowledge with no benefit for the communities that own that knowledge. This process leaves both communities and individuals defenseless against the impact of certain scientific developments that are strongly questioned within science itself, such as genetic determinism, or certain technological developments. In sum, when conceived in this manner, ‘participation’ can paradoxically lead communities and subjects to be submitted to technoscience in all its range, supressing their citizenship in all its respects. The goal of this round table is, thus, to reflect upon these problems and propose new concepts and theoretical tools to promote plural and inclusive approaches and ways of communication, which allow the access and free appropriation of scientific knowledge by the aforementioned social actors and the needed participation as citizens in the policies that promote technoscience. Also, this participation should promote the maintenance of their rights to keep their own culture without being marginalized. Concepts such as ontology, reflexivity, plurality, complexity, interculturality, cosmopolitics, flow between different circles and styles of thinking, enactment, and actor network are tools that can be currently valuable as guides to our work in science communication. Thus, Fleck’s notion of thought styles, for instance, disrupts the centrality of a particular cognitive pattern or way of doing science. This change of perspective contributes to the revision of the dynamics between scientific fields, which Fleck calls “esoteric circles”, but also for understanding their relationship with external groups (“exoteric circles”). According to Fleck, popular science supplies the largest part of individual people’s knowledge. Even professional scientists take many concepts, comparisons and general views from it. These are certainly fundamental subjects for science communication. Similarly, indigenous peoples’ knowledge can play a key role in science communication. In this case, the prevalence of
the idea of cultural heritage management has been imposed instead of an open exercise of mutual understanding and enrichment; this situation forces us to look for new ways of intercultural relation. This reflective exercise is, in our view, fundamental to establish our work in a reliable manner in a world that is increasingly characterized by plurality in all levels. It is widely recognized that, in this situation, to fully accomplish our work in science communication we need to embrace new concepts. Each one of the proponents of this round table also proposed an individual paper when registering to the meeting, which can be gathered in this round table. However, if the meeting organizers allow, we would prefer to keep them apart, in other sessions, while in this round table we could carry out a more flexible presentation, capable of generating much discussion and reflection about the themes addressed in the proposal.

Proponent of the session: CÉSAR CARRILLO-TRUEBA
Institution: UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO
Country: Mexico
Moderator: César Carrillo-Trueba - Universidad Nacional Autónoma de México, Mexico
Participants: César Carrillo-Trueba - Universidad Nacional Autónoma de México, Mexico
Joëlle Le Marec - University of Paris VI, France
Bernardo Jefferson de Oliveira - Federal University of Minas Gerais, Brazil
Yurij Castelfranchi - Federal University of Minas Gerais, Brazil
Charbel Niño El-Hani – Federal University of Bahia, Brazil

20453 - NEW FORMATS FOR SCIENCE COMMUNICATION MAGAZINES PUBLISHED BY UNIVERSITIES
This proposal involves 3 editors of science communication magazines and one moderator. Each participant will have 15 minutes to present the conceptions, structure, format and public of his/her publication. The moderator will also have 5–10 minutes to comment on the issues. Previously, the participants will be requested to list and evaluate the other initiatives of science communication magazines produced by universities in their countries in order to draw a picture during the session. Following the remarks by the speakers the session will be open to questions and discussion. Science production has risen in Latin America in a faster speed than worldwide. As a result, there has been an expansion on popular science magazines, printed and online, as well as in public interest toward science and technology. The universities are investing on their own magazines or publications online in order to communicate the knowledge they produce. First, universities have started to publish newsletters directed to their community and later an effort to reach society through interesting and attractive ways. With the fast and competitive atmosphere provided by internet the popular science magazines have to find new ways to get to the public as well as contributing for reflection on the issues concerning science as culture. Some interesting initiatives – as the ones here gathered – have dealt with science in a multidisciplinary way, mixing articles written by experts, reports and news written by journalist as well as including poetry, science fiction and the arts in their content. Those publications have assumed science as culture, motivating different views on the
same issue, assuming other fields of knowledge as part of the scientific culture as well as considering different actors in its construction: scientists, researchers, intellectuals, journalists, practical and artists. As an alternative to publications exclusively commercial, those magazines have enriched the communication between science and society. Find below 3 magazines with different formats that will present and share their experience: ComCiência monthly magazine, from Brazil. http://www.comciencia.br/comciencia It is an open access popular science magazine written by the students and edited by researchers on science communication both from the post-graduation course of Science Communication at the State University of Campinas (Universidade Estadual de Campinas). Since 1999, this online magazine has worked as a laboratory to think and practice science communication dealing with science in a broad and multidisciplinary way. It has 380,000 page views per month. ¿Como ves? monthly magazine, from Mexico. http://www.comoves.unam.mx/ It is produced by the National Autonomous University of Mexico (UNAM) since December 1998. Its printed edition is the most sold magazine produced by a university in the country and part of its content is open access online. It includes the contributions of science writers, researchers and professors. Revista CPS, from Argentina. http://www.revistacps.org Produced by the Universidad Maimónides, Universidad Nacional de Chilecito, y Fundación de Historia Natural Félix de Azara, this recent printed and online magazine has a hybrid profile publishing scientific papers, science communication reports and science fiction short stories.

Proponent of the session: GERMANA BARATA
Institution: LABJOR-UNIVERSIDADE ESTADUAL DE CAMPINAS
Country: Brazil
Moderator: Germana Barata - Universidade Estadual de Campinas, Brazil
Participants: Carlos Vogt - Labjor/Universidade Estadual de Campinas, Brazil
Estrella Burgos - Universidad Autónoma Nacional de México, Mexico
Luciano Guillermo Levin - Centro CTS/Universidad Maimónides, Argentina

20321 - ON MEDIA MONITORING FOR SCIENCE (DEVELOPING SAPO)

Media monitoring of science news has been desirable for some time. This promises frequent updates on the state and trends in science news through continuous monitoring rather than retrospective sampling. The programme platform SAPO – Scientific Automatic Press Observer, developed as a prototype in Brazil by the Laboratory for Advanced Studies in Journalism of the State University of Campinas (Labjor/ Universidade Estadual de Campinas), and further developed in Italy (University of Padua and Observa – Science in Society) and Turkey (Istanbul Bilgi University) is promising to offer exactly this tool. We will review the progress of the project. Presentations: “SAPO – a demonstration of the Scientific Automatic Press Observer software”, Carlos Vogt. Labjor/Universidade Estadual de Campinas has developed in recent years a computer system known as SAPO (Scientific Automatic Press Observer), which collects, selects, organizes and measures, in an automated fashion, content related to scientific topics published in non-specialized online media. Articles extracted from the analyzed vehicle are stored in a database and sorted according to its content by a method that is based on
According to the isolation of the article fields (metadata), the filtering process analyzes the text and classifies it into one of the following groups: “S&T”, “non-S&T” or “maybe S&T”. Besides retrieving articles containing certain keywords published in a set period of time, the system also produces four types of indicators of the presence of S&T in online media (mass, frequency, density and depth), contributing to the development of indicators representative of the scientific culture and the public perception of science. The presentation will introduce SAPO to the audience, and explore its structure, functioning and possibilities of use. “The Science in the Media Monitoring (SMM) system”, Federico Neresini & Andrea Lorenzet. In this talk we will present the features of Science in the Media Monitoring (SMM) system for tracking science and technology issues in the digital media. The system’s architecture is able to be adapted to different topics and languages, and to collect texts from different sources of information (like online newspapers, blogs and others). The SMM database is collecting contents from eight different Italian online newspapers starting from 2008, and from 2013 of several Italian blogs and from three International English speaking newspapers, but can be expanded for new and other sources, like for example Twitter and other social media. At the moment the SMM database contains almost 600,000 articles. Texts collected are parsed and cleaned from html, tagged through a thesaurus of weighted keywords and stored in the database, that is thus able to make automatic distinctions of relevant and non-relevant contents in relation to the selected topics (for example contents regarding science and technology, but also more specific topics like food safety, nanotechnology and others). The system has a graphical user interface for Boolean search, with charts and word clouds, that gives results based on the metadata, like the weight of each entry, the source, date, link and other basic information useful for analysis. Results can be exported by the user in txt and excel formats. “MEDBIK Project: Science culture indicators production and validation through media analysis and text mining”, Ahmet Suerdem. Production of science culture indicators through media monitoring and text analysis is a promising alternative approach for the conventional high cost survey methods. Current initiatives such as SAPO and SMM are already being used for producing visibility indicators in terms of S&T news in the quotidian online media. MEDBIK project funded by TUBITAK (The Scientific and Technological Research Council of Turkey) and conducted by a research team from Bilgi and Ankara Universities aims to go beyond this assumption and develop a system that is able to produce science culture indicators compatible with the Eurobarometer parameters on this matter. MEDBIK system uses media indicators for analyzing the trends in the development of public sentiment towards ST&I in the Turkish context. For this purpose, we are developing a content analysis categorization dictionary based on the dimensions of science culture indicators used in the Eurobarometer studies. The categorization dictionary aimed by this project will be able to detect the periodical trends in the attitudes, sentiments, understanding and image of ST&I related contextual topics such as culture, politics and sports in the public opinion. This process aims to bridge media analysis and social research, as an important contribution to the public understanding of science (PUS) discipline. In
this presentation we will share our findings and harmonize our efforts with the SAP0 and SMM projects.

Proponent of the session: CARLOS VOGT
Institution: LABJOR/UNIVERSIDADE ESTADUAL DE CAMPINAS
Country: Brazil
Moderator: Carlos Vogt – Universidade Estadual de Campinas, Brazil
Participants: Carlos Vogt – Universidade Estadual de Campinas, Brazil
Federico Neresini – University of Padua, Italy
Andrea Lorenzet – University of Padua, Italy
Ahmet Suerdem – Istanbul Bilgi University, Italy

20548 – OUTDOOR SCIENCE PARKS
This session is addressed to all those interested in learning about some of the leading experiences in Outdoor Science Parks (OSP) around the world, and also is targeted at senior decision makers, who wish to consider the advantages and different viewpoints of this kind of science center. The session format includes a short introduction and then round table discussions on strategic aspects in the implementation of OSP. Topics include synthesis and analysis of what outdoor settings can deliver; the relative value and cost of indoor versus outdoor exhibits; using OSP to set up strategic sector partnerships; innovative educational programs in OSP settings and how do OSP allow science centers to extend their reach to different audiences.

Proponent of the session: ANTONIO CARLOS PAVÃO
Institution: ESPAÇO CIÊNCIA PE
Country: Brazil
Moderator: Ronen Mir – Science Learning Centers, Weizmann Institute of Science, Rehovot, Israel
Participants: Ronen Mir – Science Learning Centers, Weizmann Institute of Science, Rehovot, Israel
Erik Jacquemyn – Technopolis, Belgium
Anil Srikrishna Manekar – National Council of Science Museums, India
Antonio Carlos Pavão – Espaço Ciência, Olinda, Brazil
Debby Mir – Tel Aviv University, Israel

20667 – OUTREACH AND SCIENCE AWARENESS PROGRAMS IN INFORMAL SETTINGS – THE ROLE OF CHILDREN’S UNIVERSITIES AND SIMILAR INITIATIVES TO ENGAGE YOUNG AUDIENCES
During the last decade, the term “Children's University” became a widespread synonym for science communication and outreach programs at Universities or with a strong link to the academia – typically targeted towards children aged 7-14 years. Even before, occasional science programs, open labs or other outreach programmes could be identified at universities – but the highly innovative aspect of Children's Universities is rooted in the fact that within a relatively short period and encouraged by some successful lighthouse initiatives, a larger number of universities and other science institutions implemented programs for this totally unusual audience for the very first time. In a recent survey more than 350 comparable initiatives have been identified by EUCU.NET. By using similar labels,
they are forming a massive and recognizable approach – and the consequences are apparent: Universities are encouraged to consider their role within the communities around them and to become aware of needs and perceptions of their potential future students. Universities and academics are more and more called upon to present their academic work to justify their position in society. Children's Universities support an increasing number of institutions and academics to reflect on their complex and sometimes out-of-touch research in a way that aims to meet the demands of curious children and – on top of this – of their whole social context. Beyond that, scientists experience satisfaction through purpose when sharing their research and knowledge about their topics with these very unusual recipients at eye level. In this talk, we will reflect on this development – and outline what EUCU.NET – the European Network of Children’s Universities – is aiming to contribute to analyzing the impact of Children's Universities, as well as to quality development of such initiatives. It will also include practical examples of a Children's University, notably from the Children's University at the EAFIT University in Medellin, which was established in 2005 as one of the first initiatives of this kind in South America. It has successfully managed to establish new ways of appropriating and using knowledge, science and research in their target public: children, youth, school teachers and academics. EAFIT has been associated with EUCU.NET network activities from the very beginning. Another initiative, funded by the France Berkeley Fund, uses synchrotrons or “light sources” as teaching tools for real world research in chemistry, physics and biology. The project, “Student Science at Synchrotrons” aims to develop a hands-on educational program to introduce high-school students to the diverse scientific opportunities at synchrotrons. It counts on an international collaboration among American and French synchrotron facilities and the main target are underrepresented students who would not normally have access to research facilities. As a third example, the National Center of Science Education in Denmark is engaged in the effort of strengthening children’s interest by building up cooperation among teachers in order to develop teaching as a creative and experimental process. The institution takes a leading role in this process, therefore collaborating closely with all levels of interest groups: leaders of municipalities, school leaders, and teachers but also Universities and Science Centers. Several projects focus on building bridges between schools, high school and universities. The projects provide examples of young to young teaching, collaboration with enterprises and collaboration with informal Science Centers. The goal is that students, through practical work with science related to the university, businesses or informal, will experience more meaningful learning and see possible education pathways and professional working life. The relationship will enhance learning opportunities through alignment of educational goals. In this complementary relationship, each sector brings special expertise into the collaboration and this result in a greater synergy. This will give the educational time and space a whole new dimension. By combining the efforts of the formal and informal education sectors the project makes a constructive alliance. All in all, the three mentioned examples can outline how the engagement of children and young people, especially in informal settings and environments which are not typically
intended for children, as well as innovative and transsectoral cooperation may have an impact of the development of aspirations and attitudes towards science – with a notable focus on social inclusion in particular regional settings. Theme: Strengthening off-school and hands-on projects to engage young audiences.

Proponent of the session: MEGHIE DE SOUSA RODRIGUES
Institution: UNIVERSIDADE ESTADUAL DE CAMPINAS
Country: Brazil
Moderator: Marianne Hald - NTS-Center Nordjylland, Aalborg Universitet, Denmark
Participants: Ana Cristina Abad Restrepo - EAFIT University Medellin, Colombia
Marianne Hald - NTS-Center Nordjylland, Aalborg Universitet, Denmark
Elizabeth Moxon - Lawrence Berkeley National Laboratory, United States

20392 - PICK UP A PCST KEYWORD! A CONCISE PCST DICTIONARY
Pick up a PCST keyword (A Concise PCST Dictionary) As a field of research and practice, PCST is often at risk of ‘reinventing the wheel’. After several decades of experiences and studies, PCST seems mature to reflect on its ‘state of the art’, starting from those main keywords that characterise both specialist, policy and public debate on science communication: e.g. “dialogue”, “science culture”, “engagement”. This interactive session invites participants to discuss and explore a concise PCST dictionary. Each participant will pick up a card with a keyword and propose his/her own definition. Session organisers will elaborate and debate will follow. More keywords could also be proposed. After the session, the Dictionary will be made available on the conference website in an open format for all participants to comment. The final document will be made available on the conference website.

Proponent of the session: MASSIMIANO BUCCHI
Institution: STS PROGRAMME, DEPT. OF SOCIOLOGY, UNIVERSITÀ DI TRENTO
Country: Italy
Moderator: Massimiano Bucchi - STS Programme, Università di Trento, Italy
Participants: Massimiano Bucchi - STS Programme, Università di Trento, Italy
Kristian H. Nielsen - University of Aarhus, Denmark
Susanna Priest – University of Washington, United States
Brian Trench – Dublin City University, Ireland

20448 - POSTGRADUATION COURSES IN SCIENCE COMMUNICATION: INTERNATIONAL EXPERIENCES – SESSION I
The proposal is a double session presented here with the same title but indicated as Session I and Session II (two meetings of 75 minutes) with four speakers each. Science communication, as an emerging discipline, has an unequal development in different countries. Here we present some experiences of postgraduate courses in science communication (Masters, Diplomados, Especializaciones, etc.) developed in the last 20 years in different countries of Latin America and Europe. The aim is to discuss the proposals, results and difficulties encountered in each context. 1. Susana Herrera Lima. ITESO. Guadalajara (México). Maestría en Comunicación de la Ciencia y la Cultura. This Master program has been offered by ITESO, in Guadalajara, México, since 1988, standing from a sociocultural approach
in science communication. It was the first post graduate program in this field in México. The program looks after the development of both research skills and the capacity to convey practical projects. The aim of this presentation will be to share the results of the program in three main axes: research projects in science communication developed by students (thesis); strategic projects in science communication oriented to solve social problems through dialogic participation with social groups; and some examples of the work of the graduate students in several fields: media communications, museums, social organizations, public and governmental organisms and research institutes. 2. Diego Vaz Bevilaqua, Museum of Life/House of Oswaldo Cruz/Oswaldo Cruz Foundation (Brazil). Curso de Especialização em Divulgação da Ciência, da Tecnologia e da Saúde. The Diploma Course on Communication of Science, Technology and Health was created in 2009 and aims to provide a one-year training for both research and practice in the field, for a broad audience: museologists, communicators, scientists, educators, designers, artists, among others. The course is offered by a pool of institutions: Museum of Life, a hands on science museum linked to House of Oswaldo Cruz/ Oswaldo Cruz Foundation, House of Science of Federal University of Rio de Janeiro, Ceej Foundation, Museum of Astronomy and Related Science and Botanical Garden of Rio de Janeiro. 3. Gema Revuelta, Universitat Pompeu Fabra, Barcelona (Spain) / Buenos Aires (Argentina). Màster en Comunicación Científica, Médica y Ambiental Diploma de Postgrado en Comunicación Científica, Médica y Ambiental Màster en Comunicación Científica, Médica y Ambiental (on line). Starting in 1995, the Master's Degree in Science Communication from Universitat Pompeu Fabra (Barcelona, Spain) was one of the first in Europe and probably in the world. In 2014, the UPF's offer in the science communication field will include the XIX Edition of the Master's Degree in Science, Health and Environmental Communication (Barcelona, Spain); the VII Edition of the Postgraduate Diploma in Science, Health and Environmental Communication (Buenos Aires, Argentina), and the I Online Edition of the Master's Degree in Science, Health and Environmental Communication (new, online). Participants, that come from different backgrounds (scientists, journalists, medical doctors, public relations, and others), at the end of all of these programs are ready to become excellent professionals and work in different fields: science journalism, science museology, institutional science communication, etc. UPF is a Spanish public university. The master degree in science communication is possible thanks to the support of Fundación La Caixa (the largest charitable foundation in Spain, created by Caixa Bank). 4. Sue Stocklmayer, Australian National Centre for the Public Awareness of Science (ANU), Canberra (Australia). The Australian National University has had programs in Science Communication since 1990 at The Australian National Centre for the Public Awareness of Science. This Centre is part of the Colleges of Science at the ANU. The program offers undergraduate courses, three postgraduate Masters programs and a PhD program. The different courses within these programs will be described, including changes that have been introduced since their inception. The Australian National Centre for the Public Awareness of Science at the Australian National University offers workshops to practicing scientists which lead to an ANU Postgraduate Short Course Award. To date, over
700 scientists have completed these workshops. The structure and rationale will be described, including evaluations from participants.

Proponent of the session: SANDRA MURRIELLO
Institution: UNIVERSIDAD NACIONAL DE RÍO NEGRO
Country: Argentina
Moderator: Sandra Murriello, Universidad Nacional de Río Negro, Argentina
Participants: Diego Vaz Bevilaqua – Museum of Life/House of Oswaldo Cruz/Oswaldo Cruz Foundation, Brazil
Gema Revuelta – Universitat Pompeu Fabra, Spain
Susan Stocklmayer – Australian National University, Australia
Susana Herrera Lima – Universidad Jesuita de Guadalajara, Mexico

20449 - POSTGRADUATION COURSES IN SCIENCE COMMUNICATION: INTERNATIONAL EXPERIENCES – SESSION II

The proposal is a double session presented here with the same title but indicated as Session I and Session II (two meetings of 75 minutes) with four speakers each. Science communication, as an emerging discipline, has an unequal development in different countries. Here we present some experiences of postgraduate courses in science communication (Masters, Diplomados, Especializaciones, etc.) developed in the last 20 years in different countries of Latin America and Europe. The aim is to discuss the proposals, results and difficulties encountered in each context. 1. Elaine Reynoso Haynes. Dirección General de Divulgación de la Ciencia (DGDC), Universidad Nacional Autónoma de México (UNAM) (México). Diplomado en Divulgación de la Ciencia Especialización en Comunicación Pública en la Ciencia. The UNAM offers several programs related to the field of Public Communication of Science. a) Since 1995 the DGDC offers a one year course called Diplomado en Divulgación de la Ciencia aimed at training professional science communicators, b) In 1993 it opened a new terminal line in science communication as part of the Masters and Doctorate Degree in Philosophy of Science with a strong theoretical background adequate for research in the field, c) Several diplomados in other parts of the Mexico designed to fit the needs of each context and d) A new three semester post-graduate course called Especialización en Comunicación Pública en la Ciencia which will have a more in depth theoretical-methodological approach with the opportunity of extensive practice. The design of this last project is based on the evaluation and the experience acquired in the previous programs. 2. Susana Dias, Advanced journalism Laboratory (Labjor), University of Campinas (UNIVERSIDADE ESTADUAL DE CAMPINAS), Campinas (Brazil) Mestrado em Divulgação Científica e Cultural Especialização em Jornalismo Científico. The Labjor is responsible (with some partners) for a Specialization Course in Scientific Journalism, which started in 1999, and a multidisciplinary Master's Degree Program in Scientific and Cultural Communication (MDCC) began in the first semester of 2007. The specialization course is free of charge and has a duration of three semesters, with full-day classes on Mondays. The objective is to equip journalists and researchers who want to work with scientific communication with a set of indispensable tools. More than 300 science communication specialists graduated from this course. The objective of the MDCC is to train and enable researchers with in-depth theoretical knowledge
about current questions related to science communication. A global vision of the systems of science and technology are joined together with an understanding of a solid, contemporary literary and cultural repertoire. The interaction among subjects offered in the MDCC seeks to provide an education that allows critical reflection about the main accomplishments of science, technology and culture in our current society and the way in which the mass or specialized media have worked in order to communicate these accomplishments. Paola Rodari, International School for Advanced Studies (SISSA), Trieste (Italy). Master in science communication SISSA Master in Science Communication is a two-year course for those who wish to pursue a career as science communicators. Several areas are covered: newspaper, radio, TV and online journalism, institutional and corporate communication, traditional and multimedia publishing, and museology. However the course gives also a strong background in science communication theories and social sciences methodologies, and dissertations always involve an aspect of research and/or reflection, also for students whose future is in professions. The Master was established in 1993 (one of the first in Europe) and since then over 250 students have been trained. 4. Sandra Murriello, Universidad Nacional de Río Negro, Argentina, Sede Andina. Bariloche (Argentina). Especialización en Divulgación de la Ciencia, la Tecnología y la Innovación Maestría en Ciencia, Tecnología e Innovación, orientación Divulgación de la Ciencia, la Tecnología y la Innovación These post graduation courses, one with emphasis on research and the other with more professional character, are innovative experiences in our country and one of the first which provide an official diploma. Created in 2010/2011 they offer a comprehensive overview of the theoretical discussions and work areas covered by this field and workshop spaces dedicated to the generation of outreach products that can be viable by different means or appropriate projects CTI institutions. The Universidad Nacional de Río Negro, is a public university created in 2009.

Proponent of the session: SANDRA MURRIELLO
Institution: UNIVERSIDAD NACIONAL DE RÍO NEGRO
Country: Argentina
Moderator: Sandra Murriello – Universidad Nacional de Río Negro, Argentina
Participants: Elaine Reynoso Haynes – Universidad Nacional Autónoma de México, Mexico
Paola Rodari – International School for Advanced Studies, Italy
Sandra Murriello – Universidad Nacional de Río Negro, Argentina
Susana Dias – Advanced journalism Laboratory, University of Campinas, Brazil

20605 – PROFESSIONAL PROFILES IN SCIENCE COMMUNICATION: IS THERE A BIAS TOWARDS SCIENCE JOURNALISM?

Very diverse professional practices fall under the umbrella of science communication. However, in many areas in the field, the terms science communication and science journalism are often used interchangeably. Most research in the field has focused on media coverage studies, the study of the tensions and the conflictive relationship between scientists and journalists or the impact of the press in shaping and framing public perceptions about science
and technology issues. In this line, training courses as well as graduate and postgraduate education programs in Science Communication have emphasized the need for development of media skills or tools to translate scientific discourse into a more journalistic discourse, as their main educational goals. In spite of the many efforts made in order to introduce actions and activities other than communicating science through the mass media, news format is still the most prevalent means of contact between science and their publics. Other practices, such as promoting public engagement and citizen participation in science and technology broaden the offer of museums and science centers or science events targeted to the greater public. Bridging the link between the arts and scientific knowledge in order to bring science closer to popular culture is still under-represented in the landscape of science communication practices and educational programs in the field. Is there a media bias in what we understand as science communication practices? Which are the assumptions underneath this dominant view? Is it the legacy of a way of doing science communication that has dominated the scene during the last century and that began to change only during the last decades? Is it that the deficit model finds a more suitable way through the mass media and news formats? Why are journalists and scientists the most frequent professional profiles that specialize in this field? Are there other actors relevant to science communication? Who are they? How do they train and reach science communication practices? The proposed debate will be enriched by the contributions of 4 international referents in Science Communication, coming from different academic backgrounds and areas of professional expertise. “Much more than just news” The main questions of science communication are what is it, who does it and where and when to do it. As for the “what”, it is usually confused with scientific journalism, although the field expands to diverse activities ranging from non-formal science education to citizen science programs. In recent years the proliferation of forums to present “ideas and projects” has flourished and it could be argued that in some cases they could be included in the science communication field. In addition, the communication area has a diversity of actors, which include not only journalists but also scientists, teachers and designers. There’s much more to science communication than just news. “Science journalists and science communicators can work as a team” Science communicators and science journalists can gain from each other. The Danish science center, Experimentarium, has experience in combining both. Over the last 5 years they have developed a news media center that supplements and works together with the large science communication team. This partnership is fruitful for both areas of expertise. It enables science centers to reach out to the larger public and also bring cutting edge science and scientists into the science centre. Journalists discover new ways of reaching their audience and new ways of collaborating in a diversity of science learning projects. “Creating stories is also a need for other formats in science communication” For a very long time, journalism has been the preferred means for communicating science. No wonder, journalism is part of the very definition of mass communication. To some extent, this has surely paved the way for a wide range of formats for direct meetings between the public, the audience, and the researchers, without any mediation
or translation. The two approaches don’t exclude each other, on the contrary, and the journalistic profession of creating stories is surely needed also in festivals and science centres. Consequently, we will also see an increased interest from STS researchers to expand their research into new arenas.

Proponent of the session: SHEENA LAURSEN
Institution: EXPERIMENTARIUM
Country: Denmark

Moderator: Sheena Laursen - Experimentarium, Denmark
Participants: Gema Revuelta - Science Communication Observatory, Universitat Pompeu Fabra, Spain
Diego Golombek - Universidad Nacional de Quilmes, Argentina
Jenni Metcalfe - Director, Econnect Communication, Australia
Sheena Laursen - Experimentarium, Denmark
Javier Cruz-Mena - National University of Mexico, Mexico

20267 - PUBLIC ENGAGEMENT IN SCIENCE: OPPORTUNITIES, ISSUES AND CHALLENGES IN AFRICAN PORTUGUESE SPEAKER COUNTRIES
This session aims to discuss public engagement in science in African Portuguese speaker countries and how to increase the collaboration with South American countries, in special Brazil. Collaborations and international cooperations have been conducted with the aim, among others, to promote the empowerment and advancement in scientific development. Launched in 2006, the South America–Africa Cooperation (ASA) forum is one of them, and is aimed at strengthening cooperation between South America and Africa in several areas, including education and science, technology and innovation fields. However, much effort should be still put in this direction: there is value and importance of South–South cooperation in sharing among developing countries the experiences gained and lessons learned in different areas of development. This is particularly truth in science communication, a field that needs to be strengthened in some of the Portuguese speaking African country or even created. Science communication initiatives and polices plays an important role in the promotion and access to scientific knowledge by the population, but it is necessary to create truly public and democratic spaces for science, where everyone can not only learn about scientific advances, but also discuss and participate in political decisions field of S&T. Among the questions to be raised in this session are: How economic advancement and strategies adopted have been contributing to the appropriation of science by the population? How Portuguese speaking African countries with the greatest difficulties of resources and investments has been facing the challenges to their professional training? How to engage the public on science and technology discussion, in order to empower them to contribute to the development of Africa? How to increase the collaborations among the developing world, which face similar challenges? How to increase the collaboration between Brazil and Portuguese speaking African countries? This session proposes to debate and reflect on policies and initiatives adopted, opportunities and challenges in training and conducting public engagement initiatives in African Portuguese speaking. Successful strategies, aspects that should be considered and evaluated in science
communicators training, policies issues which must yet to be widely discussed, as well as the role and the importance of actions and international cooperation for the strengthening and advancement of science communication field will be discussed. This session is a roundtable supported by Oswaldo Cruz Foundation, a research institution linked to the Ministry of Health, joining representatives of the African Portuguese speaker countries. Participants that will take part in this session: Rosicler Neves (Fiocruz/Brazil), Luiz Eduardo Fonseca (Fiocruz/Brazil), Adalberto Furtado Mendonça Varela (Ministry of Higher Education, Science and Innovation/Cape Verde), Francisca Adelaide (National Museum of Natural History/Angola), João Emídio Jacinto Cossa (Ministry of Science and Technology/Mozambique), Maximino Costa (Foreign correspondent/São Tome and Principe). The session may need to be held in Portuguese, according to the participants.

Proponent of the session: ROSICLER NEVES
Institution: MUSEU DA VIDA/CASA DE OSWALDO CRUZ/ FUNDAÇÃO OSWALDO CRUZ
Country: Brazil
Moderators: Rosicler Neves and Luiz Eduardo Fonseca - Fundação Oswaldo Cruz, Brazil
Participants: Adalberto Furtado Mendonça Varela - Ministry of Higher Education, Science and Innovation, Cape Verde
João Emídio Jacinto Cossa - Ministry of Science and Technology, Mozambique
Maximino Costa – Foreign correspondent, São Tome and Principe

20291 – PUBLIC POLICIES AND POLICY MECHANISMS FOR SCIENCE COMMUNICATION IN LATIN AMERICA
This panel session is jointly organized by UNESCO Regional Office for Science in LAC and RedPOP, the Network for the Popularization of Science and Technology for Latin America and the Caribbean. Knowledge societies need knowledge citizens. Latin American and Caribbean countries have understood this and have promoted various mechanisms and policies focused on the incorporation of the science and technology popularization. Evidence of this is the importance that Latin American governments have gradually given, in recent years, to the dissemination of science in public agendas and policy. This panel session aims to contribute to the debate on policy and mechanisms, and implementation processes, carried out to implement the popularization of science in the Latin American and Caribbean countries. It is essential to emphasize the tools that contribute, through its dissemination and exchange of experience and best practices, to propose policies and hemispheric strategies on the science and technology popularization. This panel will present on one hand the results of the survey of popularization policies and mechanisms conducted by UNESCO Montevideo and RedPOP in the countries of the region. It is a collection of policies and mechanisms contributing to the dissemination of science in Latin America and the Caribbean. The survey offers to researchers and policy makers some of mechanisms and strategies implemented by the countries of the region. On the other hand the panel will present and share experiences in this field carried out by the leading institutions of science and technology (ministries/authorities) of Argentina (Ministry of Science, Technology and Produtivice Innovation, Vera Brudny), Brazil (Ministry of Science, Technology
and Innovation, Douglas Falcão Silva) and Mexico (National Council of Science and Technology, Julia Tagueña) highlighting the importance of sharing knowledge, expertise and capabilities. Results will be presented with particular emphasis on the mechanisms and policies for social inclusion and political participation; mainly because policies and instruments entered the agenda of many countries, specifically related to the issue of social inclusion.

Proponent of the session: Ernesto Fernández Polcuch, Luisa Massarani
Institution: UNESCO MONTEVIDEO AND REDPOP, THE NETWORK FOR THE POPULARIZATION OF SCIENCE AND TECHNOLOGY FOR LATIN AMERICA AND THE CARIBBEAN
Country: Uruguay and Brazil
Moderator: Ernesto Fernández Polcuch – UNESCO, Uruguay
Participants: Ernesto Fernández Polcuch – UNESCO, Uruguay
Vera Brudny – Ministry of Science, Technology and Innovation, Argentina
Douglas Falcão Silva – Ministry of Science, Technology and Innovation, Brazil
Julia Tagueña – National Council of Science and Technology, Mexico
Luisa Massarani – RedPOP, Brazil
Federico Franco – Dicyt, Uruguay

20516 – PUS SURVEYS IN LATIN AMERICA
The fertile period of PUS field can be appreciated in Latin America where surveys seem to be in course of consolidation. In 2001, Ricyt and Oei –in collaboration with institutions like Campinas and Oviedo Universities– launched the first Iberoamerican project on PUS. At that time, there were few countries with national surveys. Just over one decade later, the conditions visibly changed: a good amount of large-scale surveys were conducted (Argentina, Brazil, Colombia, Panama, Mexico). Surveys have also been implemented by institutional networks (i.e. Oei, Ricyt, Fapesp, Fecyt). The evolution of surveys indicates public opinion is recognized by public policies. Also, during this period were consolidated collaborative academic networks which discussed conceptual and methodological issues, and offered technical advice to the governments. That is why most of the surveys share common regional and international indicators. As a part of this common effort, RICYT has recently proposed the “Antigua Manual”, a core set of indicators to achieve more congruent methodological and technical parameters. Concurrently, the international community of PUS is incrementally interested in knowing how Latin American societies relate with S&T. However, surveys evidences are not well known outside the region. This session aims to contribute to their diffusion by focusing on nationally representative surveys from Argentina, Brazil and Colombia. The session will also look for delineating a Latin American agenda on PUS combining science policies with academic interests: 1) the application of surveys in new countries; 2) the implementation of new regional focused surveys: environment; nanotechnology, etc.; 3) micro-level data integration for making stronger analysis and explore new dimensions; 4) the development of a macro common survey (with nationally representative samples) following the Eurobarometer experience; 5) media analysis and qualitative studies on audiences. Presentations: “PUS surveys in Latin America: an overview”, Carmelo
Polino, Organizer (RICYT/Centro REDES, Argentina), “PUS Surveys in Argentina: 2003, 2006, 2012”, Carmelo Polino, This communication discusses the findings of the most recent PUS nationally representative survey in Argentina (2012), comparing it with previous one (2003 and 2006). Cultural indicators will be presented and compared with Brazil, Mexico and Europe. Attitudes towards risks and benefits from S&T will be described and also compared with European ones. Finally, I will show a cluster analysis which offers a population profile on perceptions and attitudes towards S&T. “Attitudes and perceptions on S&T in Brazil”, Yurij Castelfranchi (UFMG, Brazil) (Speaker); Ildeu de Castro Moreira (UFRJ, Brazil); Luisa Massarani (Fiocruz, Brazil); Elaine Meire Vilela (UFMG, Brazil); Luciana Barreto de Lima (Instituto de Avaliação e Desenvolvimento Educacional, Brazil). This presentation discusses the results of a national survey on PUS hold in Brazil in 2010, comparing it with two other major surveys, of 1987 and 2006. We show that some common global trends are present in the country, but also important local peculiarities. Engagement, social participation and access to information are low, but declared interest in S&T is quite high. Brazilians believe positive effects of S&T far overweight negative ones. Such views are neither simplistic nor a-critical: risks awareness, ethical and economic aspects, need of governance of technoscience is expressed. “Which came first: the question or the answer? Revisiting Colombian PUS surveys”, Sandra Daza-Caicedo (Colombian Observatory of S&T, Universidad de los Andres, Colombia). This communication will examine the ways in which surveys allow communication between different kinds of actors: policymakers, researchers, practitioners, financial institutions, mass media, etc. Thus, it will be revisited three Colombian PUS surveys in an attempt to connect its context of production, designs, results and effects. This will give us an insight of how PUS is a mobile subject sometimes contradictory and lead us to questioning how to investigate it and how to design and use surveys. Also from Colombia, Marcela Lozano (Colombian Observatory of S&T) will present the results of the last survey. “Public understanding of S&T in the health area”, Carlos Vogt (Universidade Estadual de Campinas, Brazil). This presentation will address the methodology and findings of a recent study conducted by Labjor/Universidade Estadual de Campinas (supported by Fapesp) on the public understanding of S&T on the health area in the state of São Paulo. It will also provide comparisons with data from previous surveys on general PUS carried in the same region. The study belongs to a series of works developed by Labjor during the last decade in collaboration a number of Ibero-American countries where “health and medicine” issue gains a lot of public attention.

Proponent of the session: CARMEL0 POLINO
Institution: CENTRO REDES / RICYT
Country: Argentina
Moderator: Carmelo Polino – RICYT/Centro REDES, Argentina
Participants: Carmelo Polino – RICYT/Centro REDES, Argentina
Marcela Lozano Borda – Colombian Observatory of S&T, Colombia
Carlos Vogt – Universidade Estadual de Campinas, Brazil
Yurij Castelfranchi – Universidade Federal de Minas Gerais, Brazil
20250 - REDPOP, SHARING EXPERIENCES AND NETWORKING IN SCIENCE COMMUNICATION IN LATIN AMÉRICA AND THE CARIBBEAN

This session aims to be a forum aiming to invite individuals and organisations around the world, specially those from Latin America and the Caribbean countries, to network in science communication, through the RedPOP, the Network for the Popularization of Science and Technology for Latin America and the Caribbean. RedPOP was created in 1990, in Rio de Janeiro, in the context of the Programme for Science, Technology and Society of UNESCO. Stakeholders from the region will present the results of some joint projects developed within the scope of RedPOP, as well as the opportunities generated by this network. Future RED-POP projects and opportunities will also be discussed. The session will be run in Spanish, for being more inclusive (considering that it may be less of interest of people out of the region). Many stakeholders from Latin America have confirmed participation in the session, among them (in alphabetical order): Alejandra León–Castellá, Fundación Cientec, Costa Rica, Annie María Umaña Campos, Universidad Estatal a Distancia de Costa Rica, César Carrillo–Trueba, Revista Ciencias/ Universidad Nacional Autónoma de México, Claudia Aguirre, Parque Explora, Colombia, Elaine Reynoso, Sociedad Mexicana para la Divulgación de la Ciencia y la Técnica Somedicyt) and Universidad Nacional Autónoma de México, México, Graciela Merino, Prosecretaria de Asuntos Académicos de la Universidad Nacional de la Plata y directora del Programa Mundo Nuevo de la misma universidad, Jorge Padilla Gonzalez, Sociedad Mexicana para la Divulgación de la Ciencia y la Técnica (Somedicyt), México, Nelsa María Bottinelli Cappuccio, Asociación Civil “Ciencia Viva”, Uruguay, Julia Tagueña, Universidad Nacional Autónoma de México and CONACyT (Mexico), Luisa Massarani, RedPOP and Museu da Vida/Casa de Oswaldo Cruz/Fiocruz, Brazil, Luz Lindegaard, Museo Interactivo Mirador, Chile, Marisa Talavera, Secretaria Nacional de Ciencia, Tecnología e Innovación (SENAyT), Panamá, Martha Cambre, Lato, Espacio Ciencia / LATU, Uruguay, among others.

Proponent of the session: LUISA MASSARANI
Institution: REDPOP
Country: Brazil
Moderator: Luisa Massarani – RedPOP – Museu da Vida/Casa de Oswaldo Cruz/ Fiocruz, Brazil
Participants: Alejandra León–Castellá – Fundación Cientec, Costa Rica
Annie María Umaña Campos– Universidad Estatal a Distancia de Costa Rica, Costa Rica
César Carrillo–Trueba – Revista Ciencias/ Universidad Nacional Autónoma de México, Mexico
Claudia Aguirre – Parque Explora, Colombia
Elaine Reynoso Haynes – Sociedad Mexicana para la Divulgación de la Ciencia y la Técnica – Universidad Nacional Autónoma de México, México
Jorge Padilla Gonzalez – Sociedad Mexicana para la Divulgación de la Ciencia y la Técnica, México
Nelsa María Bottinelli Cappuccio – Asociación Civil, Uruguay
Julia Tagueña – Universidad Nacional Autónoma de México and Consejo Nacional de Ciencia y Tecnología, Mexico
Luz Lindegaard – Museo Interactivo Mirador, Chile
20575 - RESEARCH AND PRACTICE ON REACHING UNDERSERVED AUDIENCES

PANEL DESCRIPTION: Recent research has identified recurring issues in PCST with “underserved” or “nondominant” groups. Those groups differ by country and culture. They include racial or ethnic minorities, groups with low socio-economic status, indigenous communities, women (rarely men), people with physical or mental disabilities, and others. Some projects focus on how to “reach out” to these groups, while other projects identify cultural differences between dominant or mainstream science groups and other groups, and seek to understand how cultural differences affect community responses to science. This panel will present current research on the relationship of PCST with underserved audiences, as well as international perspectives on the practice of working with those groups. Presentations: UNITED KINGDOM: The Wellcome Trust’s 2012 review of informal science learning in the UNITED KINGDOM examines and analyses the evidence on the provision of informal science learning and its value to science education. This talk will highlight the finding that certain audiences, including young people from low socio-economic status families, are being underserved by the informal learning community. The talk will explore why young people from disadvantaged backgrounds often have the most to gain from informal learning experiences. The talk will discuss how to address this issue, using secondary research exploring what such young people would most engage with or value with regards to informal learning experiences. USA: The US National Research Council’s 2009 report on “Learning Science in Informal Environments” identified diversity as a cross-cutting issue affecting learning in everyday environments, in designed spaces, and in programs for informal science learning. A key finding was that few outreach programs recognize the cultural dimensions that shape how learners in different communities respond to science. Nonetheless, the report found, informal environments provide a particularly effective way of engaging diverse audiences in science. This talk will summarize the report’s findings on working with diverse audiences. MEXICO: Science communicators in Mexico engage in complicated social dialogues to reach minorities: the country’s population speaks 56 different languages, and 12% of indigenous citizens aged 6-14 do not attend school. This talk will provide examples of activities designed to reach these audiences. Mexican museums launched a program to include children living in the streets into museum life. It showed how science can be an invitation and museum spaces can be a connecting social point, a space for transformation. The Mexican Academy of Sciences started an outreach program to bring science into jail. Sunday conferences are designed for both prisoners and their families: people gather to enjoy, listen and talk about science inside prison. SOUTH AFRICA: In South Africa, the underserved are still predominantly Black (a broad term including Black, coloured and Indian people, all those previously
disenfranchised), and especially people in the rural areas. These people are generally of low economic status. Even where status has improved, most have parents who were exposed to South Africa’s Apartheid education laws. This talk will discuss the role of South Africa’s CSIR in creating opportunities for PCST serving disadvantaged audiences, and the dynamics of Parliament’s oversight of programs serving the disadvantaged. AUSTRALIA: The Inspiring Australia initiative is a nationwide set of recommendations to promote public engagement with science, with a specific recommendation to identify disadvantaged groups and provide science outreach for them. This talk will focus on one particular program. The context is that migrant and refugee children in Australia are offered special coaching in literacy and numeracy but with no focus on science education. As a result, many are unaware of opportunities a science education will open up for them. In a program funded through Inspiring Australia, disadvantaged migrant students have been introduced to science and to scientific opportunities with a view to fostering careers in scientific disciplines. This talk will describe the program and its outcomes. BRAZIL: Many challenges of public communication of science in Brazil are due to the role of inequities. One of the inequities that plays an important role is regional inequity. Brazil has a big population living far from cultural centers with little or no access to proper scientific information. Various Science Trucks projects have grown in recent years targeting those audiences. This talk will describe one project of this kind from Museu da Vida, called “Mobile Science – Life and Health for all.” The talk will report data about the visitors, including their profile, expectations and the individual impact over the visitors, especially teachers from the local education system.

Proponent of the session: BRUCE LEWENSTEIN
Institution: CORNELL UNIVERSITY
Country: United States
Moderator: Stephanie Sinclair – Wellcome Trust, United Kingdom
Participants: Stephanie Sinclair – Wellcome Trust, United Kingdom
Maria Emilia Beyer – Universum, Mexico
Azeza Fredericks – Council for Scientific & Industrial Research, South Africa
Susan Stocklmayer – Universidade Nacional da Austrália, Australia
Diego Vaz Bevilaqua – Museu da Vida/Casa de Oswaldo Cruz/Fiocruz, Brazil
Bruce Lewenstein – Cornell University, United States
Matthew Hickman – The Wellcome Trust, United Kingdom

20092 - RESEARCH IN SCIENCE COMMUNICATION: HOW TO PUBLISH?
In this session, the editors of leading international journals that deal with science communication and popular perspectives on science will share their views on the future of scholarship and the nature of scholarly publication in the field. We face a variety of challenges. Will open access increasingly dominate, or will change be slow or go in other directions? Will journal publishing be transformed, just as popular media are being transformed, by technological and economic changes? And is it time to rethink the underlying purpose and ethical foundation of science communication and scholarship about science communication? What makes a good paper? These renowned editors will offer their views on these and other
trends in scholarly publishing in the field. Their short individual presentations will be followed by an open forum in which participants, whether experienced scholars or hopeful potential authors in the field, can address questions to the editors regarding the directions they believe field is taking and the opportunities to publish in these journals concerned with public communication of science and technology. The session will also be an opportunity to learn what the policies and priorities of each journal are, so as to help potential authors make the best submission decision.

Proponent of the session: LUISA MASSARANI
Institution: MUSEUM OF LIFE/HOUSE OF OSWALDO CRUZ/FIOCRUZ
Country: Brazil
Moderator: Luisa Massarani – Museum of Life/House of Oswaldo Cruz/Fiocruz, Brazil
Participants: Enrico M. Balli – International School for Advanced Studies, Journal of Science Communication, Italy
Kate Steiner – London Science Museum, editor of the Science Museum Group Journal, United Kingdom
Martin William Bauer – London School of Economics and editor of Public Understanding of Science, United Kingdom
Susanna Priest – University of Washington and editor of Science Communication: Linking Theory and Practice, United States
Susan Stocklmayer – Australian National Centre for the Public Awareness of Science and editor of The International Journal of Science Education Part B: Communication and Public Engagement, Australia

20377 - SCIENCE CENTRES IN LATIN AMERICA: FROM GLOBAL TO GLOCAL
As in other parts of the world, science museums in Latin America have their origin in private collections which opened up to the public in the late nineteenth or early twentieth century with the double mission of conservation and education. Although some hands-on museums appeared in the sixties, the boom of interactive science museums in the region began in the mid 80's or early 90's, a bit later than their peers in Europe and North America. These first museums were inspired on the existing models such as the Exploratorium, the Ontario Science Centre and the Cité des Sciences et L'industrie. The concept of low cost interactive exhibits presented in the Exploratorium’s cookbooks, the combination of science and everyday topics such as sports in the Ontario Science Center and the travelling exhibitions offered by the Cite’s were some of the ingredients incorporated into the early stages of development of these first Latin American museums. Due to the cultural affinity these firts museums served as models, advisors and in some cases suppliers to other museums within their own countries as well as abroad. Such is the case of the Colombian network of small science centers called Lilliput which originally started in Bogotá and then spread to other parts of the country. In Chile the national network Explora of the National Council for the Development of Science and Technology has played a fundamental role in the development of various projects for the public communication of science throughout the country including science museums such as the Museo Interactivo Mirador (Santiago) and the CICAT (Concepción). In Mexico the Mexican Society for the Communication of
Science and Technology has been played an important role in the development of field throughout the country. As for science museums, two institutions have served as a support to others both within the country and abroad: The Children’s Museum Papalote and UNIVERSUM, the Science Museum of the National Autonomous University of Mexico. In Uruguay, science clubs were created by the Ministry of Education and Culture to spread science throughout the country, while hands on activities were promoted by private institutions like Ciencia Viva and the Technological Laboratory of Uruguay. However, even though the cultural and emotional links between Latin American nations are strong, the diversity in the different regions within each of these countries must be taken into account. Some nations take great pride in their Precolombian heritage with an important percentage of the population being descendants of these first inhabitants. In other Latin American countries a considerable part of their population is composed of European immigrants and their descendants. Therefore, considering the New Museology approach, based on a permanent dialogue with the context and its potential visitors, Latin American museums have developed their own proposals, models and know-how considering the cultural backgrounds, needs and interests of their local communities, without losing the global view. In this session we share some examples from four different countries. Claudia Aguirre will talk about Parque Explora in Medellín, Colombia. Based on both foreign and national experiences, this museum has developed their own models by using extensive evaluation. It has a strong tie with its community and an intensive outreach program. Luz Lindegaard offers an account of the evolution of the Museo Interactivo Mirador (MIM) in Santiago, Chile. MIM, which started out as a government project with the patronage of Chile’s main companies. Now is the largest science center in the country with a highly valued and recognized by the whole community brand, which allows us to work in collaboration with private, public, academic and scientific community making significant and numerous outreach. Elaine Reynoso presents the cases of two science museums of the UNAM: UNIVERSUM and the Museum of Light. With an academic approach based on previous experience in the field of science communication, a close relationship with the scientific community and the UNAM’s infrastructure, these museums were designed for the local Mexican public. The glocal model for developing museums will be discussed. Martha Cambre will offers an analysis of how Espacio Ciencia has evolved: since the beginning looking foward for external advice to find their place in the community with a recognized brand and developing their own proposals. Some of the common challenges our museums face are how to serve different sectors of the community, including those who do not visit the museums;the establishment of effective relationships with the educational system; the survival of these institutions in spite of economical and political changes and the need to keep up to date both in science topics presented as well as the new trends in science museums. Similarities and differences of such issues as well as strategies for addressing them will be discussed.

Proponent of the session: MARTHA ELENA CAMBRE HERNÁNDEZ
Institution: ESPACIO CIENCIA LABORATORIO TECNOLÓGICO DEL URUGUAY
Country: Uruguay
PCST 2014: Science communication for social inclusion and political engagement

20628 - SCIENCE COMMUNICATION ACTIVITIES FOR SOCIAL INCLUSION IN LATIN AMERICA

PCST 2014’s main theme is “Science communication for social inclusion and political engagement”. Social inclusion is one of the great challenges in Latin America that, for historical reasons, has accumulated an enormous set of social inequalities in distribution of wealth, land, health conditions, cultural and educational goods and appropriation of scientific and technological knowledge. Social inclusion can be understood as the action to provide opportunities and conditions for people that are social and economically excluded to be incorporated to the parcel of society that can usufruct of these goods. It involves also the establishment of determined conditions so that all the inhabitants of the region can live with a fair quality of life and as full citizens endowed with knowledge, opportunities and mechanisms for an effective political participation. One of the aspects of social inclusion is to make possible that each citizen has the opportunity to acquire a basic knowledge on science and its functioning that gives him conditions to understand the social, economical and cultural context and to increase his employment chances in the working market. He must to acquire a basic notion, related to S&T, of their main results, methods and applications, but also of their risks, limitations and economical and social constraints. To speak of social inclusion in the domain of the diffusion of scientific knowledge and of its applications means to reach the poor populations (millions and millions of Latin Americans are in this situation) and to incorporate all segments of the people that are excluded from a basic knowledge on S&T. Among the main reasons for the current situation in Latin America are the lack of a good science education in primary and secondary schools and the general weakness of the science communication activities. Considering the characteristics of the modern world, the activities of public communication of science acquired increasing importance. It is processed through various tools such as the media, science centers and science museums, outreach activities, science communication events, distance learning and others. In recent years in several countries of Latin America, public policies have led to a reduction of social and economic inequalities, albeit on a reduced scale, and this has enabled the social rise of significant portions of their populations. As social inclusion is one of the policy priorities of several local governments in Latin America, the public communication of S&T becomes one important line of action for the governments and public institutions. In this panel, experiences and case studies, in Latin America, will be presented concerning science communication activities directed towards social inclusion among communities or groups of poor or marginalized people. For instance, in Latin America, there are millions of people belonging to indigenous communities...
which have their own cultures and languages. Brazil and Mexico are among the most linguistically diverse countries. In general, indigenous peoples do not enjoy good social and economic conditions and their communities are characterized by high levels of poverty. One challenge here is the production of bilingual texts with information on science in Spanish or Portuguese and in native languages. Several experiences and different case studies will be discussed in the panel: bringing nanoscience to the indigenous communities of México; developing science communication activities for homeless people or with the local community “village Planetarium”, a slum in Porto Alegre; construction of an astronomical observatory and activities on the indigenous astronomy knowledge with the local communities in the Alto Rio Negro (Amazon); activities of popularization of science for slave descendants' communities (‘quilombolas’) in Brazil. One of the main concerns in these activities is to go beyond the traditional one-way communication of science model and consider the audience as having knowledge and practices for themselves and involving them in the organization of these practices. While the traditional approach attempt to solve the problem of the transmission of scientific and technical knowledge of those who have it to those who do not, the concept of a ‘social appropriation of science’ leads us to rethink the problem of redistribution of knowledge, redefining the role of the actors involved, recognizing the existence of meaningful local knowledge and trying to narrow the gap between the science and technology system and the general people. One goal of the panel is to exchange experiences on specific science communication practices for poor people and local communities, analyzing the difficulties, successes and failures and also the main challenges for the future of science communication in the region.

Proponent of the session: ILDEU DE CASTRO MOREIRA
Institution: UNIVERSIDADE FEDERAL DO RIO DE JANEIRO
Country: Brazil
Moderator: Ildeu de Castro Moreira
Participants:
Noboru Takeuchi – Universidad Nacional Autónoma de México, Centro de Nanociencias y Nanotecnología, Ensenada, Baja California, Mexico
Ildeu de Castro Moreira – Instituto de Física, Universidade Federal do Rio de Janeiro, Brazil
Maria Helena Steffani – Planetário da Universidade Federal do Rio Grande do Sul. Porto Alegre, Brazil
Douglas Falcão Silva – Museu de Astronomia e Ciências Afins, Rio de Janeiro, Brazil
Germano Bruno Afonso – Instituto Federal de Educação, Ciência e Tecnologia do Amazonas, Brazil

20481 – SCIENCE COMMUNICATION FOR BUILDING SCIENTIFIC TEMPER
The history of science communication in India goes back to 19th century. However a there are four major turning points on the recent historical trajectory. First; when Pt Jwaharlal Nehru articulated the idea of scientific temper and kick started a debate around the notion. Second; when Indian Parliament adopted Science Policy resolution. Third; when Indian constitution was amended to
include spreading ‘Scientific Temper, Spirit of Inquiry and humanism’ as a duty of every citizen and fourth; the scientific temper statement drafted, released and circulated by a group of scientists, intellectual and artists. These turning points provided the solid foundation of conceptual framework, which has guided the science communication in the country. On the one hand institutional structures were created to propagate science. For example four national level apex bodies responsible for science communication and spreading of scientific temper that exist today. These bodies, namely, CSIR-National Institute of Science Communication and Information Resources, National Council for Science & Technology Communication, Vigyan Prasar and NCSM were created during the past sixty years. Outside government structure a very lively NGO network exists which is also continually engaged in popularization and propagation of scientific ideas. Put together efforts of Governments Institutes and civil society organizations have significantly contributed to not only fulfilling the constitutional obligations but have also strengthened democracy in the country by shaping the national secular cognitive structure. The proposed panel of experts will discuss the Indian experience. It is designed to examine issues such as how various actors who have been instrumental in implementing national level science communication programmes have not only shaped the national scientific consciousness but have also, over a period of past 60 years, reverted back to the idea scientific temper in times of crisis. One of the paper would deal with the history and definition of ‘scientific temper’. The other three would deal with case studies of apex organizations of that have spread scientific awareness in the country with the aim of inculcating scientific temper among the masses.

Proponent of the session: GAUHAR RAZA
Institution: NATIONAL INSTITUTE OF SCIENCE COMMUNICATION AND INFORMATION RESOURCES
Country: India
Moderator: Ramchandran Gopichandran – Vigyan Prasar, India
Participants: Thathamanglam Viswanathan Venkateswaran – Vigyan Prasar, India
Discussants: Bernard Schiele, Canada
Hester du Plessis, South Africa

20577 - SCIENCE COMMUNICATION TO/WITH CHILDREN AND TEENS: FACING THE CHALLENGES OF DIVERSITY AND SOCIAL INCLUSION
Science communication to/with children and teens: facing the challenges of diversity and social inclusion The aim of the session that we propose here is to present 4 different initiatives on science communication to/with children and teens, and to discuss dilemmas, successes and failures when the topics diversity and social inclusion are considered. This session will complement the session “Empowering children: crossing the science in society and the social inclusion agendas”, proposed by Matteo Merzagora. If both are accepted, we will coordinate the discussion parts, so that they can enrich, complement and follow on each other, or be combined in a longer session, depending on the committee decision. Speaker 1: Ana Cristina Abad R. Diversity and social inclusion at the University of Children EAFIT, Colombia: Obstacle or opportunity? Ana
will talk about a methodology proposed by The EAFIT Children’s University, in order to promote inclusion and social integration. With such methodology, it was acknowledged and valued the diversity of the workshop´s participants, in terms of gender, social, cultural or family origins. But, how do these differences influence the approach to science and the collective building of knowledge? What kind of dilemmas appears due to the diverse origins of the participants? What knowledge have they acquired? What meaningful experiences have been collected that really lead to an understanding of how the diversity has a direct influence on the approach to and appropriation of science? Ana will present a case study with a group of 23 boys and girls between the ages of 7 and 8 years old, during 8 workshops that took place over the course of one year. Speaker 2: Kenia Valderrama Díaz. Science popularization and Mexican children of low achievement Kenia proposes to reflect on the successes and failures of programs aimed at developing science communication activities targeted at children with low school achievement, and with limited access to the activities on science at Mexico. The methodology considers the following assumptions: 1) to consider what has already been done in Mexico in the science outreach programs for children, 2) to resume the methodology of the University of Children, with appropriate adjustments for ages and abilities; 3) to consider a working group with a maximum of 10 students, 4) to include groups of public and private schools; 5) to engage students of different degrees as workshop instructors. Ana will present the results obtained from a pilot study with 3 groups of each category. Speaker 3: Catarina Chagas. Including children in our editorial board: the experience of Ciência Hoje das Crianças. Catarina will present a pilot project of Ciência Hoje das Crianças, a magazine aimed on children in Brazil. Students from 5th and 6th grades were invited to take part of the board and participate in three phases of the working plan. The first one is to evaluate already published editions of the CHC and stories from their website; the second step is to evaluate articles before they are published, so they be modified based on children’s suggestions; and third one is to collect theme suggestions from the children and count on them as contributor reporters. With this project they expect to engage children in all phases of the work process, empowering them to deal with journalistic tasks and to create their own science communication initiatives. Speaker 4: Débora d’Ávila Reis. Desconstructing the idea of normality on the communication of themes related to human body. Debora is going to reflect on how the idea of normality, disseminated by modern science, has contributed to the production of social hierarchies and to the exclusion based on bodily differences. In medicine, it was designed the concept of “middle man” as one who gathers an average of the specific attributes of a group. From this “middle man” is built so the idea of abnormal, as one who does not qualify as a medium to be what is considered a deviant or sick individual. Trying to deconstruct this idea is one of the challenges faced by the Children’s University – UFMG, a project that aims to popularize the science of human body to children and teens. From this point of view, Débora will present a reflection on the process of communicating themes related to human body to/with children and teens. She will discuss some strategies used to make visible the people who do not fit in the concept of “middle man”.
The Science Centre World Summit 2014 brought together the very latest thinking about how we might work towards a more cohesive approach, drawing on expertise and assets within formal and informal sectors, to address the challenges of optimising learning opportunities for all. New technologies for learning and engagement. The development of new educational and learning technologies have radically changed the field of science museums and centres, who have learnt to better engage their publics, fully participate in the process of lifelong learning. Co-creation using new technologies provides science centres with tools to design...
and build experiences with their audience instead of for their audience. The Summit explored how new trends, such as personalized visitor experiences using technology, geo-localization and other technologies can contribute to the value of the visitor experience. Experts looked beyond the actual frontiers and future possibilities of technology and analysed the impact new technologies have on science communication. In this session speakers will give an account of the first results of the Science Centre World Summit 2014. They will report on 2 specific elements: 1. The Summit 2014 created a forum for alliances between research, policy makers, scientists, industry, science centres and science communicators that will advance the issues related to the public engagement at a higher strategic level than before. It laid the foundation for partnerships and created a synergy where all parties support each other’s message and responsibilities. One of the partnerships the science centre movement is concluding regards a partnership with the United Nations concerning the Sustainable Development Goals (2015). At the PCST conference we report specifically on this and other partnerships such as the partnership between the Association of Science-Technology Centers and the Organization of American States. 2. The Mechelen Declaration, the action plan in which the international science centre field and its strategic partners commit to 7 concrete actions for the enhancement of public engagement for a better world, was presented at the Science Centre World Summit 2014. It is a significant milestone for the science centre field: it emphasizes what science centres stand for, but looks for common ground with international organizations with similar aims with the objective of creating new partnerships for the benefit of all. These organizations are invited to support the goals of the Declaration. The PCST conference will be the first occasion to bring this Declaration in front of potential partners and we are looking forward on how this science centre move will be received. Finally, the further movement within the science centre field and more specifically within the science communication field at large, will be presented: a.o. the Science Centre World Summit and its goals in 2017.

Proponent of the session: ERIK JACQUEMYN
Institution: TECHNOPOLIS, THE FLEMISH SCIENCE CENTRE
Country: Belgium
Moderator: Erik Jacquemyn – Technopolis, the Flemish Science Centre; Chair of the Science Centre World Summit 2014, Belgium
Participants: Alejandra León-Castellá – Fundación para el Centro Nacional de la Ciencia y la Tecnología – RedPop-Unesco, Costa Rica
Erik Jacquemyn – Technopolis, the Flemish Science Centre; Chair of the Science Centre World Summit 2014, Belgium
Ernesto Fernández Polcuch – UNESCO Regional Office for Science in Latin America and the Caribbean, Uruguay
Ronen Mir – Science Learning Centers, Weizmann Institute of Science, Israel
Walter Staveloz – Association of Science–Technology Centers, United Kingdom

20473 – SCIENCE FOR EVERYBODY: CHILDREN’S BOOKS AND MAGAZINES FOR LITERACY
The largest population segment in Mexican and Brazilian population is the children and, in spite of this reality, they represent the least attended and paid attention to by the public communication of science efforts. There are many
magazines and books for science communication for readers at the college and university levels and very few for the children and the teenager segment. It is for this reason that it is very important to start relevant efforts to bring the science and the technology to this segment that is key in any country. In this panel, we will be devoted to present some examples of Mexican and Brazilian books and magazines for science communication, as well as their evolution in the last years. The cases will be: “Ciencia Hoje das Crianças” magazine and web site experience; the “Helix” supplement of the “Ciencia y Desarrollo” magazine; the new book collection “Salud para Todos” from ADN Editores, SOMEDYCYT (Mexican Society for the Science and Technology Communication) and ICyTGDF (Science and Technology Institute from the Distrito Federal), which has the objective to collaborate in the government efforts towards health in the infantile population. In the end, what we are trying to demonstrate is that the public communication of science targeted to the infantile population does collaborate in a complementary way to the education of this segment, therefore should be have governmental budget.

Proponent of the sesion: JUAN TONDA MAZON
Institution: UNIVERSIDAD NACIONAL AUTÓNOMA DE MÉXICO
Country: Mexico
Moderator: Juan Tonda Mazon – Universidad Nacional Autónoma de Mexico, Mexico
Participants: Catarina Chagas, Ciencia Hoje das Crianças on line, Brazil
Estrella Burgos – Universidad Nacional Autónoma de México, Mexico
Juan Tonda Mazon – Universidad Nacional Autónoma de Mexico, Mexico
Luisa Fernanda González Arribas – Ciencia y Desarrollo y Helix – Consejo Nacional de Ciencia y Tecnología, México

20219 - SCIENCE JOURNALISM IN THE DEVELOPING WORLD: SPECIFIC CHALLENGES AND POTENTIAL SOLUTIONS

This session will take off from the WCSJ2013 to discuss issues specifically affecting developing world journalists when writing about science. What are the key challenges and how best to tackle them? The session will take off from a suggestion in a final article written by a world-renowned veteran of science journalism, late David Dickson, who in July 2013, called for the developing world to organise their own global conference that focuses explicitly on the issues that affect them most. How are the challenges facing reports in developing world different from those in the developed world? Are there overlapping issues? Are there specific issues that only or predominantly affect the developing world journalists and hence get neglected in the global debates of science journalism? If so, what can be done to rectify those?

The session will be structured as a conversation with science journalists from Brazil, Uruguay and Kenya, focusing on specific experiences they have had in their countries and regions.

There is recent academic evidence that while science journalism is in crisis in the developed nations, it is booming in the developing world. Does this reflect personal experiences of these science writers? Where are there countries, especially Latin America, on this spectrum in their views? The session could also form a springboard for further, in-depth discussions at the upcoming WCSJ2015 in Korea.
Proponent of the session: MICO TATALOVIC  
Institution: SCIDEV.NET  
Country: United Kingdom  
Moderator: Mico Tatalovic, news editor of SciDev.Net, United Kingdom and Croatia  
Participants: Carla da Silva Almeida - freelance science writer, Brazil  
Ochieng Ogodo - former newspaper journalist, Sub-Saharan Africa editor for SciDev.Net  
Daniela Hirschfeld - magazine editor (Semanario Búsqueda), university docent, freelance science writer, Uruguay

20543 - SCIENCE JOURNALISM RESEARCH

Since the mid-1980s, media coverage of science and technology has increasingly become a subject of interest, particularly for researchers in the United States and in some European countries. In other regions, such as Latin America, science journalism research is a relatively new field. Studies have utilized a variety of approaches to analyze how science and technology are depicted in the media. Some common research themes have included assessing how science is depicted in a specific outlet (i.e., in a film, in newspapers, or on television), how a scientific topic is addressed in one or more media over a period of time, or compared how mass communication treats scientific themes or science in general as a topic. More recently, the Internet has become a new space for scholars to analyze how science and technology issues are presented to the public. In this session, we propose to discuss methodological approaches to science journalism research by featuring researchers who use different methodologies in different cultural contexts. By sharing the experiences acquired from their unique backgrounds, researchers will share the pros and cons of each methodology presented. Each presenter will speak for 15 minutes, and the 15 minutes remaining at the end of the session will be open for questions and discussion.

Carolina Moreno Castro (València University, Spain) will talk about the use of content analysis on digital media and official webs combined with structured interviews and public perception surveys. She will discuss the need of methodological triangulation to get interesting results. Moreno-Castro is a Full Professor of Theory of Language and Communication at the University of Valencia (Spain), and a member of the Research Unit on Scientific Culture of CIEMAT. She is a professor of science communication and her research focuses on content analysis of media reports related to science and technology.

Dominique Brossard (Department of Life Sciences Communication, University of Wisconsin-Madison, USA) will talk about methodological approaches to content analysis of new media content, with a special emphasis on intelligent algorithms.

Javier Cruz-Mena (Science Journalism Unit, General Direction of Science Communication, National Autonomous University of Mexico, Mexico), who is a member of the Ibero-American Network of Monitoring and Training on Science Journalism, will discuss the Network’s protocol in the context of Mexican TV newscasts, characterized by flimsy coverage of science, and its adaptation for use on daily and weekly print media, where coverage is a bit more robust.

Vanessa Brasil de Carvalho (PhD student of the Federal University of Rio de Janeiro,
Museum of Life / House of Oswaldo Cruz / Fiocruz, Brazil) will present the research experience of the Ibero-American Network of Monitoring and Training on Science Journalism, set up in 2009 and coordinated by the Museum of Life’s Center of Studies on Science Communication. The network involves researchers from 10 Ibero-American countries (Argentina, Bolivia, Brazil, Colombia, Cuba, Ecuador, Spain, Mexico, Portugal and Venezuela) who developed a content analysis protocol to examine science coverage in TV newscasts combined with a focus group protocol to analyze the content reception by groups of the audience. Ahmet Suerdem (İstanbul Bilgi Üniversitesi, Turkey) will discuss the benefits and challenges of using QDA Miner software.

Proponent of the session: LUIZ AMORIM
Institution: MUSEUM OF LIFE/HOUSE OF OSWALDO CRUZ/FUNDAÇÃO OSWALDO CRUZ
Country: Brazil
Moderator: Carla da Silva Almeida – freelance science writer, Brazil
Participants: Carolina Moreno Castro – València University, Spain
Dominique Brossard – Department of Life Sciences Communication, University of Wisconsin–Madison, United States
Javier Cruz-Mena – Science Journalism Unit, General Direction of Science Communication, National Autonomous University of Mexico, Mexico
Vanessa Brasil de Carvalho – PhD student of the Federal University of Rio de Janeiro – Museum of Life/House of Oswaldo Cruz/Oswaldo Cruz Foundation, Brazil
Ahmet Suerdem – Istanbul Bilgi Üniversitesi, Turkey

20642 - SCIENCE ON WHEELS: SCIENCE POPULARIZATION ON MOBILE OUTREACH PROGRAMS AROUND THE GLOBE

After the fast growth of Science Museum and Centers on the 1980s, several institutions felt the necessity to look for new audiences. One of the ways developed by them was to launch mobile units to take their exhibits and activities for these populations that are away from them. Those programs received different names on different places (science circus, science trucks, science vans, mobile science, etc.) and have different setup, but they have in common the goal to search for potential visitors that are far from the science museum and centers. One of the pioneers of those projects were the Shell Questacon Science Circus from Questacon – Australia’s National Science and Technology Centre, a truck that would tour through Australia huge landmass. On Brazil, after the pioneer launch of “PROMUSIT” from the Science and Technology Museum (“Museu de Ciência e Tecnologia”) of PUCRS on the south region of Brazil, several others were launched during the 2000s with a strong government support through its Nacional Council of Science and Technology (CNPQ). All of those initiatives target the underserved audiences that are away from big urban centers, where most of science communication initiatives are concentrated. With different regional aspects, all of those places have a strong social iniquity, which is reveled on the access that people have of cultural heritage and scientific information. This panel is intended to be an overview of different international projects, its different specific objectives, strategies and challenges. It is also devoted to search for common solutions and experience exchange, taking in consideration the regionals
aspects. How to include the new visitors, how to deal with them, how to measure impact and efficacy of those programs are some of the question that are raised in this discussion. Talks: First Talk: The Shell Questacon Science Circus is a 28 years old travelling program in Australia and Prof. Mike Gore is its founding director. His university (Australian National University) partners with Questacon in delivering this extensive outreach program. They have the responsibility of training (through the Circus program) 16 science graduates each year who run the Circus program as part of their Masters program at the Centre for Public Awareness of Science. Second Talk: This talk will be about the travelling programs of “Espaço Ciência”: Mobile Science (“Ciência Móvel”) and the Caravan of the Eminent Scientist from Pernambuco (“Caravana dos Notáveis Cientistas Pernambucanos”). Third Talk: The project Mobile Science – Life and Health for Everyone (“Ciência Móvel – Vida e Saúde para Todos”) is an itinerant museum that brings exhibitions, games, interactive equipment, multimedia, workshops, science videos, story tellers and lectures to the southeast region of Brazil. Fourth Talk: The Brazilian public policies for Science Communication for the last decade, with emphasis on the Mobile Science programs will be the subject of this talk.

Proponent of the session: DIEGO VAZ BEVILAQUA
Institution: MUSEUM OF LIFE/HOUSE OF OSWALDO CRUZ/FIOCRUZ
Country: Brazil
Moderator: Diego Vaz Bevilaqua – Museu da Vida/Casa de Oswaldo Cruz/Fiocruz, Brazil
Participants: Michael M. Gore – Centre for Public Awareness of Science / Australian National University, Australia
Antonio Carlos Pavão – Espaço Ciência e UFPE, Brazil
Diego Vaz Bevilaqua – Museu da Vida/Casa de Oswaldo Cruz/Fiocruz, Brazil
José Ribamar Ferreira – Museu da Vida/Casa de Oswaldo Cruz/Fiocruz, Brazil

20125 – SCIENTISTS IN SCIENCE CENTERS: NECESSARY, OBSTACLES OR DECORATIVE OBJECTS?
What is the role of scientists in contemporary science centers? In some cases they are mere consultants for scientific content; in others, they are part of the integral design and development of exhibitions, even like promoters of the original idea. Sometimes, for better or for worse, the image of the scientist is too present in the exhibitions. The relationship between scientists, museologists and designers is sometimes conflictive and not always allows for each of them to fully express their talents in a collaborative way. In this thematic session we propose to discuss such role based on examples from different science centers from around the world in diverse levels of development, and in which scientists have played different roles in the process of planning and implementation of the exhibitions, public programmes and digital media.

Proponent of session: Diego Golombek
Institution: MINISTERIO DE CIENCIA Y TECNOLOGÍA
Country: Argentina
Moderator: Diego Golombek – Ministerio de Ciencia y Tecnología, Argentina
Participants: Claudia Aguirre – Parque Explora, Medellín, Colombia
Diego Golombek – Ministerio de Ciencia y Tecnología, Argentina
Stephen Roberts – London Natural History Museum, United Kingdom
Rosalia Vargas – Ciência Viva – Pavilion of Knowledge, Portugal and European Network of Science Centres and Museums
Panel organizers and chairs: Fujun Ren (China Research Institute for Science Popularization) & Hans Peter Peters (Research Center Jülich, Germany).

Panel description: In science communication, ‘public engagement’ has two complementary meanings: engagement of the public with science and technology (PEST) and engagement of scientists in communication with the public. Although mediators such as science journalists, public information officers and other professional science communicators play an important role in public science communication, scientists as the producers of scientific knowledge are inevitably involved – as information sources for journalists, authors of popular texts or speakers in public events. Scientists’ activities in the public realm are crucial for putting science in a broader social context, making it relevant and accessible to citizens and to actors from politics and civil society. Because of the various effects of public communication, peers of the scientific community, institute directors, managers of research organizations, funders and regulators have certain expectations towards scientists who engage in public communication. Mostly these expectations are encouraging, but occasionally they are cautioning public communication activities. Such influences mix with intrinsic motivations of scientists based on the perception of a moral duty towards the tax payer or genuine enthusiasm for sharing knowledge with other people beyond their peer community. Dependent on their communication goals, scientists may adhere to different communication models. The often criticized ‘deficit model’ is still wide-spread. The proposed session deals with various aspects of the role of scientists and their actual engagement in public communication. Empirical data from several countries (in particular from Brazil, China and Germany) are used to illustrate some of the points mentioned above. The data presented in the session comes from online surveys of almost 4,000 scientists in three continents who completed similar questionnaires. The session will be organized as a round table with a brief (5min) introduction by the chairs, 15min statements by the presenters and 20min for the general discussion with the audience. The session has a common theme and the research depicted in the presentations uses a similar methodology applied to different samples. The panel includes presenters and chairs from South America, Asia and Europe. Presentations: 1. Luisa Massarani: The interaction of scientists and journalists in Brazil – lagging behind the ‘old’ science countries in North America and Europe? In the last decade, Brazil has incentivized scientists to communicate their research with the public. To map scientists’ views on the media and explore their experiences in interacting with journalists, a survey among 1,000 Brazilian scientists was carried out. Results show that scientists rate their relations with the media mostly positive, expecting a beneficial impact on their reputation – similar to what has been reported for the major ‘old’ science countries. Besides talking to journalists, many scientists reported to have participated in events for the general public such as talks, panel discussions or science exhibitions. 2. Fujun Ren, Jie Ren & Huiliang Zhang: Beliefs and attitudes of Chinese scientists towards outreach and interactions with the media – different from Western culture? In China as in many countries all over the world scientists are encouraged to participate in science communication. They are expected to engage in science outreach and to cooperate with the media to communicate science to the public. But how well do scientists understand how
the media work? What audiences do they have in mind and which phases of research do they find most appropriate for outreach activities? Based on a survey among 1,300 researchers, the paper analyzes beliefs, attitudes and preferences of Chinese scientists about the media and science outreach, and where possible compares them with those of Western scientists. 3. Yin-Yueh Lo & Hans Peter Peters: The scientist as ‘source’ and ‘author’ in the public communication of science – new online media, new communication models? Scientists communicate with the public via media as authors and as information sources for journalists. As authors, scientists have more control over the content of their public messages; cooperating as information sources with journalists may be more economical in terms of time investment and communication competence. The new media – blogs and social networks – open up more opportunities for scientists to assume the author role in PCST. Using results from recent scientists’ surveys in different continents, the paper explores whether and how scientists use the new media to directly communicate with the public.

Proponent of the session: HANS PETER PETERS
Institution: RESEARCH CENTER JÜLICH
Country: Germany
Moderators: Fujun Ren and Hans Peter Peters
Participants: Luisa Massarani – Museu da Vida/Casa de Oswaldo Cruz/Fiocruz, Brazil
Hans Peter Peters – Research Center Jülich, Germany
Fujun Ren – China Research Institute for Science Popularization, China
Jie Ren – China Research Institute for Science Popularization, China
Huiliang Zhang – China Research Institute for Science Popularization, China

20609 – THE EXPERIENCE OF THE “CAMINHOS GEOLÓGICOS” (GEOLOGICAL PATHS) – PROJECT FOR THE POPULARIZATION OF GEOLOGY IN THE RIO DE JANEIRO STATE, BRAZIL

The “Caminhos Geológicos” Project has the main purpose of making the Geology of the Rio de Janeiro State more accessible to all. Its main tool to communicate with the public is by installing interpretative panels about the evolution of geological monuments, identified as “Pontos de Interesse Geológico” (Points of Geological Interest). The project is carried since 2001 by the Geological Survey of Rio de Janeiro State – DRM–RJ and 103 panels have been installed in 28 cities. The Project also aims to recognize and preserve the geological monuments of the State as Natural Heritage; to publicize the geological knowledge in the communities; and to strength the touristic potential in the region. The Project has scientific, cultural, educative, touristic and ecologic character. Scientific and educative because it brings to the citizen information that was previously restricted to the Academy, by making use of accessible language. Touristic and cultural because it draws the attention to the territory, the landscape and its evolution, as well as it stimulates the science tourism. Considering education, the Project offers talks and workshops for students and teachers, related to different aspects of Geodiversity. Concerning culture, it is relevant the partnership established with the INEPAC (State Institute of Cultural Heritage), to turn the geological monuments into cultural property of the State. From the ecological point of view, the spreading of geological concepts enhances the citizen’s respect for the magnificent efforts
of nature to build the landscape that everyone enjoys. On this regard, it must be emphasized that the Project stimulates the feeling of conservation, which may be attested by the number of requests made to install panels in sites aiming at their preservation. The Project also supports the consolidation of a Geopark project, called “Geoparque Costões e Lagunas do Estado do Rio de Janeiro” (Cliffs and Lagoons of Rio de Janeiro State Geopark). The “Caminhos Geológicos” is a pioneer initiative in Brazil, which has been implemented subsequently in other states. The project is developed in partnership with universities, research centers and city halls, as well as with state and federal institutions, non-governmental organizations, and private companies.

Proponent of the session: LEONARDO FREDERICO PRESSI
Institution: DEPARTAMENTO DE RECURSOS MINERAIS DO ESTADO DO RIO DE JANEIRO
Country: Brazil
Moderator: Kátia Leite Mansur – Universidade Federal do Rio de Janeiro, Brazil
Participants: Kátia Leite Mansur – Universidade Federal do Rio de Janeiro, Brazil
Leonardo Frederico Pressi – Departamento de Recursos Minerais do Estado do Rio de Janeiro, Brazil
Flávio Erthal – Departamento de Recursos Minerais do Estado do Rio de Janeiro, Brazil

20567 – THE PROFESSIONALIZATION OF EXPLAINERs: PROFILE, COMPETENCES aND TRAINING SCHEMES
Museum explainers (also called pilots, guides, educators, science communicator, etc.) are the human interface between visitors and their institutions: science and natural history museums, science centres, aquaria, planetaria, visitors centres but also university open days and science festivals. In the last decade a growing awareness of the importance of their role in engaging different audiences in science and technology produced an increasing number of studies as well as innovative training schemes. Another area of investigation has been the potential of the work of explainer as a trigger for the interest in science and technology, for example for secondary school pupils, and as an instrument of social inclusion, when explainers represent different communities and work as ambassadors in their respect. This session aims to offer an overview of some of the most advanced reflections on the topic, including projects and research at a large scale (national or international). Convenor Marzia Mazzonetto (VU University Amsterdam) Anne Lise Mathieu, Universcience, Paris, France. The School of mediation is a project sustained by the French national funding program “Investissements d’Avenir”. The objective of this 4-year project, with an overall budget of 1.36 million, is to set up short continuing vocational training courses suited to the constraints and needs of actively employed scientific mediators and facilitators in France. The project has 8 Partners: universities, associations, sciences centres and museums, united to design these courses, and to build a permanent training centre and an observatory of practices. Started in 2012, the first test of a training session will take place in September 2013. The goal is to design training for all the skills required for this job, to help build a community of science explainers and to raise awareness on the importance of these professionals. Patricia Aguilera Jiménez, Dirección General de Divulgación de la Ciencia (DGDC)/ Universidad Nacional Autónoma de México (UNAM), México. The goal of this study is to observe the scientific explainers...
behaviors in the Museum of the Light in México City. In this museum “light” is showed like a physical phenomenon, its objective is to expose and explain how the scientific community thinks and make scientific knowledge. This explaining is done by a group of students with university profile. They are prepared during 6 months with a “Training Program Scholarship Holder” (consisting of theoretical and practical topics about optical and other issues). The results founded during this PhD research along four years, show continuous and predictable behaviors, structures and sequences when the explainers make scientific demonstrations. All of them show the evolution of explainers throughout their participation in the museum (for two years). The research would like to discuss the application of findings and how the training that they receive may be more relevant to interact with visitors. Luz Lindegaard, Museo Interactivo Mirador, Chile Since its opening 13 years ago, the Mirador Interactive Museum (MIM) has modeled and tried to perfection its hiring profile of museum guides and its permanent training plan. So far, this is still an unsolved issue considering that work drop-out rates are very high, and the impossibility to offer a career inside MIM do not allow us to withhold good science divulgators. In this opportunity we would like to share our training standards and the results of a survey administered to current museum guides and to the ones that have left their post in order to deduce the impact of working at a Science Museum. We hope this exchange will allow us to understand how to captivate the people that will assume the most important post in a Museum: to be the nexus between the interactive exhibitions and our visitors. Chrystian Carlétti, Espaço Ciência InterAtiva (Science InterActive Space) / Instituto Federal de Educação, Ciência e Tecnologia do Rio de Janeiro (IFRJ), Brazil. Espaço Ciência InterAtiva is a small science center located at Mesquita, a city of metropolitan area of Rio de Janeiro, which currently has a training course for explainers. In partnership with the Museum of Life/House of Oswaldo Cruz/Fiocruz, one of the most important museums of science in Brazil, leads the “Explainers of Brazil”, a doctoral study that seeks know better the explainers who work in more than 200 scientific cultural spaces of Brazil. This research seeks to know who are those professionals that work in the interface between science and the public in that spaces, what their formation, how they are trained. The Explainers of Brazil aims to provide tools to better understand the role of science centers and museums in Brazilian society, as well as provide information for consolidation strategies for training these professionals.

Proponent of the session: MARZIA MAZZONETTO
Institution: VU UNIVERSITY AMSTERDAM
Country: Holland
Moderator: Marzia Mazzonetto – VU University Amsterdam, Holland
Participants: Anne Lise Mathieu – Universcience, France
Luz Lindegaard – Museo Interactivo Mirador, Chile
Patricia Aguilera Jiménez – Dirección General de Divulgación de la Ciencia / Universidad Nacional Autónoma de México, Mexico
Chrystian Carlétti – Espaço Ciência InterAtiva – Instituto Federal de Educação, Ciência e Tecnologia do Rio de Janeiro – Instituto Federal de Educação, Ciência e Tecnologia do Rio de Janeiro, Brazil
Marzia Mazzonetto – VU University Amsterdam, Holland
THE ROLE OF SCIENTIFIC NEWS AGENCIES IN EXPANDING KNOWLEDGE – PUBLIC PARTICIPATION AND DECISION MAKING IN SCIENTIFIC AND TECHNOLOGICAL THEMES

Over the years, news agencies have been set up and consolidated as an essential service for diffusing information amongst media channels, thus being able to meet the demand for qualified data in a fast and reliable manner. The status granted to news agencies by this practice is that they function as information sources, in terms of quantity and quality: information that can be used by a vast range of communication vehicles both in large urban centers and in more remote regions. Bearing this in mind, and aiming at possible answers, we propose the discussion of some aspects and questions, such as: What are the guidelines and what is the current journalism practice like in scientific news agencies? As far as the veracity and velocity of news are concerned, do those agencies follow the same journalism principles present in other communication vehicles? In the case of news referring to science and technology – often times resulting from research that is partially or integrally funded by public institutions – is more relevance attributed to information reliability and the way journalistic texts are produced in news agencies? How should the media coverage of scientific themes consider aspects known to be intrinsic to science and technology, and related to issues such as controversy, obsolescence and innovation, as well as to government programs and public policies aimed at fostering the scientific production? Does the practice adopted by news agencies allow for a journalistic treatment of the news that includes a broader view of scientific processes? How should we deal with the fact that scientific investigation, conducted either by academia or businesses, implies public investments and results in applications that potentially interfere throughout society? As far as science and technology media coverage is concerned, those aspects deserve further and deeper discussion, especially with regards to sources, data checking, deadlines for news dissemination, and gauging and qualifying public opinion after its publication. We also propose to discuss the theoretical knowledge and the practical mastery of journalists throughout this process, which involves source prospecting, news production, subscription mailing lists, reproduction by other vehicles, thus determining the way information reaches the public. Taking all this in consideration, it is thus important to determine the extent to which the agency itself is going to pitch different media channels, both print and electronic, which use such services and act not only in relaying but also in elaborating on the news. While searching for possible answers, another aspect to be discussed by the round-table is the influence exerted by scientific news agencies in the communication processes related to the theme, whose outcome may vary across societies with different levels of scientific production and dissemination. For the discussion, we suggest that the round-table be composed of representatives from scientific news agencies or institutions with a related role, besides vehicles that traditionally rely on the work done by agencies, in order to address different perspectives in this production flow and information relaying.

Proponent of the session: SAMUEL ANTENOR
Institution: SÃO PAULO RESEARCH FOUNDATION
Country: Brazil
Moderator: Samuel Antenor, São Paulo Research Foundation, Brazil
20455 - THE STRUCTURE OF ATTITUDES TO SCIENCE (MACAS III)

An Indo-European network of researchers (MACAS, funded by ESRC-DFG-ISSRC, 2012-2015) will construct a system of science culture indicators based on social attitude surveys. The system should enable us to track and compare social attitudes to science on a number of dimensions (interest, image, attitude, knowledge, engagement). For this purpose we will mobilise existing survey data (Eurobarometer and Indian surveys, 1989-2010), conduct comparative analysis and develop the Science Culture Index (SCI), and we will be joined by colleagues from Turkey, China and Brazil. This session will ask the question: if we talk about social attitudes to science in a global perspective, how do we deal with the structure of these attitudes. Is there a global structure, or are there many different structures, and might this structure of attitudes change over time. What are the implications for the construction of comparative indicators. The presentations in this session will address this issue empirically on the basis of the available data in EU, Turkey, Brazil, India and China. This session will be chaired and discussed by Federico Neresini (Padua) o Sensitivity analyses of the Science Culture Index (SCI) in cross-sectional and longitudinal comparisons across EU and India (Rajesh Shukla - United Kingdom, IHD, Delhi, Preeti Kakkar, NCAER, Delhi, and Martin William Bauer, LSE) o The structure of attitudes across China — evidence from the survey of 2010 (Liu Xuan & Ren Fujun, CRISP, Beijing) o Comparisons of Public Understanding of Science: China2010 and EU2005 (Ren Fujun, Liu Xuan, CRISP, Beijing, and Martin William Bauer, LSE), Validating a structural model of attitudes to science in Turkey in contrast to EU (Ahmet Suerdem, Bilgi, Istanbul), Modelling attitude structures across Brazil: comparing 2005 and 2010 (Yurij Castelfranchi, Elaine Meire Vilela, Ildeu de Castro Moreira, Luisa Massarani, Luciana Barreto de Lima, Brazil).

Proponent of the session: MARTIN WILLIAM BAUER
Institution: LONDON SCHOOL OF ECONOMICS
Country: United Kingdom
Moderator: Martin William Bauer - London School of Economics, United Kingdom
Participants: Rajesh Shukla – United Kingdom – Human Development Institute, India
Preeti Kakkar – National Council of Applied Economic Research, India
Ahmet Suerdem – Bilgi University, Turkey
Yurij Castelfranchi – Universidade Federal de Minas Gerais, Brazil

20490 - WICKED CHALLENGES IN SCIENCE COMMUNICATION IN NEED FOR INTELLIGENCE

Science communication processes are usually complex and wicked challenges, with unpredictable outcomes. In public, governmental and/or business communication contexts a professional decision support system is desirable to get a grip on the multiple uncertainties in science communication. Decision support systems
provide overview and insights in the various possible communication decision scenarios and their possible impact. In this session we propose to discuss the opportunities and challenges of the development of such new decision support technology by which the science communication professional can make better choices. We envision that such tools can strongly contribute to professionalization of the science communication practice. Decision support systems in the medical, environmental, construction, or legal domains are generally based on (survey) data and contain a scenario repository with a reason engine, based on theory, that allows for the comparison of possible decisions and their consequences. A user interface depicts the various possibilities and their resulting uncertainties. Still, one aspect of decision support that warrants more research is the interaction between decision software systems and the science communication professional, which leads to science communication intelligence: the ability to understand and think about issues and to gain and use knowledge. We will start with a discussion on the professional practice of science communication and the various roles a professional theoretically could have in various organizations. We will subsequently discuss the question how insights from science communication theory and practice can be usefully combined. What are possible success factors and challenges for a good decision support system? In our third presentation we will look at how to obtain and use data to support professional tasks and functions of a science communication professional. Finally, we will explore the transition from multiple leveled data to parameters that can be used in real and useable decision support in science communication. These four presentations form the various building blocks, practically and theoretically, for a future science communication decision support system that helps to professionalize science communication practice. Such a system will lead to science communication intelligence and sound professionalization. 1) The professional practice and the various roles these practitioners have connecting new and emerging technologies to industry, government and society: Based on their recent research on professionalization of science communication practitioners and literature, the authors distinguish various tasks and roles of the practitioners in this field. The professional identity of a practitioner, his specific role and the tasks he performs in a communication process will influence his decisions. Various roles that practitioners can have in diverse organizations and how they relate to characteristics of a decision support system will be discussed. 2) Bridging science communication theory and practice, challenges and opportunities: The author will look at the challenges and opportunities for bridging the divide between science communication practitioners and researchers. She will discuss her analysis of an Australian audit of science engagement activities which compares stated science communication practice with research literature and theoretical models of science engagement. Insights in these possible bridges are a prerequisite for the scenario repository of the decision support system. 3) How to obtain and use data from evaluation research to support professional tasks and functions: The author's presentation mainly focus on one part of research outcomes of FoodRisC project, an European FP7 project aimed at the development of a food risk and benefit communication tool kit for food communicators in a wide range of organizations. The key question that will be addressed in this presentation is how food crisis case study data can
be obtained, analyzed, and translated to suggestions for the best practice of communication in food safety incidents. 4) The data parameterization for decision support leading to actual decision support systems: In this presentation they focus on how dynamic decision support systems can be created that take into account the possible different science communication contexts in which they are deployed. The possibilities for customizability of software tools are discussed, and examples are given of the use of such tools in the science communication practice. The session will be introduced and moderated by one of the presenters. As mentioned before, we propose to discuss the opportunities and challenges of the development of such new decision support technology by which the science communication professional can make better choices.

Proponent of the session: MAARTEN C.A. VAN DER SANDEN
Institution: DELFT UNIVERSITY OF TECHNOLOGY
Country: Netherlands
Moderator: Maarten C.A. van der Sanden – Delft University of Technology, Netherlands
Participants: Caroline Wehrmann – Delft University of Technology, Netherlands
Anne Dijkstra – University of Twente, Netherlands
Jenni Metcalfe – Econnect / University of Queensland, Australia
Liran Christine Shan – University College Dublin, Ireland
Steven Flipse – Delft University of Technology, Netherlands
Maarten C.A. van der Sanden – Delft University of Technology, Netherlands
Oral communications
**20591 - 11,000 TAXI DRIVERS MOTIVATE USERS TO READ ABOUT SCIENCE**

Taxis por la Ciencia (taxis for science) is a program driven for over two years by the Dirección General de Divulgación de la Ciencia (DGDC) of UNAM, that promotes reading while using this type of public transport, by means of making available printed materials in a “magazine box” placed in the back of the front seats of the taxi. During their journey, users can read material from diverse subjects curated from the perspective of science public communication. From its start, the project has aimed to involve the taxi drivers as the main actors and promoters for the appropriation of the scientific and technological knowledge. Its antecedents start in 2010, when the DGDC donated the ¿Cómo ves? magazine of science divulgation to all taxi drivers that took their periodic evaluations. These actions had a positive impact between the drivers which in turn, afforded the expansion of the program with more materials, that were not just for the driver, but also available for the users. Taxis por la ciencia celebrates its two years anniversary and it comprises 11 thousand operators that have joined voluntarily. In the period from June 27 of 2011 to July of 2013, the participation has been triplicated to more than 11 thousand science-promoting and reading-booster taxi-drivers was achieved. Furthermore, the participation of several centers and institutes of scientific research, as well as other educational institutions were also attained, of which the Universidad Autónoma de la Ciudad de México (UACM) stands out, contributing with science divulgation materials for taxi drivers and their users. According to information from CENFES AC (civil association created in 2008 with the aim of instructing the public transport drivers) and from various levels of government Mexico city, have been received favorable comments regarding the taxi users perception towards the program. The UNAM has several materials distribution centers. The drivers who come to theme to renovate their materials, have commented that Taxis por la Ciencia has allowed the to approach interesting subjects that have to do with their everyday lives. The goals of the program are: to count with six thousand taxi drivers for science per year; achieve the participation of institutions, companies, and universities in the program; motivate thousands of users to read about science within the individual public transport units; improve the perception of passengers about drivers and the service they provide.

Authors: Alfonso A. Fernández Medina – Universidad Nacional Autónoma de México, Mexico
Adriana Bravo Williams – Universidad Nacional Autónoma de México, Mexico
Claudia Juárez – Universidad Nacional Autónoma de México, Mexico

**20615 - A COMMUNICATION OF SCIENCE MODEL FOR INSTITUTES OF SCIENTIFIC RESEARCH**

In the last few years, Mexican institutes of scientific research have started opening communication of science offices. This is very important for a country like Mexico, since in a democratic society, citizens must be informed of the latest scientific advances so that they can participate in the debate about the trends science will follow, its applications, its benefits and its risks. This is very important since scientific research is often funded with citizens’ taxes; this is the case, in particular, for the National Autonomous University of Mexico (UNAM). Science communication benefits not only individuals who have no direct contact with
scientific research, but also scientists themselves. It is important that the latter communicate their projects and discoveries: when they do so, their work gains social recognition, their institution gets exposure, and they are more likely to get funding for their next project. However, most scientists find communicating their results to the general public to be complicated and frustrating. Because of this, several institutes in UNAM have hired professional communicators of science, whose tasks include organizing press conferences, writing articles, organizing events, and doing public relations for the institute. The members of the communication team must carry out rigorous research about the subjects of interest of the institute, which are often of great complexity, and in which they generally have little or no experience. Moreover, they have to find the best way to communicate scientific subjects to different audiences with very diverse cultural backgrounds. The problem of how to carry out communication of science actions within these offices in a multicultural country can be very complicated. Hence, in order to learn from previous experiences, I visited ten communication of science projects within institutes of scientific research around the world – including those of CERN, NASA, and the Gran Sasso Laboratory – and I identified the communication of science models that they used in particular communication of science actions. Based on this research, I am proposing a communication of science model for Mexican science institutes, that I am implementing in the Communication of Science Unit of the Nuclear Sciences Institute of the National Autonomous University of Mexico. This proposal is both part of my PhD research and the analysis of the actions I have carried out as the coordinator of this office. Authors: Gabriela Frías Villegas - Instituto de Ciencias Nucleares - National Autonomous University of Mexico, Mexico

20096 - A DECALOGUE FOR SCIENCE COMMUNICATION NARRATIVES (SCICOM NARRATIVES)

It is evident that contemporary authors who belong to a new generation of popular science writers are turning to narrative and fiction bridging the old two cultures (Snow, 1956) and offering the public an attractive and safe passage to scientific knowledge. Narratives provide an accurate way of representing and communicating knowledge, an effective emotional trigger, a lasting memory structure and a powerful aid for learning. Presenting scientific information through stories, novels, comics and plays should be regarded as an important means to transmit information in the repertoire of science communicators. There are different examples of using science as a narrative topic but are all of them useful to communicate science? The answer is: not necessarily. The narratives with the aim of communicating science should observe a series of rules just as other narrative genre do, like horror stories, detective stories, fairytales, science fiction, historic novels, etc. In this sense “science communication narratives” or “scicom narratives” could be considered as a new narrative genre with its own characteristics and rules. In this work I discuss some of the important issues that could contribute to generate a sort of Decalogue for narratives concerned with communicating science.
Authors: Aquiles Negrete – Universidad Nacional Autónoma de México, Mexico
20519 - A PUBLIC HEARING AT THE FEDERAL SUPREME COURT: THE CONSTRUCTION OF A SCIENTIFIC FACT IN COURT

The main idea of this paper came from the observation that not only scientists produce facts to be used by the law, but also the legal system influences the formation of scientific knowledge. In this co-production cycle, the courts, acting as regulatory agencies, conduct their investigations at the boundaries of scientific knowledge, where questions are uncertain, contested and fluid, not on a background of a widely established scientific knowledge. We address then a specific case that puts in evidence the interweaving of law and science: a public hearing in the Supreme Court (STF). In these hearings, the community is called to comment on the subject of the decision. But the legal system imposes a particular attribute on those who can pronounce: specialized knowledge or experience in the subject, which confers a certain authority to the scientist compared to the layman. Even though the law adopts the term “popular participation”, it locates the scientist among the target audience, what makes the term “popular participation” assume the same meaning of “scientific participation”. Our interest in this kind of audience is the possibility of exposure of the expert’s presumptions. We chose to address a public audience that decides on the possibility of anticipation of delivery of anencephalic fetus. Through the analysis of the exhibitors’ discourse and the articulation of arguments by ministers it is possible to notice how each judge aligns to the points more attuned to his conviction. We conclude that scientists who participate in the public audience do not bring in their presentations the “fact” (object of judgment), but “facts” that, in the exercise of an ontological politics by ministers, will be taken and turned into “scientific truths” to be accepted by the mantle of res judicata. After the trial, the defeated thesis disappears and anencephalic assumes a new form. Technoscience disrupts social relations, which are then compelled to a redefinition, through law, with directions and obligations. It is not, therefore, a case of divergence in the legal system but a scientific controversy in a court.

Authors: Daniele Martins dos Santos – Universidade Federal do Rio de Janeiro, Brazil

20675 - A SCIENCE COUNCIL ENGAGEMENT MODEL WITH THE SOUTH AFRICAN (SA) PARLIAMENT

The submission is a practice-based presentation outlining a model of engagement that has developed over approximately ten years at the Council for Scientific and Industrial Research (CSIR) in South Africa (SA), one of the largest scientific and technology research, development and implementation organisations in Africa. The rationale for making the submission is to articulate an approach of communicating science with South African politicians and policy makers via a dedicated science council/parliamentary office and to share how various opportunities were created and utilised. The CSIR’s shareholder is the South African Parliament. It is therefore important that the CSIR’s alignment with its public mandate be communicated to Parliament as effectively as possible. In order to demonstrate CSIR value during legislative debate (where appropriate) and in order to ensure sustained/increased parliamentary funding from a limited fiscus, it is becoming increasingly more important to communicate to Parliament how the CSIR contributes to and enables delivery on government’s priorities. The
Parliamentary Liaison office (PLO) facilitates dual communication opportunities between scientists and politicians. The depth of learning gleaned from both Parliament and the CSIR over a sustained period and the close working relationships developed with internal and external stakeholders enabled the development of different levels of engagement opportunities and contributed to various outputs and successes. Though interrelated, four broad categories where the PLO supports colleagues with parliamentary engagements have been identified. They are: (1) communicating legislative and policy developments at government department and parliamentary level, (2) communicating accountability and oversight activity, (3) arranging pro-active engagements with key parliamentary portfolio committees (4) engaging parliamentary- and portfolio committee support staff. The PLO also supports colleagues by relaying parliamentary information. This information, which flows from Parliament to CSIR, is customised and is differentiated for recipient groups within the CSIR – namely for the Executive-, the Operating Units and Centres- and the Interest Group layer. Each layer, in turn also has a customised communications approach.

Authors: Azeza Fredericks - Council For Scientific and Industrial Research, South Africa

20127 - A SURVEY OF VISITORS’ EXPERIENCES OF HUMAN ORIGINS AT THE CRADLE OF HUMANKIND, SOUTH AFRICA

Relatively little is known about the general public's views of evolution, particularly with respect to humans. The study provides valuable information on why people visit the Cradle of Humankind (a World Heritage Site in Gauteng Province, South Africa), how they view the concept of human origins, and what features of the visitor centres may influence visitors' views. Maropeng Visitor Centre (MVC) aims to provide visitors with positive experiences of science-related activities, yet its impact is relatively unknown. The principal method of data collection was a survey of the general public visiting MVC, along the lines of previous studies in similar contexts. Visitors who exited the Visitor Centre were invited to complete a survey questionnaire eliciting information about their visit. 437 ‘general public’ visitors were surveyed between May and July 2013. Analysis is on-going, but the results analysed so far show that people’s reasons for visiting the area are varied, but relate principally to a “day out” for pleasure, and to a lesser extent, learning. Approximately 80% have not visited the centre before, and a similar number consider that their visit made an impression on them. While very few visitors have heard of the newly discovered Australopithecine (A. sediba), the great majority (85%) have heard of “Mrs. Ples” (the Australopithecine discovered in the area in 1947). Around 60% of respondents do not consider that anywhere else could be called the ‘cradle of humankind’ – their more detailed responses are still being analysed. The participants were also asked about their acceptance of evolution of humans from an ape-like ancestor. A slightly majority (58%) do accept the concept of human evolution, and refer to anatomical, genetic, fossil, and behavioural facts in support of their opinion. Those who do not accept the idea of human evolution mostly invoke religious reasons (e.g. God as a Creator; the bible as the source of authority) for their views. This suggests very different
ways of thinking between the two groups. These findings will be compared with the relatively few other international studies in the area of human origins, and their implications for the field.
Authors: Anthony Lelliott – University of the Witwatersrand, South Africa.

20393 - AN OVERVIEW OF CHILDREN’S BOOKS DISSEMINATION OF SCIENCE IN BRAZIL
It is noticeable that the Brazilian publishing industry has been paying attention to the new marketing circumstances of the childlike universe. In the last ten years, the country had gone through a time of major economic stimulus by the government to increase household consumption. Thus, despite the recent drop in sector indicators, we believe that we are in a favorable moment for the juvenile literary market. The number of bookstores increases, considering the major brands, and the sale of children's books is in second place in the ranking with 74% between the types of books sold by bookstores. However, the concern in communicating information contents and stimulate the joy of reading is becoming, increasingly, in a second plane in the choice for many consumers, directly affecting the space devoted to books whose purpose is to disseminate science. This research aims to present some considerations on the childlike literary market and dissemination of science, and point to a survey of books with potential to disseminate scientific knowledge. The methodology used was based on searches conducted in bookstores, publisher's catalogs, centers and science museums and websites, using the following keywords: science for children; children’s book and science. The results show that the space is still little for titles with this bias. Additionally, the acquisition and distribution of these books are still directly related to government procurement. Therefore, this research becomes an initiative to propagate and make known books for children that aim to popularize science.
Authors: Graziele Scalfi – Universidade Estudal de Campinas, Brazil.

20728 - ANALYSIS OF THE BEHAVIORS PATTERNS OF THE GUIDES IN THE SCIENCE MUSEUMS FOR THE SCIENTIFIC DEMONSTRATION: ESTABLISHING BASIS FOR THEIR TRAINING
The goal of this study is to analyze scientific explainers or guides behaviors and interactions with the visitors to recognize their patterns, and to know if them could be relevant for understanding the social dynamic and communication in the science museums, so we could improve the Public Comprehension of Science and Scientific Culture in the visitors. In Mexico, the guides have existed to make the traditional practice of “the guided tour” and scientific demonstrations, which is supported and justified because the guides conducts the public through the museum to expand the knowledge and ideas of the exhibition and to fill the formal schooling gaps. This study uses the Observational Methodology to collect and analyze the behaviors guides. The strategy consisted of four phases. I. Observing all participate forms of the guides in the museum context: scientific demonstrations in the “Museum of the Light”, Mexico City. II. Design of the Observational Methodology. It was created a Categories System which permitted to classified the behaviors. III. Observation and register of the behaviors from ten guides with three sessions of each one. At the end, there were analyzed more
of 360 minutes to recording. IV. Register Analysis, was obtained absolutes and relatives frequencies for each behavior registered; Kappa Kohen and Chi square analysis. The results obtained: 1. The scientific demonstration suggests a logic structure of speech as a dynamic sequence done by the guides. 2. The scientific demonstration is based in one script to get the social interaction and perspective of the museum about how the scientific phenomena must be presented to the visitors. 3. Behavioral Patterns: The most important behaviors executed by the guides was “show” with a 29.2%; in second “inform” 16.6% and the third “explain” 7.8%. 4. The Sequence Structures have been characterized: I) Simple interaction. II) Complex interaction: Interaction of one-way; Interaction of a way with attachment behavior; Interaction of a way with variant theme. III. Two-way interaction with variant theme and behavioral accessory. IV. Active interaction: 4-way and attachment behavior. Conclusions. It is possible recognizing continuous and predictable behaviors, structures and sequences when the guides make scientific demonstrations. These showing the evolution of explainers and could be a sound basis to develop a specific formation program.
Authors: Patricia Aguilera Jiménez – IIF – Universidad Nacional Autónoma de México, Mexico.

Although in recent years there is a growing understanding that the communication of science is no longer restricted to the natural sciences, relatively little attention has been paid to the issues that social scientists or historians are faced with when communicating about their research and findings in the public domain. There is a general interest for aspects of social history, as shown by the wide collection of newspapers and non-academic journals, the so-called “historical movies” or soap operas which ambience is “somewhere in the past”. However, the spreading of common-sense views about the historical past, as well as of deeply rooted prejudices seem to be communicated more easily by the broader and non-specialist media than serious researches are. It generates a disturbing reality: history as a science is simultaneously marginalized and immensely popular in the public domain. In this sense, how could one approach the general public and the basic education sectors in schools – private and public – in order to bridge the gaps between academic history and the general public? With these preoccupations in mind, a group of historians coordinated by me created in 2008 the National Olympiads of History of Brazil, sponsored by Ministry of Education/CNPq. The traditional model of scientific Olympiads was successfully adapted to deal with historical themes, documents and images ranging from the colonial times to the nowadays history. The first edition took place in 2009 and five years later, in its 5th edition, the Olympiads brought together 42 thousand students (from 12 to 17) and their history teachers, originating from each and every state in Brazil and dedicated to solving questions and writing essays during 3 months. What are the most important results of this initiative? Can a Scientific Olympiad on History change public perceptions and provide social inclusion in terms of scientific citizenship? What are the lessons for the communication of “social sciences”? Authors: Cristina Meneguello – Universidade Estadual de Campinas, Brazil
2014 - AR | RESPIRE CONNOSCO: REACHING OUT, INSPIRING AND ENGAGING

Drawing on the enthusiasm of a team of students and researchers from the Champalimaud Neuroscience Programme (CNP), in Lisbon – Portugal, the initiative “Ar | Respire connosco” was created. “Ar”, “Air” in Portuguese, captures how pervasive and fundamental science is to our daily lives. The aim of this initiative is to share excitement about the beauty of scientific discoveries and to foster creative and critical thinking. For this, we combine world-renowned speakers, interactive multimedia and audience participation. “Ar” events explore fundamental scientific themes by intertwining work from scientists, artists, chefs, mind readers, storytellers, and teachers, among others. The neuroscientist Miguel Nicolelis, the artist Vik Muniz and the cyborg Neil Harbisson, to refer just a few, shared the same stage to reach out, inspire and engage the public on topics ranging from human enhancement or the emergence of patterns in nature, to the neural basis of creativity or how stories and memories are built in our brains. The inaugural event, ‘Engineering the Mind’, happened in October 2011, at the Champalimaud Centre for the Unknown (CCU) Auditorium, in Lisbon. Ten events followed, all hosted at this 400-seat auditorium by the Tagus River, which have always been fully booked. Free tickets, made available online, are usually given away in less than 30 minutes and audience and media alike have enthusiastically engaged in every occasion. Along with these events, the “Ar” team has collaborated in different science communication initiatives, both nationally (e.g. ‘Superhumans’ at Pavilhão do Conhecimento–Ciência Viva) and internationally (e.g Ciencia con Tod@s at Madrid). Supporting the events, a range of online resources has also been implemented. A webpage (with over 20,000 visits so far) creates a home for the live online streaming of the events and a YouTube channel (with over 16,000 views and counting) hosts the events’ archive. More generally, the use of social networking, a webzine that links the events with scientific articles, and other established sources, from scholarly blogs to TED talks and much more, allow us to reach an extensive audience worldwide. “Ar” is currently working on new event formats, as well as increasing its online presence. The ultimate goal of these changes is to reach an even wider audience with provocative and inspiring content, generating discussion of important issues in a critical but always creative manner. ar.neuro.fchampalimaud.org/

Authors: Catarina Ramos – Champalimaud Foundation, Portugal Anna Hobbiss – CNP – Champalimaud Foundation, Portugal Bruno Afonso – Champalimaud Foundation, Portugal and IGC-FG Ekaterina Vinnik – Champalimaud Foundation, Portugal Tiago Marques – Champalimaud Foundation, Portugal Scott Rennie – Champalimaud Foundation, Portugal Zachary Mainen – Champalimaud Foundation, Portugal

20158 - ARE WE HEARING? ARE WE HEARD? – A BIBLIOMETRIC STUDY OF SCIENCE COMMUNICATION JOURNALS SINCE 1992

Since the debut of Public Understanding of Science (PuS) in 1992, science communication has become an established subfield of both communication and science and technology studies (STS). However, compared with other academic disciplines, few citation analyses and other bibliometric research have been
done in the field. So far, the only visible bibliometric research (Suerdem et. al 2013) in science communication is focused on the intellectual brokerage role of an individual journal in the field of STS. Therefore, it is meaningful to use bibliometric and citation analyses to answer the following questions: Has the field of science communication become an academically established discipline in the bibliometric terms? What are the relationship between science communication journals and the other ISI journals of communication? Have science communication papers absorbed enough from natural science research and then produced due impacts? Has the practice-oriented field of science communication research produced meaningful influence and guides to practitioners? To our knowledge, the current paper is the first attempt to address some of the above questions with bibliometrics evidence. Using both ISI Web of Science, ISI Journal Citation Report and Elsevier’s Scopus, this paper analyzes citations and cross citations of the 1160 papers published by the end of 2012 in PuS, Science Communication (SC) and the Journal of SC. Based on initial observation and analyses, we found science communication scholars seldom care natural science research, and few science communication have been cited by (natural) scientists. While news media are a key source for papers in the field, few science communication papers are mentioned by mass media (or news section of professional journals) archived in the database (mainly Scopus). Science communication journals cite more from other communication journals than being cited, but many most cited communication papers are neglected in this field. As a whole, science communication seems to have contributed far less fruits to communication studies than to STS in both highly cited papers and intellectual brokerage. The study may be considered a legitimate call for scholars in the field to become closer to scientists, general communication researchers and practitioners if they want to have a greater intellectual and practical imprint.

Authors: Hepeng Jia – Cornell University, United States
Bruce Lewenstein – Cornell University, United States

ART IN A SCIENCE INSTITUTE?
The journey taken by scientific information, which travels from within the institutes where it is generated to the members of general audiences, can be tortuous. When scientists and/or communicators of science interact with different social actors, many prejudices and misunderstandings arise. One of them has to do with the fact that there are epistemic asymmetries between the participants in these communication of science actions. Usually, those scientists who are willing to communicate their work during fairs or public lectures are convinced that people will not understand them. Even more worrying is the fact that the members of those audiences do not trust their capability to understand scientific knowledge or to participate in the debates about scientific information. Hence, one of the main problems that arise between members of the scientific community and other communities is the distrust of the participants about their own knowledge. This mistrust can even stop the dialogue between scientists and other communities. But, what happens when two communities belonging to professional areas that seem very different have horizontal dialogues to create new proposals both in communication of science and art? In this paper I will report the experience of the
Communication of Science Unit of the Nuclear Sciences Institute of the National Autonomous University of Mexico, which promoted several encounters between a group of contemporary artists from the Laboratorio Arte Alameda Cultural Center and a group of scientists expert in the nuclear sciences. In particular, I will talk about the difficulties in the interaction that arise from the nature of the different disciplines and the products of this interaction, which consisted of sculptures, performances and new ways of communicating science.

Authors: Gabriela Frías Villegas – Nuclear Sciences Institute, National Autonomous University of Mexico, Mexico

**20424 – ASSESSMENT OF PHYSICISTS AND JOURNALISTS TOWARD MEDIA COVERAGE OF PHYSICS NEWS IN MEXICO**

Although disagreements between journalists and scientists on how to properly report science is an issue broadly discussed in the international literature and a theme included in science communication conferences, in Mexico there are few analyzes that look at both actors assessing their own liability in the way science is finally reported in the media. Along with the creation of the Communication Unit at the Institute of Physics at the National Autonomous University of Mexico (IFUNAM) in August 2011, we started monitoring most of the news related to the Institute appearing in the mass media (newspapers, magazines, radio and TV). In two years, a total of 121 items reporting different issues from IFUNAM were detected: research (58), physicists’ opinion on other scientific topics (23), IFUNAM’s community (20), science promotion produced by the researchers (11), and science policy or financing issues (9). From these data, we can obtain useful indicators to improve the institution’s communication strategy but also some clues about the research topics that are preferably covered by the media and the physicists’ perceptions of how these are reported. In order to analyze this symbiosis, we chose 10 items (2 from TV, 3 from newspapers, 2 from radio, 2 from news agencies and 1 from magazines) and distributed two questionnaires: one to the reporter who authored the article/program and another to the scientist whose work was covered. Scientists and journalists were asked to evaluate a) the final product in terms of how accurate was the research reported, and b) their own role in the news’ making process: their prior work to the interview, the accuracy of the questions/answers, their contribution in the edition process, etc. This exercise, though limited and statistically insignificant, provides some results on the way journalists and scientists see each other and their role in the media coverage. It also may be useful to strengthen the communication strategy at the IFUNAM and perhaps in other science institutes interested in supporting media to improve their science coverage without compromising their independence.

Authors: Aleida Rueda – Universidad Nacional Autónoma de México, Mexico

**20420 – ATTITUDES OF THE GENERAL PUBLIC TOWARDS GENETICALLY MODIFIED ORGANISMS (GMOs): THE PARADOXICAL RELATIONSHIP BETWEEN KNOWLEDGE AND ATTITUDES**

Biotechnology can be subdivided into application domains such as green (plant), red (medical), and white (industrial) biotechnology. In the context of green biotechnology, GMOs are a central theme. The application of GMOs is controversial and public opinion is rather negative towards GMOs. According to
the Eurobarometer survey the general attitude towards green biotechnology is negative in Europe, although attitude differs between countries and over time. In Flanders (the Dutch speaking part of Belgium), there was a revival of the GMO-debate as the result of the destruction of a potato field experiment in 2011. Apart from the limited info available from the Eurobarometer study, no empirical research has thus far been set up about attitudes towards biotechnology in the Flemish context, especially in relation to green biotechnology, e.g., the case of GMOs. Our present study evaluated the attitude towards green biotechnology in a randomly stratified sample of 4363 adult Flemish citizens (stratification variables: age and educational background). Secondly, their knowledge was measured and linked to their attitudes. A subjective (what people think they know), as well as an objective (what they actually know) knowledge score was calculated. The latter was based on a test consisting of true/false and short answer questions regarding genetics, biotechnology and commercialization of GM food. Attitudes towards green biotechnology were tested on the base of reactions towards green biotech applications (5-point Likert scale). The results point at a rather positive attitude of Flemish citizens towards plant biotechnology (M= 3.80, SD=.76, max 5). In contrast, the knowledge of Flemish citizens about biotechnology seems very poor (M=9.69 , SD=3.95, max 20). Knowledge hardly predicts attitudes (F(1,4360)= 90.58, p< 0.01; R2= .020). These findings are not in line with current literature where a positive relationship between knowledge and attitudes is stressed. Our paradoxical findings can be explained by the fact that in Flanders, the overall attitude towards green biotechnology is positive. Although the media suggest a clear opposition against GMOs, our data show that the general audience is rather indifferent and even supportive of GMOs. This implies that at a theoretical level, knowledge might be important, but might not be considered as the only factor affecting attitudes. This has clear implications for GMO related campaigns.

Authors: Jasmien Maes – Ghent University, Belgium
Godelieve Gheysen – Ghent University, Belgium
Martin Valcke – Ghent University, Belgium

20542 - AUTOMATIC MEDIA MONITORING ON STEM CELL RESEARCH IN BRAZIL: WHEN THE SCIENCE SECTION IS NOT THE LIMIT

Stem cell research is an example of scientific issue that gained a lot of attention of the Brazilian society in the last decade. In March 2005 the Brazilian National Congress approved the Biosafety Law – which cleared for human embryonic stem cell (hESC) research and triggered all sorts of reactions, including a Direct Action of Unconstitutionality and the first public hearing ever at the Brazilian Supreme Court. In 2008 a federal legislation has authorized research with in vitro human embryos. Many groups (pro and against) got involved in the public discussion, including scientists, religious people, politicians and patients association. Media played an important role on bringing the subject to broader public by covering the process and arguments involved. This study analyzes news on stem cell published online by the Brazilian newspaper O Estado de S.Paulo (one of the most popular in the country) during 2005-2008 using a novel media monitoring software developed as a prototype in Labjor/Universidade Estadual de Campinas. The system (called SAPO – Scientific Automatic Press Observer) collects and
measures content published in non-specialized online media and classifies the articles as of scientific content or not based on a set of keywords (thesaurus) related to science and technology (S&T). In the four-year period analyzed, 3% of the portal’s total articles were classified as of S&T content. Of the 640 texts about stem cells available for the same period, the 492 classified as S&T constitute 5% of the total S&T content published by the newspaper. The months that held the most expressive peaks of articles about stem cell were March and May 2008, respectively when the decision about hESC research by Supreme Court was scheduled (but then extended) and when the vote for it finally happened. Despite configuring a very technical issue, stem cells were the subject of articles published in 15 of the 30 newspapers’ sections – the science section accounted for only 15% of the total. When considering the content of the texts, 23% of the articles about stem cells were not classified as S&T. This new tool for automatic media monitoring and content classification allowed an analyses on media coverage showing that not only science topics and content widely surpass the limits of its designated section on the newspaper, but that a very technical issues such as stem cell has been with some frequency brought up on contexts not related to science.

Authors: Ana Paula Morales – State University of Campinas, Brazil
Carlos Vogt – State University of Campinas, Brazil
Maria Conceição da Costa – State University of Campinas, Brazil

20619 – BBC Science Journalism; Watchdog or Lapdog?
This paper will examine the recent report commissioned by the BBC Trust to examine its science coverage. As an international public broadcaster, the BBC places an extremely high importance on trust and public value and has spent a great deal of time, money and public consultation to try to deliver this. However, I will demonstrate that because of the BBC’s historical Reithian mission to inform, educate and entertain, much of its portrayal of science defers to science’s own authority, boundaries and power. As a result of this the BBC is silent on journalistic areas such as the investigation of science and medicine. An example of this can be seen in the commissioning of the recent BBC report on science coverage, where an eminent British scientist was chosen to oversee and write it. Would the BBC for example chose a politician to oversee its political reporting? I will argue that in its confusion over its role as ‘educator’, the BBC has developed a naïve relationship to science which does not deliver value for money to its public and allows the public to remain ignorant of the challenges its integrity that science and medicine face.

Authors: Connie St Louis – City University London, United Kingdom

20494 – BETTER WAYS TO DETERMINE IMPACT OF SCIENCE OUTREACH TO HELP DEFINE AND GUIDE BEST PRACTICE
Vibrant science engagement activities are conducted with diverse audiences across all Australian states and territories by enthusiastic and committed providers, many with support from a federal project, Inspiring Australia. The aims of the Inspiring Australia program cover a range of objectives, such as raising awareness or understanding about a particular topic or encouraging young people to pursue
science studies or careers. As events are unique, communicating diverse topics to different audiences in a variety of ways, evaluation needs also vary, making a ‘one-size fits all’ approach problematic. In this paper, we report development of evaluation resources designed to enable cross-program evaluation of impacts. The resources were also intended to help a broad spectrum of event organisers in different Australian states and territories develop effective and efficient evaluation strategies. Development of evaluation resources for this project was influenced by the Theory of Planned Behaviour. We drew on resources such as The Framework for Evaluating Impacts of Informal Science Education Projects supported by the USA’s National Science Foundation and the Inspiring Learning Framework developed by the Museums, Libraries and Archives Council in the United Kingdom. Common questions in the survey templates were chosen to cover all five of the Generic Learning Outcomes defined in the Inspiring Learning Framework (Enjoyment, inspiration, creativity; Attitudes & values; Skills; Knowledge & understanding; and Activity, behaviour & progression). Evaluation resources developed in this project included generic templates for online and paper-based surveys appropriate for a variety of events and target audiences. These surveys represent the middle ground, aimed at maximising feedback and comparability across a range of events. The resources include suggestions for other methods of more time-consuming evaluation for those who want greater depth or simpler evaluation which aims for a higher response rate at the expense of depth. We will present preliminary results from evaluations using these different tools. We will discuss the key measurables that we have used in order to characterize effectiveness of events against specific objectives. We will facilitate a discussion and ask for feedback about additional key measurables that are being developed.

Authors: Nancy Longnecker – University of Western Australia, Australia
Jo Elliott – University of Western Australia, Australia
Mzamose Gondwe – University of Western Australia, Australia

20345 – BETWEEN CAUTION AND HOPE: THE ROLE OF ARGENTINE SCIENTISTS AND EXPERTS IN COMMUNICATING THE RISKS ASSOCIATED WITH STEM CELL TOURISM

With the promise that they can be induced to become cells with special functions, stem cells (SC) have raised the hopes of both scientists and patients. But although the possibility exists that this emerging field of research might have the potential to treat severe conditions which nowadays lack a cure, patients and scientists understand and evaluate this hope with very different criteria. Whereas basic scientific research in the field has make significant advances, regulatory aspects of its translational studies to the clinic have not keep pace with the patients’ need to have safe access to experimental treatments. Hence, unproven stem-cell therapies (SCT) are emerging as a growing area of medical tourism, even while research is still in its early stages. This trend is causing concern among experts, who are worried that some medical doctors in several countries are treating patients with adult SC without waiting for clinical trials to validate the safety of using them for health problems. In Argentina, SC research has become one of its science policy priorities and many efforts are being done to establish a regulatory frame for both basic and translational research. In particular, the
ABSTRACTS

National Ministry of Science Technology and Productive Innovation has created in 2007 a multidisciplinary advisory board, the Advisory Commission in Cellular Therapies and Regenerative Medicine (Commission) that not only gives advice to the government, but also aims to offer expert information to the public. For instance, the Commission has adopted a pro-active role in communicating the risks associated to experimental SCT, by creating specific contents accessible through its web page, press releases or the direct intervention of its experts in TV and radio programs. In addition, the Commission receives queries from the public through a specific e-mail address. Since patients considering SCT rarely turn to scientific sources, the aim of the present work is to evaluate the impact of the commission’s communication actions targeted to the public and to analyze their potential to attract the attention of these patients. Specifically, all the queries received over the last year will be analyzed and classified by topic of advice required, date of the query, personal data of the consultant and kind of advice required. This information will then be co-related to the dates and content of the different communicational interventions made by the Commission during the same period.

Authors: Victoria Mendizabal – Universitat Pompeu Fabra, Argentina
Fabiana Arzuaga – Comisión Asesora en Terapias Celulares y Medicina Regenerativa, Argentina

20573 – BETWEEN GENIUS AND DUMMY, GOOD AND EVIL, ROTWANG, FRANKENSTEIN AND WERNHER VON BRAUN: THE PORTRAYAL OF SCIENTISTS IN THE TV-CARTOON KIM POSSIBLE

Current research has shown that children hold stereotyped views of scientists, and suggests that television and films build the main source of those images (Steinke et al. 2007, p.50). However, we know little about how do mass media contents addressed to children portray science and scientists. In Germany, despite an increasing Internet usage, television remains the most used medium among children (Feierabend et al. 2013, p.147), and cartoons, one of the first contents with which children come into contact, continue to be the most dominant media genre in children’s television (Krüger 2009, p.420). Since the origins of the genre, science has been a recurrent topic in animated series, and the fictional worlds of cartoons have given life to well-known scientists characters, such as Gyro Gearloose, Dr. Heinz Doofenshmirtz or Dexter. Together with prominent researchers in mass media, such as Carl Sagan or Jane Goodall, fictional scientists have become part of popular culture and contribute to shape the public image of science. The paper presents the results of a qualitative analysis on scientists’ representation in the worldwide popular series Disney’s Kim Possible. The study examines the depiction of scientists, scientific work, impacts of scientific products, and the overall image of science transmitted to children through the series. It focuses on two main characters, Dr. Drakken and Dr. James Possible, who play a significant role in the overall plot of the series. The analysis shows that these two researchers present stereotypical and counter-stereotypical features respectively (“mad scientist” vs. a scientist as a common person). By contrasting these characters and their contexts, the series convey a clearly demarcated image of what constitutes good
and bad science: an institutional, professionalized, ethical and useful science vs. an individual, amateur, unethical and dangerous science. Scientific products are, through the lens of the series, technological developments, thus mainly portraying science as applied science. Additionally, the analysis illustrates how popular images of scientists, particularly those of Frankenstein, Rotwang and Wernher von Braun, constitute an essential source of science images for animated cartoons, which emerge in the series symbolic structure. Finally, the study shows that Dr. Drakken’s stereotypical portrayal is explicitly employed as a device to reflect on stereotypes about science in mass media.

Authors: Luz María Hernández Nieto – University of Bielefeld, Germany

20281 – BRAZILIAN COMPUTERS? DEFINITELY, A STRANGE IDEA!
When it comes to computers, internet and technology, Brazilian minds immediately turn to large international companies responsible for designing the technological products that we, Brazilians, excitedly, desire, consume, distribute, and as a result, strengthen. However, the history of the development of information technology in Brazil shows an abundance of examples of a different picture: “We wanted to do something else! Was the state of the art micro-computers, and neither of us realized!”; excitedly reported the manager of a national company that dominated the microcomputer technology in 1970, referring to the achievements of a time when the domestic industry, still preserved of the foreign model of consumption, was developed in response to local demands; “See, our dominators are teaching us how we develop! Will we only be advanced when we are ‘equal’ to them?” complained indignantly, a great entrepreneur to receive the award “Engineer of the Year” in 1980. Paradoxically, this story of excitement and achievement remains unknown to the general Brazilian public, for whom “Brazilian computers” is something decidedly odd. Given that many of the actors in this story currently reside in Rio de Janeiro, and that UFRJ, one of the cradles of the development of information technology in Brazil, still keeps several pieces in its collection, the UFRJ, under the initiative of the Institute and Tércio Pacitti and the graduate program in History of Sciences and Techniques and Epistemology initiated the project of the Museum of Computing, which aims to cover the space today still very unexplored in Brazil of actions for public communication of computing under the historical viewpoint. This paper discusses the journey of construction of the museum, which through actions such as public experimentation of equipments produced in Brazil in decades past, exhibition of videos, photos, texts, among other materials then censored by repressive government, and dissemination of reports, interviews, and excerpts from personal narratives, search mechanisms for communication and public participation in the Brazilian history of computers.

Authors: Isabel Cafezeiro – Universidade Federal Fluminense, Brazil
Regina Dantas – Universidade Federal do Rio de Janeiro, Brazil
Benedito Oliveira – Universidade Federal do Rio de Janeiro, Brazil
Eduardo Nazareth Paiva – Universidade Federal do Rio de Janeiro, Brazil
José Carlos Oliveira – Universidade Federal do Rio de Janeiro, Brazil
Miguel Jonathan – Universidade Federal do Rio de Janeiro, Brazil
This paper presents the analysis of two activities carried out at Espace des sciences Pierre-Gilles de Gennes in Paris, combining art, science and social inclusion: The Bjork Biophilia educational program, and the KiiCS-Tell your science workshops. In both cases, we explored the benefits of embedding science engagement activities targeting teenagers in an empowering context, in which the scientific content was presented as a starting point for a creativity exercise: a music composition and a short fiction film, respectively. The Biophilia program is a science and music educational activity conceived by the musician and artist Björk. In France it was organized by the Björk team in collaboration with three local organizations, Traces, Deuxième Labo and Science Ouverte. The program is based on a mix of science, music, and IT educational activities, revolving around the Bjork Biophilia album, in which all the songs are inspired by a scientific theme (Virus, Dark Matter, Crystalline, etc.). During a week-long workshop, teenagers learn about science and music and end up composing science-inspired electronic music through a purposely built Ipad app. The workshops involved groups selected through an open call (mostly children of artists, designers, scientists), and groups from underprivileged areas of Paris. After presenting the main feature of this art-science workshop, we will develop an analysis of the different reactions of the two groups of teenagers. “Tell your science”, in the framework of the KiiCS EC-FP7 project, involves teenagers from underprivileged areas in a two days workshops. Following a protocol inspired by the Michel Gondry project « L’usine des films amateurs », teens have to write and shoot a short fiction film, based on the encounter with scientists and the visit of a science lab. After a free brainstorming to liberate ideas, dreams, questions on a scientific topic, teens visit a research team, they learn the basics of scenario writing, and shoot a film using tablets. Through interviews with the teen agers, we are observing that free questioning and a final task such as shooting a film, has a very strong effect on the type of interaction they have with scientists, allowing them to combine personal needs and curiosity with scientific knowledge. The results of the evaluation of the two activities is the basis of an action-research on the way arts and fiction can be used to help teenagers build a sense of ownership for scientific knowledge.

Authors: Matteo Merzagora – Espace Pierre-Gilles de Gennes, France
Virginie Thibaud – Espace Pierre-Gilles de Gennes, France
examinations on the impact of various media outreach on scientists’ academic career that combines survey data with data on social media (e.g., Twitter) usage. In this study, we surveyed the most highly cited and active U.S. scientists in the fields associated with nanotechnology research and explored the effects of scientists’ various active public communication behaviors on their scientific impact as measured by the h-index. After controlling respondents’ gender, professional status and disciplinary field, our analysis provides evidence that active public engagement, such as interaction with reporters and being mentioned on Twitter, can be rewarding for one’s career by promoting his or her scientific impact. Most prominently, online buzz (e.g., being mentioned on Twitter) amplifies the impact of interaction with journalists and other nonscientists on a scholar’s h-index. The following contributions of the study are noteworthy. First, we provide empirical evidence that building buzz and having open conversations with lay audiences via “old” and “new” media outlets are indeed beneficial for scholars’ academic careers. Second, our study refines our understanding of the significant role of online social media in amplifying the impact that traditional media can have in communicating science in modern media landscapes. This further highlights the important role of social media in closing science–public gaps and—at the same time—as important components of scholarly productivity. This may eventually force academics to think more carefully about defining academic impact in a world of sites, such as Google Scholar and ResearchGate.com, which combine social media metrics with indicators of scholarly productivity to measure the broader impact of academic work.

Authors: Xuan Liang – University of Wisconsin–Madison, United States
Leona Yi-Fan Su – University of Wisconsin–Madison, United States
Sara K. Yeo – University of Wisconsin–Madison, United States
Dietram A. Scheufele – University of Wisconsin–Madison, United States
Dominique Brossard – University of Wisconsin–Madison, United States
Michael Xenos – University of Wisconsin–Madison, United States
Paul Nealey – The University of Chicago, Unites States
Elizabeth A. Corley – Arizona State University, Unites States

20274 – BUSINESS AS USUAL OR NEW REASONS AND MEANS FOR COMMUNICATING SCIENCE?
When PCST2012 finished in Florence the last speaker made a call to investigate some of the white spots on the map of science communication research. In his presentation Rich Borchelts main point was that researchers keep looking for the same kind of things. Now is a good time for start doing something new, he said, and present the ‘new and different’ at PCST in Brazil 2014. This is what this paper is doing. By investigating the similarities and differences between the theoretical field of public relations on one hand and public understanding of science on the other, this paper offers a new perspective to the field of science communication research. We may thereby be able to understand the growing amount of research news releases from universities as both an activity that ‘supports the university as a business’ (funding, recruiting students and researcher etc.) and an activity that contributes to educating the public. Research in PR is not new, nor is the critique of PR activities of the universities. In 2013 more than 1600 research news
releases were uploaded monthly at EurekAlert, and this number is growing and so is the number of universities from different countries using the platform. That research news releases increasingly are directed at an international audience means that we cannot continue explaining the science communication activities of the universities as directed towards local audiences and focused on a national context like most of the previous PUS research has done. This calls for adding new theoretical perspectives to the research in science communication. By using Van der Sanden and Meijmans understanding of science communication as an activity that both can be described by its form and its function this paper argues that an extra dimension should be added to their model. They talk about function, modality and instruments. This means that a research news release can be seen as an instrument, promoting the research as a modality and public understanding of science as a function of the communication. Besides ‘public understanding’ they operate with three other functions: ‘public awareness of’, ‘public engagement with’ og ‘public participation in’ science. To study the growing PR activity from the universities this paper shows how this can be done by including a new fifth function – ‘support of the university as a business’. This function is included by using Grunig and Hunts four models of Public Relations and the mixed motives model.

Authors: Charlotte Autzen – University of Southern Denmark, Denmark

20370 - CAMEROON AND MOBILE TELEPHONY: TELLING THE STORY OF TECHNOLOGICAL CHANGE ‘IN THEIR OWN WORDS’ – GLOBAL KNOWLEDGE FROM A LOCAL PERSPECTIVE

The Science Museum’s new communication technology gallery, Information Age puts people and their stories at the heart of its narrative. As part of this step change towards people-focused interpretation, we are working with audiences in the generation and framing of objects and content. Seeking to connect visitors to their heritage in unique and powerful ways has opened new avenues for content research and development. Our objects are host to many memories; but how do we extract these stories, and how can they be woven into the fabric of the gallery, in harmony with historical context, technical detail and scientific content? One example of these stories is the emergence and resulting culture of mobile telecommunication in Cameroon. Many of the user stories, and unique perspectives on the experience of change, are held within the Cameroonian community. The museum decided to test a participatory methodology with the Cameroonian community in London, ensuring we presented this technological and cultural revolution in the most authentic way and deal with possible colonial preconceptions. One of the challenges was collecting in a foreign country to try and gather artefacts that are representative of that culture. From 2011, members of the London Cameroon community were consulted, and we drew on their expert local knowledge to inform and influence a planned object collecting trip to Cameroon in early 2012. This paper will take a closer look at the process of participation and community engagement in the role of sharing local knowledge for an international audience. It focuses on the representation of Cameroonians and their culture in a museum context, which paradoxically also brings an international story in a national museum setting. It will explore the Museum’s processes of building a collaborative team, both in London and Cameroon. In
summary it will reflect on the research findings and lessons learned which will inform best practices. This paper will finish by briefly describing some of the other international stories about mobile technology which were considered for Information Age, and how the Science Museum decided what would eventually be included in the gallery.

Authors: Deanne Naula - Science Museum, United Kingdom
Charlotte Connelly - Science Museum, United Kingdom

20450 - CHALLENGES IN SCIENCE COMMUNICATION IN THE INTERNET: THE INCITTOX CASE
The Science and Technology Institute in Toxin is a research institute connected to the Brazilian federal government. This INCT dedicates to studying the quantitative and qualitative actions of toxins, bioprospection, innate or acquired immunity and resistance, poisoning processes and therapeutic response. The Institute has developed a few initiatives to promote science online, by means of online applications. One of the challenges pertaining to the production of these materials is the development of mechanisms to evaluate their quality and impact before the target audience (Marandino, 2013). In the present work, we are going to give prominence to the development and ongoing analysis of 3 education applications www.cienciaemrede.com.br/aplicativos, which can be used and evaluated by the users through an online questionnaire. The form aims at characterizing the user’s profile, as well as getting to know their opinion about the application and in which context and with what objectives they were used. The first was done based on a print version of Biomemó, a game of association of cards produced by Butantan Institute and Study Group on Non-Formal Education and Science Communication (GEENF). The second used as a reference the game called ConectCiência, which aims at encouraging reflection on the process of production of scientific knowledge. The images that constitute this material reveal that the social production of scientific knowledge might take place in various spaces and in different ways, involving different players. In the application, the users have to select the images they think belong to a certain axis. With the objective of mapping the choice of images done by the target audience, which are related to each one of the axis, we’ve developed a visualization interface associated to the application that enables the choices of the users to be recorded in a database. This interface enables us to make many inferences about the way in which the target audience understand scientific knowledge and in what ways they establish the relation between the images and the different dimensions of this process. Finally, the third application, DORTOX, aims at presenting the stages of a research study that is being conducted by scientists from INCITTOX, which ranges from natural toxin bioprospecting up to the possible development of a medication to control pain. And, for this application, which has been recently launched, the evaluation tool is still under development.

Authors: Djana Contier Fares – Instituto Nacional de Ciência e Tecnologia em Toxinas, Brazil
Alessandra Bizerra – Universidade de São Paulo, Brazil
Martha Marandino – Universidade de São Paulo, Brazil
A final inside report from the largest EU-funded science communication project (FP7), ending in spring 2014. Within the PLACES project (http://www.openplaces.eu), funded under the 7th Framework Programme of the European Commission, more than 70 cities and 10 regions from 23 European countries have developed practical strategies for including science and technology as an essential part of the cultural fabric of a city: the “Cities of Scientific Culture”. The project resulted in multiple recommendations and studies such as: 1.) A toolkit for impact assessment was developed by an international team of 23 researchers in the field of science communication. This toolkit was applied to evaluate the impact of science communication policies and activities: 10 cities, 10 science centers and 10 science festivals were analyzed. 2.) A survey was conducted aiming at identifying main obstacles and difficulties in implementing science communication policies. 3.) More than 50 practical activities were developed for engaging citizens in dialogue concerning science and technology in the city life. 4.) 10 regional trainings for civil servants were produced, enhancing the local networks working in science communication. 5.) Professionals in the field of science communication developed recommendations concerning the relation of science communication policies and the formal education system, the connection of science with all the fields of culture, the development of smart cities and access to knowledge, career development, and sustainability. The results of the project will be presented by Alexander Gerber, Chair of the “PLACES Stakeholder’s Assembly”, which has served as the advisory board to the project. The talk, which will also include a video message by the project manager António Gomes da Costa, could be followed by a discussion about challenges and best-practises of communicating scientific culture on the local level. Upon request by the PCST programme committee we could additionally try to involve several project partners from across Europe on a succeeding session panel.

Authors: Alexander Gerber – German Research Centre for Science & Innovation Communication, Germany
António Gomes da Costa – The European Network of Science Centres and Museums, Germany

Through the VOICES EU funded project, a thousand citizens from all over Europe have been involved in a large-scale, structured participation initiative to contribute to the priorities of the new “Horizon 2020” framework programme of the European Commission. Through this consultation, which I have coordinated, 100 focus groups (3 hours long, with 10 participants each) have taken place in 27 European countries, held mainly at science centres/museums and conducted by experienced moderators. Outcomes have been analyzed by an experienced academic research team, and over 350 ideas in the field area of the consultation (waste management) have emerged from the citizens, concerning environmental sciences and technology, as well as policy, education and communication issues. The outcomes have been presented to the European Commission, which has for the first time implemented citizens priorities in the preparation and definition of scientific research calls (in the field of waste management). Social research has been used to foster a real social innovation process, and results from the
consultation are being integrated in the policy making process of the European Commission. In the presentation, all the steps of this innovative and breakthrough initiative will be presented, along with the results of the focus groups analysis – going from its rationale, to the methodology and the results, as well as the role of science centers and museums in this context.
Authors: Marzia Mazzonetto – VU University Amsterdam, Belgium

20521 - CITIZEN SCIENCE IN SCHOOLS
Every autumn since 2009, thousands of Swedish pupils of all ages have been helping researchers gather huge amounts of data. These so-called mass experiments are of mutual benefit; the researchers get more data than they could otherwise easily collect, the pupils get the opportunity to participate in real research, and the teachers get material and methods based upon state-of-the-art research to integrate in the curriculum. The non-profit association VA (Public & Science) coordinates the mass experiments as part of the European science festival, Researchers’ Night. A recent study carried out by VA that looked at how teachers view science, indicates that Swedish school teachers want more contacts with science and researchers. The largest barriers for them are a lack of time and uncertainty about how to make contact. The mass experiments efficiently link education to research, establishing valuable contacts with researchers and giving students insights into research methods and scientific thinking. Schools from across the whole of Sweden are involved, and as many as 18,000 pupils are engaged in the 2013 experiment! VA helps the researcher to design an experiment whereby students gather data guided by their teacher. Research projects are also selected according to how well they fit into the curriculum. Instructions and teachers’ manuals are jointly developed by the researcher and VA’s communicators. Information is provided to the schools via the web and e-mail correspondence but researchers also communicate directly with individual teachers and students using Twitter, Facebook and Instagram. Based on experiences from organising mass experiments in Sweden, we will present approaches of how best to design them, to find researchers to collaborate with, to attract participants, to present the results and to get media attention. Mass experiments to date are: • Biology/climatology: How is climate change affecting autumn leaves? • Sociology: What risks do young people perceive in their daily lives? • Food science: Is food stored at the right temperature in home refrigerators? • Health/physics: Does the acoustic environment in schools affect learning? • Biology/chemistry: Is the air quality in classrooms satisfactory?
Authors: Cissi Askwall – VA (PUBLIC & SCIENCE), Sweden
Lotta Tomasson – VA (PUBLIC & SCIENCE), Sweden
Karin Larsdotter – VA (PUBLIC & SCIENCE), Sweden

20145 - CITIZEN SCIENCE WITH SMARTPHONES: PARTICIPANTS’ MOTIVATION, EXPECTATIONS, AND LEARNING IMPACT
In citizen science projects, non-scientists participate in scientific research. Citizen science projects provide researchers with a way to gather or analyze enormous amounts of data. At the same time, these projects offer an exciting opportunity for non-scientists to be part of and learn from the scientific process. Citizen science projects provide unique opportunities for informal learning because
they capitalize on participants' excitement. The emergence of internet and smartphones opens up new opportunities for citizen science. The iSPEX project of Leiden University is one of the first projects to use smartphones to do scientific measurements. Within the iSPEX project, citizens are using an add-on to turn their smartphone into a scientific instrument to measure aerosols (small particles in the atmosphere). The aim of iSPEX was to find out if the combination of thousands of individual measurements can form a detailed and reliable aerosol map of the Netherlands. A second goal was for participants to learn about science in general and about the involvement of aerosols in health in particular. In this paper we describe the motivations, the expectations, and perceived learning impact of iSPEX participants. Why do people participate in iSPEX? What do they expect in terms of personal gain, reliability of the measurements and impact of the results on local and national policy and scientific progress? What have participants learned from the project? Interviews were conducted in order to develop and fine-tune a quantitative questionnaire. The questionnaire was sent to all citizen scientists of the iSPEX project. Participants were asked about (1) their experiences during the measurement events, (2) their general attitude towards science, (3) their previous experiences with scientific research and citizen science, (4) their motivation to participate (including future iSPEX and comparable measurement events), and (5) their expectations about the impact of the project on themselves and on environmental, health, and science policy. We offer new insights in citizen science that are of importance for the iSPEX project itself as well as for the research field at large. The iSPEX project will use the findings to inform the organization of future measurement events. On a larger scale, we provide insights for future comparable measurements by non-scientists. At the same time, these findings show in what ways citizen science can contribute to (informal) science learning.

Authors: Anne Land-Zandstra - Science Communication & Society, Leiden University
Frans Snik - Leiden Observatory, Netherlands
Jeroen Devilee - National Institute for Public Health and the Environment, Netherlands
Franka Buurmeijer - Netherlands Research School for Astronomy, Netherlands
Jos van den Broek - Science Communication & Society, Leiden University, Netherlands

20634 - CITIZEN'S AGENDA FOR ST&I IN MEXICO: A SOCIAL INCLUSION EXERCISE?
Inequality is one of the challenges of growth and national development. Among the factors that promote inequality, scientific knowledge is often one of this and it could be an element of social inclusion. Various forms of citizen participation about science and technology have become important in industrialized countries in recent years. The Latin American context, marked by growing social exclusion, requires open spaces for public participation to achieve an impact on publicly funded research agendas and policy decisions on science and technology (Invernizzi, 2004). In early November 2012 and late January 2013 was held for the first time in Mexico a public consultation via Internet in which people could choose three challenges to be faced with the participation of science and technology
to achieve a better quality of life on the horizon in 2030 entitled the Citizen's Agenda for Science, Technology and Innovation. This public consultation obtained 364,803 votes, of which Education (17.09%) and water (15.42%) were the ones who received the most votes. With this exercise of citizenship, can we talk about a citizens' agenda? Is truly an exercise in social inclusion? The aim of this paper is to analyze the importance of the Citizen's Agenda as exercise participation and social inclusion in Science and Technology in Mexico. This will involve an analysis of the scientific and technological context before, during and after the implementation of the survey and thus better understand the importance and impact of the study.

Authors: Milagros Varguez – Tecnológico de Monterrey, Mexico
Vanessa Martínez – Tecnológico de Monterrey, Mexico

20553 - COMIC “DIME ABUELLITA PORQUÉ” AS A TOOL FOR SCIENCE POPULARIZATION AND SCIENCE COMPETENCIES' DEVELOPMENT

This paper talks about the creation of a science popularization comic called “Dime abuelita porqué” and its use as educational material in the classroom for teaching science competencies. The comic is based on a popularization science book with the same name. The comic narrates the adventures of a young high school student, named Leo, who lives with his grandmother, a professional scientist, which always has an explanation for daily scientific phenomena. The narrative thread is built upon Leo and his friends’ experiences, who besides their daily young people concerns as love difficulties take an interest in topics such as atomic structure, Fermat's theorem and the theory of probability, among others.

This work consists of three parts, the first of which describes what are the science competencies required in high school. This first part also gives some examples on general and disciplinary competencies. The second part describes how the comic originated, how it is produced and how it is distributed. This second part also gives a synopsis of the 40 stories that have been developed and published. In this synopsis the themes developed in each story are linked with the syllabus. Finally in the third part, the paper provides examples on how to use the comic to develop some of the skills described in the first part.

Authors: Rafael Fernández Flores – Servicio De Consultoría de Valor Agregado, Mexico
Emilia Sánchez Morales – Servicio de Consultoría de Valor Agregado, Mexico

20555 - COMMERCIALISING CONSERVATION: SELLING OUT OR INCREASING EFFICIENCY?

Economic & political stability are of primary concern in this global climate. But, until recently their performances, which are far more dependent on biodiversity, than previous thought, had been overlooked. The role of biodiversity in delivering agricultural wealth & stability need to fast become an area of priority. However, despite massive international efforts New Zealand & the rest of the world is failing at conserving its biodiversity – it is generally accepted we are in the process of a mass extinction, with estimates of 30% of species on earth going extinct in the next 40 years (A. Baronsky, Berkeley University). Part of the problem is the research implementation gap that exists in conservation science. This gap is exhibited by the fact that 94% of academic conservation research does not have
a practical application (Knight, 2008 ‘Knowing But Not Doing’). Practitioners of conservation who could put the science into practice don’t read the research & collaboration between academics & conservation practitioners is rare. This causes a communication breakdown & general inefficiency in the discipline of conservation science. Another part of the problem is that communicating the value of conservation to policy makers who are generally not scientists is problematic. Conservation scientists must use communication measures that can inform policies for sustainable growth. By using the language of commerce & business efficiency, conservation scientists will be better equipped to communicate the commercial value of conservation aims & thus have those aims met by those in power. Commercial disciplines such as marketing have a financial incentive to increase communication efficiency & have proven strategies to do this. This thesis investigates how these strategies such as branding; marketing and Web 2.0 can be applied to conservation and improve its efficiency. Case studies will show how branding & marketing alignment are already being used by governments and conservation organizations, & they discusses the benefits and problems that it this has brought. Through the analysis and critique of the case studies and literature this thesis proposes a series of strong and practically implementable recommendations to reduce the research implementation gap in conservation science, improve agricultural productivity, and increase biodiversity. This emerging area in science communication is topical, controversial and vitally important to the conservation of our planet.

Authors: Veronica Harwood Stevenson – Otago University, New Zealand

20229 – COMMUNICATING SCIENCE IN CHILE: PROBLEMS IN JOURNALISM TRAINING AND SCIENTIFIC COMMUNICATION

Scientific communication is an area that encompasses diverse disciplines. This interdisciplinarity corresponds with the interest that these areas recognize in the communication process of new knowledge. Particularly, authors such as Michael Gibbons (1999) argue that scientific work today is not only validated by its inherent strengths, but also for being “socially robust”, because of the change of current scientific production. In developing countries such as Chile, science still has little social value. In a survey developed in 2009 in various urban centers in Latin America, Chile is the only country in which none of the respondents consider a priority issue the funding science and technology (Albornoz et al., 2009). In addition, Chile is one of the Latin American countries with less news treatment of scientific topics (Massarani & Buys, 2007) with only 1% of national press coverage (Parodi & Ferrari, 2007). However, the country has had a steady growth in scientific production in recent years, tripling the number of publications of scientific papers between the years 2000 and 2010 (Scimago, 2010). This contradiction highlights the relationship between science, media and society. The public communication of science, as a mediator, is vital in this process (Cortassa, 2010, 2012), but in the case of Chile the situation is even more complex and has many limitations. For example, scientists in Chile are not trained in social communication. The graduate programs in this field are scarce and training programs about public communication of science are not targeted exclusively to science students who
lack skills in the communicational field (Alvarez, 2012). In undergraduate studies of journalism training in public communication of science is almost inexistent. In this paper the results of a survey done during 2012 and applied to Chilean scientific journalists and analysis of the curricula of the journalism careers offered in Chile are presented. The study shows that most science journalists lack professional training in the field, having to fill this gap through self-education. Also, universities are not delivering contextual and conceptual bases in science communication. This reflects the need of strengthening the training of journalists and scientists in Chile, to generate narratives of science beyond the usual stereotypes (results and applications) and to improve the relationship between science and society.

Authors: Lorena B. Valderrama – Institute for the History of Medicine and Science, Chile
Raimundo Roberts – Biblioteca del Congreso Nacional de Chile, Chile
Evelyn Nahuelhual – Asociación Chilena de Periodistas Científicos, Chile

20243 - COMMUNICATING SCIENTIFIC UNCERTAINTY IN NANOTECHNOLOGIES: EXPLORING COMMUNICATION STRATEGIES OF ECONOMIC AND PUBLIC INTEREST GROUPS USING THE THEORY OF PLANNED BEHAVIOR

Public representations of science and technology can be viewed as the result of various actors' strategic attempts to shape it. While several studies have investigated scientists' and journalists' roles and interests in presenting scientific findings to the public, few have focused on other social groups, such as industrial or public interest groups. The present study is intended to bridge this gap exploring public communication about scientific evidence in nanoscale research and nanotechnology (NST). Assuming that communicative decisions to account for scientific evidence as more or less certain are driven by group-specific strategic goals, we include representatives from economic (industry and industrial associations) and public interest groups (governmental organizations, consumer and environmental protection groups, the church, academia). 21 semi-structured in-depth interviews with professional communicators of science show that individual group members are homogeneous with regard to their communicative intentions with a clear distinction between the economic and the public interest group: Members of the economic interest group depict evidence in NST as significantly more certain than the public interest group, thereby describing NST as significantly more positive. Thus, we assume that the group members' communicative behavior is strategic and follows rational group-specific considerations. We apply the theory of planned behavior to analyze components of this rationale in more detail. The descriptive norm, i.e., participants' observations of how persons with similar job descriptions act, and the attitude toward the intended behavior, i.e., the aggregated evaluation of its outcomes, turn out to be the strongest predictors of individuals' intentions to communicate scientific evidence in NST as being certain or uncertain. Limitations of the study and suggestions for further research with larger samples will be discussed. Furthermore, respondents' answers to open-ended questions will be used to discuss further improvements of the model applied.

Authors: Michaela Maier – Institute for Communication Psychology, University of Koblenz-Landau, Germany
How does the communication of scientific uncertainty influence citizens' engagement with emerging complex societal issues such as climate change, nanotechnology and the use of genetic modification in agriculture? Scientists, issue advocates and professional communicators often assume that the communication of scientific uncertainty impedes engagement with these and other issues and discourages the use of scientific knowledge in policymaking. Among other things, communication of uncertainty is assumed to negatively impact the use of scientific information both by decreasing confidence in experts and by providing ammunition to special interest groups. As a result, science communicators are sometimes wary of fully recognizing and discussing valid scientific uncertainties that exist regarding emerging issues (e.g., impact of un-quantified factors). Although uncertainty clearly influences citizens' and policymakers' judgment and decision-making processes, the direction of the effects is not always towards rejection of science as a tool for informed decision-making. Indeed, the presence of uncertainty (which is itself a near certainty in the context of emerging issues) often acts as a catalyst for forward-looking action. I examine these complex dynamics in the context of global climate change, which provides a paradigmatic example of an emerging issue that requires communicators to make difficult decisions regarding the communication of uncertain (scientific) information (e.g., regarding future timing and severity of future impacts). I begin by carefully reviewing the rapidly growing body of research that has explored the impact of communicating uncertainty on individuals' climate change beliefs and engagement; this work reveals numerous effects of uncertainty as well as multiple proximal psychological mechanisms by which uncertain climate information impacts scientific citizenship. I then briefly report results from experimental work that tests the impact of communicating varying levels of uncertainty on individuals' climate change beliefs and policy preferences. I also explicitly examine how the communication of such uncertainty influences trust in climate scientists, a factor known to influence acceptance of science-based messages. I conclude by discussing the implications of my own and others' findings for the effective communication of uncertain scientific information across numerous emerging societal issues.

Authors: Ezra M. Markowitz – Columbia University – Princeton University, United States
order to enable citizens to engage in public debate, or to make informed decisions in various areas of their daily life (e.g., concerning medical treatments, or the choice between different consumer products). On the other hand, concerns about detrimental effects of uncertainty communication on the public engagement with science have been raised in the literature. The present study was conducted to investigate how the communication of scientific uncertainty in nanotechnology influences laypersons’ interest in science and new technologies, beliefs about the nature of science, and trust in scientists. In a longitudinal field experiment, 945 participants were exposed to six real-world media reports (TV features and newspaper articles) on nanotechnology. The study allowed for an exploration of the effects of two different forms of uncertainty presentation: within or across different media reports (by presenting contradicting reports consecutively). The results suggest that both forms of uncertainty communication did not change general beliefs about the nature of science: The recipients did not acquire a conception of science as a continuous struggle with uncertainties. However, no detrimental effects on the trust in scientists were observed. With respect to interest in science and new technologies, even slightly positive effects were found, especially if the uncertainty was communicated within media reports, and the recipients had a low need for cognitive closure. Taken together, the results suggest that science communicators should not be afraid of addressing scientific uncertainty associated with modern technologies. Limitations of the study, as well as suggestions for further research, and implications for science communication will be discussed.

Authors: Michaela Maier - Institute for Communication Psychology, University of Koblenz-Landau, Germany
Andrea Retzbach - Institute for Communication Psychology, University of Koblenz-Landau, Germany
Senja Post - Institute for Communication Psychology, University of Koblenz-Landau, Germany

20572 - COMMUNICATION, FACILITATION, AND PUBLIC/POLICY ENGAGEMENT WITH SCIENCE: FOR-PROFIT CONSULTING FIRMS AS BOUNDARY ORGANIZATIONS

Addressing complex scientific challenges involves communicating and collaborating with a wide array of stakeholder groups, ranging from public communities to decision-making institutions. One approach to productively facilitating this exchange is through the work of so-called boundary organizations – institutions which bridge the gaps between scientific, political, and social groups. Identifying such organizations by three key attributes (facilitating the use of boundary objects, including participants from both sides of the boundary, and having accountability to both sides; Guston 2001), existing work has developed a wide array of case studies of boundary organizations in action (Miller 2001; Crona & Parker 2011). This research and theorizing, however, has focused on boundary organizations developed or supported by public sector entities like governments or universities. Accordingly, research on boundary organizations has generally neglected to identify and study an important alternative form of boundary organization, the for-profit consulting firm. In this paper, I argue that some consulting firms can serve as a distinctive kind of boundary organization, leveraging alternative approaches to
framing, mediating, and solving real-world sociotechnical challenges like natural resource management, social systems design, and climate change. I illustrate these characteristics through a contemporary case study of a small Australian firm, conducted through a series of semi-structured interviews, observation, and document analysis. In particular, I demonstrate that for-profit boundary organizations adopt unique styles of engaging public & private stakeholders, mediating conflicting positions, and communicating with the wider world. Not only does this work significantly advance our theoretical understanding of boundary organizations by demonstrating a new class of groups that meaningfully fit the definition, but it offers lessons in facilitating effective science communication & exchange between diverse stakeholders.

Sub-area: Science communication empowering scientists and the public
Proponent: ERIC B. KENNEDY
Institution: CONSORTIUM FOR SCIENCE, POLICY, AND OUTCOMES; ARIZONA STATE UNIVERSITY
Country: United States
Presenter: Eric B. Kennedy - Eric B. Kennedy - Consortium for Science, Policy, and Outcomes - Arizona State University, United States
Authors: Eric B. Kennedy - Consortium for Science, Policy, and Outcomes - Arizona State University, United States

20277 - COVERAGE BY SPANISH MEDIA OF THE VACCINATION CAMPAIGNS AGAINST HUMAN PAPILLOMAVIRUS: BENEFITS OR RISKS?

The main objective of this research is to analyze the institutional campaigns about the Human Papillomavirus Vaccine for the prevention of cervix cancer (in girls between 11 and 14 years) of the regional governments in Asturias, Madrid and Valencia (Spain). The study will comprise from the firsts vaccinations in 2007 until year 2013, examining all the events related with these campaigns. We will collect all the elements designed and delivered for the vaccination campaign (pamphlets, diptychs, posters, radio, TV, press, social networks conferences and internet, for example: blogs, institutional pages and scientific sites), and how was elaborated the discourse that has been transmitted to the susceptible population of to be vaccinated (through interviews structured to the responsible of the Public Health Services and technicians of the three regional governments). Likewise, we will compile the texts published in the media (printed, audiovisual and internet) in relation with the vaccination campaigns in each one of the autonomous regions and submitting its content to a qualitative analysis. We work with the hypothesis that the anti-vaccine movement has increased in the last decade, in particular with the HPV vaccine. We've analyzed 297 stories about the HPV vaccine from eight newspaper from Spain (El País, El Mundo, ABC, Las Provincias, Levante, Nueva España and La Voz de Asturias). The year 2009 was the highest number of piece of news was published. That year two Valencian girls were admitted to the Intensive Care Unit at a public hospital with severe seizures after being vaccinated. That year, El Levante published nearly half of the stories throughout the period analyzed, of course by controversy. In the Valencian Community a moratorium
on the vaccination be placed. Six months later began vaccinations again. El Mundo and El Levante are newspapers that have published more stories about this vaccination. The tone of the stories is mostly negative in overall documents. Only two regions, 17 of which are in Spain, have campaigned with brochures and leaflets. Those responsible for informing families with girls of vaccination age were health care centers and pediatricians. Respondents (doctors, biologists, technicians, journalists, affected) have expressed concern that a public debate is not carried out if the vaccine is actually beneficial or not. It has been collected 7000 signatures from health care professionals against vaccination.

Authors: Carolina Moreno Castro – University of Valencia, Spain
Emilia Hermelinda Lopera Pareja – Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, Spain

20226 – COVERAGE OF SCIENCE AND FRAMING OF NANO-SCIENCE AND TECHNOLOGY IN NIGERIA’S ELITE AND POPULAR PRESS

In Nigeria, there appears to be a gross paucity of research data on press coverage or framing of science. We do not know how the print media attend to science and technology issues or how they are framed particularly nano-science, nanotechnology, and nano-medicine which tend to hold some promise for third world development. Neither do we know the extent of social inclusion nor the depth of political engagement in the communication of science and technology in the Nigerian media. This study interrogates the extent to which science and nano-science are covered and framed in two elite (The Guardian) and two popular newspapers (Daily Trust and Leadership); and if there is a significant difference in coverage and framing. This study adopts the content analysis research technique. It involves a selection of newspapers between January 1 and December 31, 2012: the year Nigeria revised its Science and Technology Policy. Results indicate that: there is a near absence of nano-science content in the analysed papers while the coverage of other science issues abounds. Where it occurs at all, nano-science is framed as an emerging field. Other science reports merely give information. Frames dealing with risk/controversy, socio-economic implications, or safety/ethics rarely occur. Routine science reports double the frequency of event-specific reports. Coverage using the news and feature styles abound whereas opinion/columns rarely occur. Brief coverage outweighs full page and half page reports. Reports cite more foreign than local sources. Health/medical and ICT, biotechnology, and high-tech issues are covered more than other science issues. Political actors, lay people, NGOs, corporations and community leaders are not significantly included in the coverage as are science publishers, scientists, the media, and government agencies. One of the two populist newspapers reported more science issues than the elitist paper. These findings have serious implications for science journalism practice in Nigeria.

Authors: Clifford Ashong – University of Uyo, Nigeria
Charles Dennis Obot – University of Uyo, Nigeria
Herbert Effiong Batta – University ff Uyo, Nigeria
Recently, informal educational settings such as museums and science centres have witnessed increased attention to current issues in science and technology (S&T). Supporting the 'mantras' Public Understanding of Science and Public Understanding of Research, these settings have been exploring ways to enhance visitors' involvement and engagement in matters related to science, technology, society and environment (STSE). They have attempted to develop contemporary installations with all the social and political trappings of the day, moving from pedagogical and experiential exhibitions to critical exhibits. These thought-provoking exhibits are developed in an effort to represent science in context and to engage the public with issues (such as, for example, reproductive technologies and climate change) that are important to our lives, environment, and to our well-being. Critical exhibitions call for different and controversial points of view, alternative forms of (re)presenting science and opportunities for multiple visitor responses. Furthermore, a shift from passive to interactive forms of public communication of science has impacted museum activities and the visitor experience. Visitors are invited to explore the intersections across science and society and to engage with the 'messiness' of science and the social, political, economic, and historical forces that impact it. In this presentation we describe our research project which examines the work of science centres and museums around controversial issues related to STSE, specifically the interface between exhibits and visitor engagement. We intend to do a series of individual case studies of exhibitions housed at institutions across Canada. Criteria for selecting cases were based on the controversial and 'critical' nature of the exhibits, their visibility, and their relationship to current S&T issues (for example, A Question of Truth – Ontario Science Centre, Body Worlds – Gunther von Hagen, idTV – Montreal Science Centre and Renewable Energies: Time to Decide – Canada Science and Technology Museum, Ottawa). Semi-structured interviews with museum staff and visitors, observations of visitors' interaction with exhibits, and content analysis of relevant documents will be used to build up a portrait of the nature and impact of each case.

Authors: Erminia Pedretti - University of Toronto, Ontario Institute for Studies in Education, Department of Curriculum, Teaching and Learning, Canada
Ana Maria Navas Iannini - University of Toronto, Ontario Institute for Studies in Education, Department of Curriculum, Teaching and Learning, Canada
Joanne Nazir - University of Toronto, Ontario Institute for Studies in Education, Department of Curriculum, Teaching and Learning, Canada

The use of animals in scientific research has increased and become a controversial topic over the past decade (Pifer, 1994). A fundamental conflict has evolved over animal experiments between NGOs who are fighting for animal rights and scientists who depend on animal studies for successful research. Animal right groups argue that animal research is immoral and unnecessary. They exemplify their opinion with the help of images of afflicted animals as well as emotional
and scandalizing messages. On the other hand, the medical research community insists that animal experimentation is humane and necessary (Nabi, 1998, p. 479). Both parties attempt to dominate the public discourse and successfully promote their arguments to the media in order to achieve public support. The conflict over animal experimentation thus marks a key challenge in contemporary and future science communication. The current paper approaches the mediated conflict between opponents and advocates of animal experiments from the psychological perspective of persuasive communication. The goal is a theoretical analysis of the process through which people form their attitudes towards animal experimentation from which implications for science communication can be derived. Applying so-called dual-process models of persuasion such as the elaboration likelihood model (Petty & Cacioppo, 1986) reveals that typical communication of animal right activists (e.g., images of animals, moral outrage) resonate differently (more positively) with mostly low-involved public audiences (Brosius, 1995). In contrast, the typical strategy of science communication – two-sided, rather complicated argumentation – is more difficult to process for lay audiences. In addition to greater persuasion chances for the peripheral cues used by animal rights activists, they are also more likely to gain media attention, as journalists have good use for images and morally loaded messages. This brief analysis implies that animal right groups have better chances in the competition for public acceptance.

Science communicators who wish to promote public understanding of animal experimentation need to deal with this challenge in a both strategic and ethically correct way. The presentation ends with some practical suggestions, such as the use of positive peripheral cues (e.g., related to the medical progress that animal experimentation has enabled) and recommendations on persuasion research in public understanding of animal experiments.

Authors: Elena Link – Hannover University of Music, Drama and Media, Germany
Katharina Emde – Hannover University of Music, Drama and Media, Germany
Christoph Klimmt – Hannover University of Music, Drama and Media, Germany

20694 - DARWINISM AND RELIGION IN THE BRAZILIAN PERIODIC PRESS (1859-1950)

This work discusses the communication of Darwinism in the periodic press of Brazil, focusing on the underling beliefs and values of the boundary work between science and religion. Historians have argued that the general press was probably more important than books in shaping the public’s understanding of new scientific ideas, because they reached a broader readership and held opposite opinions from different contributors and reader’s letters. Periodicals are a fruitful medium to undertake a research of how scientists, religious man and the general public interpreted Darwinism and the social dynamics behind the conflicts of opinions. Articles were selected using a search tool for words in the Brazilian database Hemeroteca Digital of Fundação Biblioteca Nacional. The terms used were: Darwin, origin of species, Darwinism and Evolutionism. The period studied was 1859 (the Origin of Species publication year) until the end of a period called “catholic reaction”, around 1950. The location was the state of Rio de Janeiro, where the federal capital of Brazil was located. In the majority of articles studied what was called as Darwinism was actually a mixture
of ideas of Darwin, Lamarck, Haeckel and Spencer. Darwinism was cultivated as pure materialism or denounced as a theology disguised as science. In the same way, materialism could be attacked and the theological aspect defended. The arguments for and against evolutionary ideas were often the same and on both sides there is a common desire and moral duty of conquering the truth and broadcasting it, preventing future generations from believing false ideas. Therefore, the authority over truth is in stake and the discussions involve a power dispute over education.

Authors: Brunah Schall – Universidade Federal de Minas Gerais, Brazil

20582 - DEBATING THE FUTURE OF FOOD INNOVATION THROUGH INCLUSION, SAFETY AND HEALTH

Over the past ten years, food has become one of the topics of greatest interest to public health. The rise of phenomena such as obesity, cardiovascular diseases and diabetes have placed at the center of governments’ attention the need to consider appropriate forms of promotion of health and safety in daily life. At EU level, food-related health problems have now been identified as one of Europe’s common major challenges which the emerging European Research Area needs to deal with. In order to improve a mutual learning between industry, researchers and civil society in the earliest stages of research processes directed towards developing innovative approaches (technical and social), a group of 18 partner of 14 European countries have developed the three years “Inprofood” project funded by the European Union. Within the project three series of European Scenario Workshops (EASW) with different types of stakeholders has been carried out in 2012 and 2013. The EASW is a method of participation that combine different relevant stakeholder groups which might be strongly affected by health related food safety issues and/or which could add valuable new perspectives, but which have not been sufficiently integrated into participatory discussions on food and health. The method consists of three steps. In a first step, participants discuss the issues of food innovation in small groups with members of their own stakeholder group only. The outcomes of these group reflections are presented in a second step to all workshop participants and discussed in an inhomogeneous setting of small groups with one member from each stakeholder group only. In this way, people with different backgrounds can learn from each other and find some common solutions in a final step – even if they do not stem necessarily from the same train of thought or interests. One main question that this research needs to tackle is the role that innovations in foods could play in counter-acting the alarming rise of food-related health problems. Advocating and promoting the production of knowledge that is close to the concerns of European citizens, the European Commission has emphasized that inventing new technologies is not enough to overcome the pressing societal challenges (European Commission 2009). This paper will propose a conceptual framework for understanding public's concern about food considering the dimensions of health and risk analyzing data collected during the three round of EASW in Italy.

Authors: Giuseppe Pellegrini – Università di Padova, Italy
20418 - DESIGNING SUSTAINABLE CITIES THROUGH PARTICIPATORY DESIGN; AN INCLUSIVE INTERDISCIPLINARY METHODOLOGY

The planning and design of cities in Latin America has taken a shift in the past couple of years. Aiming to create sustainable and inclusive cities that bridge the gap between polarized economic classes, urbanists and city planners have started to encourage the participatory design process. This article explores the participatory design as an asset to strengthen community bonds, create awareness, and encourage opinion-forming regarding the social and sustainable development of the city. Participatory design can improve social fabric by reducing segregation and fulfilling the needs of a wide variety of habitants. Mexico is a country of social disparity, where a small elite commonly makes decisions. Using the participatory design process to plan excluded communities, will allow people to get involved in projects that bring together local acquaintance and the experts’ knowledge. Throughout its different stages, people acquire new information and become involved in an interesting and enjoyable process. A case study was conducted in Querétaro, Mexico in Los Alcanfores Park. The urban context is characterized by its social segregation, environmental degradation, and high insecurity. An interdisciplinary methodology was designed to integrate the community in the diagnosis, strategies, and the park’s project. The participatory design methodology includes ethnographic observation, open interviews, behavioral maps, questionnaires, a participatory workshop, and a design charrette. Data was analyzed through content and statistical analysis in order to validate and generate reliable results. Results suggest that the participatory design process gradually engages the community. It has a snowball effect; participants attract and invite other members. Results show a gap between community’s priority areas of intervention and the experts’ strategies. Therefore, the workshop aimed to create a common ground to attend different expectations. We realized that casual interviews and the workshop create comfortable atmospheres were participants become receptible to new knowledge. Results indicate that the gradual involvement, allows participants to create a solid and informed opinion, focusing on collective needs rather than individual preferences. Therefore, we consider the participatory design, to be a reliable and inclusive process that creates awareness and aids opinion forming; leading to a focused, interconnected, and responsible design of the city.

Authors: Patricia Rios Cabello - Instituto Tecnológico de Estudios Superiores de Monterrey, Mexico

20134 - DEVELOPMENT OF NEW PEDIATRIC CONSENT MATERIAL WITH CHILDREN IN A PARTICIPATORY PROCESS

Background: Pediatric consent documents should enable children to make an informed, voluntary choice to consent or dissent to research participation. However, these documents are often complicated and hard to read, and children fail to comprehend essential research information. A reason for this problem is that writers of consent material generally have a different educational level and perception than their intended target group. Therefore, in this study, children participated in the development of new consent material in a participatory process.
Methods: The new consent format consists of a comic strip with general research information and a form with specific trial details, the latter being currently under construction. A draft for the comic strip was initially developed in a top-down manner by a science communicator and an artist, to ensure that all important information was present. Subsequently, the draft was presented in two school classes of the target group: children aged 10–14. Children provided input for further development in qualitative interviews and in a survey on understanding and user-satisfaction. The comic strip was improved, and re-evaluated among four school classes of varying ages and educational levels. Results: The first round of feedback revealed that children liked the story-format of the comic strip and were interested in the information presented. However, the children were often confused by the structure of the story. In addition, they all indicated that the story was too long. In response to this input, the comic strip was divided into chapters and color-coding was applied to distinguish different parts. Story length was reduced and the booklet size was altered. Additional adaptations were made based on detailed feedback from the interviews. In the second feedback-round, reading time was shorter and more children understood the content of the story. New feedback was collected in order to further improve the comic strip. Discussion: Information provided to children in the informed consent process should optimally reach the target group. To this aim, a participatory development of pediatric consent material was set up. Participating children were enthusiastic about their input in the development and offered useful feedback and new perspectives. Participatory research is a promising means to reach target groups that are not often heard, connect to their information needs and empower them to make informed decisions.

Authors: Ronella Grootens-Wiegert – Leiden University – Science Communication & Society, Netherlands
Jos van den Broek – Leiden University – Science Communication & Society, Netherlands
Martine Vries – Leidsch Universitair Medisch Centrum, Netherlands

20476 – DEVELOPMENT OF PUBLIC POLICY ON SCIENCE-TECHNOLOGY POPULARIZATION: A METHOD AND ITS APPLICATION IN MEXICO

There have been various efforts to design and implement public policies to communicate science and technology in several countries. In Mexico, initiatives have been proposed but few have been materialized. A pioneering initiative was successfully developed and implemented in the State of Michoacán, with the support of the local executive and legislative authorities. The Council for Science, Technology and Innovation of Michoacán, with the support from a group of experts in science popularization management, developed the State Program of Diffusion and Popularization of Science and Technology (PEDDCyT). Michoacán thus became the first Mexican state in having a statewide instrument to guide, focus, articulate and enhance public communication of science and technology on solid basis of diagnostic, public policy and participative planning. The PEDDCyT is comprised of three components: (1) A systemic diagnosis of science–technology popularization in the State, which included an analysis of the environment in which S&T
popularization occurs in Michoacán, an inventory of the activities and resources of S&T popularization in the state, and a SWOT analysis of S&T popularization; (2) A set of public policies on S&T popularization, along with their respective lines of action (three basic general policies plus eleven specific policies); (3) A strategic plan of popularization of science and technology, which included a prospective component (mission, vision, general objectives), a strategic component (SWOT analysis, strategy, mid-term strategic projects portfolio aimed to strengthen S&T popularization), and a tactical component (set of short-term operational programs and development projects of public communication of science and technology). The process of formulating the PEDDCyT—which included public policies as a core component—was marked by a very wide participation of the Michoacán’s S&T popularization community, which generated a product of shared visions, experiences, and aspirations. On the other hand, a proprietary method involving various data collection strategies was developed (surveys, collective contributions in large groups, focus groups, and document analysis). This groundbreaking case, carried out with a broad participation of the local community of science communicators, and with a solid ad-hoc method, is already a reference and an example that is encouraging efforts of the same nature in other Mexican states, as well as in one Latin American country.

Authors: Jorge Padilla-Gonzalez - Sociedad Mexicana para la Divulgación de la Ciencia y la Técnica, Mexico
Maria Lourdes Patiño-Barba - Sociedad Mexicana para la Divulgación de la Ciencia y la Técnica, Mexico

20672 - DIGITAL DEMOCRACY AND ENVIRONMENTAL COMMUNICATION: PUBLIC CONSULTATIONS FOR RIO+20

Alterations in communications raised the need to involve the public in a more participatory and interactive way, within the context of digital democracy. As communication state must meet the public interest, a program was developed (within the scope of Brazil’s Federal Government) that encourages people to discuss issues of interest: digital public consultations. These consultations are part of the deployment procedure of e-government across the country and represent a breakthrough in relations between state and society. However, although it allows, it does not guarantee participation and citizen contact with the government. This paper is a reflection on the importance of the participation of society through public consultation in the digital environment for the Rio +20 Conference in June 2012. One of them held by the Ministry of Environment in 2011, to receive proposals from different sectors of civil society on the central themes discussed at the Rio Conference; The second, conducted by the Centro de Gestão e Estudos Estratégicos (CGEE) in March 2012 on the concepts of public Green Economy and Sustainable Development. This study also seeks to emphasize the importance of public participation in environmental issues, addressing concepts of public participation. The aim of this paper is to assess what is the public perception of brazilians on the main problems in the environmental area, and suggestions for sustainable development of the country. This is a Study of Multiple Cases, by Yin (2001), exploratory and qualitative. The theoretical framework of
this work is based on the Deliberative Polls, research by James Fishkin (2005) and the concepts of digital democracy. The first consultation was held to be examined by the Ministry of Environment in 2011 and aimed to receive proposals from the different actors of the society on the core issues to be discussed during Rio +20. Four different representatives were heard: civil society, the academic community, the business sector and local governments. The second consultation was conducted by the Centro de Gestão e Estudos Estratégicos (CGEE), also in 2012, during the month of March, about the concepts of public Green Economy and Sustainable Development. This consultation sought to verify the perception that people have about the future of the environment and public awareness of these issues. Preliminary results of the research show that society does want to engage in discussion of issues of interest.

Authors: Marcelle Correia Ferrari – Universidade Estadual de Campinas, Brazil
Maria das Graças Conde Caldas – Universidade Estadual de Campinas, Brazil

2016 – DO ASIAN BIOTECH EXPERTS COMMUNICATE WITH THE PUBLIC?
Studies have shown that university professors and public sector scientists are regarded by various stakeholders as highly credible, trustworthy, and key information sources on biotechnology. They are seen to be highly concerned about public health and safety issues and are deemed capable of assessing and managing benefits and risks. They can play an important role in enabling a transparent and evidence-based discussion of issues and concerns that affect understanding, acceptance, and adoption of biotechnology. While developed countries such as Europe and North America have institutional mechanisms to encourage public engagement with science, it has not been the same for experts in Asia. What is the status of biotech experts in developing countries with regards their awareness and application of science communication? This paper presents highlights of a three-country study on Academics and Scientists as Biotechnology Communicators: Perspectives, Capabilities, and Challenges of Experts in Asia. The study seeks to find out how academics and scientists in Indonesia, Malaysia, and the Philippines are fulfilling their role as biotech communicators with the public. Specifically, it focuses on science communication activities, communication needs, and mechanisms to address concerns. Recommendations are forwarded to develop a favorable environment for science communication in developing countries.

Authors: Mariechel J. Navarro – International Service for the Acquisition of Agri-Biotech Applications, Philippines
Kristine N. Tome – International Service for the Acquisition of Agri-Biotech Applications, Philippines
Rhodora R. Aldemita – International Service for the Acquisition of Agri-Biotech Applications, Philippines

20652 – DON’T SHUN SCIENCE—GO FOR IT. A SCIENCE JOURNALISM MODEL FOR NON-SCIENTIST REPORTERS
Content analysis studies have documented the amount and/or depth of either science news or scientific content in news stories in which science might have figured prominently, yet the tendency seems to be for science to be either left
out or covered scarcely. In this paper we present results from coverage by the Mexican press of three distinct news events: the IPCC's 2001 Reports; the AH1N1 influenza outbreak during 2010; and UN's COP16 climate summit held in Cancún, México, also in 2010. Our results confirm the tendency for lack of science content, from the printed press to commercial and public TV newscasts. In an attempt to address this flaw, we also present a model of science journalism which introduces a pair of tools to be used by reporters with no previous science background beyond high school. These tools are designed to help in the identification of scientific information points relevant to each story at the earliest stages of the planning process, and then to help reporters to recognize and extract the science content from the most primary sources (i.e., scientific papers in peer reviewed journals, technical reports, congress presentations and interviews with scientists). This ability strives to empower journalists who might feel threatened by the complexities of the scientific narrative at this level. The model postulates that science content is a limiting factor towards achieving journalistic quality and steers this content towards satisfying citizen's information needs, following well established characterizations of the social function of journalism. The model and its tools have been designed to guide reporters through their journalistic research under conditions compatible with the manufacture of a long-format feature piece, but can be trimmed to accommodate other genres, such as in-depth interviews and, to a certain extent, shorter quick response notes. Research on the model itself is still in the early stages. Nevertheless, we present preliminary results drawn from success stories of college students graduated from careers in journalism in México who have published dozens of pieces in mainstream media outlets, be it print, radio or TV, thus providing proof of principle.

Authors: Javier Cruz-Mena – Mexico'S National University, Mexico
Cecilia Rosen – Consejo Nacional de Investigaciones Científicas y Técnicas, Mexico
Aleida Rueda – Mexico'S National University, Mexico

20613 - EARTH GIRL 2: PREPARING FOR THE TSUNAMI, A STRATEGY CASUAL GAME

Earth Girl 2 is a strategy casual game about learning and making strategic decisions that can directly increase the survival rate of individuals in a coastal communities during Earthquake/Tsunami scenarios. The game is the second in the Earth Girl series and it was partly inspired by the fact that 70% of the fatalities in the 2004 Indian Ocean Tsunami were girls and women. The first game in the Earth Girl series was launched in January of 2013 at the PCST/SCANZ Symposium 2013 “Disasters: Communicating in the Crisis and Aftermath,” in Christchurch, NZ. The game is scheduled for release in early 2014 on mobile devices, tablets and internet in several languages. The paper/session will present the finished game as well as the goals of the project and details of the interdisciplinary development/production process. The game includes scenarios with a REAL-LIFE twist, and the emphasis is on LEARNING preparedness and survival skills. The basic game play scenario includes: #1- Proactive learning about tsunami hazards #2- Exploring the site and making strategic decisions #3- Learning from watching the results of the simulation For an Earth Girl 2 demo video please visit: https://vimeo.
Some of the policies of scientific popularization most successful and widespread in the world are the weeks of national science, technology and innovation. Since the 80s, these events are organized in non-formal education settings, in order to contribute to improving the education and scientific culture of the general public, especially children and young people. Called “Days of Science” Coffee with Science”, “Science Fair”, “Festival of Science” and “National Weeks (and/ or regional) of ST&I”, among many other variants, these events also intend to encourage young people vocations for scientific and technical careers. The organization of weeks is part of public policies of education and scientific divulgation and it depends, mainly, on government funding. The participation of private institutions is still incipient. This paper provides an overview of international initiatives such as the weeks of ST&I, emphasizing the Brazilian “National Week of Science and Technology” (SNCT), started in 2004. The analyzes presented are based on direct observation of activities promoted in the city of São Paulo, during the “2012 Week of Science and Technology” that had as theme “Sustainability, Green Economy and Eradicating Poverty”. The methodology adopted in this study is descriptive, exploratory and qualitative. There are multiple modalities and characteristics of themes and their formats. Plays, video-documentaries and presentation of recent results of scientific and technological research are part of the universe of knowledge passed to the public, in a playful and accessible language. It is essential, however, that in these lectures and exhibitions, science can stimulate reflections about the scientific foundations, methods and procedures as well as its risks and problems. The results demonstrate cultural differences in the realization of weeks of each country, its characteristics and public policies. In the specific case of Brazil, the results highlight the importance of the Week for the formation of scientific culture in non-formal education settings, they show the Week’s growth (1,848 activities in 252 municipalities in 2004 to 28,148 activities in 722 municipalities in 2012), but also identify important problems of structure and organization, which need to be improved. Key words: Communication, Science, Education, Public Policies of ST&I, International and Brazilian SNCT.

Authors: Carina Pascotto Garroti – Universidade Estadual de Campinas, Brazil
Maria das Graças Conde Caldas – Universidade Estadual de Campinas, Brazil

20376 – EDUCATIONAL ROBOTICS AND INCLUSION OF GIFTED STUDENTS: A CHALLENGE IN SCHOOL ROUTINE
The manipulation of technological objects towards reworking them, rebuilding them and reinventing them to solve everyday problems, leads the student to exceed the user role of technology, becoming aware of this tool in all its aspects, including around their political and social dimensions. The educational robotics allows the elaboration of activities presented in the form of challenges that
students should strive to solve. These challenges, when inspired by problems of their own school or neighborhood, make students feel participating, contributing to improving the quality of life in their surroundings. The use of educational robotics offers the student the opportunity to see their “invention” materialized into a finished product, encouraging him to “create” practical solutions to everyday problems. The student is led to experience ways of building knowledge in an interdisciplinary approach, that invokes not only the school teaching, but also additional knowledge in various fields. We address educational robotics as an effective approach in stimulating the autonomy and creativity of gifted children. These children often have a pattern of uneven intellectual development in relation to colleagues, which often becomes visible also emotionally, causing rejection and estrangement. On the other hand, the quickness in assimilating knowledge makes classroom routine exhausting and unexciting, often causing failure, boredom, conformity and school dropouts. Feeling apart in collective environments, the gifted student tends to deny skills, what entails behavioral and psychological problems. It is a complex situation that demonstrates the need for teacher and family be prepared to deal with these children, in order to validate and stimulate their skills and interests making them feel accepted and therefore apt to exploit their potential. Although recognized by Brazilian law No. 9394 of 1996 as a group in special education, there are still education professionals that disregard this students, which complicates its identification, resulting in the waste of talent.

This project addresses the effectiveness of the use of robotics in encouraging autonomy and creativity of the student, so in order to validate and stimulate their skills and interests making the school routine welcoming to these students.

Authors: Eduardo Erick de Oliveira Pereira – Universidade Federal Fluminense, Brazil
Cristina Maria Carvalho Delou – Universidade Federal Fluminense, Brazil
Isabel Cafezeiro – Universidade Federal Fluminense, Brazil

20429 - Empty Vessels or Communicating Vessels? Science Communication in Indigenous Peoples and in Other Intercultural Contexts

One of the most marginal groups in what science communication is concerned are indigenous peoples. When science knowledge is brought to them, generally through schools, it is from a colonialist scope, with the purpose of “civilize them”; they still are seen as subjects with no knowledge, as mere empty vessels which need to be fill up, even though they have been widely recognized as world biodiversity guardians, as holders of deep medical knowledge and of some other type of wisdom which nowadays are the basis for promising researches. At the same time, and with the same purpose, they suffer the imposition of modern technology – miner projects, hydroelectric dams, etc. –, generally with no previous consultation. Both ways of bringing science and technology to indigenous peoples usually result in resistance, refusal and active opposition, mainly when they see their territory and identity affected; or in a particular appropriation, without the basic scientific knowledge and its logic, that is, a re-appropriation from the perspective of their own culture and worldview. How should we carry on science communication in this kind of intercultural contexts? First of all, we have to stop considering indigenous peoples as subjects with no knowledge, and we
must accept them as producers of knowledge with a long tradition, which is not static — as a fundamental element to fit social life to environmental conditions, knowledge keeps in a changing dynamics. This means that indigenous peoples knowledge is embodied in the global effort to face world problems, like climate change. Thereafter, the following step is, assuming our own ontology, that is, our scientific and humanistic worldview, to start an intercultural dialogue in order to uplift both ontologies by the mutual exchange, so that the two cultures walk in the same direction to conceive solutions and successful ways of global development — which must guarantee the free willing of indigenous peoples. So, in order to reach such purpose, we need new concepts, new “tools for thought”. This presentation talks about some experiences and reflections which point to that direction. It looks forward to contribute to the inclusion of indigenous peoples knowledge — and by the same way, of all non western cultures — in a global synergy of knowledge, but in total equality. The main intention is to leave behind, in intercultural contexts, the idea of empty vessels in order to get completely in an era of communicating vessels.

Authors: César Carrillo-Trueba – Revista Ciencias, Facultad de Ciencias, Universidad Nacional Autónoma de México, Mexico

20306 - ENGAGING MOBILE TECHNOLOGIES IN ADOLESCENTS SEXUAL HEALTH RISK COMMUNICATION IN NIGERIA

National surveys have shown the progressively poor sexual and reproductive health indices of the average Nigerian (NDHS, 2008). What is more frightening about this trend is the fact that adolescents and youth who constitute over one-third of Nigeria’s population have continued to bear the overwhelming burden of the poor sexual and reproductive health status of Nigerians particularly the scourge of HIV/AIDS infections (USAID, 2010; NARHS, 2003, 2005). The implication of this disheartening trend is that adolescents and young people who are crucial to the future of Nigeria’s economic and social well-being are significantly being lost to the vicissitudes of poor sexual and reproductive health conditions. This is in spite of the growing number of sexual and reproductive health programmes targeted at canvassing a variety of interventions in addressing the poor sexual and reproductive health conditions of adolescents. Research findings have suggested the factors that have been responsible for the failure of these programmes to include those of failing to link with the sources of information, to those of under serving of vulnerable populations of adolescents, to those of failing to provide services required by adolescents (USAID, 2010). Further, analysis of programme delivery showed that services which were critical to the sexual and reproductive health needs of adolescents such as counselling, skills empowerment, and information networks were not being provided. The adolescent dilemma has therefore been identified as a lack of information to make informed decisions on sexuality issues (USAID, 2010). Although the report acknowledged that many adolescents pick up information from friends, and the media; the pieces of information they acquire are said to be inaccurate and misleading. The situation was much the same with parents and guardians as it was reported that information
they provided was often censored due to traditional values and norms that forbid open discussion on sexuality. The foregoing is therefore a clear indication that public communication of adolescents' sexual health risks in Nigeria is a major challenge because of failure in programmatic communication, communication of inaccurate/misleading information, and censorship in the transmission of relevant sexuality information (which is scientific in nature). The report (USAID, 2010) however suggested social marketing services as a critical model for qualitative public communication of adolescent sexual and reproductive health risk information. This study is therefore designed to assess the direction and extent of influence of mobile technology platforms (as social marketing channels) on the public communication of (the scientific information of) adolescents' sexual health risks in Nigeria. Survey will be used for the study; data for the survey will be collected from a sample of 379 respondents (drawn from providers of adolescents' sexual health services, adolescents' sexual health policy makers, and donor agencies in the adolescents' sexual health sector) using a 13 item self-developed instrument: Mobile Technologies and Adolescents Sexual Health Risk Communication Questionnaire (MTASHRCQ). Data analysis will hinge on both qualitative and quantitative techniques. Therefore, frequency tables, simple percentages, and the statistical package for social sciences will be engaged in data analysis.

Authors: Nicholas Sesugh Iwokwagh – Federal University of Technology, Nigeria

20386 - ENGAGING OPPORTUNITIES: DEVELOPING A SCHOOL-UNIVERSITY PARTNERSHIP TO CONNECT YOUNG PEOPLE AND TEACHERS WITH RESEARCHERS

‘Engaging opportunities’[1] is a three-year action research project (2012-2015). Funded as part of RCUNITED KINGDOM’s School-University Partnership Initiative (SUPI)[2] the project involves a partnership between the Open University (OU), United Kingdom and the Denbigh Teaching School Alliance[3]. Through this strategic partnership we will improve the value, recognition and support for direct engagement between Open University researchers, young people and teachers. Our core objective is to engage young people aged between 11 and 19 with authentic practices of contemporary and inspiring research in a range of academic disciplines, including the sciences. We aim to enhance and enrich formal and informal learning contexts in the widest possible range of academic subjects offered by the 12 participating secondary schools, and through extra-curricular activities. In addressing these aims and objectives, we are using a flexible and adaptable framework involving four types of activity: open lectures; open dialogues; open inquiry; and open creativity. In this paper, we explore one of the first interventions in the open creativity work package. Through this activity ten Year 13 students received training from OU staff in media production that supplemented the requirements of the Media Studies curriculum. Intensive studio-based training was complemented with filming on location, producing a number of high-quality videos featuring OU scientists and their research. The Media Studies students successfully reconvened several weeks later to film one of the open inquiry activities on location, this time without support from teachers.
or the OU media producers. We conducted evaluation research to explore the students’, teachers’, researchers’ and media producers’ contributions to this activity with a view to improving future interventions. In particular, the findings illustrate the significance of affective and social issues: the young people appreciated the opportunities for collaborative working with professionals gaining confidence in the process. Several of the students plan to use their contributions to this activity in their applications to study at university. References 1. Select http://www.open.ac.United Kingdom/engaging-opportunities for the ‘Engaging opportunities’ website. 2. 12 projects were funded as part of the United Kingdom-wide SUPI network. Select http://www.rcUnited Kingdom.ac.United Kingdom/per/Pages/PartnershipsInitiative.aspx for details. 3. Select http://www.denbigh.net/TeachingSchoolAlliance.html for details.

Authors: Richard Holliman - The Open University, United Kingdom
Gareth Davies - The Open University, United Kingdom
Janet Sumner - The Open University, United Kingdom
Andrew Squires - Denbigh Teaching School Alliance, United Kingdom
Helen Brown - Denbigh Teaching School Alliance, United Kingdom
Eileen Scanlon - The Open University, United Kingdom

20269 - ENHANCING SOCIA LLY RESPONSIBLE INNOVATION WITH SCIENCE COMMUNICATION BASED INTERVENTIONS

Policy makers and scholars from the social sciences and humanities have advocated for the inclusion of social and ethical aspects (SEAs) in the responsible development and deployment of new science and technology, such as nanotechnology and biotechnology. These SEAs relate to e.g. environmental sustainability, health, public needs, values and opinions, intellectual property, equity and funding. Several methods have been developed and tested to integrate SEAs into science and technology in-the-making, such as constructive technology assessment, value sensitive design and midstream modulation. However, the extent to which these methods contribute to the actual improvement of the quality of innovation practices remains unclear. We recently finished a study that investigated to what extent considerations of SEAs help to improve the quality of research and development (R&D) practices. We used midstream modulation (MM) as an intervention method to integrate such considerations in R&D practice. In MM, researchers from the natural sciences interact (communicate) with a scholar from the social sciences / humanities, to discuss how, when and why which SEAs can be included in on-going R&D during a three-month study. We linked the use of MM to the quality of R&D practice, scored based on innovation quality key performance indicators (KPIs). An adapted version of the Dutch Wageningen Innovation Assessment Toolkit was used to measure changes in project performance based on relevant KPIs, relating e.g. to technical performance, but also to social-ethical and economic aspects with regard to potential market opportunities and social acceptability upon product implementation in society. Our results show that R&D practices, based on KPI scoring, indeed improve through the use of MM. The quality of teamwork improves and resulting innovations are better attuned to
social and political needs, values and opinions, further improving an organisation's innovative capacity. In future research, the performance measurement part of our study could be deployed to analyse the effect of other communication–based methods on innovation practices. In addition, the used combined qualitative and quantitative approach has the potential to be developed into a decision support system to be used in R&D environments and its supporting science communication processes.

Authors: Steven Flipse – Delft University of Technology, Netherlands
Maarten C.A. van der Sanden – Delft University of Technology, Netherlands

20349 – ENVIRONMENTAL FORUM: ARTICULATES SCIENCE, MEDIA AND POLITICS IN THE ENVIRONMENT MUSEUM
The Botanical Garden of Rio de Janeiro is a scientific institution dedicated to research and conservation of the flora. Since 2008, it has added to its objectives the study of relationship between man and environment, reason for which was gestated the creation of the Museum Environment. One of the goals of the museum comes to promoting and encouraging the participation of society in debates about environmental issues through critical reflection and joint construction of knowledge, aiming at the formation of public opinion aware of the current environmental problems. To this end, the program of public communication of science seeks dialogue with creativity and innovation in targeted actions to society, searching to identify demands and needs of your audience. The creation of a permanent forum for discussion of environmental issues is one of its strategic actions of empowerment. The Environmental Forum opens up a space not only for participation, but also the perspective of the individual inclusion in discussions of real environmental problems that affect our quality of life, able to build a sense of belonging to our environment. With public participation is intended to further stimulate the critical sense of the individual in the processes of public management of resources and environmental services, mainly due to the importance and complexity of managing environmental heritage for future generations. Based on the assumptions stated above, the Environmental Forum was developed from environmental issues that have been circulating in the public sphere. Was taken as the basis for building an environmental issue an articulation of some aspects: knowledge, built by science and technology; social representations, formed in the hybridity of discourses of different social actors in the public sphere; politics, protagonist as decision makers, and the media, the journalistic treatment in environmental disputes. So far, we present Environmental Biodiversity Forum. Developed from the case of a frog, endemic species threatened with extinction, found in the swamp of the National Forest Mario Xavier in Seropédica, which is in the path of highway construction of the Metropolitan Arch of Rio de Janeiro. We discuss the conceptual basis of communicative action of the Environmental Forum, the methodology development and implementation, and some preliminary evaluation conducted with the participants.

Authors: Luisa Rocha – Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, Brazil
Carmen Silvia Machado – Instituto de Pesquisas Jardim Botânico do Rio de Janeiro, Brazil
20403 - EVENTS AS SCIENCE COMMUNICATION TOOL: THE IMPORTANCE OF EXHILARATION, INVOLVEMENT, AND INTERACTION

Much like science communication, the traditional means of brand communication have seen a decrease in effectiveness. As a result, event-marketing has emerged as a “new” means to attract people and initiate high levels of interactivity (Whelan & Wohlfeil, 2006). A similar trend can be observed in science communication. Nolin, Bragesjo and Kasperowski noted in 2006 that science weeks and festivals are recent initiatives in the PUS landscape and, indeed, today these are a well-established science communication tool. Science events and festivals in itself are not that “new”. The “Wetenweek” in the Netherlands, for example, has already seen its 35th anniversary. The “newness” is more to be found in how the events are organized and the degree to which they can be compared to entertainment-oriented events and festivals. Drawing from experience in the field of communication in general, science communication theory, and experience in organizing “new style” science events, this paper will elaborate on the success factors and drawbacks of implementing events as a tool for science communication, as well as discuss the differences between how events play a role in communication in the context of branding versus that of science communication. Traditionally, science communication focuses on meeting cognitive needs. This cognitive part, according to Keller (1993), is composed of awareness and image. The authors argue that it is perhaps time to start thinking of how to increase the image part (how are we seen) rather than the awareness part (what is seen). Therefore, this paper wants to discuss that science communicators need to start working on (1) the branding of the communication product itself, as well as (2) the sender. One way to do this, is to link one’s name to an event (Deane, Smith & Adams, 2003). Events may not always be cost effective, but the growing importance of the communication impact is widely accepted (Close, Finney, Lacey & Sneath, 2006; Deane, Smith & Adams, 2003; Smit, Bronner & Toolboom, 2007). Stepping into the footsteps of the global brands, the authors want to discuss the differences and comparisons of using the same strategies for event marketing in science communication contexts. The authors have been involved as researchers and/or organizers in national and international science events and festivals (e.g. the BioPOP festival in Italy and the Netherlands; and the Discovery Festival in the Netherlands, part of European Researchers Night).

Authors: Julian van der Kleijn – The Hague University, ESCM, Communication, Netherlands
Mark Jeroen Wim Bos – The Hague University, ESCM, Communication, Netherlands
Alex Verkade – De Praktijk, Netherlands

20661 - EVIDENCE FOR DEMOCRACY, THRUSTING PUBLIC SCIENCE INTO A POLITICAL PLACE

Scientists, at least in Canada, were not known for acting up politically. This role was not part of their training. Scientists working in governmental departments, civil servant scientists, assumed the results of their research would inform public policy at best or be part of the consultative process at a minimum. A benchmark for effective communication was simply demonstrating an ability to communicate
the results of the research in a way that policy makers, politicians or on rare occasions, the public could understand. Over the years, some government scientists became strong communicators and journalists sought them out for their expertise. But then the conservative government of the last eight years put strict limits on scientists interaction with journalists, peers and the public. Scientist were sidelined, dogma trumped data. The perceived treatment of science and scientists in the last seven years saw a new developing consciousness in the scientific community. One result: Evidence for Democracy, a movement to bring evidence back into policy making and science back into political process. The group first staged a death of evidence rally on Parliament Hill. White coats were seldom, if ever before, seen carrying placards. The novelty of scientists making noise in the public arena captured the media's attention. E4D launched officially in 2013. This paper will examine the impact of its the actions and questions raised as a result: How effective can scientists be in agitating politically without compromising their research. What is the role of the scientist in the public sphere? Can it be compatible with the government's need for information control? This paper is anatomy of an upstart movement and how E4D gained traction or lost it and what lessons can be learned in the process for political and public engagement. (full disclosure, the author is listed as a founding member of E4D, with no financial ties)

Authors: Kathryn O’Hara – Carleton University, Canada

20339 - EXPLORING LESSONS FROM THE IMPLEMENTATION OF A REGIONAL PROGRAM ON PUBLIC COMMUNICATION OF SCIENCE IN MEXICO

The Universidad Veracruzana launched in 2013 a certificate program focusing on science communication groundwork in attempt to propose a scholar vision incorporating an inclusive social approach. The purpose was to bring the socio-cultural domain into a highlight position when preparing science communication strategies in order to create not only bridges between scientists and society, but also to ensure to support citizens’ needs with available scientific knowledge. The program gathered professionals from a wide range of areas, from science teachers, reporters, as well as different science researchers. The educational menu offered three areas of concentration: science journalism, multimedia production and face-to-face strategies. The curricular design was rooted in the principles of participatory approaches and experiential learning. On the one hand, the objective was to blend theoretical content with practical experience in order to have a direct interaction with different types of publics. This was intended so as to have a sensibilizatizion process for the students that could enable them to experience from first hand what is the meaning of geographical and social differences of local publics. This direct contact resulted in the construction of a science communication perspective that took them beyond statistical data and allowed them to appropiate a view of reality and the characterization of publics within their projects. Concurrently to this learning process and having such an heterogenous group, classes were facilitated with participatory approaches to create awareness of their differences and similarities when discussing science communication conceptualizations. As a common identity as science communicators was constructed, students were exposed to a final project where they worked in contexts that were profesionally or personally relevant to them.
Their science communication strategies captured their learning process when they expressed in them, elements of intelectual, social or emotional engagement. Thus, this program is an effort to examine new possibilities not only in the sense to propose an educational program with social pertinence, but also to explore creative ways to teach science communication. Expectantly, this will contribute to the disciplinary formation of professionals empowered to feel more as citizens and, in turn, have citizens feeling acknowledged.

Authors: Valentina Martínez Valdés – CITRO - Universidad Veracruzana, Mexico
María Edith Escalón Portilla – Laboratorio Multimedia X Balam - Universidad Veracruzana, Mexico
Manuel Martínez Morales – Departamento de Inteligencia Artificial - Universidad Veracruzana, Mexico

2016 - FRAMES OF ENGAGEMENT: EXPERT-YOUTH INTERACTION IN A CLIMATE CHANGE DISCUSSION EVENT

Participatory processes are necessary for a more democratic involvement of the public. Previous studies on public engagement with science (PES) have identified various difficulties in the encounters between experts, citizens and other stakeholders. However, relatively little focus has been put on the explicit analysis of social interaction within actual PES-events, especially where experts discuss matters with young people. We argue that Goffmanian microsociological analysis might be useful to better understand the interactive aspects of informal PES-events. Based on a case study involving a climate change panel discussion and a simultaneous online chat, both aimed at young people, we discuss the multiplicity of the interactive frames which emerge, intertwine and conflict in a PES-event. These different framings are not always intentionally exploited by the participants, and also reflect institutional and material arrangements, the staging of the event. We identified four different frames used during the panel and the online chat: participation, theatre, education and play. In the participatory frame the hosts, panelists and the public were encouraged to engage in a mutual exercise: to discuss the implications of climate change in everyday life. The second theatrical frame worked in a quite opposite way. Instead of a participatory dialogue, it evoked mainly monological performances from the experts to the audience. In the education frame, knowledge was transmitted from the experts to the audience. Those with more (abstract) knowledge educated those with less knowledge. Finally, the play frame was only evoked in the online chat. It was a consequence of the provocation by some of the participants who “misbehaved” by joking and challenging the whole event. Different frames entail different interaction structures and modes of communication. Further, we will look for “misbehaviors” and “overspillings” which challenge the rationality and norms of a typical engagement. By identifying the forms of misbehavior, it is possible to explore the normative assumptions and underlying expectations of different actors participating in the event. Our findings also indicate that the frame of deliberative participation is very fragile, and other – perhaps more intuitive – frames easily override the ideal of egalitarian discussion.

Authors: Sampsa Saikkonen – University of Helsinki, Finland
Esa Väliverronen – University of Helsinki, Finland
In this paper, we will discuss bridging the gap between the public and policy-makers. To apply public needs to the processes of making policy on Science, Technology and Innovation (STI), we have developed a project called “Framework for Broad Public Engagement in STI (PESTI).” PESTI was established in October 2012 as part of the R&D program: “STI Policy” of Research Institute of Science and Technology for Society (RISTEX), Japan Science and Technology Agency (JST), which is a research founding program to promote R&D projects and network formation aimed at realizing objective of evidence-based policy forming. Development of sound institutional frameworks for broader public engagement with STI policy has been attracting growing attention of governments that regard STI as a primary means to promote their national interest, including Japan. Our project aims to build a new framework for policy-making processes of STI to better reflect existing public needs for STI. To this aim, we employ the segmentation method to explore public needs for STI to ensure the diversity of approached public groups. In addition, we cooperatively work with policy makers, specialists in scientific and technological research and professionals from related industries, so that the identified public needs for STI can be presented to policy makers in a way that the public needs can actually be incorporated into policy-making processes. So far, we have been working particularly on public needs for regenerative medicine, which were explored in both quantitative and qualitative manners. We are currently investigating how to turn the public needs into substantive policy options, as well as actually drafting ones with the help from several interested scientific experts in the field and policy makers. For example, we will show the public needs for regenerative medicine (RM) that we identified from several public surveys such as group interviews, opinion polls and an example of applying these needs to the STI policy options. Specifically, we identified two major public needs for RM: “risk avoidance” and “expectation of increasing QOL.” From these needs, we have proposed an example of STI policy options.

Authors: Naonori Akiya - Kyoto University, Japan
Xiaojun Ding - Kyoto University, Japan
Kuniyoshi Ebina - Kyoto University, Japan
Takayuki Goto - Kyoto University, Japan
Koichiro Hioki - Kyoto University, Japan
Mitsuru Kudo - Kyoto University, Japan
Haruhiko Maenami - Kyoto University, Japan
Toshifumi Minamoto - Kyoto University, Japan
Eri Mizumachi - Kyoto University, Japan
Mikihiho Mori - Kyoto University, Japan
Yosihitaka Morimura - Kyoto University, Japan
Tamaki Motoki - Kyoto University, Japan
Akie Nakayama - Kyoto University, Japan
Makiko Suga - TezUnited Kingdomayama University, Japna
Katsuya Takanashi - Kyoto University, Japan
Go Yoshizawa - Osaka University, Japan
Masayuki Itoh - Kobe University, Japan
Kei Kano - Kyoto University, Japan
20132 - HOBBIES AND “SCIENCE CULTURE”
Since the origin of the PCST community in 1989, its multi-lingual character has been both a strength and challenge. In particular, the name of our field is problematic: public understanding, divulgacion, vulgarization, public engagement, apropiacion social, etc., are all terms that don’t translate well. A particular challenge has been the French term of “culture scientifique.” In English, the term “scientific culture” refers to the internal culture of science, the values and norms of the scientific community. It doesn’t capture the broad social and cultural meanings of the French. However, linking the learning that occurs in hobbies and other forms of recreation with public communication of science and technology suggests a new usage: “science culture.” This is an analogue for “cooking culture” or “reading culture” – an element of broader culture that describes particular enthusiasms, knowledge, activities, and sensibilities. Using examples from various hobbies (ranging from star-gazing to DIYBio), this paper will develop the idea of “science culture” as an English-language description of the goal of PCST.
Authors: Bruce Lewenstein – Cornell University, United States

20525 - HOW BRAZILIAN SMALL SCALE FARMERS ASSESS GM CROPS?
Science and its developments gain increasing importance in the modern world. Some of its applications generate particular anxiety and controversy, such as genetically modified organisms (GM0s). Their introduction into the food chain led to heated debates in many countries. In Brazil, the controversy began in the 1990s and intensified in 2003, when became public that a significant proportion of Brazilian soybeans came from illegal planting of GM seeds in the South. A deliberative troubled path followed until the adoption of the current Biosafety Law, in 2005. During the consolidation of this legal framework, attempts to understand the views of society on GMOs were timid. On some occasions, lay perceptions were invalidated and scientific discourse, privileged. Small farmers directly affected by this technology and protagonists of its spread, had limited involvement in the debate. The objective of the study to be presented at PCST 2014 was to understand how these actors assess GMOs, the dilemmas they face with this technology, how they position themselves and make decisions related to it. Fifteen focus groups were conducted with 111 small scale producers in Acre, Paraná and Rio Grande do Sul. Data were analyzed based on the semiolinguistic theory proposed by Patrick Charaudeau. In our presentation, we will share the key results of this research, which led us to the conclusion that there is a great need for more inclusive and dialogical science communication initiatives and the development of participatory mechanisms aimed at these and other citizens, to help create stronger links between science and society and build a permanent demand for democracy, in which decisions consider the diversity of opinions, cultures and knowledge within the country.
Authors: Carla da Silva Almeida – Museu da Vida, Casa de Oswaldo Cruz, Fundação Oswaldo Cruz, Brazil
Luisa Massarani – Museu da Vida, Casa de Oswaldo Cruz, Fundação Oswaldo Cruz, Brazil
20647 - HYDROLOGY FOR RESILIENT CITIES: AN ITINERANT LABORATORY FOR THE INHABITANTS OF PARIS SUBURBS

A last generation weather radar is being installed in the East of Paris. This measuring device will bring important improvements to urban water management in several areas of the city that are exposed to flood risk. In this context, building a dialogue with concerned citizen is highly important. For this reason, the team of researchers in charge of the project went out the laboratory to meet families in a important local festival, and students in the schools of Paris suburbs. Through interactive presentations and educational games, the researchers from École des Ponts ParisTech together with two brilliant “Crazy Scientists”, explained how a X-band radar works and how it can reduce the risks of floods and water pollution in the city. The itinerant laboratory is made possible through the Chair Hydrology for a Resilient Cities and the following research projects: Radx@Idf, Interreg RainGain, Climate-KIC BlueGreenDream.

Authors: Rosa Vicari - LEESU & Chair ‘Hydrology for Resilient Cities’, Université Paris–Est, École des Ponts Paris Tech, Marne-la-Vallée, France
Jean-Roland Tartas – Les Savants Fous, France
Auguste Gires – LEESU, & Chair ‘Hydrology for Resilient Cities’, Université Paris–Est, Ecole des Ponts ParisTech, France
Ioulia Tchiguirinskaia – LEESU, & Chair ‘Hydrology for Resilient Cities’, Université Paris–Est, Ecole des Ponts ParisTech, France
Daniel Schertzer – LEESU, & Chair ‘Hydrology for Resilient Cities’, Université Paris–Est, Ecole des Ponts ParisTech, France

20305 - INCLUDING LOW-LITERATES IN THE DESIGN PROCESS OF VISUALS FOR PATIENT-INFORMATION: EMPOWERING PATIENTS THROUGH TAILORED VISUAL LANGUAGE

Access to comprehensible medication information is a basic requirement for patients to be able to manage their health. Previous research has shown that patient information leaflets are often written at a level that is too high for the general public (see for example, Estrada, 2000; Wallace, 2008). For people with inadequate skills in interpreting written information, understanding patient leaflets can be particularly problematic. To empower these low-literate medication users, we are in the process of developing a system of visuals that enhances understanding of textual information and that can emphasize essential content. This paper describes the first steps of the participatory development process. In face-to-face interviews, low-literate participants discussed which parts of a complex information leaflet of hypertension medication should be emphasized or explained using pictograms or other forms of visualization. Also, after an initial ‘completely open’ discussion, participants were asked to give their opinion on several example images – in order to determine concrete directions for design and to make sure low-literates would be able to get their coin in if the first part of the session would prove too difficult or not informative enough for design purposes. Sketches were developed by an interdisciplinary team consisting of experts in visual communication, graphic design, and biomedical, pharmaceutical and communication sciences. The design process was guided by materials drawn by low-literates following the production method, and by literature on the Gestalt-
ABSTRACTS

124

laws of visual perception and on design for low-literate audiences. Discussions with the target group are useful to prioritize steps in the evidence-based design process, and to target the intervention to their wishes and needs to make the intervention more meaningful. The outcomes of the discussions with low-literate people that led to the development of the sketches will be presented at the conference.

Authors: Mara van Beusekom – Leiden University Medical Center/Leiden University, Netherlands
Mark Jeroen Wim Bos – The Hague University/Leiden University, Netherlands
Henk-Jan Guchelaar – Leiden University Medical Center, Netherlands
Jos van den Broek – Leiden University, Netherlands

20708 – INCREASING POSITIVE MEANINGS OF POLITICS AND SCIENCE POLICES AS THOSE CONCEPTS WERE EXPRESSED IN DIFFERENT FASES OF AN IMPORTANT BRAZILIAN JOURNAL

We discuss the role of Brazilian Society for the Advancement of Science (SBPC), during the process of democratization in Brazil, focusing our analysis in the journal Ciência Hoje. We are interested on the discussion of values of scientific culture. Ciência Hoje was created in 1982 by a group of scientists who aimed to promote scientific popularization. Meanings attributed to the journal by the editors about its initial success, suggest a strengthening of a science-democracy axis. SBPC has promoted discourses around that axis since its foundation (1948). However, during the military dictatorship, this axis had been strengthened as an explicit political position, progressively antagonistic to the government. It’s notable that SBPC’s role in political resistance during Brazilian dictatorship promoted a positive connotation for the meanings of “politics” and “polices” among scientific community in Brazil. Although extremely politically active until the mid 60s, SBPC had showed intention of political impartiality, as if it would, otherwise, corrupt the scientific ethos. But, during the military dictatorship, SBPC began to exercise greater autonomy from government and also criticize the technocracy. In the 80s, SBPC assumes politics as essential to his conception of scientific culture and seeks to demonstrate to the public in Ciência Hoje, the centrality of science to shape public policies, supported by the national science. It is possible to identify, in Ciência Hoje, aspects of institutional relations between scientific societies, universities, development agencies and the government. As presented in the journal, these relations were proposed by SBPC through a nationalist model of development. This vehicle also showed up as relevant in the affirmation of science as culture, not anymore in competition with others, such as artistic, religious, et cetera, but opened to dialogue with others. The communication of science to the general public was strategic in this process and journal Ciência Hoje allowed more dialogues, incorporating new languages to inform the public and discuss national problematic situations, such as environmental issues (pollution and exploitation of natural resources) and social (poverty, indigenous issues, et cetera). In this paper we argue that the journal Ciência Hoje had a key role in providing visibility and recording an appreciation of scientists and theirs roles on the reconstruction of democracy in the eighties in Brazil.

Authors: Marina Assis Fonseca – Universidade Federal de Viçosa, Brazil
Bernardo Jefferson de Oliveira – Universidade Federal de Minas Gerais, Brazil
20415 - INDICATORS FOR SOCIAL APPROPRIATION OF SCIENCE AND TECHNOLOGY

From the 90s, unlike other countries, in Colombia is beginning to use the concept of Social Appropriation of Science and Technology -ASCyT- (by its acronym in Spanish) to describe those practices and policies about public engagement and communication of science and technology. However, in public policy documents have been addressed in limited way conceptual discussions about what does it mean to talk about ASCyT, which has led to focus on a set of practices to be developed, stating objectives that often do not seem attainable. This has resulted in indicators that do not seem to have clarity in what you want and need to measure. In addition, is the fact that the few indicators that have been proposed have lacked methodological routes for collection and analysis of information in a systematic and rigorous ways. With this background, it is difficult to understand and prove the role that the activities of Public Communication of Science in Colombia have fulfilled in order to democratizing the scientific and technological knowledge, both in terms of fostering a critical dialogue about the processes of science and technology, as well as in the relationship with other forms of knowledge. In short, through the Colombian science policy there have been various efforts to build indicators for tracking and monitoring these processes, however, it have not met their objectives primarily for three reasons: • The indicators have not expressed what is to be measured clearly and accurately. • The information provided by the indicator is not sufficient to explain the achievement of the objectives (in many cases because the objectives are not entirely clear). • The required information has not been available. Hence, this paper, recognizing the experience and Colombian landscape on this front, seeks to account for methodological route for building ASCyT indicators that are not only useful for monitoring the results, but rather to promote the process measurement and the progress of a project in terms of management, quality and impact. This in order to build capacity to enable the National System of Science and Technology, creating a basis for continued development of regional and national indicators about Social Appropriation of Science and Technology.

Authors: Marcela Lozano Borda – Observatorio Colombiano de Ciencia y Tecnología, Colombia
Diana Papagayo – Observatorio Colombiano de Ciencia y Tecnología, Colombia
Vladimir Ariza – Observatorio Colombiano de Ciencia y Tecnología, Colombia

20584 - INDONESIAN VIRTUAL SCIENCE MUSEUM: INTEGRATED APPLICATION TO REACH REMOTE PEOPLE ALL OVER INDONESIA

Indonesia, the largest archipelago country in the world with 17,500 islands, always faces problem in bridging the gap of education quality level between big cities and remote areas. One of the reason is the various levels of teachers quality. Better salary and benefits make the best teachers are concentrated in big cities, whereas some remote areas are also very difficult to be reached because of its natural obstacles. Better approach is certainly needed to improve this situation. Initially, the idea is to develop an Indonesian Virtual Science Museum (IVSM), but after some discussion we decided to change it to Indonesian Virtual Science Town. The application developer is DoctoRabbit Science Inc. Our wish is
this application could become a solution to improve students understanding of science. It is designed like a computer game with an entertaining animation to attract the students to explore it. The science town consists of areas designated to certain ages, such as toddlers to kindergarten, elementary school, junior high school, senior high school, and public. Those areas are contented with interactive experiments (virtual lab), remote robotic lab, or other interesting activities. There are some questions to test the user’s understanding on the topic discussed. The pilot project of this virtual science museum will be implemented as a bundled application of Wifi ID that will be installed in several schools by the end of the year 2014. Wifi ID is a wireless broadband facilities developed by PT Telkom Indonesia, the government owned telecommunication company, to be installed all over Indonesia. By installing this tools, all areas in Indonesia will be connected and information will also be well spread. Review and implementation of the system to be installed at all other schools are planned to be finished by mid year 2015 and therefore by the end of the year 2015 it is hoped that it could be accessed by everybody all over Indonesia. Keywords: virtual, science, museum, town, remote, digital, technology
Authors: Dyah Ratna Permatasari - DoctoRabbit Science Inc., Indonesia

20468 - INFORMING PRACTICE FROM RESEARCH: A MUSEUM EXHIBIT EVALUATION
Increasingly it is becoming a requirement for scientists to include an outreach or communication component into their research proposals. However such integration is still faulty. It is important to inform scientists and communicators about how to improve the communication process and how to incorporate the audience perspective in communication endeavors. The purpose of this research was to evaluate the impact of a science communication endeavor— the Explore Research exhibit at the Florida Museum of Natural History. This exhibit features research conducted by scientists at the University of Florida and brings together the main actors in the science communication process: scientists, communicators and the public. The evaluation of this exhibit sheds light on how the communication occurs from the perspective of each group of actors. Results from this study provide information to improve the process. First, this study elaborates a set of recommendations for the Explore Research exhibit and second, develops a proposal to feature a specific research project applying the recommendations made for this study. Results from this study improve upcoming efforts not only for the Panama Canal Project, but also for other research groups at the University of Florida. By including the audience’s perspective into the proposed exhibit (front-end and formative evaluation), this project tackled a constant call in science communication literature: incorporate the audience needs and interests. Twenty scientists, 10 communicators and 40 museum visitors participated in the study via email surveys and short interviews at the exhibit. Results indicate that the exhibit is well received by museum visitors and that the goals set for the exhibit are accomplished. Museum visitors walked away from the exhibit with a basic awareness of the research conducted at the University of Florida and the implications of that research. In addition, researchers and communicators were
satisfied with their participation, but there are still opportunities for improvement in the interaction between these two groups. Recommendations include offering better feedback to researchers before and after their participation, promoting the exhibit in STEM departments to motivate more researchers to participate and technical suggestions for each of the exhibit components.

Authors: Luz Helena Oviedo – Instituto Alexander Von Humboldt, Colombia
Betty Dunckel – University of Florida, United States
Dale Johnson – University of Florida, United States
Bruce MacFadden – University of Florida, United States
Debbie Treise – University of Florida, United States

20604 – INSPIRING AUSTRALIA
Inspiring Australia is a national strategy for engagement with the sciences, working across all levels of government and industry to promote science and science literacy in Australia. Launched in 2010, it aims to deliver a more scientifically engaged Australia where Australians are inspired by and value scientific endeavour; Australia attracts increasing national and international interest in its science; Australians critically engage with key scientific issues; and young Australians are encouraged to pursue scientific studies and careers. The Inspiring Australia strategy was developed through national consultations with a wide range of science communicators, educators, journalists and scientists in all states and territories. Its 17 recommendations are a blueprint for this engagement. In this presentation the 17 recommendations will be discussed, in particular the moves to establish an evidence base for public engagement through research into science communication, past and present, and the establishment of a national survey of Australia’s public.

Authors: Susan Stocklmayer – The Australian National University, Australia

20623 – IS ENVIRONMENTAL JOURNALISM AN EMPOWERING TOOL FOR CITIZENSHIP?
In Mexico and other Latin American countries scientific journalism had faced insurmountable obstacles due to language barriers and the number and availability of specialized information in the native tongue. Before 2010, Mexico lacked specialized information for journalists in environmental topics. There in no graduate program focused on environmental journalism although there have been some recent workshops and short courses. In October 2011, the Universidad Popular Autonoma de Veracruz in Jalapa started the first graduate program for environmental journalism. The State of Veracruz is located in the Easter coast of Mexico. Veracruz faces important environmental challenges, because it is one of Mexico’s most vulnerable areas to global environmental changes. Under this scenario, the aim of the environmental journalism graduate program is to prepare professionals capable of investigating and communicating of the most relevant scientific research on environmental issues, and the encouragement of citizen participation. Our main objective is to present the experiences of graduate students that have practiced environmental journalism under the current conditions,
and incorporating the mass media changes, and illustrate the challenges and problems that they face when reporting on environmental topics. We present a characterization of their professional practice and their link to citizens through their work. Based on our particular experience with this program, the present paper answers the question whether environmental journalism actually promotes and strengthens citizen participation, or if it is merely an information source with little or no effect on environmentally responsible social change.

Authors: Cecilia Montero – Unión Panamericana de Asociaciones de Valuación, Mexico
Ana Claudia Nepote – Universidad Nacional Autónoma de Mexico, Mexico

20151 - IS SCIENCE COMMUNICATION FOR SCIENTIFIC LITERACY? – IODINE SALT RUSH-PURCHASING TIDE IN CHINA
This paper divides into 4 parts, first portrays the development of the iodine salt rush-purchasing in China, second describes the response of media and academic opinions, third makes an analysis from the dimension of science communication, and last draws some conclusions. After the 3.11 earthquake in Japan, especially when the Fukushima Dai-Ichi nuclear accident happened, a big panic arose suddenly among many Chinese people who crashed into every supermarket to buy iodine salt and bought dozens of kilograms to tons of salt to their homes, which looked just like a real disaster happened in China too. Media and scholars gave many analysis and reflections. The main opinion was Chinese people have so low level of scientific literacy that they couldn’t judge the right (scientific) way to face this emergency. The iodine salt rush-purchasing tide in China is a very good case of science communication of public concerning disaster. From the public behavior of iodine salt rush-purchasing, general people showed their own rationalism: got a psychological sense of safety by a relative lower cost—several bags of salt, which obviously shows that public had their own ways to deal with emergency which maybe not so scientific. Today science is so deeply and broadly concerned with almost any side of our society, science communication does not mean communication science itself—the scientific knowledge, data, facts, theories (science literacy) are often not enough for complicated and concrete needs of every individual person, it’s why we could observe that some people in USA and Russia who are thought have much more higher level of scientific literacy than Chinese people, also crashed to buy iodine table and salt during the same days. As a result, we have to admit that nowadays science communication does not mean just to improve the so called scientific literacy of public and then every thing would be Ok. In conclusions, the relative lower level of scientific literacy of Chinese people is not the only or main reason for the iodine salt rush-purchasing tide in China. The orientation of science communication should be changed from a traditional education model to a new service one: instead of asking public to improve so called scientific literacy, it’s quite suitable to establish an efficient feed back mechanism of meeting various and practical needs of public from material benefits, recreation expectation, to democracy right concerning science issues in modern society.

Authors: Xiaomin Zhu – Peking University, China
This work is the result of the dissertation, entitled “Labor and Training in Communication and Health Issues: discursive-ideological analysis of manuals on emergencies and disasters produced by international organizations (WHO and PAHO).” Analyzes, critical-ideological perspective, the discourse of two manuals produced by international organizations located in the field of Communication and Health (C & S) and targeted at specific situations for “emergency and disaster.” The study is justified by the concentration of the literature in this field critique of instrumental communication and ways to overcome it, requiring a scientific production in relation to employment and training. To this end, this paper first introduces the relationship between communication, hegemony and globalization in contemporary capitalism. It also discusses, briefly, the emergence of the field of C & S and policies governing this context, as well as work and training of professionals working in this field. Also discusses the issues of society divided into classes and pedagogy skills in work and education. It also discusses the importance of international organizations in the health field for the consolidation of a hegemonic discourse to work in the field of C & S. From the theoretical and methodological framework of critical discourse and ideological, were defined four categories of discourse analysis in the manuals: population; emergencies and disasters, work and training, and communication and health. The result of the study was proof of an articulated set of directions that produce the hegemonic discourse, namely the control of popular participation linked to population fragmentation, emergency and disaster as isolated from social production, the effect of health, communication as instrumental and the work and training as behavioral.

Authors: Luciana Pereira Lindenmeyer – Fundação Oswaldo Cruz, Brazil
Carla Macedo Martins – Fundação Oswaldo Cruz, Brazil

The Dirección General de Divulgación de la Ciencia (Science Public Communication Department) has developed products and activities in all media communication, to diverse audiences. Nonetheless, none had incursionated in a science magazine. There wasn’t a project like this one in the institution and there are no more than three magazines on science communication for children in market. Considering a gap in education in Mexico, it is a need to expand educative materials, specially those that have to do with public communication of science. The magazines have a great potential to cover that goal, are highly accesibles, can handle a more familiar language, complemented with images and few text, the comprehension on the subject grows. The magazines will be used as didactic material to get more children to read. To initialize the project, many literature was searched about: related experiences (national and international), the profile of the audience we wanted to reach, their interests to cover them on future magazines, and other similar aspects for the editorial line that we are going to show. An evaluation process is being developed with two issues we have been released. We also will approach the pedagogical aspects we considered for the realization of the project, and that may be useful in any other project along the lines of public communication of science for children and adults.
ABSTRACTS

20495 - MARANHENSE MAGAZINE: FIRST VEHICLE THE COMMUNICATION IN SCIENCE OF MARANHÃO STATE

The Communication in Science communication have a fundamental significance in the demystification of science and approach between society and scientific discoveries. In the history of the dissemination and propagation of science, several initiatives were gradually influenced the development of a scientific consciousness. By observing the movement of the scientistic Maranhão in the end of nineteenth and early twentieth century, we find the Maranhense Magazine: Arts, Sciences and Letters, a channel of scientific and literary development. This journal is a milestone in the dissemination and popularization of science in the state of Maranhão, written at a time when intellectuals maranhenses wished to return to the past glories of Athens known as Brazilian. The proposed study Maranhense Magazine: Arts, Letters and Sciences is based on the desire to rescue the historical memory of popular science in the state of Maranhão, since this journal represents the aspirations of intellectuals with social progress, scientific and educational. Is this rescue that also proposes to observe the present scenario of Maranhão in relation to science and its development, considering that one of the legacies of the Journal Maranhense was drawing attention, through their articles, to the problem of illiteracy, as well as the need to fight it promoting education. Similarly to the early twentieth century, there are several initiatives to promote the approach of Maranhão to scientific development. Today, the State has the Foundation for Research Support - FAPEMA, semiannual journal that publishes Innovation, a channel for the publication of scholarly articles and scientific support. Another important means of disseminating scientific Maranhão is the Radio Science program, broadcast twice a day on FM Radio Universidade. In addition to the shares for the Laboratory Science Communication Science Island (LDC Island Science), pioneering project of the Department of Physics, Federal University of Maranhão - UFMA, that as science museum open to the public, has been serving students from public and particular. Developed as a generator of Science, the Laboratory has scientific environment and conducive to the development of education and expansion of scientific knowledge, thus contributing to the expansion and the dissemination of science in the country, especially in the state of Maranhão.

Authors: Antonio José Silva Oliveira – Universidade Federal do Maranhão, Brazil

20554 - MARGINALIZED COMMUNITIES AND THEIR SOCIAL INCLUSION: THE EMERGENCE OF A TARGET PUBLIC IN MEXICO FOR SCIENCE COMMUNICATION

In Mexico, as in many Latin American countries, poverty and marginalization in areas of rural and indigenous population has generated a systematic exclusion of several communities. This situation includes no access to health care, fresh water, electricity nor education, as well as a segregation from any contact with science.
Thus, the communities in this context have a set of particular attributes as social groups. Nevertheless, it has to be acknowledged that popularization strategies in general have ignored this contexts in alternatives that focuses on closing the gaps between science and society. In fact, the attention has been focused mainly with mass and social media in urban settings, which adds more to the exclusion of the rural sector in Mexico. In terms of social structure, infrastructure, basic services, agency capacity and choices for local actors, differences are accentuated between marginalized social groups and the public that science communication has traditionally targeted, who have been usually demarketed by their schooling, access to the media or other sociodemographic factors. However, marginalized communities in Latin America should receive a prioritary attention from science communication. This intention should be translated into strategies designed with objectives that focus on their current contexts, issues and needs. We should also support, through the use of participatory strategies, the processes of social appropriation of knowledge which will contribute to their social inclusion. These initiatives, if planned through a series of knowledge interfaces, represent a good alternative to top-bottom models or any sporadic activity within traditional practices of science communication. The foregoing has been demonstrated by the present research, a case study about three fisher communities from Alvarado, Veracruz, Mexico, that moved away from traditional fishing to aquaculture through a 15-year process of interaction with scientists and scholars from the University of Veracruz. It is to noticed, that the University is embedded in the southeast region of Mexico which represents the 84% of marginalized communities in the country and encloses 50% of the illiterate population.

Authors: María Edith Escalón Portilla - Universidad Veracruzana, Mexico
Susana Herrera Lima - Universidad Jesuita de Guadalajara, Mexico

**20279 - MATHEMATICS, MATHEMATICAL PRACTICE AND COMMUNICATION OF MATHEMATICS**

The practice in the field of mathematics often attributes the soundness and completeness of results to purely deductive reasoning. The criterion of truthfulness as well as the applicability of results are usually dependent upon confidence in proof. Hence, in the so called ‘objective discourse’, inductive reasoning, tests and empirical approaches are often rejected. Computer science suggests that this should be open to discussion since abstract (formal) knowledge becomes directly embodied in computer programs, and therefore would seem to make ‘immediate’ (that is, without mediation) contact with the real world. For Alan Turing, a mathematician considered the father of computing, the empirical question and inductive thought seemed to have been clear from the start. Turing’s way of doing mathematics contrasts with that of those who, at this time in the 1930s, were engaged in questions regarding computability. The prevailing view was that mathematical deduction was the guarantee of correct thinking. Hence, a study of Turing’s way of working draws attention to approaches that consider diverse factors of diverse natures, these being on the same scale as what is usually indicated as ‘objective factors’ in the construction of the ‘objective’ facts of science. These approaches may shed new light on questions about
the neutrality and universality of mathematical knowledge, both shifting the
axis of the authority of mathematics and paving the way for new possibilities
of mathematical knowledge construction. Through the analysis of Turing’s way
of doing mathematics we argue that knowledge – in particular, mathematical
knowledge – is locally produced and engaged with the contexts from which it
was conceived. This allows us to highlight two issues that shows the inadequacy
of conceiving the technical and the social in a dichotomy: 1. asymmetric power
relations are strengthened in what is said to be ‘technique’, in so far as the
technique, under a universal and neutral conception, just admit questionings on
its own terms, 2. situations of a local conjuncture have a direct influence in the
conformation of what is considered ‘technique’. Such issues justify the conception
of a sociology of mathematics that, when rescuing the links of mathematics with
local conditions, allows the understanding, configuring thus a more accessible
mathematics.
Authors: Isabel Cafezeiro – Universidade Federal Fluminense, Brazil
Ivan da Costa Marques – Universidade Federal do Rio de Janeiro, Brazil

20464 – MEASURABLE AND MEANINGFUL: A SURVEY OF THE AUSTRALIAN PUBLIC ABOUT THEIR
ENGAGEMENT WITH SCIENCE
This paper presents the preliminary findings of a national survey of the Australian
public about their attitudes, behaviours and values with regard to science and
technology. For this study, science and technology were defined and asked
about separately in the questionnaire. Respondents’ attitudes, such as their
interest in science and technology, trust in information sources and how much
they value science and technology research, were explored. Different types of
engagement with science and technology through the Internet, traditional mass
media and specific activities and events are quantified in terms of respondents’
age, gender and geographical location. This paper also describes the values held
by Australians around the contribution of science and technology to economic
growth and causing or solving the problems facing society today. One thousand
adults (aged 18+ years), representing the Australian population by gender, age
and geographic location were surveyed using a Computer-Assisted Telephone
Interview (CATI) process in February 2014. This research is part of an Australian
government initiative (2010–2014) called ‘Inspiring Australia: a national strategy
for engagement with the sciences’.
Authors: Suzette Searle – The Austraian National University, Australia
Susan Stocklmayer – The Austraian National University, Australia

20218 – MEDIA PSYCHOLOGY FOR INCLUSIVE SCIENCE COMMUNICATION: THE CASE OF NARRATIVE MESSAGE
DESIGN
Reaching out to diverse audiences remains a key challenge for science
communication. But conventional strategies can often only be valued by formally
well-educated groups, as the complicated language and formal nature make
comprehension and evaluation of science communication very demanding
(Avraamidou & Osborne, 2009). Thus, audiences who lack fundamental knowledge
and involvement are often excluded from the discourse. Recently, storytelling
has been proposed to design more inclusive public messages about science (Dahlstrom, 2010; Glaser, Garsoffky & Schwan, 2009). We apply theory from media psychology as the Construction-Integration-Model (Kintsch, 1983; Johnson-Laird, 1983), the LC4MP (Lang, 2000) and engagement (Busselle & Bilandzic, 2008) to identify the mechanisms through which narratives can improve appeal and comprehensiveness of science communication in lower-educated audiences. The theoretical analysis reveals that storytelling influences information processing in two ways. First, the linear-causal structure of narratives improves understanding even when the audience holds only little prior knowledge (Kintsch, 1988). Stories can thus seed basic understanding in audiences that would be overwhelmed by more abstract explications. Second, our model assumes a motivational effect on audience attention. Because stories are usually aimed at evoking emotional and cognitive responses, such as surprise or curiosity (Busselle & Bilandzic, 2008), they motivate low involved audiences to mobilize additional attention for processing the science message. This, in turn, will also support comprehension and satisfaction. From the analysis of psychological mechanisms, we derive recommendations for designing narrative content for more inclusive science communication. Both processes (e.g., chemical reactions, medical procedures) and outcomes (e.g., new technologies or materials) can be ‘narrativized’. However, communicators have to carefully integrate the science information into the stories. At the same time, the narrative's basic elements need to connect to audiences’ common sense and facilitate emotional responses, requiring pre-testing of stories: Narrative science communication should be both a creative and strategic approach. The presentation is intended to open the discussion with conference participants on further theoretical issues and best practice examples for inclusive narrative science communication.

Authors: Katharina Emde – HMTM Hannover, Germany
Elena Link – HMTM Hannover, Germany
Christoph Klimmt – HMTM Hannover, Germany

20355 - NEWSPAPER COVERAGE OF CLIMATE CHANGE IN SOUTH ASIA
South Asia comprises the countries of Afghanistan, Bangladesh, Bhutan, India, Nepal, Pakistan, the Maldives, and Sri Lanka. This study on climate change has been carried out by (1) analyzing the newspaper texts available online, and (2) interviewing journalists of South Asia through emails. Global climate change is now a major challenge facing the world. The UN’s Inter-governmental Panel on Climate Change (IPCC) and other leading organizations have expressed their concerns over climate change being cause in terms of erratic monsoons, flash floods, crop failure, etc. The South Asian region is more vulnerable to climate change risks as it is too dependent on its natural resources and agriculture, besides its dense population and poverty. This paper focused on studying the discourses of the climate change related news in newspapers of the South Asian countries. It was found that there is a phenomenal difference in attitudes and experiences of journalists in bringing out the information to the public domain. Some of the other findings are: The journalists mostly portray climate change
as cause of anthropogenic activities and climate change as a potential crisis in near future. There needs to be more media focus at the regional or local levels. Climate change will not affect every place on the earth in the same way. Thus, specific solution strategies may need to be developed for regional areas. Although climate change effects will be felt at national and global levels, there are regional adaptations that need to be considered. For this, journalists will have to work hand in hand with grassroots civil society activists to create climate awareness at the local level. There is a possibility that journalistic behaviour could affect the way that climate change is presented in the media. Matters such as deadlines and lack of knowledge of the reporters could result in heavy use of material from international and national news agency services. It might be expected that a regional newspaper would provide a greater amount of regional and local coverage, but it is not the case. Regarding methodology, it was not difficult to access major newspapers over the internet for analyzing the content, though archives were not available in most of the news portals. But accessing journalists and getting interviews over email was a difficult task.

Authors: Arul Aram I. - Anna University, India

20480 - NOT JUST A LOAD OF RUBBISH: A MARINE DEBRIS CITIZEN SCIENCE PROGRAM’S IMPACT ON SCHOOL TEACHERS

Participating in citizen science can help school students visualize themselves as scientists. Is there value in professional development for teachers to increase incorporation of citizen science into classrooms? This case study investigated the education component of an Australian citizen science program which involves marine debris. Specifically, we examined impact of teacher participation in an intensive, residential professional development program. We asked participating teachers about incorporation of the citizen science program into their classroom teaching. Nineteen semi-structured interviews were conducted. Twelve teachers (from both primary and secondary schools) were interviewed either face-to-face or over the telephone regarding the program’s impact as well as their incorporation of aspects of the program into their teaching. Four program scientists and three program providers were also interviewed to determine if their observations and expectations aligned with those of the teachers. Use of the program in classroom teaching ranged from collecting citizen science data with students to inspiring a unit in recycled art. Teachers described benefits (both personal and professional) of participating in the program, such as a better understanding of science, increased teacher capacity and a chance to participate in original research. Responses between teachers, scientists and program providers differed in their emphasis. For example the relevance of the topic and ability to adapt the program were common themes in teacher interviews while adapting the program was only mentioned by one scientist and may be at odds with program objectives. Since program providers, research scientists and teachers may have different objectives it is important that a few desired outcomes are identified and specifically targeted during the professional development program. In this study, teachers perceived benefits from attending a professional development training
program and most incorporated some aspect of the citizen science program into their classroom teaching. Complementary research investigating the impact on students and teachers who participate in a one day version of the program is underway.

Authors: Jean Fletcher – University of Western Australia, Australia
Zarin Salter – University of Western Australia, Australia
Nancy Longnecker – University of Western Australia, Australia

20411 - “NÓS NO MUNDO”: COMMUNICATING SUSTAINABILITY TO BRAZILIAN PUBLIC
This article is a case study reporting and analyzing the informal education approach of an interactive exhibition on the theme of sustainability developed by the Museum of Life of Oswaldo Cruz Foundation. The exhibition “Nós do Mundo” was conceived and presented in 2012, from May 25th to July 31st, within the context of the United Nations Conference on Sustainable Development – RIO+20.

The exhibition used images, audio, video and interactive exhibits, to address topics such as exaggerated consumerism, climate change, energy matrices, social inequalities and environmental degradation. It promoted a broad debate on sustainability and relevant environmental issues with the museum's public emphasizing our individual and social responsibilities in the preservation of our planet and species. At the end of the exhibition there was a wall made of PET bottles where the visitors left their messages for a sustainable future, which included drawings from preschool children.

The exhibition was evaluated using two different methodologies. A digital questionnaire was made available at the exit to the visitors voluntarily fill in with their opinions about the exhibition. This questionnaire asked twenty objective questions about their satisfaction degree and other specific aspects as aesthetics, mediation, comfort, quality of the information provided, visitors profile and how did they know about the exhibition. Besides those, there was few open questions aiming to know what visitors liked most or least about the exhibition and asking their comments and suggestions. The exhibition received a positive overall evaluation from the visitors. The visitors understanding of the central topics approached by the exhibition and discussed by mediators along the visit and specially the emphasized importance of our social responsibility in the preservation of our planet and species was evaluated too through the analysis of the messages left in the bottles.

The messages were evaluated using the Analysis of the Collective Subject Discourse methodology (Lèfevre&Lèfevre, 2012), a quantitative and qualitative technique which groups messages with similar meanings – key expressions – quantifying and gathering them to produce short texts that synthesized the qualities enunciated by them. Although the analysis is still in process, preliminary results suggests that the exhibition contributed to increase its public’s awareness of the on these pressing environmental issues.

Authors: Vanessa F. Guimarães – Museu da Vida, Casa de Oswaldo Cruz, Fundação Oswaldo Cruz, Brazil
Sonia Mano – Museu da Vida, Casa de Oswaldo Cruz, Fundação Oswaldo Cruz, Brazil
Fabio C. Gouveia – Museu da Vida, Casa de Oswaldo Cruz, Fundação Oswaldo Cruz, Brazil
20610 - PAID SCIENCE NEWS: AN INCLUSIVE ANALYSIS

Recently, there has been lot of hues and cries for ‘Paid News’ in mass media across the world and ‘Paid Science News’ cannot be seen in isolation. The paper examines the circumstances where science news can be attributed to be paid news. It tries to draw thin lines between paid, sponsored, packaged, managed, imposed, cooked-up and hypothetical research and media stories, where involvement of external source in ‘influencing’ research reports of scientists or media reports of journalists cannot be ruled out. The paper presents a study of various facets of paid science news, views and features that appear in mass media, print, broadcast, and online, where scientists are paid to be lie in their research findings and journalists are paid to hide the truth in their media reports. The Department-Related Parliamentary Standing Committee presented its report on the “Issues Related to Paid News” in the Indian Parliament on May 6, 2013, headed by Rao Inderjit Singh, Member of Parliament, after the issues of paid news came to limelight and raised at various levels. The Press Council of India has defined paid news as ‘any news or analysis appearing in print or electronic media for consideration in cash or kind’ in its report on ‘Paid News’ given on July 30, 2010. In the U.K., an enquiry was announced to “Investigate the Culture, Practices and Ethics of the Press”, chaired by Lord Justice Leveson; the report was published on November 29, 2012. A comparison of these 3 independent reports suggests that generally they recommend ‘steps to address the issues related to paid news without imposing state’s control over media for want of freedom of speech’. It also draws insights for understanding implications of paid science news that compromise ‘scientific validation’ and ‘journalistic scrutiny’. Besides image damaging and profit dampening to life threatening impact of paid science news, the paper also reveals good aspects of paid science news important for science awareness. The issue of increasing influence of commerce on scientific research has been the cause of concerns the world over. Things have reached the point where commercial compulsions are making fundamental changes the way science is done and the way it is communicated. It emerged that besides the role of a scientist and journalist, the role of a ‘policy decision maker’ is crucial especially for ‘balanced science news’ and therefore, emphasis on ‘responsible science’ and ‘responsible journalism’ would be decisive.

Authors: Manoj Kumar Patairiya - National Council for Science & Technology Communication, India

20287 - PARTICIPATIVE SCIENCE AND ITS EPISTEMOLOGICAL IMPLICATIONS: A CONTRIBUTION FOR PUBLIC UNDERSTANDING OF SCIENCE

During the last decades, the science–society interface in Europe has presented the symptoms of an important transformation. Callon (2000) examines the situation and proposes the existence of three distinct models: public instruction, public debate and co-production of knowledge. This third model and the epistemological implications of producing knowledge through partnerships established between citizens and scientists are discussed here. The most widely accepted —yet not the only— example is the French Muscular Dystrophy Association (AFM), a group
of patients and their relatives who adopt an autonomous approach to scientific knowledge when trying to meet their own demands. Side by side with experts, they engage in all of the stages of science production. Genethon is the first non-profit pharmaceutical laboratory in the world internationally recognized and has won awards. Its management model has inspired a broad range of institutions, including several in the private sector. In 1935, Ludwik Fleck, a Polish physician and epistemologist, wrote about the genesis and development of a scientific fact. For him, science is closely linked to the social and historical assumptions of the subjects who participate in it while trying to solve their problems. The author postulates the existence of groups congregating those who share the same scientific notions. The exchange of ideas inside a group and between different groups plays a fundamental role in the process of their interaction with the objects of knowledge that are active in the formulation of scientific problems. Given this framework, science created by hybrid groups is compared here with science produced exclusively by experts. Moreover, the influence of the diversification of science’s modes of production on the construction of democratic society, in search for innovative levels of dialogue with citizens, is approached. In this new context, communication between science and society is deeply transformed, in its modes of operation as well as in its function. Any proposal favoring the mere transmission of accomplished knowledge or consolidated processes is abandoned. Instead, investments are made on the generation of a new, actively engaged public, capable of both thinking and making science. CALLON M. (2000) «Des différentes formes de démocratie technique» Les Cahiers de la sécurité intérieure n° 38, France. FLECK L. (1986) «La Génesis y el Desarrollo de un Hecho Científico.» Alianza Editorial Madrid

Authors: Rafaela Samagaia Lamy-Peronnet – Universidade Federal de Santa Catarina, Brazil
Demetrio Delizzoicov – Universidade Federal de Santa Catarina, Brazil

20195 - PERCEPTIONS OF HEALTH ATTRIBUTIONS, BEHAVIORS, AND OUTCOMES: CULTURAL CONSIDERATIONS
This study investigated the cultural influence on how much the citizens of Kazakhstan feel they have control over their own health. The strategies of health promotion involving information dissemination and social appeal are cultural constructs which assume particular beliefs about individual responsibility and control regarding outcomes. Research shows that different populations demonstrate variance in health beliefs and attributions of health behaviors (Vaughn et al., 2009). Variance occurs among cultural groups regarding health behaviors and causes of illness (Lundell et al., 2013). Health promotion that is built on the cultural beliefs and attitudes of one cultural group is not suited for another cultural group which, through historical and contemporary influences, has different views regarding health, behavior, and control. In this case, if the public does not see health outcomes as within their control, current efforts in health promotion will not produce changes in behavior towards healthier lifestyles. Method To begin investigating how culture influences the perceptions of control and responsibility in health in Kazakhstan, surveys were distributed in 10 marketplaces in Astana, Kazakhstan. Surveys included demographic information, health behaviors such as alcohol and tobacco use, exercise, and
diet. We included the multidimensional health locus of control scales (MHLC) as the primary measure to determine levels of perceived control (Wallston, et al., 1978; Wallston, 2005). Results Mean scores on the MHLC subscales were [Possible Range: 6 – 36]: Internal: 29.699 (+ 0.64); Chance: 20.817 (+ 0.849)]; and Powerful Others: 23.723 (+ 0.766). While the results of this study revealed high scores in the public’s sense of personal control over their own health, it also revealed high scores in the perception that health is in the hands of others such as medical providers as well as a result of chance or fate. Such scores are different than Western European cultural groups and similar to South Asian cultural groups, revealing cultural influences on health and behaviors. Conclusion The scores from this study are revealing in that the MHLC subscales are not at odds with one another from the perspective of our participants. Further investigation is warranted regarding attributions of illness, behavior and health in addition to the relationship between the public and the health care system.

Authors: Brett J. Craig – Nazarbayev University, Kazakhstan
Martha Corley Engstrom – Independent Researcher, Kazakhstan

20697 - POSSIBLE DIALOGUES BETWEEN PUBLIC UNDERSTANDING OF SCIENCE AND COMMUNITY ENGAGEMENT IN HEALTH RESEARCH: THE CASE OF DENGUE

The discussion presented here lies within the multicenter research project “Eliminate Dengue: our challenge”. Originally from Australia, the project involves the strategy of infecting the mosquito Aedes aegypti with the bacterium Wolbachia and releasing these Understanding of Science (PUS) and Engagement in Science (ES) approach. In theory, these infected mosquitoes into the environment. The project situates Community Engagement (CE) as a vital dimension of the initiative, since the acceptance of the population is a key dimension of the program. In fact, recent years have witness the resurgence of interest in the engagement and participation of the public in relation to the decision making of scientific research, regulatory processes, policies and programs, especially in the biosciences. Research has shown that for a technical-scientific innovation to be successful it must involve a social dimension, be attentive and autonomous regarding the use and consequences of the new knowledge generated. There is a wide variation in the definition of what constitutes community engagement and what are the motivations behind the projects that incorporate it. The emphasis on dialogue, information sharing, collaboration and shared decision making makes Community Engagement strategies close to the Public strategies which advocate effective forms of involvement and participation of society in science. Therefore, the questions that guide this study are: Do these concepts share some research orientation? Do they come from similar theoretical backgrounds (authors, institutions, subjects of interest)? As an exploratory study, a review of the scientific literature was conducted in Biological Abstract, EMBASE, and Web of Science. The records recovery for each key word were as follow: 1.110 for CE, 311 for PUS and 60 for ES. References were organized and analyzed into a text mining software. A predominance of production by the United States, England, Canada and Australia was shown. Their studies are conducted by different institutions, evidencing little dialogue between them. The field of health has a strong presence in the three traditions, with due particularities. EC has a predominance of clinical research and
PUS begins to appear in public health. ES focuses mainly on nanotechnology and there are indications of a convergence towards education and other similar areas. Further analysis should point to synergies which strengthen the convergence of these fields.

Authors: Carla Paolucci Sales – Fundação Oswaldo Cruz, Brazil
Denise Nacif Pimenta – Fundação Oswaldo Cruz, Brazil
Maria Cristina Soares Guimarães – Fundação Oswaldo Cruz, Brazil

20197 - PREDICTING ADHERENCE TO THE DEFICIT MODEL: RESEARCH I SCIENTISTS’ PERCEPTIONS OF HOW LAY INDIVIDUALS FORM ATTITUDES TOWARD NANOTECHNOLOGY

This study shows that scientists’ attitudes toward the social sciences plays a role in their perception of how people form attitudes toward nanotechnology. With science becoming increasingly complex, effective communication of science is more important than ever. Central to any communication process is an understanding of the intended audience, including their attitude toward the issue at hand and how they came to form that attitude. Scientists are key players in science communication, and many tend to think that knowledge is a major influence in the formation of lay individuals’ attitudes toward science, an idea called the “knowledge deficit model.” However, communication research shows that value predispositions and cues from the media (among other explanatory variables) are stronger predictors of public attitudes toward nanotechnology than knowledge. Through a survey of full time, tenure-track and tenured scientists at an R1 university, I investigate the extent to which scientists adhere to the knowledge deficit model when thinking about how non-scientists form attitudes towards nanotechnology. The data was analyzed using hierarchical regression. A positive attitude toward the social sciences predicts moving away from the knowledge deficit model; that is, the more positive a scientists’ attitude toward the social sciences, the more likely they are to move away from the knowledge deficit model. These findings strongly support furthering the incorporation of empirical social science research into any program with the goal of improving scientists’ interaction and communication with non-scientists. Future research may include further investigating the role that scientists’ attitudes toward social sciences play in relation to their adherence, or lack of adherence, to the deficit model.

Authors: Molly J. Simis – University of Wisconsin-Madison, United States

20409 - PROMISES AND THREATS: THE USE OF ‘THE FUTURE’ IN SCIENCE COMMUNICATION

This paper shows how the use of imagined, future scenarios in science communication becomes unavoidably intertwined with politics, since using an imagined future for dissemination involves coming into contact with issues of ideology, utopia, and dystopia, but also concepts of progress and decline. I therefore claim that science communication, which actively seeks to avoid normative themes, often fails. This is because it lacks references to framing tools and the sphere of human action and choice that makes the content meaningful. The first part of the paper examines the reasons why time has been out of fashion in the field of science communication. In response, it suggests how theories of narrative (Ricoeur) and framing (Entman) can be brought together to analyze
specific cases of imagined futures in science communication. It thus becomes possible reveal the ideological potential in disseminating science in the media. There are many examples, which support the need for theorizing the future in science communication. Future, personal health is threatened in the dangers of nano-technology, food scares such as Bovine spongiform encephalopathy, mobile phones and cancer, or mmr vaccines and autism. The future of societies is likewise addressed in issues of resource depletion, robotics, climate change, or the challenges of GM0s. Rather than ‘the future’ and utopia being in decline, as claimed by many postmodern thinkers (lyotard), newspaper articles are used to show that there is a veritable explosion of ideas concerning such issues. Indeed, the news seems to have overtaken science fiction as the primary location for imagining the future and science communication has become an integral part of this trend. While Irwin thus stresses the need for viewing “public expressions of cultural understandings and expectations of the future as a valuable resource...” (Holliman, et al: p.14), there is still no comprehensive theorization of time or ‘the future’ within science communication. This paper thus develops an operationalizable approach to analyzing issues of time in science communication, to overcome this deficit. In extension, ‘the future’ – as an analytical outset – may point towards greater theoretical synthesis within the field.

Authors: Thomas Derek Robinson – University of Southern Denmark, Denmark

20293 – PUBLIC COMMUNICATIONS, INTERNET AND CITIZENSHIP: THE POPULARIZATION OF SCIENCE ON E-GOVERNMENT PORTALS

Popularization of science through public communications can foster social inclusion and democratization of knowledge, towards more effective practices of public management, pointing to the need of taking the public opinion into account as a relevant input for policy-making. Among the accomplishments of public communications about science and technology policies in Brazil nowadays, we highlighted the e-government portals of the Brazilian states. This paper presents the initial results of research aimed at identifying the potential contribution of digital public communications on science and technology in Brazil to the strengthening of citizenship, considered in its dimension of exercising the right to information. Our goals are: a) evaluating the quality of online public communication as a source of information about the performance of state and federal policies on science and technology in relation to the fulfillment of the demands for social and economic development and public investment in public higher education systems; b) investigating the context and depth of information on science and technology public policies available in e-government portals from the 26 Brazilian states; c) proposing, with respect to the results about the quality of the digital public communications on science and technology, communication management strategies in e-government portals. In order to investigate how the electronic portals governments of the Brazilian states framed public policies on science and technology, our methodology of content analysis is based on five criteria: background and diagnoses; objectives and goals; public benefit; social impacts; and environmental impacts. The comparison between an ideal framework and the practices of science communication noted on the web portals allowed qualitative assessment of the achievements of digital public communication in
Brazil. We identified gaps and shortcomings to be solved in order to increase the potential of online communication for the popularization of science. Our analysis detected the lack of information on social and environmental impacts of the current policies, which suggested the need of improvement of the strategies employed in the online content management. Partial data obtained from the analysis of 53 webpages of the Brazilian Southeast and South states indicate the presence of 14.32% of the information which was considered necessary under normative assessment.

Authors: Aline Cristina Camargo – Sao Paulo State University, Brazil
Danilo Rothberg – Sao Paulo State University, Brazil

20477 - PUBLIC ENGAGEMENT THROUGH A HEALTH TALK RADIO PROGRAMME
Malawi Liverpool Wellcome Trust (MLW) is one of the Wellcome Trust Major Overseas programmes and conducts biomedical research on tropical health problems in Malawi. An integrated science communication programme leads MLW’s public engagement strategy which includes a health talk radio show ‘Umoyo Nkukambirana’ (Let’s talk about health). Radio is an effective source of health information in resource poor contexts. In Malawi, 53% of the population own radios (MDHS, 2010) and most people have access to one. Despite this communication opportunity, science reporting is poor and no radio programme has yet focused on medical research or the provision of comprehensive health information. The show was introduced on a national radio station to increase awareness of health and medical research and improve engagement between researchers, clinicians and the general public. This show was developed through participatory community consultation to determine content and presentation. Topics suggested included: malaria, cancer, diabetes and tuberculosis. Each programme contained panel discussions between health experts and communities, weekly questions with prizes, poetry, songs and drama performed by communities. An integrated and parallel monitoring and evaluation package, using quantitative and qualitative methods was used to assess the programme. Radio Listener Clubs were created in rural locations and Focus Group Discussions were conducted to assess process and impact of the programme. Data was collected through toll free SMS using Frontline SMS technology to explore national response to the show. Six monthly themes in line with MLW research were featured in the shows. These were research and blood, malaria, meningitis, DNA, TB, diabetes and cancer. The average number of SMS received per theme was 448. The theme of meningitis received the highest number of SMS (19%). More SMSs were sent by men (64%) and the majority (46%) in proportion to overall population came from urban areas. The programme improved listener knowledge of medical research and health and clarified misconceptions about symptoms and practice such as demystifying beliefs that blood samples are taken for supernatural purposes. The programme also impacted on intended and reported health seeking behaviour. Health talk radio programmes have the potential to increase knowledge about medical research and improve engagement with health providers if the content is developed in response to listener needs.

Authors: Deborah Nyirenda – Malawi Liverpool Wellcome Trust Clinical Research Programme, Malawi
20676 – PUBLIC PARTICIPATION AND SCIENCE COMMUNICATION IN ENVIRONMENTAL POLICY: THE CASE OF FOREST POLICY IN ARGENTINA

Forests are one of the most important and threatened ecosystems (FAO, 2005). Public policies confront the need of reconciling two opposed logics: economic exploitation versus environmental preservation. This challenge is more complex due to public policies tends to assume a technocratic view on environmental management that reduces politics to a matter of technical efficiency and, at the same time, excludes citizens based on a deficit model that separates “experts” and “laypeople”. This contribution offers a case of study on social perception of forests in Patagonia (Argentina). The project illustrates why technocratic solution is insufficient: it was possible to reconstruct the political conflict between preservation and economic exploitation from the perspective of key social agents. Contrary to the technocratic vision, the problem of native forests is not technical but political. Different logics, values and interests are confronted: NGOs organizations are opposed to the model of forest exploitation and denounce forest reduction and its effects on biodiversity and climate change. A significant proportion of public opinion believes forests exploitation threatens its conservation: they are ambivalent on the use of forests products. The forestry industries feel themselves the most affected by negative perceptions. The indigenous population is also affected by the processes of deforestation and land privatization. Finally, policy makers are looking for to reduce negative perceptions by implementing science communication strategies. Therefore, forests emergence as a complex issue that involves different dimensions: economic, ecological, cultural and political. The project evidences highlight an effective public policy would require involving the multiplicity of social agents interested and affected by the controversy. As demonstrated by social studies of science (López Cerezo & González García, 2002), public participation is not only a source of policy legitimation but technical efficiency: it allows mitigating social resistance movements. It also gives useful information and enables the emergency of new solutions initially not considered. Finally, social engagement strengthens the decision-making process. References FAO (2005), “Situación de los bosques del mundo”, Food and Agriculture Organization of the United Nations, Roma. López Cerezo, J. A., González García, M. I. (2002), Políticas del Bosque, Madrid, Cambridge University Press.

Authors: Myriam García Rodríguez – Universidad De Oviedo/Centro Redes, Spain
The advent of the unconventional natural gas industry in Australia, particularly coal seam gas (CSG) activities in regions and communities of southern Queensland, is throwing up a cloud of questions, concerns and challenges. National issues such as those around the social and environmental impacts of CSG developments are being addressed by CSIRO, Australia’s national science agency. One vehicle by which CSIRO is conducting collaborative research in this contested natural gas domain is through the Gas Industry Social and Environmental Research Alliance (GISERA) – of which Australia Pacific LNG is the other founding partner. GISERA undertakes public good research that will benefit the broader community and Australia’s natural gas industries. All GISERA research and outcomes are publicly available. There are 16 research projects underway in six subject areas: terrestrial biodiversity, surface and groundwater, greenhouse gas footprint, agricultural land management, marine environment and social and economic impacts. The GISERA collaboration hub brings together scientists from a range of disciplines including hydrologists, social scientists and agronomists to enable this broad ranging research. Over the last two years a large volume of written, visual, aural and verbal communication material has been developed and tailored to meet the widest range of audience requirements: politicians, farmers, NGOs, journalist, industry, science community and general public. As a consequence of engaging in an actively contended public debate, GISERA and its messages have received considerable scrutiny. A clear and robust communication strategy is guiding GISERA through this challenging environment; in addition to proactive management, preparation and review of high quality communication material. GISERA’s governance framework has been designed to ensure that the highest standards of research independence, transparency and integrity are maintained. Together, GISERA's strong governance and communication strategy has resulted in the establishment of public trust in GISERA and has positioned it and CSIRO as a knowledgeable provider in an area full of scientific and science communication challenges. The continued demand for information and advice from GISERA shows that GISERA is meeting the needs of a range of stakeholders and that it is seen as a source of trusted information and advice.

Authors: Sheau Tsuey Cham - Commonwealth Scientific and Industrial Research Organisation, Australia
Peter Stone - Commonwealth Scientific and Industrial Research Organisation, Australia

background: when a controversy about vaccination flared up in Northern Nigeria and one of the themes of the debate was a western conspiracy against Moslems, the first impression is that religion, in this case, Islam is anti-science. PUS in Nigeria was a survey of knowledge, attitudes, interest and being informed to map the culture of science. Some of the findings of the survey were discussed with some participants in several interviews designed to triangulate the data.
sources. The survey showed different levels of trust in public institutions and actors and surprisingly, scientists and religious leaders were similarly rated high. Factor analysis grouped the actors into three: Faith actors, public actors and independents. Factor analysis also showed there were three latent variables identifiable in the set of attitude items in the survey: myth, fear and progress. Interviews confirmed the results of the surveys that you can have faith in God and science at the same time.

Authors: Bankole Falade – London School of Economics and Political Science, United Kingdom

20620 – QUALITATIVE AND QUANTITATIVE ANALYSIS OF PUBLIC OPINIONS AND CRITERIA FOR SUSTAINABLE BIOPRODUCTS

Sustainability is a boundary concept which is and has been used in the last decade more and more in political and economic contexts. The biofuel and agriculture sustainability debate is probably the best example for this. Challenged by NGOs and scientists on the future of the planet, policy makers in Europe and the US have on the one hand introduced economic incentives and even mandated biofuel use and certain agricultural practices, but also introduced sustainability requirements and have therefore operationalized the sustainability concept into measurable criteria. At the same time, volunteer labelling schemes have been developed, often as multistakeholder initiatives by industry together with NGOs to address sustainability demands from NGOs, consumers and policy makers. For biofuels, the EU with its Renewable Energy Directive (RED) and the U.S. Renewable Fuel Standard (RFS) and the California Low Carbon Fuel Standard (LCFS) are impacting producers worldwide. At the same time, volunteer labels such as Bonsucro for sugarcane ethanol and sugar production, organic certification, Fairtrade and other food and agricultural production labels are gaining ground. Political and economic operationalization and communication of sustainability can have significant impacts on farmers and local communities involved in the food and biofuel production chain, the realized sustainability and our common future. The PhD project on which this paper is based seeks to advance our understanding of sustainability and its “DNA”/core concepts through studying the attitudes and criteria put in place relating to the sustainability of food and biomass products. Using quantitative and qualitative methods, this PhD project identifies and explores different concepts and priorities within industry, in certification schemes and by consumers. The results of qualitative focus groups and interviews with stakeholders and a quantitative study in the Netherlands and in Brazil with 1000 consumers are showing that sustainability is more rooted and used in an environmental context, while social and economic criteria play a smaller role. Differences and commonalities between consumers and industry and planetary boundaries and sustainability realities will be explored. What does sustainability mean in the context of food and biofuel production for the different stakeholders? What should the ideal sustainability label for food and biomass be like?

Authors: Sebastian Olényi – Delft University Of Technology, Netherlands
Patricia Osseweijer – Delft University Of Technology, Netherlands
REGULATORY SCIENCE AND SOCIAL MOVEMENTS: THE TRIAL AGAINST THE USE OF AGROCHEMICALS IN ITUZAINGÓ

In August 2012 a transgenic soy producer and a spraying pilot were sentenced to three years of conditional prison for pollution and harm to public health in Cordoba, Argentina. The trial was initiated by the Mothers of Ituzaingó and other grassroots movements from Cordoba, as children exposed to glyphosate-base pesticide sprayings got sick in the surroundings of transgenic soy fields. This was the first case of pollution judged by Criminal Law in Latin America. Challenging the toxicological classification of glyphosate, the verdict became a turning point in the fight for stronger regulations of a “bio-technified” agriculture. Through in-depth interviews to social movements’ members, lawyers, and physicians participating in the trial, and the Prosecutor in charge, I suggest that the joint action of social movements and experts can sometimes have a strong leverage over “regulatory science” (Jasanoff, 1990). This paper is part of an ongoing research about how communities can have a voice in regulating technological risks to which are exposed.

Authors: Florencia P. Arancibia – State University Of New York, US

RESPONSIBLE RESEARCH AND INNOVATION TOOLS – A NEW EUROPEAN PROJECT

Bridging the gap between Science and Society has been a challenge for decades. Today, there is evidence that we need to involve wider society in decisions about the form and direction of research and innovation to contribute to a smart, inclusive and sustainable growth of our societies. The European Commission has recently funded a 7million Euros project – the Responsible Research and Innovation Toolkit (RRI tools) to develop a series of training resources and opportunities that will help transform Research and Innovation in Europe into a process targeted at the grand challenges of our time (science for society), where deliberation and
reflection are coupled with action (science with society). This paper will present the initial findings of the project and enable PCST members to participate in a discussion to help define what is meant by the term ‘Responsible Research and Innovation’ as well as to share good practice found across Europe.

Authors: Melanie Smallman – Department of Science and Technology Studies, University College, United Kingdom

20559 - SAVE THE WHALES PART II: A NEW SCIENCE ADVOCACY COMMUNICATION FRAMEWORK

‘If a solution is to speak to a people and not end up as the private answer of a sect, it needs to find roots in their life, language and thought’ (Campbell, 1974 *) The context for this paper is the uncontrolled explosive growth of global whale watching and the failure of widespread sustainable practices. Economic imperatives and environmental marketing have driven the global growth of whale watching in both developing and developed world. The widespread failure of sustainability is, in part, due to ineffective public communication and poor uptake of science related to impact assessments of whale watching. This paper calls for the need to raise new questions relating to the efficacy of science and the urgent need to improve science communication to address the failure of collaboration between whale watch stakeholders. The paper presents a new science advocacy communication framework for the whale watching setting drawing on elements of documentary filmmaking such as storytelling with techniques used in TV Commercials and viral videos to frame and communicate scientific information. This audiovisual Science Communication Commercial or short SciCommercial presents a potential management tool for the whale watching industry by advocating sustainable practices to stakeholders (including governing bodies and local whale watch communities), increasing public awareness about impacts and managing visitor’s expectations. The paper will outline the developed science communication framework and present the produced multimedia whale watching SciCommercial research tool. While focusing on sustainable whale watching as the case study of this paper the SciCommercial communication framework presents an effective tool for wider science communication. * Campbell, J. A. (1974). Charles Darwin and the crisis of ecology: A rhetorical perspective, Quarterly Journal of Speech, 60(4), 442-449.

Authors: Wiebke Finkler – University of Otago, New Zealand

20265 - SCIENCE AND LITERATURE TRAVELLING TOGETHER IN METROPOLITAN BUSES

Science For All is a partnership with the award-winning project, “Reading for all”, which has been bringing fragments of literature and poetry for bus users in the city of Belo Horizonte, Brazil, for over nine years. Since 2011, transit users also have access to science texts displayed on laminated A4 sheets hung on the back of 18 seats during 3 to 4 months. Biology predominates in the themes of the texts, but chemistry and physics are also present. Most of the texts are re-writings of radio spots and thus, some characteristics of radio such as oral language and direct interpellation of the listener are present. In addition, the radio programs used
are short in length, which demands a more concise although rich construction to deliver the idea proposed. As a consequence, complex research conducted at the Federal University of Minas Gerais are explained in about 300 words, prompting the listener/reader to look for further information if desired. According to the bus company the number of potential readers can reach 17,280,000 people per year! We will be presenting the analysis of data collected during three years among bus users on their perception of the science texts available throughout this period. Semi-structured in character, the questionnaire open items invited users to lay out their general comments and suggestions of topics for later publication. Demographic outline of the public, reception context of the project, and questions on the perception of science in mainstream media are some of the researched items. Our data suggest that the initiative is reaching a public that would not, otherwise, have access to science information, especially that generated from research in a public university. The study also points out for the success of the combination of science and literature in this unusual mode of mass media communication made available inside public transportation.

Authors: Adlane Vilas-Boas – Universidade Federal de Minas Gerais, Brazil
Juliana Santos Botelho – Universidade Federal de Minas Gerais, Brazil

20461 – SCIENCE AND POLITICS IN BRAZIL: GENETIC ANCESTRY RESEARCH AS AN ARGUMENT AGAINST RACIAL QUOTAS IN PUBLIC HIGHER EDUCATION
After much controversy, the decree regulating the institution of the Law 12,711 (Quotas Law) in universities and federal institutions of higher education in Brazil was published in the Official Diary on October 15th, 2012. Under the new law, at least 50% of seats in public universities must be reserved for applicants who attended high school in public schools entirely. These seats will be divided between two groups: half will go to those who have gross family income per capita equal to or less than 1.5 minimum wages and the other half will go to students who declare themselves black, brown or indigenous. In 2013, Quotas Law has been already applied to the selection promoted by the Unified Selection System (Sisu), which selects the students based on their grade in the Exame Nacional do Ensino Médio (Enem). According to the President Dilma Rousseff, universities and federal institutes participating of Sisu must book this year, at least 12.5% of their places for students from public schools. These institutions will have until 2016 to deploy the new rules of access to higher education. Since it was approved by the Senate in August 2012, the Quota Law has divided opinions, especially with regard to the reservation of university places for blacks. The history of discussions is long and with the advent of technologies related to genetics, standards of sociability in contemporary Brazil have been discussed also in terms of genetic interpretations. In recent years, genetic studies have been used as an argument to legitimize the adoption of certain laws (as in the case of the Biosafety Law and the decriminalization of abortion of anencephalic fetuses) or to try to invalidate them (as in the example of Quota Law). The participation of the geneticist Sergio Pena at a public hearing held by the Supreme Court (STF), to discuss racial quotas, is an example of this and, therefore, invites to a reflection on the relationship
between science and politics in Brazil. Thus, this paper aims to discuss the use of genetic ancestry research as a contrary argument to public policy of quotas for blacks in public higher education.

Authors: Maísa Maryelli de Oliveira – Universidade Estadual de Campinas, Brazil

20541 – SCIENCE AND SCIENTISTS IN STORIES NARRATED BY CHILDREN: AN EXPERIMENT OF ILLUSTRATED AND NARRATIVE FOCUS GROUPS

Some of the more general notions and ideas about the scientific world are built early in life (through media, school, family) and contribute to children’s attitude toward, for example, actively participating in a world where citizenship means, more and more, also technological and scientific citizenship. Utilizing a new method of illustrated and narrative focus groups (Castelfranchi, 2013), associated with techniques from semiotic analysis and storytelling, the researchers interviewed and documented speeches and collective drawings made by groups of 6–10 children, aged around 8–11 yo, in 5 city schools of Diamantina, Vespasiano and Belo Horizonte (Minas Gerais, Brazil). In the context of collective invention of illustrated stories, the children talked about science, the figure of the scientist and its practices. We sought to widen our understanding on public opinion and imaginary with respect to scientists, science and its social role and, in general, to investigate relationships between science, technology and society. Data analysis was based on both text analysis of children’s storytelling and semiotic analysis of their drawings and a comparison were made with analouges experiments made in Italy (Castelfranchi et al, 2008). Relevant results were found: 1. Our subjects are equipped, in general, with less instruments than their Italian peers to represent or describe the figure, activity and practices of science and scientists, and need to resort almost exclusively on the stereotyped images provided by media on the subject; 2. A marked difference between children from affluent social classes, enrolled in private schools, and children from schools in the state, or groups belonging to lower classes, concerning the access to scientific and technological information and its appropriation and elaboration; 3. In both cases, however, the picture narrated by children about science and scientists’ activity is seen as predominantly positive (mostly, the scientists doing “good” and “useful” things, instead of being “mad” or “bad”, for instance) – the positive view about science being prior, and partly decoupled, from access to information and knowledge.

Authors: Bárbara Magalhães – Universidade Federal de Minas Gerais, Brazil
Thereza Nardelli – Universidade Federal de Minas Gerais, Brazil
Yurij Castelfranchi – Universidade Federal de Minas Gerais, Brazil
Vanessa Sander – Universidade Federal de Minas Gerais, Brazil

20230 – SCIENCE BLOGGING: SOME PARTICULARS OF THE CONTEMPORARY BRAZILIAN SCENARIO

Over the last decade, blogs became a popular medium for sharing reflections over a number of subjects that are not appropriately covered in mainstream media. As a result, many researchers turned to blogs as a privileged locus for scientific dissemination of their own work. Yet, blogging for science is still a challenge for many researchers despite their access to university facilities and to up-to-date
Although it is clear that writing for blogs is not the same as writing a paper for peer review, the appropriate tone to be used in the text and the amount of time a scholar is willing to spend on writing for this specific purpose is still a matter of discussion. This work is an attempt to address the particulars of scientific blogging in the Brazilian social and scientific context. It draws on an overall analysis of 106 Brazilian scientific blogs, using a variety of criteria such as the blogger's credentials, institutional affiliation, frequency and length of postings, editorial guidelines (if there is one), explicit target public, and the use of some web design tools. Such an analysis allows us to raise questions about the reasons why press vehicles scientific blogs face problems in publication constancy, which are very similar to those faced by any fulltime university professor. As our analysis points out to the generalized problem of constant feeding of content that is prone to be found (at least in principle) in blogs and other more decentralized forms of publishing, we feel the urge to shift the overall discussion from the reasons leading to “successful blogging”. Rather, we argue for what seems to be a more promising framework that goes beyond the focus on the interactive possibilities of blogs and opens up space to question daily professional routines and specific scientific publication culture in Brazil compared to other countries.

Authors: Juliana Santos Botelho - Coordenadoria de Comunicação Científica/ CEDECOM/Universidade Federal de Minas Gerais, Brazil
Luiza Nathalia de Carvalho - Coordenadoria de Comunicação Científica/CEDECOM/ Universidade Federal De Minas Gerais, Brazil
Rachel Dias Gomes - Universidade Federal de Minas Gerais, Brazil

20214 - SCIENCE BLOGS: COMMUNICATION, PARTICIPATION AND PUBLIC ENGAGEMENT

Science, and the scientific mode of production, seems to undergo transformations especially from the late twentieth century. The production of knowledge seems to have incorporated new demands from the market, politics and society. The science is faced with new challenges and responsibilities: besides the production and accumulation of knowledge, it must be socially distributed, held in an interdisciplinary basis and application-oriented; should get feedback, listen to the demands of society and search for accountability in order to legitimize itself. Moreover, it is expected that its production is carried out in a transparent and participatory way. This also means changes in the way science is communicated. Through an analysis of communication models, it is possible to notice the incorporation of goals, actors and directions. From a one-way communication, is observed the emergence of a discourse that privileges the participation and engagement of the population now considered active agent with power to influence. In this scenario, the scientists also gain new powers and roles. They should, for example, disclose the results of their work, worrying about the appropriation of the results by the market, and participate in campaigns that could affect their field of work. Many scientists are using the internet tools, such as blogs, to communicate with the public in general. More than publicize their work and ideas, this scientists use blogs to engage the public on topics of interest. Through the observation of a community of science blogs – the ScienceBlogs Brazil – we observed how scientists / bloggers choose their topics,
interact with people and play these new roles. The intention is to observe how
the web – and the participation on the web – is a favorable environment for this
new performance, which combines scientific research and science dissemination,
knowledge sharing and increase on reputation, engagement and construction
of a new self. This paper is part of the dissertation to obtain a master’s degree
in Scientific and Cultural Communication at Universidade Estadual de Campinas
(Universidade Estadual de Campinas).
Authors: Vanessa Oliveira Fagundes – Universidade Estadual de Campinas, Brazil

20601 - SCIENCE CAUGHT FLAT-FOOTED: HOW ACADEMIA MISSES OUT ON SOCIAL MEDIA
Involving individual scientists in PCST as authentic and highly credible
ambassadors of their field of research by means of interactive online media tools
has mostly remained a niche phenomenon, at least in Germany, as our recent
web technology use and needs analysis has shown, a study which combined
an online survey among 700 participants, in–depth interviews with decision–
makers and a standardized analysis of web sites of 9 major scientific institutions
in Germany. The aim of the study was to better understand why scientists mostly
refrain from using interactive online media. (N.B. publication of results pending
at the time of this proposal) Yet the diffusion of web 2.0 tools in academia is only
partly a question of technology acceptance. For instance, online communication
is still not taken into account in most evaluations or allocations of research
funding, thereby raising questions about possible incentives for PCST by scientists
themselves. The challenge for communication scholars lies in finding more
empirically sound ways to measure, compare or even standardize and audit the
impact of such online outreach as a relevant criterion for academic careers, while
promising approaches like “Altmetrics” are still in a conceptual phase. At least for
another few years we will therefore have to deal with a widening gap between
the masses of scientists communicating “scholarly” on the one hand and the
very few cutting edge researchers and (mostly large and renowned) institutions
experimenting extensively with the new online opportunities on the other. Thus the
threat of increasing the already existing imbalances between scientific disciplines
is just as evident as the opportunities of increasing transparency and flattening
hierarchies. We must not forget that technologies only set the framework whereas
the real challenges and solutions are deeply rooted in the scientific culture and
in the system of knowledge creation itself. Much will, therefore, depend on the
willingness of policy makers to actively steer the system in a certain direction,
whilst balancing incentives and regulations on the one hand with the inevitable
effect of a further mediatisation of science on the other.
Authors: Alexander Gerber – German Research Centre for Science & Innovatio
Communication, Germany
Janine Neuhaus – Freie Universität Berlin, Germany

20428 - SCIENCE CLUBS, SOCIAL INCLUSION AND POLITICAL ENGAGEMENT
The scientific education, understood as a paramount component of citizenship,
demands a deep rethinking of the ways it is carried out. We need an education
engaged with the scientific literacy of the population as a whole, an education
that empowers people to get actively involved in bringing up solutions for the
many problems posed by contemporary societies. Science Clubs are non formal education ambits where pupils volunteer to gather supervised by an adult, generally a teacher. Due to the vast variety of activities they develop, such clubs are privileged environments to deploy strategies that facilitate the dissemination as well as the construction of knowledge, favouring an active commitment with significant issues, making possible the appropriation of reality, thus turning it historical and modifiable. They ease work in concrete projects in a creative and enjoyable environment, enhancing communication skills, problem solving, team cooperation (instead of competition), significant learning as well as a fluent exchange with their communities. Unlike ordinary STEM Clubs, in Argentina science clubs cope with a vast range of fields, including Social Sciences. They are created from the initiative of the civil society, and the research projects are suggested either by the teachers or by the pupils. In the majority of the cases the raised issues are linked to close problems. Taking into account all that has been stated above, such clubs are exceptional channels for citizenship construcion, social inclusion and political engagement.

Authors: Mónica Beatriz Mendoza – Ministry of Science, Technology and Productive Innovation, Argentina

20649 - SCIENCE COMMUNICATION AS A CONDUCTIVE ENVIRONMENT BETWEEN GLOBAL SCIENTIFIC CHALLENGES AND LOCAL OPERATIONAL EXPERTISE TO ACHIEVE RESILIENT CITIES

The frequency and damages caused by pluvial floods in European cities are expected to increase as a consequence of climate change and urban development. New solutions are needed at local level to cope with extreme storm events and to reduce risks and costs on populations and infrastructures. The Chair ‘Hydrology for Resilient Cities’ aims to develop resilient urban systems with the help of innovative technologies, tools and practices based in particular on the use of high-resolution data, simulations, forecasts and management. Indeed, the availability of fine-scale rainfall data, due to the improved reliability of recent weather radars, open up prospects for new forms of urban flood risk management, which requires exchange of information with local actors and their full cooperation with researchers. This demands a large collaboration ranging from regional to international levels, e.g. the RadX@IdF project (Regional Council of Paris Region), the RainGain project (EU Interreg program), TOMACS (World Meteorological Organisation). For instance, RainGain involves four European pilot cities – Leuven, London, Paris, Rotterdam – whereas TOMACS is focused on the metropolis of Tokyo. This also requires to act at urban scale with local stakeholders and to bring together the know-how from all over the world (Europe, Japan and US). Communication activities become strategic in a project that relies on strong local and international interactions between scientists, concerned citizens, policy makers, water managers, weather services and urban planners. The pilot site of Paris will host a permanent platform for communication and dissemination that will act as a hub for community learning. In this context some of the challenges are: narrating research uncertainty and its open issues as a virtuous process, aligning diverging objectives and approaches in a common vision, making an
innovative technology visible to the public and managing rumors on security issues, bridging the gap between scientific discourses from an international academic community and operational discourses from local communities. The common question with respect to these communication goals is: how can we objectively assess the progress that is achieved?

Authors: Rosa Vicari - LEESU & Chair ‘Hydrology for Resilient Cities’, Université Paris-Est, École des Ponts Paris Tech, Marne-la-Vallée, France
Auguste Gires - LEESU & Chair ‘Hydrology for Resilient Cities’, Université Paris-Est, École des Ponts Paris Tech, Marne-la-Vallée, France
Ioulia Tchiguirinskaia - LEESU & Chair ‘Hydrology for Resilient Cities’, Université Paris-Est, École des Ponts Paris Tech, Marne-la-Vallée, France
Daniel Schertzer - LEESU & Chair ‘Hydrology for Resilient Cities’, Université Paris-Est, École des Ponts Paris Tech, Marne-la-Vallée, France

20204 - SCIENCE COMMUNICATION IN BLOGS OF SCIENTISTS: REFLEXIVITY AND COLLABORATION

The paper brings reflections about my doctoral research, which investigates the configuration of science communication in science blogs written by scientists. The studied phenomenon fits into the contemporary context of increasing incentive of Brazilian research funding agencies, such as Capes and CNPq, on public communication of science activities produced by researchers. The institutional incentive is added to individual initiatives of scientists, such as the creation of independent blogs. In initial mapping, we located 66 Brazilian science blogs written by researchers and graduate students. Our initial reflections indicate some characteristics related to the use of blogs by scientists. Blogs allow researchers to disseminate their ideas without needing to depend on journalists or press offices of its research institutions. This perspective refers to the dissemination of scientific contents of traditional scientific communication, as to informal contents that have no place in scientific traditional publications. In the first case, blogs extend accessibility and interaction between scientists and readers, by facilitating the access of any user of the internet to information that was previously restricted to a smaller group of scientists. In the second, blogs become distinct from other spaces in academia because they give researchers the opportunity to express their opinions and give a personal touch to their writing. They occur as spaces of reflexivity where the scientist exposes its worldview and reflects and discusses issues that directly impact on their practice. By potentiating an approximation with non-specialized public, blogs can be consolidated as spaces of knowledge production efforts between scientists and non-scientists. Mechanisms of approximation of scientific community to non-scientists can be created, facilitating the inclusion of the last ones in participatory dialogue about the roles of science. Based on these preliminary observations, the research project provides in latter stages a discursive analysis of science blogs in order to investigate the self-image constructed by the scientist in these spaces and interactions between scientists and non-scientists that actually occur in blogs.

Authors: Natalia Martins Flores – Universidade Federal de Pernambuco, Brazil
Isaltina Maria de Azevedo Mello Gomes – Universidade Federal de Pernambuco, Brazil
The use of genetically modified organisms (GMOs) is controversial in Europe. There is low value consensus between different stakeholders whether it is desirable to use GMOs in agriculture. Consequently, policy making regarding the authorization of GMOs is challenging. Currently, European regulation regarding genetically modified organisms (GMOs) is the most restrictive in the world. Members of the scientific biotech community express concerns that this hinders public sector research in agricultural biotechnology and the development of products for society, with severe implications for Europe and developing countries.

Research objective

Our qualitative research project aims to investigate how academic or public sector scientists could be motivated to participate in policy making regarding GMOs in Europe. Therefore, it first explores what role scientists could take in GMO policy making. Then, it investigates which factors determine the motivation of academic biotech scientists to take a role in GMO policy making. Finally, it discusses what actions could motivate scientists to actively participate in GMO policy making.

Methodology

A conceptual framework regarding the intention of scientists to participate in policy making was developed based on a multidisciplinary literature study in diverse research domains (Science Communication, Science Technology and Society, Science Policy and Environmental Studies). Semi-structured in-depth interviews were done with 17 scientists active in the field of agricultural biotechnology to empirically test the conceptual framework and explore whether other factors play a role in their motivation to participate in policy making.

Results and Conclusion

The results of this study indicate that most scientists have a positive attitude towards more active involvement in policy making. Their motivation seems mainly determined by their commitment to the public good, instead of for instance impact on professional career or judgments of their academic peers. Many scientists themselves would like to take an active role, rather than using science mediators. Our study concludes with three suggestions to motivate and support scientists to take an active role in policy making. In the discussion we elaborate on the role of communication professionals in this process.

Authors: Hilde Coumou – Technical University of Denmark, Denmark
Zuzana van der Werf Kulichova – Delft University of Technology, Netherlands
Caroline Wehrmann – Delft University of Technology, Netherlands
Patricia Osseweijer – Delft University of Technology, Netherlands

The “third space” exists between the cultural worlds of school and community. The informal science communication sector, because of its diversity, can provide such a third space: a place within which the very different discourses of the school system and the everyday world are reconciled. The informal sector has the capacity to provide for engagement to bridge these discourses but this space is presently quite empty, with only incoherent and sporadic attempts to provide for such engagement. Many suggestions have been made to policy makers about increasing the engagement of schools with parents, scientists and industry. This presentation will describe two Australian initiatives operating in this third
space. The first is a unique program for the mothers of high school students: called “Science for Mums” It enables mothers with little or no science to become engaged with, and assist, their children’s science at high school level. Parents, in particular mothers, often have little knowledge of or confidence in science, yet their involvement and interest in their children’s school work can have a positive effect on their children’s choice of subjects for study or their future career. At the high school level, parental involvement can be particularly problematic. “Science for Mums” was intended to facilitate conversations about science between parents and their teenage children. A hands-on approach to learning, using easily available materials, ensured that most activities could be repeated in the home environment. The approach was gender-specific and culturally appropriate to the age group. Evaluations indicate that there was a range of positive outcomes, particularly in the reported level of parent–child discussions. The second is the largest outreach program in the world. Operating out of Questacon, Australia’s National Science and Technology Centre, the “Science Circus” consists of a travelling exhibition, school science shows and career showcasing. Now in its 25th year, it travels across Australia focusing on remote and regional areas, including indigenous groups. The program has inspired many to engage with science and evaluations indicate that its influence is both profound and long lasting. Emphasis is placed on family engagement through careful timing of the exhibitions and strong links to the schools. Both these programs will be described and evaluated in this presentation, together with suggestions about further population of the “third space”.

Authors: Susan Stocklmayer – The Australian National University, Australia
Michael M. Gore – The Australian National University, Australia

20223 – SCIENCE COMMUNICATION ON THE BRAZILIAN GOVERNMENT WEB PORTAL: ASSESSING INFORMATION ON POLICIES THROUGH SYSTEMS THINKING

There has been an ongoing search for answers with regards to the expected contribution of online public communication to support political engagement and citizen participation, particularly in the field of science and technology (S&T) policies, which often have to deal with complex, contentious issues, such as sustainability. Research questions arise from the gaps in empirical evidence concerning the relevance of the information available on the web portals, to the potential impact of these portals on the strengthening of citizenship and public participation in decision-making. Questions include: a) whether the public administration has benefited from the potential of digital communications tools to increase transparency and accountability; b) whether the available information has enough depth and breadth to help citizens assess policy implications; c) whether science communication has been unequivocal enough to clarify individual and collective responsibilities, or at the very least, the complexities involved. The final question is especially relevant within S&T policy-making, if looked at through a political ecology lens, where the outcomes depend on intense synergies between diverse political, social and economic actors. This paper presents the results of research aimed at making a contribution to address these issues. We assessed the information on science and technology policies available
on the Brazilian government official website (www.brasil.gov.br) by means of a content analysis guided by 14 categories (prior challenges, diagnostics, objectives, goals, current resources, current actions, planned resources, planned actions, efficiency, efficacy, impact/effectiveness, citizen satisfaction and equality). The analysis of a sample of 62 web pages detected the existence of about 26% of the requisite information for a full characterization of a S&T policy, as established by the theoretical and methodological assumptions of our research. We interpreted this result using systems thinking, an approach which allows us to consider the Brazilian government as a subsystem within the larger system of Brazilian society, and the government’s attempts at S&T communication through its web portals as a way of influencing the larger social system. Systems thinking has allowed us to evaluate whether the various social actors’ concerns have been addressed by the official web portal and recommend improvements for future S&T communications.

Authors: Danilo Rothberg - Sao Paulo State University, Brazil
Andrea Berardi - The Open University, United Kingdom

20310 - SCIENCE COMMUNICATION TO FOSTER INTERGENERATIONAL DIALOGUE: AN ANALYSIS OF THE “RACONTE MOI LES TECHNOLOGIES” PROJECT

At the interface between science communication and social engagement, the project « Tell me about your technologies » is designed to engage young and elderly audiences in a dialogue around technological objects, mixing personal memories and technical information. We will present the analysis of this project. It is based on observations of the intergenerational dialogues and on interviews with the participants to a series of activities between 2011 and today. One of the main audiences of science centres or festivals is the couple grand-parent/grand-child. However, most of the activities are offered only to children, and do not satisfy the essential need of being together and sharing experiences. In our view, it is essential that science communication also creates a dialogue among the people participating. Beyond the joy of sharing, science education studies clearly underline the importance of horizontal peer communication (peer learning). With this consideration in mind, Les Atomes Crochus have developed a series of actions to bring together senior and junior audiences. Interactive workshops and a participatory exhibition have been designed. By forging a supportive link between generations through dialogue, the project wants to fight against senior isolation and help children develop their awareness on technological evolution. In the activities, a technological object, ancient or modern (a floppy disk, a Wii control, a coffee grinder...), is used to spark a discussion, facilitated by a mediator through a strong, but quite open, scenario. Each generation had an experience related to objects, and through them a scientific culture. This culture is often implicit and unvalued but can be a powerful, natural vehicle to share. If seniors are open to better understand the current technologies, they are also witnesses of the history that is embodied in those technologies. We are currently analyzing all sessions to understand the reaction of the participants to this non-standard approach to technical and scientific knowledge. Preliminary results indicate that the fact of mixing personal memories and experiences with scientific and
technical information have a very positive effect on both the enjoyment and the learning process. By May 2014, we will have collected sufficient data to provide a deeper analysis to share with the PCST audience.

Authors: Vanessa Mignan – Les Atomes Crochus, France
Céline Martineau – Les Atomes Crochus, France
Matteo Merzagora – Traces, France

20674 - SCIENCE COMMUNICATION WITH PARTICLE ACCELERATORS: SCIENCE, TECHNOLOGY AND SOCIETY

The engagement of scientists in science communication has several positive and unique points that should be better understood, explored and stimulated among professional scientists. One of the strongest aspects on science communication performed by professional scientists is the possibility to show to the public an insider view of the process of knowledge production. However, when scientists decide to communicate their work for the general public, they tend to concentrate their attention only on technical information neglecting other very important aspects of science communication, mainly concerning the relation between science, technology and society. In this work, we’ll present the activities of science communication developed by our group from the Instituto de Física da Universidade de São Paulo related to the physics of particle accelerators. Several activities were developed in order to bring a deeper understanding of the public, mainly teachers and students from public high schools, regarding the importance and the role of such studies to the society. Among those activities there are: courses for high school teachers; visits to the Pelletron particle accelerator located at the Instituto de Física da Universidade de São Paulo; the creation of pedagogical material for high school students; the application of a world wide activity organized by the European laboratory CERN, called Masterclasses–Hands on Particle Physics. All these activities were developed having not only the physics concepts in mind, but also the relation of such basic science with technology and society in general. Several discussions in academic papers indicate that these activities provide significant advances in the development of the students learning regarding scientific knowledge and the nature of science. The material developed for the visits (posters, presentations) with a more comprehensive approach is an important support for this kind of discussion in science communication activities. A challenge for the future is to study the profile of the public that is interested or not in scientific knowledge and produce more inclusive activities.

Authors: Marcelo Gameiro Munhoz – Universidade de São Paulo, Brazil
Graciella Watanabe – Universidade de São Paulo, Brazil
Ivã Gurgel – Universidade de São Paulo, Brazil
Renan Milnitsky – Universidade de São Paulo, Brazil

20296 - SCIENCE FOR ALL AND EVERYWHERE, AN EXPERIENCE ON SOCIAL APPROPRIATION OF SCIENCE AND TECHNOLOGY IN MEXICO

How can you get science closer to communities with social exclusion or of difficult access? How can you make the process of social appropriation of science and technology? How can you improve the citizens perception that they have about
these topics in Mexico? In relation with these questions, the National Council for Science and Technology (CONACYT) created in February 2012 the initiative “National strategy for diffusion and broadcast of science, technology and innovation: Social appropriation of Science, Technology and Innovation in Federal Entities with special emphasis on socially excluded areas”. This program is known as “Ciencia para todos y en todos los Rincones” (Science for all and everywhere). The purpose of this strategy was to promote the social appropriation process of knowledge by means of developing participative projects for spreading and divulging Science, Technology and Innovation of public interest with a broadcast in socially excluded, rural or difficult access areas, in coordination with the 32 states of the Mexican Republic. The approach of the initiative was unique in its type: to benefit communities that were socially excluded, rural or of difficult access through a diversity of actions and resources, specially of itinerant type. The research for paper is based on a study for the implementation of a 2012 initiative, as well as the review of the established actions in 2013, with special emphasis in the Southeast region of Mexico. The paper proposes an integral view for the public communication of science: the practice, from the experience of the federal program: the adaptation of actions according to regions; the policy: the involving of different actors; from the theoretic view, the focus on reception and importance of making the process of social appropriation available to the citizenship. The authors suggest that the conceptual basis of the Social Appropriation of Science and Technology is under construction. For them it is a complex and dynamic framework focused in an interaction and social participation linked to scientific and technologic knowledge, where components as divulgation, public communication of science or its broadcasting, result as promoting elements for the Appropriation. In the construction of Public Communication of Science, we can see that the process of making it available to the citizenship is an essential factor, recognizing that the citizens are active organisms, that we construct culture.

Authors: María Antonieta Saldívar Chávez – Universidad Nacional Autónoma de Mexico, Mexico

20330 – SCIENCE IMAGES THROUGH IBEROAMERICA: ONE WORD, ONE DRAW, DIFFERENT VALUES
Many values surround the word science and so many ideas and imaginaries. Some are individual, others may be collective. These values and beliefs, together with the ones that science communicators transmit every day, shape and direct diverse attitudes towards science and technology. Behind one word, we can find unique conceptions about science. Some may find some words associated with science are misconceptions, right or wrong ideas. “Truth” for example, is a word that could generate controversy. We can also find stories to tell from one word, and even get tips for communicating science knowledge in an effective way. We can use words to analyze which “science messages” predominate in society and develop strategies in order to maintain or change these messages, and the values they entail, that are being communicated. That's our goal, and that’s the reason we have been collecting words since 2010. We will present preliminary results and a frame to discuss after our presentation.
at the conference. This collection, until today, has certainly been done randomly, since the public differed in age, social status, educational level, country and “circumstance”. From Montevideo to Barcelona, we asked for one word or one draw related straightaway to science, and sometimes have the chance to keep the conversation going and grab the “association explanation” behind. The idea started as an introduction to a first science class at the secondary level, in which lack of motivation between adolescents was the norm. Later on, it became an experiment and ended as a research project and a way of communicating science to the public. The excuse proved to be a good way to provoke reflection, a kind of game to think about the use and abuse of words. A word can be the message. Ideally, the PCST 2014 conference will be another scenario to keep on gathering words, drawings and associations, to communicate and research at the same time. We will present our data, the research process and the new collecting and provoking ideas we are developing, for example, using social media and postcards.

Author: Rocio Ramirez Paulino Universidad de la República, Uruguay

20404 - SCIENCE, SOCIETY AND THE SOCIAL CONTRACT

Essential to the constitutional agreement between state and society is a commitment to communicate. Successful nation-states such as India and China have mechanisms in place to enable society to negotiate on the institution of policies and laws through dialogue. In a country like South Africa we find growing reference to the lack of trust between state and society – extending to lack of trust between cultures, races, institutions and between individuals. Such distrust can only happen when the social contract seems broken and/or compromised. The remedy to this situation calls for the institution of a workable communication model to enable dialogue between state and society. This paper will look at the current South African deficit in the communication processes that facilitate and share information between state and society. Since communication systems are necessary to reach consensus on governance processes, policy decisions and social transformations, it is posed that society requires the implementation of a science communication model to stabilize democracy. Keywords: Science in society, science communication model, social contract.

Authors: Gauhar Raza - National Institute for Science Communication and Information Resources, CSIR, India
Hester du Plessis - Human Sciences Research Council, South Africa

20383 - SCIENCE JOURNALISM AS A WAY TO ENGAGE CHILDREN AND TEENAGERS IN THE SCIENCE AND SOCIETY DIALOGUE

In the last two years SISSA Medialab designed, tested and carefully evaluated two projects that aimed to empower children (in one case) and teenagers (in the other) to act as science journalists in order to promote a personal, critical attitude to science and technology. A paper magazine and a blog were produced with a participatory process, in which adults acted as facilitators and experts on demand, but young people were the leaders and owners of the products.
Special care was taken to inclusiveness, involving in the project children and teenagers from any social classes and even not especially interested in science and technology before participating to the project. Several features make this approach particularly valuable: 1) Writing, blogging, producing photos or videos are powerful hooks to engage children and teenagers who think science to be difficult and, very often, also boring, but who, once involved in a personal investigation, discover what is interesting for them in science and technology. 2) Science journalism helps also to put scientific knowledge into context, making young people to discover the links between different disciplines and different research methods, but also between research, technology and society. 3) A journalistic approach is useful to nourish critical thinking. It helps young people to take all opinions critically, to investigate and consider alternative views and interpretations on every statement or fact they collect. 4) A journalistic approach also helps young people to learn basic functioning of the media system and empowers them to critically interpret the information they receive through the media. 5) Finally the young journalists are better ambassadors for science and technology towards not only their peers, but also their families and communities. The presentation will discuss the process, the results and the evaluation of the two projects and of the general approach.

Authors: Paola Rodari – International School for Advanced Studies, Italy
Simona Cerrato – International School for Advanced Studies, Italy
Enrico M. Balli – International School for Advanced Studies, Italy

20471 - SCIENCE JOURNALISM IN ARGENTINA: AN ANALYSIS OF PRACTICES AND VALUES OF JOURNALISTS IN THE PRINT MEDIA

This presentation is based on preliminary data from my ongoing doctoral research, which discusses values and practices of science journalism (SJ) in Argentina. Theory and empirical work on this topic has been dominated by Anglo-Saxon studies, including classic (Nelkin, 1995; Bauer & Bucchi, 2007; Gregory & Miller, 1998) and contemporary studies (Amend & Secko, 2012; Schäfer, 2011; Jensen, 2010; Hansen, 2009). Important work has been produced in Latin America and Argentina (Ramalho et. al., 2012; Cortassa, 2012; Castrillón, 2011; Massarani, 2007) but further and systematic inquiry is needed to contextualise reported findings elsewhere. It is often suggested that SJ carries out a positive and condescending tone towards scientific knowledge, lack of skepticism and context in information treatment, homogenous news agendas and certain “complicity” between journalists and experts that put in risk the independence and autonomy of the mass media. I seek to explore and problematise this characterisation by analysing potential tensions between values and practices of professional journalism in relation to scientific knowledge. How do journalists think of themselves? What characterises SJ in the Argentinean press? The empirical approach points to semi-structured and
in-depth interviews with Argentinean science journalists and news analysis in national broadsheet newspapers using an adapted version of a protocol designed by the Ibero American Network for Monitoring and Training if Science Journalism (Ramalho et al., 2012) and the “Table of Citizen Interests” developed at the National Autonomous University of Mexico. Theoretical framework includes science communication studies (especially on science news and SJ), sociology of news and field theory and social practices by Pierre Bourdieu. Finally, results of preliminary fieldwork will be discussed, which consisted in interviewing experienced professional science journalists (working in the US and Europe) during the 8th World Conference of Science Journalists.

Authors: Cecilia Rosen - Centro Redes/ Faculdade Latino-Americana de Ciências Sociais, Argentina

20288 - SCIENCE MEDIA CENTRES? MEDIATING OR MANIPULATING SCIENCE NEWS?
Science media centres are growing in influence and scope in several countries. There are now 6 of them in developed economies with more coming on stream. The SMC mediate science news by sending out weekly science stories, link journalists to scientists and sponsor webinars on breaking news or stories that will be coming up. Even though each SMC operates differently there are journalists who feel the media centres services infringe on journalistic independence. Others find their services helpful and non threatening. What is the evidence for this claim and is it justified? Is journalistic integrity compromised? Is the calibre of science in the news really improved. which is one of the stated goals of the SMC's? What is a good measure of that outcome? Do the SMC’s have the unintended outcome of diminishing the need for specialized science reporters? As science journalists become rarer in legacy media, are SMC’s likely to talk over that function? What are the risks to independent journalism if the centres prosper? Are they good for science communication, but not for science journalism? This paper explores these themes using new research and a small case study from the Canadian science media centre with the full awareness that one country's model does not apply to all.

Authors: Kathryn O'Hara - Carleton University, Canada

20326 - SCIENCE POPULARIZATION ACTIONS DEVELOPED BY SEARA DA CIÊNCIA IN CEARÁ, BRAZIL
In the 1980s science centers and museums have begun to spread across the country. In 1999, the Brazilian Association of Science Centers and Museums (ABCMC) and Seara da Ciência, the science museum of Federal University of Ceará (UFC) were founded. Created by a group of teachers from UFC, Seara aims to stimulate curiosity for science, culture and technology by making connections with everyday life and by promoting interdisciplinarity. The institution, which has as its motto the phrase “It’s forbidden not to touch”, brings together several projects aiming to popularize science. Seara stands out from most museums that use the hands on model because it incorporates regional features in part of its experiments, in the theater plays and videos, instead of adapting models from foreign countries. According to the Annual Activities Report elaborated by Seara in 2013, only 14,814 people visited its exhibition hall and laboratories, a nearly negligible number
considering enrollment in secondary education in Fortaleza (111,887, according to the Brazilian Institute of Geography and Statistics). For the analysis we use a hybrid approach, combining case study with the method of participant observation, and semi-structured or e-mail conducted interviews. The field research was divided into two moments: the first occurred in the month of July 2013, when interviews were conducted with teachers and monitors working in the organization in order to establish a historical overview of Seara’s work. The second part took place in December 2013, when the State Science Fair was held. The science fair was promoted by the state government in partnership with Seara da Ciência. We interviewed 22 students and 9 teachers who participated of this initiative. Curiously, most of them had never stepped into a science center or museum and many of them had never heard of Seara da Ciência. As results we can mention the little insertion of the UFC students and teachers in the actions developed by Seara, the low rate of visitation (considering high school enrollment in Fortaleza, which is similar to what happens in other centers and science museums in the country), and the predominance of non-voluntary public (school visits and science fairs). We can also mention the lack of awareness of Seara’s work by the students who participated in the State Science and Culture Fair in December.

Authors: Giselle Soares - State University of Campinas, Brazil

20273 - SCIENCE, NEWS, AND PUBLIC DELIBERATION: THE USE OF ANALYTIC AND SOCIAL INDICATORS IN READERS’ COMMENTS TO GAIN INSIGHT INTO PUBLIC ATTITUDES AND PERCEPTIONS OF POPULARIZED SCIENCE ISSUES

Readers’ comments to online science news articles are a rich source of information on public views on popularized science issues. These comments serve as a platform for deliberative discussion, where citizens can participate and contribute to public debate on topics such as climate change or vaccination. Therefore, online comments can provide data on public attitudes and perceptions of science. Content analyses of these comments can offer insight into the deliberation process as it shows how people construct meaning from the original content as well as from the comments of other readers. In this research, 1409 readers’ comments to 333 science news articles on a Dutch newsmedia platform (Noorderlicht) were analyzed on the presence of analytic and social content of deliberation. Based on previous research, our analytic indicators were: (1) narrative, (2) factual information, (3) sources, (4) values, (5) explicitly taking position, and (6) reasons. Social indicators of deliberation were: (1) addressing other comments/commenters, (2) posing questions, and (3) addressing article content. Overall, the degree of deliberation in response to scientific news appeared to be similar to that to general news (as derived from literature), but a shift in focus of deliberation indicators was observed. Results show that readers’ comments tend to reflect readers’ positions toward an issue (52,9%; pro or con depends on the issue) and that almost half (44,6%) contain references to sources. Compared to general news, science news results in comments that contain less factual information and reasoning, but more questions and references. Finally, health issues received personal comments/stories more often than other issues, whereas comments to technical science
issues more often contained factual information. The authors argue that it may be that readers miss certain scientific literacy skills, because this would explain why comments on science news tend to contain factual information less often than those on other news, as well as why people ask more questions in their comments to this type of news.

Authors: Mark Jeroen Wim Bos – The Hague University/Leiden University, Netherlands
Mirande de Klerk – Leiden University, Netherlands
Ronella Grootens-Wiegers – Leiden University, Netherlands
Anne Land-Zandstra – Leiden University, Netherlands

20405 - SCIENCE, SOCIETY AND POLICY NEXUS: THE SOUTH AFRICA AND INDIA AGENDA.
Increased public involvement with science and technology (S&T) introduced a science and society framework for assessing and categorising the role of S&T within a science communication culture. As theoretical framework, science communication is guided by the content of an ‘ecology of knowledge’ which calls for reflection on ‘who uses knowledge and for what purpose’. In this regard probing questions are surfacing regarding knowledge already known and the kind of knowledge that society needs. Such discourses in epistemology denote the ‘sociology of knowledge’ in historical terms while, at the same time, try to establish the appropriate application of ‘new knowledge’. In countries such as India and South Africa decisions that influence the current science and society paradigm differs not only from the European model, but introduced different notions to guide the policy based interaction between science and society. This paper will analyse the difference in this paradigmatic approach between the two countries. After Independence in 1947 India showed political astuteness in embracing traditional knowledge through a scientific temper approach. In South Africa the post 1994 government battles to decrease the gap between policies relying on science-based risk analysis, and societal views that are dependent on equity, ethics and indigenous knowledge. Keywords: Science and society paradigm, policy, scientific temper, science communication.

Authors: Gauhar Raza – National Institute of Science Communication and Information Resources, Council for Scientific and Industrial Research, India
Hester du Plessis – Human Sciences Research Council, South Africa

20329 - SCIENTIFIC CITIZENSHIP: A UTOPIA? INTERDISCIPLINARY VIEWS FROM URUGUAY
When considering scientific concepts, history, culture, economy and other minor but not less important circumstances must be taken into account. Scientific citizenship is a complex term, often used in ways that give diverse messages, which sometimes lose connection to the original meaning, or worse, they are void. Most laymen on the subject would remain silent when asked about it, or would ask what it is all about. Uruguay is a good sample to test which beliefs and values surround this modern concept, considering it’s a developing country that is experiencing a recognizable economic growth and has increased its investment in science, technology and innovation in the last 10 to 15 years. This increase in public spending has settled on a new phase for science and science communication in
Uruguay. This presentation is based on 10 semi-structured interviews, in which we asked, together with other introductory and complementary questions, personal thoughts, associations and ideas when considering the term “scientific citizenship”. The 10 people interviewed are representatives from the science communication arena and have long trajectories in different activities that may contribute to the country’s scientific citizenship and at the same time, sense the state of the art of science communication in Uruguay. We will present some of the developed views and analyze the common points and differences. Do they correspond with the activities they carry on or the institutions their work in? Are these views just personal, maybe Uruguay-shaped or do they follow a common trend with the rest of the world? The answers to these questions should be ideally discussed with the public at the PCST conference, so we will do our best to achieve participation after our presentation. We also have our own ideas and doubts to present and discuss, as we are searching for clues to strengthen scientific citizenship in Uruguay and make science communication effective and worth it. Our aim is to contribute to a critical approach and social liability in the universe of science communication activities.

Authors: Rocio Ramirez Paulino - Universidad de la República, Uruguay

20357 - SCIENTIFIC LITERACY THROUGH CO-INQUIRY BASED ON NON-FORMAL AND INFORMAL LEARNING
Scientific literacy is a key competence for social inclusion and active participation for a better world. Scientifically literate citizens, who understand the role of science in their lives, are more capable to discuss science in the media, evaluate public policies and make evidence-based decisions. Scientific skills, however, are promoted basically through formal education where teachers help students design and evaluate inquiry, interpret data as well as communicate scientific explanations (PISA 2015). This research argues the importance of promoting scientific literacy through not only schools and Universities (formal learning), but also open online courses and programmes of community-based learning (non-formal learning) as well as daily life activities, open educational resources and social networks (informal learning). This paper presents a collaborative research on scientific citizenship developed by the Open University UNITED KINGDOM (OU) through the European project weSPOT for inquiry based learning and the Universidade do Estado da Bahia (UNEB), coordinator of the Telecentros.BR training programme for Digital Inclusion in Brazil. The European weSPOT project (2013-2015) is a working environment with social, personal and open technologies for inquiry based learning (IBL) in formal, non-formal and informal contexts. The Telecentros.BR training programme (2013-2014) is a non-credit online course supported by the Brazil Government, whose participants are more than 2500 young educators in diverse areas with low access to digital technology. The role of these young educators is to promote better use of ICT and support the Telecentro.BR’s projects created by the communities for their development in various dimensions. The objective of this research was to create a framework for applying co-inquiry - collaborative open inquiry to scaffold citizen’s scientific skills through digital technologies. Based on semi-structured interviews and surveys, Telecentros.BR participants’ interests, competences and needs were
collected and analysed for drawing this co-inquiry framework. Its aims is to bring diverse participants together (learners, educators and academics) for developing collective investigation in the Telecentros.BR’s communities through weSPOT. This framework, drawn on qualitative and quantitative study, synthesizes key abilities related to multiple literacies to foster scientific skills in the digital age of open education, open science and open citizenship.
Authors: Sonia Pinto – Universidade do Estado da Bahia, Brazil
Silvar Ribeiro – Universidade do Estado da Bahia, Brazil
Alexandra Okada – Open University, United Kingdom

20324 – SCIENTIFIC CULTURE AND POPULARIZATION OF SCIENCE: POPSCIENCE PROGRAM OF FAPESB IN THE POLITICAL AGENDA OF SCIENCE, TECHNOLOGY AND INNOVATION OF BAHIÁ

This study aims to perform an analysis of public policies on science and technology under the bias of science popularization in Bahia, as well as investigating the inclusion of this issue in Brazilian political agenda. The purpose is to analyze the contribution of the Foundation for Research Support of the State of Bahia (Fapesb) that through its Program for the Popularization of Science (Popsciences), has from 2006 launched calls for holding public events during the National Week of Science and Technology, besides creating announcements directed to research and extension. To this end, the managers of Popsciences were interviewed and teachers also included in the public calls. Another research regards mapping of calls performed from 2006 to 2011, which was analyzed in the following categories: 1) The percentage of contemplation by the nature of institutions; 2) The percentage of contemplations by institution; 3) The degree of titration of the proponents contemplated; 4) The distribution of the projects contemplated by areas and sub-areas of knowledge; 5) The number of times that a town in Bahia was cited for taking place the science popularization activities envisaged in the projects benefited and 6) The distribution of these activities by territory identity. Through exploring the material is intended to answer the following question: how does Fapesb, through Popsciences public calls promote scientific culture in the state of Bahia? Within this context, the expectation is to contribute by responding to the challenges of socioeconomic development, by means of democratization of scientific knowledge, providing a reflection on the establishment or not of a scientific culture that introduces the public in scientific debate in the State. For this, the use of references was employed on Policy Analysis, Studies on Science, Technology and Society (ETCS) and studies on Scientific Disclosure and Public Communication of Science. Keywords: Scientific Culture; Public Policies; Popularization of Science.
Authors: Mariana Menezes Alcântara – Universidade Federal da Bahia, Brazil
Simone Terezinha Bortoliero – Universidade Federal da Bahia, Brazil

20436 – SCIENTISTS AND THE COMMUNICATION OF SCIENCE: INSTITUTIONAL ACTIVITIES, PERSONAL INVOLVEMENT AND TRAINING NEEDS AN INTERNATIONAL SURVEY

SISSA Medialab (Trieste, Italy) offers a various range of short courses to empower scientists, museums staff and other practitioners in science communication beside collaborating to the SISSA Master in Science Communication. In 2013, in order to
design a new series of masterclasses dedicated to scientists, SISSA Medialab held an online survey, The scientific community and the communication of science, that aimed at investigating if and to what extent scientists are involved in science communication activities, what are their interests in this field and what might be their training needs. The invitation to answer an online questionnaire was sent to 1564 email addresses of scientists who attended the ICTP – International Centre for Theoretical Physics programmes in the last two years. Founded in 1964 by the late Nobel Laureate Abdus Salam, ICTP seeks to accomplish its mandate by providing scientists from developing countries with the continuing education and skills that they need to enjoy long and productive careers. It is governed by UNESCO, IAEA, and Italy, and it is attended by scientists (in the large majority theoretical physicists or working in related research fields) coming from developed, developing and of recent development countries from all continents. A total of 420 answers were received, with a response rate of 27%. Main findings highlight the actual involvement of science in the communication of their research, the typology of activities they are involved in, their willingness to be involved in the future in which kind of activities, if they were (or not) trained in science communication, and which kind of contents and skills they would like to acquire in the future to better communicate their research. Considering that the international community of theoretical physicists is relatively small, results can be considered significant. Relevant differences depending on geographical regions also emerge from the data but, due to the dimension of the sample if considering only specific countries or regions, these results should be confirmed with other researches. The talk will illustrate findings, discuss possible interpretations, and propose question to be explored in the future.

Authors: Paola Rodari – International School for Advanced Studies, Italy
Velentina Daelli – International School for Advanced Studies, Italy

20406 - SCIENTISTS, PUBLICS AND TRANSGENICS: INFORMATION, TRUST, COMMUNICATION AND ENGAGEMENT ON RESEARCH DEALING WITH VECTOR-BORNE DISEASES

Infectious diseases transmitted by mosquitoes represent a burden for a variety of countries and especially for the Global South. However research aiming at better understanding them is mainly conducted by institutions from the Global North. Apart from bringing knowledge in biology, this research is obviously associated with the development of methods aiming at reducing the burden of vector-borne diseases and this includes the creation, the use and the release of transgenic mosquitoes. For many in the scientific world, this technological approach offers a promising method against diseases such as malaria or dengue. However the recent field releases of transgenic mosquitoes in The Cayman Islands, in Malaysia and in Brazil have been the source of intense debate in the specialized press as well as in the non-specialized mass media. This lack of transparency, not to say the secrecy, in the way the first trial was conducted is without much doubt the major reason for the controversy that emerged. Brushing aside years of discussion in the scientific world and a shared recognition of the importance to consider ethical, legal and social issues this first trial could be read as a fait-accompli: the cage of transgenic mosquitoes has now been opened. In the
complex interactions between science and society around GM technology we cannot avoid questions around the perception of the public by scientists and the related question: How to consult, involve and engage a variety of publics in an effective manner on science and technology? With the will to better estimate the impact of geographic differences (endemic vs non endemic countries), of research topics (work on transgenic approach or not) and of perception of research (applied/ fundamental) we have conducted in 2012/2013 a worldwide web-based survey on more than 1800 scientists working on vector-borne diseases. This work reveals several interesting points including the reluctance in involving the public upstream, some lack of confidence in private business as well some level of distrust towards biotechnological progress and the speed at which changes occur because of science and technology. Surprisingly it also highlights a real lack of communication even inside the scientific community. Apart from exploring the major results of the whole survey the presentation will also highlight the ones dealing with scientists based in Latin America.

Authors: Christophe BOETE - IRD/ Aix-Marseille Université, France
Uli Beisel - Lancaster University, United Kingdom
Nicolas Cesard - Kyoto University, Japan
Luisa Reis de Castro - University of Halle
R. Guy Reeves - Max Planck Institute for Evolutionary Biology

20221 - SCIENTISTS' VIEWS ON EXPERTISE AND SCIENCE COMMUNICATION

Recent studies show that scientists' views towards communicating research and expertise in the public media have become more positive. These studies have focused mainly on the science-media interface, and there is a need to explore more broadly how scientists view different aspects and arenas of science communication and evaluate public expertise. This paper is based on a case study of a Finnish research programme on nutrition food and health. One of the goals of programme was “to disseminate information on research results and to meet the information needs of society on a healthy, safe and balanced diet”. The topic of the research programme provides an interesting case to study public communication activities and scientists' views on them. According to various studies, health and medicine is the most popular science-related topic in the news media. In the last decades, healthy living and well-being have been increasingly connected to food and eating habits. The analysis in this paper is based on a questionnaire made for project leaders (N=28) in spring 2012, and data gathered from the websites of the projects. The communicative activities documented by the projects show an interesting variety of ways in dealing with the media and wider society. This spectrum is reflected also in the respondent’s views of public communication. These views can be divided into four different notions of science communication. These notions reflect different views of expertise in the public arenas. The first notion of science communication sees it mainly in terms of communication between experts. The main target group for communication is other experts, not the general public. The second notion of science communication could be labeled as outsourced science communication. In the internal distribution of work science communication was left to others, such as industrial partners of the project. The third notion defines science communication in terms of policy-orientated
communication: the main focus is policy makers and public authorities. Finally, the fourth notion focuses on communicating expertise in the news media. This view of science communication implies close contacts with the news media and a broad view of public expertise.

Authors: Esa Väliverronen - University of Helsinki, Finland

20129 - SHARING SCIENCE: THE STATE OF RESEARCH INTO SCIENCE COMMUNICATION IN SUB-SAHARAN AFRICA

This presentation examines science communication in an African context: what and where it is being researched, as well as the possible future of the field on the continent. The author conducted a search of databases using keywords to determine the extent of published research data in the field related to sub-Saharan Africa. What is presented in the paper represents the current state of science communication in sub-Saharan Africa today in two parts: an analysis of African contributions to PCST Conferences and the African Science Communication Conferences (ASCC) as well as published academic articles. There are a number of trends observed since PCST-2002 in South Africa: The majority of African contributions have been from South Africa; presentations regarding ‘outreach’ IKS and cultural diversity, ‘promoting MST’ and ‘Academic studies’ ‘science journalism/communication’ have dominated; with South Africa, Nigeria and Kenya identified as the three leading countries in Africa where science communication is both practiced and researched. A trend towards an increasing number of ‘science journalism/communication’ topics was observed in the ASCC conferences since 2006. An examination of published academic articles relating to science communication shows the following features: Scientific literacy is a topic that several researchers have investigated in the 1980s and 90s, although a number of African academics have contested whether a universal scientific literacy is appropriate for non-western audiences. Several surveys of public opinion of science were conducted over the period 1991 to 2006 in South Africa and are reported in the paper. There is relatively little available from other African countries regarding their citizens' understanding of, or attitudes towards, science and technology. A key area of science communication which has had some exposure in the continental literature is that of genetically modified foods. Several countries within sub-Saharan Africa have carried out surveys of the public's attitudes towards biotechnology, especially with respect to GMOs in both Nigeria and Kenya. These show the need for better communication so that the public can make informed decisions. The paper ends with suggestions regarding the future of the science communication field in sub-Saharan Africa so that it can contribute substantially to Africa's advancement, as well as contribute more fully to science communication worldwide.

Authors: Anthony Lelliott - University of the Witwatersrand, South Africa

20472 - SPEEDY SCIENCE

For this particular project, we utilize the publication model that consists in a fascicle that is recycled and read several times in order to reach the largest number possible of people. In this case, we are talking of a fascicle with 24 pages that is published in a co-edition effort with the “Sistema de Transporte Colectivo Metro”
that is the public transportation system —subway— in Mexico City and the UNAM. Speedy Science Fascicle was initiated in 2005 by the UNAM in an effort to promote scientific reading in Mexico’s City subway passengers. This project was initially thought for the promotion of literature, but then it was considered to be the right timing to encourage the Mexican population, particularly the subway users, to read diverse scientific topics, free of charge, but in a way that we favor the reading of the material without taking it home, with the intention of reaching tens, maybe hundreds of passengers with the same fascicle. At the starting point of the project in 2005 we had an initial printing of 100,000 fascicle copies for one of the subway lines, which was later reduced to 30,000 copies in a second stage, being that the current printing numbers. Initially financed by one of the Gobierno del Distrito Federal suppliers, and later on by Teléfonos de México. We placed kiosks in several of the subway stations, where some subway workers, would explain to the passengers that they could take one of the fascicles and if they could please return it after having read its content, so more than one passenger could read the material. Given the fact that nearly 40% of the Mexican population does not read, not even a single book in a year, the main objective of the project was to raise their interest in reading and in particular in reading scientific material, at the same time making approachable to the population with less economic resources, fundamental scientific topics, for it is the population with less economic resources the one that uses the subway as means of transportation. So it was through the Speedy Science Fascicle that we are making inroads in the less economically favored segment of the Mexican population by given them access to fascicles that will complement their education in diverse scientific topics, thus widening and deepening their scientific culture.

Authors: Juan Tonda Mazon – Universidad Nacional Autónoma de Mexico, Mexico

20550 - STIMULATING DISCUSSIONS ON YOUNG PEOPLE’S BELIEFS ABOUT SCIENTIFIC AND CULTURAL KNOWLEDGE USING OBJECTS

Western scientific knowledge often dominates as the valid, useful way of thinking in informal education exhibits. This representation of knowledge excludes the way knowledge is generated in culturally diverse communities and the contribution that indigenous knowledge makes to science or the role of science in the contemporary lives of indigenous people. In the context of multicultural communities, representing the intersection of science and culture, although challenging, can support intercultural understanding by creating a platform for meaningful dialogue and valuing of other cultures. We designed an object-based activity – science and culture story box –to explore how young people assign meaning to cultural knowledge and scientific knowledge. Six groups of young people in Western Australia (age 12-16; n=171) participated in the study which was conducted either during an excursion to the Gravity Discovery Centre, a science centre, or during a visit to the University of Western Australia. Groups were split into sub-groups of four members. The activity involved participants placing photos of objects and processes e.g. medicine, lightning within a Venn diagram of scientific knowledge, cultural knowledge or both. Photos of Venn diagrams were taken and
group discussions audio recorded. The photos of Venn diagrams were used to count the number of times an item was associated with scientific knowledge, cultural knowledge or both. Audio recordings of discussions were transcribed and thematically analyzed. Our findings revealed young people associated technology with electronic devices and scientific knowledge and had difficulty linking technology with cultural knowledge. Young people regarded cultural knowledge as old and basic and scientific knowledge as new and progressive. Issues of Australian identity and skin colour and culture were also raised. We discuss the risks that these conceptions have on meaningful intercultural understanding and suggest approaches in which informal spaces can ameliorate these beliefs.

Authors: Mzamose Gondwe – University of Western Australia, Australia
Nancy Longnecker – University of Western Australia, Australia

20551 – STRATEGIC PROJECTS IN THE PUBLIC COMMUNICATION OF SCIENCE

The model for developing strategic projects that is presented here looks at the communication of science from a socio cultural perspective and is committed to contributing to the formation of a critical, participatory citizenry with a solid foundation of scientific culture. The model aims at developing the ability of science communication professionals to integrate theoretical knowledge and empirical data in designing and formulating strategic science communication projects. It is based on three fundamental elements: the socio cultural contexts of the intended audiences and their needs in terms of specific issues (starting point); the scientific knowledge, seen from an integrated interdisciplinary perspective, that might meet these needs (diagnosis and proposal); and the different competencies and tools that contribute to the design and formulation of a Strategic Science Communication Project (strategic communication).

Knowledge of the target publics and their needs in terms of the potential use and appropriation of scientific knowledge, obtained through dialogue and observation, has helped to formulate effective projects in a variety of social settings, which has encouraged participation and deliberation regarding issues that concern the intended audiences. In this model, participation is seen as a continuum that goes from the provision of information (as in the deficit model) to involvement and dialogue (as in the contextual model) to empowerment for participation (as in the inclusion model). One example is discussed: the development of a strategy for the Center for Research and Applied Technology in Jalisco (CIATEJ, in its initials in Spanish) in order to link the biotechnological knowledge generated there with potential users from different sectors of the population. It was the result of a careful diagnosis that included documentary research and research in social perceptions of issues and agendas, as well as concrete guidelines for implementing the strategy in the short, middle and long term. The process was enriched by an interdisciplinary approach that integrated knowledge from social communication, scientific journalism, psychology and marketing.

Authors: Susana Herrera Lima – Instituto Tecnológico y de Estudios Superiores de Occidente, Mexico
María Edith Escalón Portilla – Universidad Veracruzana, Mexico
20340 - SUPPORTING SCIENCE COMMUNICATION WITH OPEN SOURCE HARDWARE (OSHW) IN ASIA: HOW CAN TRADITIONAL CRAFTS HELP OPEN SCIENCE?

Hackerspaces, such as Karkhana Collective in Nepal, LifePatch (Citizen Initiative in Art, Science and Technology) and The House of Natural Fiber (HONF – Yogyakarta New Media Art Laboratory) in Indonesia, Manila Biopunk Movement in the Philippines or Sustainable Living Lab in Singapore are part of an informal research network, which supports communities through prototypes using open source hardware platforms. The convergence of ICTs with emergent biotechnologies, especially bioinformatics, has its counterpart in this alternative culture of circuit board customization and DIYbio hacking, which created some unique opportunities for research in the Global South. The OSHW hacking enabled the creation of cheap laboratory and citizen science equipment used Indonesia, Nepal, and in various hackerspaces around the world. I will present case studies of how open hardware enables science communication in Indonesia and describe the networks behind OSHW. While the official biotech industry operates under the strict patent logic of the global biotech business, the emergent hackerspace movement explores alternative possibilities of doing science. It supports open licenses and open source approaches, which created conditions for community based research and development bringing closer policy and science, community building and prototype testing. The OSHW prototypes also open unique possibilities for interaction between traditional crafts and open science.

Authors: Denisa Kera – National University Of Singapore, Singapore

20561 - TALKING ABOUT SCIENCE - ISSUES RAISED IN UNITED KINGDOM PUBLIC DELIBERATION

For the past ten years the UNITED KINGDOM government has sponsored a series of public deliberation activities around new and emerging science topics. Gaining insight into public perceptions of these issues and broadening the views feeding into policymaking is often given as a reason why such activities are commissioned. But despite being important to the commissioners and end users of these activities, the question of what was discussed in deliberative activities is often overlooked in evaluations in favour of more measurable questions about how the deliberation proceeded. So what has been discussed in these deliberations about new and emerging science and technologies and what lessons can we learn from deliberative exercises about how the public think about these issues? This paper aims to begin to address these questions. Using a Computer Assisted Text Analysis (CATA) technique, we look at the complete outputs of the UNITED KINGDOM’s ScienceWise programme of public dialogue events and consider what has been the substance of more than 10 years of UNITED KINGDOM discussions around science and technology. We consider whether there are any overarching perspectives emerging from these discussions, whether they can tell us anything about the way in which participants think about and conceptualise new and emerging science and technologies and, importantly, whether these insights relevant to policy.

Authors: Melanie Smallman – Department of Science and Technology Studies, University College London, United Kingdom
The set of factors, events and actions in the social processes dedicated to the production, the spreading, the teaching and the publication of scientific knowledge constitutes the conditions for the development of a particular type of culture, which may be called scientific culture (VOGT, 2011). Considering that teachers are great influence on their students' perception, attitudes, interest and participation in Science, Technology and Innovation (ST&I) contemporary issues, and has an important role in the growth of critical citizens and in the promotion of decision-makers, this study, which is a single case study (YIN, 2001), aims to identify and analyze the scientific culture of current and future Primary Education teachers, both undergraduate students in the Education Course from the Open University of Brazil, from Minas Gerais, Brazil. The research methodology is divided into three moments. During the first moment, between 2011 and 2012, it were inquired 155 people from 47 cities from Minas Gerais through questionnaires developed on the Public Understanding of Science research models (ALLUM et al., 2006). We understand that questionnaires are not enough to explain the scientific culture in its complexity and depth. So, in this perspective, in the second moment, we interviewed 8 (out of 155) undergraduate students, who are already science teachers on Primary Schools, aiming to find out more specific aspects of their connections to ST&I issues. Finally, in the third moment, we did a crossed analysis between the data collected on the first and the second moments and we could achieve a panorama of the scientific culture of this public. The results show that there is an interconnectedness and an interdependence between the eight rings of Teachers' Scientific Culture (model created by research), as follows: sociodemographic characteristics, culture, reading and access to places of science and culture; main issues of interest; informative habits; scientific information; participation in ST&I issues; imaginary on ST&I and on the scientist; and pedagogical practice. It also reveals that there are gaps on cultural offers and on the access to qualified information in the regions where this public lives, with significant losses in the teachers' scientific and cultural formation and pedagogical practices. From this research, it is expected to strengthen future research programs on Scientific and Cultural Communication study area in the country.

Authors: Jessica Norberto Rocha – Universidade Estadual de Campinas, Brazil
Maria das Graças Conde Caldas – Universidade Estadual de Campinas, Brazil

In July 2012, J Craig Venter, a key figure in the Human Genome Project and the development of synthetic life, gave one of the keynote speeches to the Euroscience Open Forum (ESOF) at Trinity College, Dublin entitled ‘What Is Life?: a 21st Century Perspective’. Venter called it a ‘reboot’ of Erwin Schrödinger's famous lectures ‘What Is Life?’ sixty-nine years earlier in the same university. The original lectures influenced everyone he knew, Venter said. While public engagement orthodoxy promotes dialogue, we must not forget how individuals have become vital nodes in the history of biological ideas. Paradigms are a network of histories; nevertheless the summarised rhetoric of key idea has remained important, especially in twenty
first century sensibilities of the politicization of the personal. But it was always there in ‘virtual witnessing’ (Shapin and Schaffer, 1985) (seeing, assessing, preparing for scientific replication) and mediation (traditionally print and word-of-mouth, now also various media platforms). While Darwin’s idea was seismic, his popularisers were his cousin Francis Dalton and his so-called ‘bulldog’, TH Huxley. The oratory powers they possessed contributed to acceptance of Social Darwinism and eugenics policies. Throughout the history of biology, the lecture and oration format helped create thought communities (Fleck, 1935), enhancing credentials among core-sets of expertise while popularizing and ‘creating belief’ among non-expert publics. Jakob Von Uexküll’s oration was less successful to the Nazis when warning against Jewish ‘immunisation’, but his ideas were a major influence on the social sciences. There is now a new breed, depending less on the voice clarion in itself and as embodiment of an idea, and more on voice as one element in cross-media discourse, with PowerPoint of course, and networked socially and technologically eg Venter’s speech with Clinton and Blair at the announcement of the HGP or the less obviously political Brian Cox. The political and communicative in biology is ever-present, yet sadly lacking in biology textbooks and curricula; indeed reflexivity is lacking in (bio)science communication. By tracking from Uexküll to Huxley to Cox, this paper will demonstrate, through an STS-type of rhetorical analysis, the changing mechanics of the bio-orators, and their separations into the anti-political and the ultra-political. In speeches, lectures and debates, biological ideas were always political and now so too, are the biosciences. In the era of TED biology, we need our bio-orators in schools, civic spaces and parliaments.

Authors: Padraig Murphy – Dublin City University, Ireland

20198 - THE COBRA PROJECT: A COMMUNITY-BASED APPROACH TO PUBLIC ENGAGEMENT IN SCIENCE

Humanity is increasingly forced to engage with the consequences of our deleterious interventions on increasingly fragile and unpredictable ecosystems and societies, at a range of scales, from local habitats to the global Earth system. However, scientific research and communications is still dominated by a command-and-control approach which lacks the ability to engage the public in managing and adapting to surprises and rapid change. Scientific research and communication initiatives emerge from higher-scale structures e.g. national institutions, which are not always compatible with the realities and perspectives of smaller-scale units, especially marginalised communities. The relative failure of top-down, ‘deficit model’ approaches to science communication have encouraged communities to support an alternative, bottom-up, culturally and ecologically sensitive approach to enquiry and communication for addressing complex socio-ecological problems. This paper explores the development and promotion of a ‘community-expertise' model of public engagement through the COBRA Project, a participatory action research project involving indigenous communities of South America, funded by the European Commission 7th Framework programme. The project’s aim is to significantly scale up the exploration and sharing of community owned expertise and knowledge through photography, video and online platforms. We will present the results of how this expertise and knowledge is identified, recorded and shared with other indigenous communities in South
America, and with national and international scientists and policymakers. We report on the conflict between the principles behind participatory community engagement, which demands neutral facilitation in order to minimise bias and power differentials between the facilitators and community participants, and the demands of policymakers for scientific, empirically validated data, which clearly require an imposition on the type and process of data collection, analysis and modes of communication. We argue that there is no straight-forward way to bridge the gap between community-based knowledge and conventional empirical science. Participatory methods that engage local indigenous communities are empowering for these involved, but it is in the end up to the facilitators to build bridges between indigenous communities and policymakers, through the use of ICTs, conceptual analytical frameworks and a keen and informed awareness of all expectations.

Authors: Andrea Berardi – The Open University, United Kingdom
Jay Mistry – Royal Holloway, University of London, United Kingdom
Celine Tschirhart – Royal Holloway, University of London, United Kingdom
Elisa Bignante – University of Torino, Italy
Lakeram Haynes – North Rupununi District Development Board, Guyana
Deirdre Jafferally – Iwokrama International Centre for Rainforest Conservation and Development, Guyana

20441 - THE CONSTRUCTION OF NARRATIVES WHICH EXPLAIN SCIENTIFIC CONCEPTS
This proposal is linked to the general theme of the conference “Popularization of Science for social inclusion and political engagement”, once it aims to offer subsidies to interdisciplinary pedagogical practices for dealing with discursive genres related to the activity of scientific popularization for children and teenagers, both in formal and informal education. The study deals with strategies of construction of reports directed to an audience of young readers, in order to evidence aspects which are relevant for the explanation, under a scientific perspective, of world phenomena. The corpus studied is constituted of eight reports from the magazine Ciência Hoje das Crianças, composed of text and image and characterized by an intergenerocity: the text producer, in order to explain a fact scientifically, organize narratives which are similar to stories from children’s literature, but which also present characteristics of the discursive genre report. This discursive mise en scène is studied, considering the restrictions of seriousness, legibility, figurability and emotionality, which characterize the discourse of scientific popularization, according to Semiolinguistics. The research also observes the relations of this configuration with the discursive aims of the producer, who is inscribed in a mediatic instance. If in the didactic instance the educator’s legitimacy for the action of explaining is provided by the contract of communication, in the mediatic instance, the contractual situation does not pre-determine the legitimacy of the producer, who constantly needs to look for credibility which authenticates (seriousness condition) what he/she explains. This aspect has implications on the discursive-linguistic choices of the textual producer. Thus, textualization strategies are investigated: text plans, textual sequences which organize the reports and written-visual procedures of paratextual semiologic composition – texts disposition, titles, subheadings,
images, graphics, infographics (according to Textual Analysis of Discourses). The articles analysis points to the idea of the scientific popularization activity as an action in which the permanent tension between popularizing and captivating requires a creative effort from the textual producer. Having a wide knowledge about the theme is not enough for the scientist, especially when children and teenagers are the target public.

Authors: Maria Eduarda Giering - Universidade do Vale do Rio dos Sinos, Brazil
Érica Ehlers Iracet - Universidade do Vale do Rio dos Sinos, Brazil

20665 - THE CREATIVE AND SCIENTIFIC THINKING OF THE TEENAGER AND YOUNG ADULT DEAF PERSON
This work has the aim to talk about the issues that affect the access of young deaf people into the scientific thinking and about how such issues are related to the lack of terminological lexicon of the Brazilian Sign Language – Libras – as well as the lack of terminological bilingual publications in Libras and Brazilian Portuguese either in scientific, technological and cultural areas. The onus of the comprehension of scientific concepts in secondary and high school has been a concern of teachers, sign language interpreters and of the deaf student himself.
In the ambit of the secondary school, Marinho (2007) and Carvalho and Marinho (2010) have registered the lack of terminological lexicon in Libras in the area of sciences. In the ambit of the technological and vocational education, the issue of the lack of terminological lexicon in Libras has been discussed by Leite and Lima (2010) since the creation of signs in the area of the architectonical drawing. It’s important to note that the possibility of going to higher academic levels is much wanted by young deaf people, by their families and by the secondary schools that have been making efforts to minimize this discontinuity in the trajectory of young deaf people coming from the secondary school. However, the access of the young deaf person to other academic levels doesn’t happen naturally once their non proficiency in Brazilian Portuguese and in Libras constitute a strong barrier to their entrance in universities. This work is based in two research projects, from the ambit of the BIC JR (The Junior Science Induction Program). They were called “Construction of a Technical Glossary for the Adequation of the Instrumental Language in Libras” and “Elaboration of a Manual for Architectonical Drawing Teaching for Deaf People”. These projects used the methodology of participant research in which the researcher is also the researched object and the methodology of the action research which has a formative and emancipatory scope. One of the main goals of these projects is to enhance the scientific vocation in deaf students encouraging them to the construction of knowledge and identity in the professional ambit. Thus these projects were innovative once they highlighted an area yet unfocused though important being the inclusion of deaf students into scientific projects and into the scientific and creative thinking.
Authors: Vera Lúcia de Souza e Lima – Centro Federal de Educação Tecnológica de Minas Gerais, Brazil

20374 - THE DEBATE ABOUT CONSUMPTION ACROSS AN INTERACTIVE EXHIBITION
This paper describes the production process of an interactive exhibition that proposes the debate and reflection on the culture of consumption and its impact on the formation of subjectivities, ways of life and hierarchy of links between
people, objects and feelings of owning and having. The conceptual axes selected for the design and production of the exhibition are: - The obsession with aesthetics in consumer society. - The childhood as consumer object and subject. - Consumption and addiction to gambling. - the problematic consumption of drugs Also it outlines the paths, the twists and turns, the negotiations and the own conflicts of a complex and interdisciplinary task at the moment of designing the exhibition.

Authors: Graciela Merino – Universidad Nacional de La Plata, Argentina

20568 - THE HYPERTEXTUAL ORGANIZATION OF SCIENCE DISSEMINATION MEDIA TEXTS AIMED AT CHILDREN
This paper is intended to present some results from the first phase of a research project on science dissemination for children and adolescents in the Portuguese written media. This research project is framed in the field of the Language Sciences and assumes the theoretical and methodological underpinnings of Discourse Analysis. Specifically, the research has its primordial support bases in Charaudeau’s (2006, 2008) and Moirand’s (1992, 1997, 1999, 2006) claims on science dissemination in the media, Adam’s proposals (1997, 2011; Adam & Lugrin 2000) about the structure or composition of the texts, and Giering’s, Souza's and Jacobi’s studies on media science dissemination texts aimed at children and youth (Giering 2008a, 2008b, 2009, 2010, 2012; Giering & Souza 2008, 2009; Souza & Giering 2012; Souza, 2013; Jacobi 2005). In the case of media science dissemination for children and youth, the “communication contract” (Charaudeau 2008) established has very peculiar characteristics. Among others, the producer activates a set of iconographic and discursive strategies to inform and explain, but also to attract and keep the reader’s attention. The present analysis focusses precisely on the interaction of some of these iconographic and discursive aspects: the global compositional organization of the text and the paratext (hyperstructure) (Adam & Lugrin 2000; Lugrin 2001; Moirand 2006; Giering 2008a, 2009, 2012; Souza & Giering 2009; Souza 2013) of the analysed publications. The use of hyperstructural composition produces a disruptive feature in contrast to the typical textual model, with new explorations both at the verbal and the iconic levels. These strategies are worth to be described to understand the social functioning of these texts. The corpus is composed by articles of science dissemination published in Visão Júnior and Mega Power, two Portuguese magazines aimed at children and adolescents, during the first quarter of 2013.
Authors: Rui Ramos – Universidade do Minho, Portugal
Maria Aldina Marques – Universidade do Minho, Portugal
Isabel Margarida Duarte – Universidade do Porto, Portugal

20308 - THE ICONOGRAPHIC DISCOURSE ON CLIMATE SCIENCE THROUGH THE PRESS COVERAGE OF THE SPANISH DAILY NEWSPAPERS
This paper explores the iconography of the media coverage on climate science through selected Spanish daily newspapers – El PaísCountry, El Mundo, ABC and Expansión – from 2004 to 2010. We have analyzed the content of the iconographic
elements to know further about how the Spanish press has managed the power of the image to rhetorically build its discourse on climate change, its causes, its consequences, the involved social agents and even their victims. According to our main results three out of four news stories on climate science are illustrated by some kind of iconographic element, mainly photographs (61%) along with computer generated images (CGI) (22%); the most frequent photos show –what we have called– the “rhetoric frozen universe” of climate change with pictures including ice, snow and glaciers; the most common CGI are maps, followed by graphs, charts and visual representations of complex processes. By analyzing a sample of 203 news stories, this synchronic and diachronic study has revealed that the rhetoric of the image could have improved the transmission of information about a complex phenomenon such as climate change from scientific sphere to the public. This is how journalistic iconography contributes to the translation of the always expert lexicon used by scientists to explain phenomena such as the formation and evolution of hurricanes, the operation of the Gulf Stream and North Atlantic Ocean Stream or the impact of climate change on the Polar Jet Stream. Adding visual support, the press images have illustrated the characteristics of climate change, a complex global problem characterized by a high amount of scientific and technical information and whose cause–effect relationship is not obvious. This work about iconographic discourse on climate science news stories is part of a broader research focused on analyzing media coverage about climate change science in the Spanish daily press.

Authors: Emilia Hermelinda Lopera Pareja – Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas, Spain
Carolina Moreno Castro – University of Valencia, Spain

20557 - THE ISSUE OF COLLABORATIVE KNOWLEDGE CREATION. THAI CASE STUDIES IN HEALTH CARE

Innovative practices for collaborative knowledge generation are on in many places in Thailand and specifically in medicine. Instead of the classical one way communication of popularized information from scientific institutions or specialized popularization areas and media toward the non-specialists, one may observe the raise of practices within which patients play an active role all along physicists and medical teams’ implication. This new deal matches tacit knowledge and needs from patients and their relatives, and explicit scientific knowledge from health and care professionals within a transforming knowledge process useful for all the stakeholders. To analyze these practices, the Nonaka’s theory of Ba (“Collaborative Strategy Knowledge Communities”, or “shared space in motion”) and SECI model (Socialization, Exteriorization, Combination & Internalization) are worth. Based on a shared interest of curing and caring, professionals and patients integrate new ways to be, including empathy, open-mindedness and doubtful attitudes. To illustrate this growing trend in Thailand, this paper will present results from various case–studies in health care.

Authors: Pierre Fayard – University of Poitiers, France
Yuwanuch Tinnaluck – Independant Scholar, Thailand
The worldwide spread of Information Technologies (IT) that gave birth to social networks, is bringing kind of a revolution within the scope of PCST. The access to S&T Information is not that far a central issue. In various scientific fields, what we used to call the receivers turn themselves in active information seekers through their questions and contributions in order to get the knowledge they require for their own purposes. Qualitative change is on: from the diffusion of "informative adapted products" to collaborative processes the non-specialists are at the origin of. Moreover, scientists themselves find interest for their own stake working with those who contribute on the basis of their own interests. IT allow the non-specialists having a paper each time more active, and even decisive to initiate processes of communication which include science and technology contents. As a consequence, talking about "general audience" is not worth anymore apart for traditional topics such as astronomy, or high energy physic...

The community dimension takes the lead. There are many different publics on the basis of the place they live, their professional interests, and their hobbies: urban of non-urban communities, all kinds of technicians or engineers, religious people, computer specialists, designers and artists, house wives, birds observers, butterflies collectors, all kinds of amateurs, yoga practitioners, alpinists, chess players, etc. Because access isn't anymore an issue, and because IT allow a dynamic attitude as regard as knowledge people need, S&T Information is called to contribute! Blogs, journals, websites, Q&A on line, twitters... include scientific and technological information not because scientists, journalists or popularizers think it is important, but because these communities of non-specialists decide it is! Science and technology do not have the same meaning for these categories of the public. This new deal triggers a proliferation of new attitudes and practices with regards to academic science and traditional PCST practices. Scientific knowledge is not any more the only source of reliable information, but part of communities' interests and requirements. Globalization that includes the expansion of travels and tourism breeds growing awareness about cultural diversity, for instance the way people consider health and care. With regard to such variety of people searching and exchanging information, experts cannot any more rely on the same authority provided by their scientific status as distant super specialists. They learn to open themselves to public debate, to accept and listen composite and opposite views, and to become more aware of contextual nuances that might relativized their own ones. Many of them do not have the rhetorical and intellectual tools to confront public controversies. To that extent, it is urgent that science communicators take up the challenge of providing these tools to the members of the scientific communities. Precise and rigorous knowledge is not any more the monopoly of scientists. Though scientific method that spread from ninetieth century is still so valuable and unique no matter the place where and when it is used, the diversity of knowledge doesn’t act against it but enriches the scope in spite of the intents of worldwide normalization of educational standards. A fight between S&T Information and diversity of knowledge sounds by now as a rearguard action. It fosters dialogue and dynamic exchanges, no fight nor
eradication of scientific misconceptions as some popularizers used to think in the past. This is changing the aims of science communication by emphasizing the cooperative mode of creating, gathering and enhancing knowledge in societies and virtual communities, but also within school systems. Which theoretical framework and guidelines for PCST professionals, social workers and scientists within this new deal? This paper aims to open this critical debate!
Authors: Pierre Fayard – University of Poitiers, France
Baudouin Jurdant – University of Paris 7, France

20457 - THE POPULARIZATION OF SCIENCE AS FACTOR OF EDUCATION AND SOCIAL INCLUSION
The postmodern society has demanded a permanent contact and interpretation of information related to Science and Technology (S&T). The decisions taken by individuals depend more and more on their training to allow them for the use of available technologies. In this context, it is necessary to bring science closer to the society. However, the distances among the centers for development of S&T in our country are a real problem and the population has no access to technological development. In the most cases science is in the hands of scientists and also restricted to academic boundaries. The popularization of science approaches the general public; it gets the primary and secondary schools, and others onlookers involved in sharing S&T in a playful and interactive fashion. In view of that, the scientific diffusion promotes social inclusion, and its purpose is to enhance the interest of ordinary people, especially the youngest ones, to do science. We have developed some highly complex technological experiments to promote formal as well as itinerant scientific education that allows the science to become reality for everybody. In this present work we approach the activities of Laboratory “Ilha da Ciência” Department of Physics UFMA are realizing itinerant exposure in several places in the Maranhão State, the respective results we present in the Conference.
Key-words: Science and Technology. Education. Science popularization. Social inclusion.
Authors: Antonio José Silva Oliveira – Universidade Federal do Maranhão, Brazil
Ana Maria Nelo – Universidade Federal do Maranhão, Brazil
Carlos Cesar Costa – Universidade Federal do Maranhão, Brazil

20320 - THE PUBLIC BROADCASTERS FOR DISSEMINATION OF SCIENCE AND TECHNOLOGY
The scientific information has little relevance to the ordinary citizen when it comes to comprehend his importance over public policies decisions. Society in general is not properly clarified over the effects of Science and Technology (S&T) researches for people’s quality of life. This follows from the timid investment on S&T Diffusion and Popularization programs in Brazil. Although in the last years the Federal Government had expanded the resources in science education and diffusion programs, the incentives still are very low, compared to the country’s necessity and to the lack of qualified human resources to support the several forms of scientific dissemination. The majority of diffusion and popularization actions for S&T in Brazil is held by attendance, through public events in institutions, parks and sciences museums. Through radio and television, insertions are
The implementation of the Digital TV System in Brazil opens an opportunity for entities and scientific institutions to use the multiplier and persuasive power of the television medium, including TV-internet interaction. The Digital TV System will demand, from the broadcast companies, more investments and sophistication on program schedule planning. Production of content should be intensified to supply the number of new stations. In Brazil, a large number of public broadcasters emerged and they, certainly, will have as a challenge, completing their program schedule. For diffusion of S&T, these are the stations that will offer opportunities. Therefore, to scientific entities and institutions, this is a good moment for dissemination of science and technology through these communication networks. Examples show the importance to raise awareness over public policies. The division of oil royalties to educational and health departments, the Forestry Code, the discussion over stem cells, have generated a debate nationwide. Therefore, if scientific societies occupy a privileged schedule on television, S&T programs could inform the population in these crucial moments.

Authors: Ascendino Flavio Dias e Silva – Universidade Federal de Pernambuco, Brazil

20698 - THE PUBLIC COMMUNICATION OF SCIENCE AS A MECHANISM TO THE DIALOGUE BETWEEN RESEARCHERS AND STUDENTS OF PUBLIC SCHOOLS

The news agency Ciência em Pauta is an outreach project which has been developed at the Federal University of Santa Catarina (UFSC) since 2010. Our primary goal is to bring scientific themes closer to the main public. Based on the works of authors such as Hernando, Oliveira, Massarani, Moreira, among others, the agency has introduced a series of changes, with satisfactory results, in adopting suitable and innovative language while joining members of our team with students and teachers from public elementary schools located in the vicinity of UFSC, in Florianópolis. Each step of this experiment is carefully planned in order to understand the relationship between journalists and scientists, researchers and their audience, as well as the impact and scope of the material produced by the agency on the main public. The work that we intend to present in this research paper is an analysis of these 3½ years studying a series of feedbacks received from scientists interviewed by this lab as well as our public. The questions we attempt to address are: (1) “what strategies were most effective?”; (2) “what kind of issue was most attractive to our audience?”; (3) “what are the main difficulties faced and how were they overcome?”

The agency has produced multimedia products such as videos, podcasts, a printed and an online magazine. The content was also disseminated on social networking sites. Initially intended to specifically target reporters, the agency gradually changed its goals to achieve an audience primarily of students. This change was intended with the purpose of contributing to the practice and research of effective models aiming to expand the reach of scientific knowledge. In this paper, we intend to describe this activity, while bringing actual data about processes built in the light of the available literature on the topics of Science Communication and the Popularization of Science.

This project began to be designed in 2007 with the organization of short courses...
on disclosure and scientific journalism followed by an investigation to determine how UFSC researchers assessed the importance of these fields and the actual performance of the local press as a disseminator of science. Since then, we have evolved to the creation of the news agency with the support of MEC (PROEXT), the PRPE – Dean of Research and Extension at UFSC and AGECOM / UFSC.

Authors: Tattiana Gonçalves Teixeira – Universidade Federal de Santa Catarina, Brazil

20682 – THE PUBLIC COMMUNICATION OF SCIENCE IN GRADUATE PROGRAMS IN PUBLIC HEALTH IN BRAZIL: A PERSPECTIVE OF COORDINATORS

Introduction – The public communication of science integrates the concept of scientific culture and is related to the context of modern knowledge societies. These societies recommend that public policies for science and technology include the wider society in the processes of decisions; hence the importance of sharing scientific knowledge generated in the university graduate programs, with the population. Objectives – To describe and characterize conceptions that coordinators of graduate programs in public health in Brazil have about public communication of science. Methods – This is the report of an exploratory research that has analytical and descriptive characters. The approach is mostly qualitative, with quantitative measurements. Two questionnaires were applied to 31 coordinators (first questionnaire) and 20 coordinators (second questionnaire), whose responses were submitted to the content analysis. The categories were transformed into variables that allowed the data processing by the software Hiérarchique Classificatoire et Cohésitive (CHIC®). Results – The conception of public communication of science by coordinators of graduate programs in public health in Brazil is not unanimous. Some coordinators understand it as scientific diffusion featuring a communication directed both to the scientific community and to society in general, however without language distinction. Most of them understand public communication as scientific dissemination that characterizes the communication directed to pairs in the scientific field. Few of the coordinators conceive it as communication directed to society in general, which must be operated with an appropriate language code, which represents both a commitment and a challenge for the teacher–researcher. Conclusion – The notion of public communication of science as a social right and as a commitment and responsibility of researchers and research centers is not explicitly present in the narrative of the coordinators of graduate programs in public health in Brazil, although in general the coordinators conceive it as a relevant activity. Thus, the study is presented as a contribution to reflection on the role of researchers and research centers with public communication of science and technology. Keywords: Scientific Communication and Diffusion; Health Postgraduate Programs; Human Rights; Science, Technology and Society; Public Opinion.

Authors: Carlos Antonio Teixeira – Faculdade de Saúde Pública da Universidade de São Paulo – Centro Universitário Adventista de São Paulo, Brazil
Paulo Rogério Gallo – Faculdade de Saúde Pública da Universidade de São Paulo, Brazil
20271 - THE RISE OF WEB SUPREMACY IN NEWSPAPER COVERAGE OF SCIENCE
Quantitative study of science news in Danish national Newspapers 1999 and 2012
This paper demonstrates how the Internet media has altered newspaper coverage of science in terms of quantity, origin and distribution. Although an overall rise in science coverage is observed, content analysis discloses how original writing is increasingly being replaced by copy-paste-journalism as novel online resources distribute intelligible science press material. This trend is visible in all journalistic fields but more explicit in the source-driven science journalism. The online abundant availability of science news material has also shifted the balance in distribution. Coverage in broadsheet print newspapers is decreasing whereas online and tabloid newspapers are steadily embracing science news. This transfer causes new target groups who have not been previously reachable to be included in science communication. The paper includes 693 articles from Danish national newspapers between 1999 and 2012 collected from random weeks. As Danish Internet newspapers only gained popularity after 2000 they were only included in the 2012 sample. All journalistic processed articles with a main focus on any field of science were included. The methodology follows quantitative studies of Danish news weeks carried out in 1999 and 2008 based on data collection from all Danish news outlets. As in this paper, the coding scheme focused on origin and sources to expose the news food chain. A follow-up study on a complete news week in 2012 is currently underway which will broaden the perspective of this paper’s conclusions. Previous longitudinal studies of science news coverage have not included Internet media even though the literature speaks of a recent “medialization” of science. Within this debate scholars have perceived the web both as a blessing and a curse. The critical argument is that online services spoon-feed science news to journalists leaving little space for critical science journalism. The preliminary results from this study confirm how Internet resources (e.g. livescience.com, Videnskab.dk and EurekAlert!) have become an increasing origin of science news on print and online, especially in tabloid newspapers. It is concluded that the availability of lucid science material online has made up for the cutback in science coverage on print and exposed science to social groups predominantly reading Internet and tabloid newspapers.
Authors: Gunver Lystbaek Vestergaard – Centre for Science Studies, Aarhus University, Denmark

20608 - THE ROLE OF ICT VOLUNTEERS IN PUBLIC COMMUNICATION OF SCIENCE AND TECHNOLOGY
It is recognized that the function of science and technology (S&T) is not only for boosting the economic development in every country, but it also has a function for improving the quality of people’s life, national welfare and healthier environment. In this sense, spreading knowledge and public awareness of S&T has become a high priority, in order to introduce policies, innovation, new technologies, etc. S&T communication then has its place in the area of research and development, as a mediator and stand among scientists / engineers as well as to public in providing appropriate information through various channels. The advent of ICT provides wide range of possibilities on disseminating information, so that creative approaches using ICT applications are developed to attract segmented public in
particular areas. The popularization of social media services are other recent addition to the means of communication with infinite resources from the internet. One of the ICT programs for public communication is the ICT Volunteers (Relawan TIK). The basic tasks of ICT volunteers are for education, for partnership, and for socialization and publication. The program is also a mediator in promoting S&T to public that shows interesting and engaging ways as well as creative, attractive and in a popular content. It copes with the change of a fast-changing world within provinces and districts. Besides, the promotion is applied through the local socio culture, which has already been familiar to public. That can be done through education and media. The ICT Volunteers includes collaborative efforts of academics, research and development (R&D) centers, private sectors, government/ local governments, and communities. Therefore, for continuous operation and implementation, a collaboration should be made by two or more parties, depend upon the nature of core business has been implemented. The volunteers should set the target and analyze the local socio culture and the habit or behavior of the targeted group. The approach should already be familiar to them. It can be seen that new efforts and initiatives are taken in developing S&T communication, in order to build a better hub of change agent to support the urgent issues as well as the cutting edge of S&T. The ICT Volunteers have spread dramatically through out regions. It is hoped that the media for S&T communication is not only attractive but is urgently needed for local and global issues.

Authors: Finarya Legoh – The Agency for Assessment & Application of Technology, Indonesia

20220 - THE SCIENCE-GATEKEEPER: A SYSTEMATIZATION OF SCIENCE JOURNALISTS’ SELECTION CRITERIA

Science journalists are confronted daily with a high number of possible issues from various sources (Clark & Illman, 2006), but they can only cover some topics out of a variety of different scientific issues. Their decision about what to publish is influenced by selection criteria (Badenschier & Wormer, 2012). While there is some research tailoring assumptions of general journalism theory to science journalism, a systematization of different selection criteria is still missing. That is why this paper applies assumptions of the Gatekeeping theory (Shoemaker, 1991; Shoemaker & Vos, 2009) to investigate the most important selection criteria in science journalism. At the same time, results of recent research on science journalists’ selection can extend this systematization, for instance science journalists’ professional role conceptions (Wolff, 2003), news factors in science journalism (Badenschier & Wormer, 2012), organizational characteristics (White, Evand, Mihill & Tysoe, 1993), and science journalists’ handling with sources, PR, audience perceptions and the coverage of other media (Corbett & Durfee, 2004; Weitkamp, 2010; Wormer, 2006). To investigate this systematization, semi-structured interviews with German science journalists (n = 21) from different media (TV programs, newspapers, science magazines, news magazines) were conducted. Journalists were asked to answer open-ended questions according to the different levels provided by Gatekeeping. A qualitative content analysis was conducted on the transcripts of the interviews to measure importance and context of the selection criteria mentioned by the science journalists. Initial results reveal that main factors influencing the science journalistic selection of science issues
predominantly included their professional role as information provider, and their own personal interest in issues, the fact that issues need to be new, relevant and connected to applications (news factors), and organizational criteria like the discussion of issues in editorial conferences and the cooperation with other journalists. Other aspects on the selection process were of minor importance. On basis of the findings a systematization of science journalists’ selection criteria with regard to the levels provided by Gatekeeping shall be developed. Such a model can then respectively be tested in a representative sample of science journalists. Authors: Lars Günther – Institute of Communication Research, Friedrich Schiller University Jena, Germany

20656 - THE SOCIAL APPROPRIATION OF KNOWLEDGE IN INTERCULTURAL CONTEXTS: A ROLE FOR COMMUNICATION OF SCIENCE

The promotion of scientific culture through communication of science and technology is considered one of the essential steps to enable democratic dialogue about aspects of science and technology and their impact on lives of people and their social practices. The scientific and technological culture refers to the extent to which the daily practices of different communities and human groups (be they economic practices, political, social, educational, cultural, medical, communication, sports, etc.), depend on and are transformed by the scientific and technological practices themselves. The discussion of communication of science and technology for democratization, citizen participation and social appropriation of knowledge has raised interesting questions and proposals to guide the design and implementation of public policies in several regions. The diverse discussions on science communication oriented towards promoting scientific and technological culture are two major trends: instructional, based on the transmission of knowledge from experts to the public and changing people’s attitudes towards science and technology, and socio-organizational, which includes socio-technical system and its structure as well as various forms in which scientists and technologists share their knowledge and products within companies and institutions. However, the aforementioned trends have serious limitations for assessing the social appropriation of science and technology (SAS&T), that is, the development of capabilities that people have to resort to knowledge and scientific and technological practices and incorporate them in life daily to solve their problems, taking advantage of them for your benefit. This work aims to show how the analysis of epistemic practices can contribute to discussions about the communication of science and technology and their relationship with SAS&T in specific contexts, considering the set of knowledge-producing practices, constituencies and transforming the world, that give meaning to the actions and lifestyles of the agents. Therefore, we consider that the role of communication of science is a challenge, because it would need to establish links between the scientific and technological development and emerging epistemic practices of intercultural societies, which have appropriate scientific knowledge, transform it for their own benefit.

Authors: Juan Carlos García Cruz – Instituto De Investigaciones Filosóficas/ Universidad Nacional Autónoma de Mexico, Mexico
Roberto Feltrero Oreja – Universidad Nacional de Educación a Distancia, España
20547 - THE SPEECH ON ENVIRONMENT AND HEALTH THROUGH CYBERACTIVISM: A COMPARATIVE ANALYSIS BETWEEN THE ENVIRONMENTAL MOVEMENTS TO CONFRONT THE INSTALLATION OF OIL REFINERIES IN BRAZIL AND SPAIN

Oil accounts for 43% of the energy consumed on the planet which means presently be the main source of energy in the world. However, besides being a non-renewable source, which become increasingly scarce, its processing by refineries and petrochemical generates devastating impacts on the health and environment of the society and territories. Despite being a factor scientifically verified has invested in the construction of new oil refineries in various countries of the world. Against the background planetary combat the neoliberal project of economic development environmental movements emerge that envision a democratic future and organize communication using information technologies to expand their discussions in order both participation and social inclusion at the local level, such as support for an exchange in real-time globally. The capacity for mobilization, communication and sharing of information has also enabled the identification of environmental conflicts in different contexts like reaching expanses of space and time. This research aims to understand how environmental movements to face projects in the oil industry using cyberspace to spread their ideas and how they perceive the impact on health and environment in this context. The analysis was developed from the speech in websites of two movements of socio-cultural and economic contexts very different: the blog of Citizen Platform Refinería No, the region of Extremadura in Spain, a social movement formed after 2005 that could prevent the construction of Balboa refinery after years of struggle and Suape Forum: environmental space in Pernambuco-Brazil, has members who fight for the cause for more than three decades, but only consolidated as movement from 2012. It was found that such movements could not visibility in traditional media to internet enabled a horizontal communication through strategic networking. The formulation of a democratic movement and compatible with the preservation of life and the planet is consistent with the assumptions of sustainable development, the main argument incorporated by both movements, which advocate human development at the expense of the destruction of fauna and flora. In one aspect of dialogic communication and the possibilities it can be established between the public involved in movements that use the network is an essential tool for democracy and popular participation.

Authors: Mariana Olívia Santana dos Santos - Centro de Pesquisa Aggeu Magalhães-Fundação Oswaldo Cruz, Brazil
Renata Cordeiro Domingues – Centro de Pesquisas Aggeu Magalhães/Fundação Oswaldo Cruz, Brazil
Antônio Julio Rebelo Neto – Universidade Federal de Pernambuco, Brazil
Isaltina Maria de Azevedo Mello Gomes – Universidade Federal de Pernambuco, Brazil
Ide Gomes Dantas Gurgel – Centro de Pesquisa Aggeu Magalhães-Fundação Oswaldo Cruz, Brazil
20407 - THE SQUARE KILOMETRE ARRAY (SKA) TELESCOPE: BIG SCIENCE, BIG MONEY, BIG SUPPORT (HOPEFULLY)!
The Square Kilometre Array (SKA) will be the world's largest radio telescope. It is now taking shape, supported by about half the population of the planet; and hundreds of people from science institutions, universities and industry around the globe will be establishing the final design of the telescope over the next 3 years. An exciting challenge! So is the communication side of this colossal project, where themes like global collaboration, revolutionary science, big data, R&D, spin-off technologies and people development are key topics to inspire and engage with the public and powerful tools to get support from policy-makers.
Authors: William Garnier - SKA Organisation, United Kingdom

20232 - THE THERAPEUTIC CLONING DEBATE: GLOBAL SCIENCE AND JOURNALISM IN THE PUBLIC SPHERE
Exploring the controversy surrounding therapeutic human cloning, this paper presents part of the research results from a forthcoming book, which questions the role of science journalism as a site for political engagement. This book draws upon data collected from news articles and interviews with journalists to examine the role of news media in shaping biomedical controversies in the public sphere. With specific reference to the US and the UNITED KINGDOM as two leading scientific nations grappling with the global issue of therapeutic cloning, together with attention to the important role played by nations in Southeast Asia, this book sheds light on media representations of scientific developments, the unrealistic hype that can surround them, the influence of religion and the potentially harmful imposition of journalistic and nationalist values on the scientific field. This paper provides a general overview of the book's arguments, but then focuses in particular on the crucial role of news sources in constructing science journalism. It identifies a heavy reliance on institutionally recognised scientist sources to provide these raw materials. Such expert sources help “fix the parameters of discourse and interpretation, and the definition of what is newsworthy” (Herman & Chomsky, 1988, p. 2: 2). In this chapter, the following questions are addressed regarding the role of scientist sources in therapeutic cloning coverage: On what basis are scientists selected as sources of information, analysis and expert commentary? What forms of scientific expertise are employed by the selected sources? What positions and ideas are promoted by scientist sources? A number of key limitations inherent in the practice of contemporary science journalism are identified, which may make the journalistic field an irremediably flawed venue for engaging publics and sciences in pluralistic dialogue and debate. These flaws remain salient despite a shifting media landscape. There is a greater than ever need for reporting and analysis of new scientific developments in a manner that can be critical and independent, holding scientists and scientific institutions to account for their truth claims. The general failure of contemporary science journalism to perform this fourth estate function has negative consequences for political engagement within democratic nations.
Authors: Eric Allen Jensen - University of Warwick, United Kingdom
20683 - THE USES OF FACEBOOK AS A SOCIAL MEDIA TO THE PUBLIC COMMUNICATION ON HEALTH PROMOTION BY A PROFESSIONAL MASTER DEGREE

The Facebook is a social media that is in crescent use by Brazilians Internet users. It belongs to the group of social media that are expressive communication tools and that are growing in use and in relevance all over the world. What are the uses of social media by university, academic and scientific research institutions? Is it possible to transmit scientific information by a social media? What are the appropriations that social media users are doing of science information they are following? In 2013 it was started a Facebook page for the transmission of health promotion information by a professional master degree program in health promotion in Sao Paulo city. Every other day the health promotion information is updated in this social media. The students of this master program where asked to produce information to be posted in the Facebook. What they think about it? What are the implications of student engagement in this process? Who is accessing the information? How many access this Facebook page is having? What are the perceptions of the information in health promotion the users of this Facebook fan page are having? What are the uses of the information? What are the problems with the transmission of health promotion information by a Facebook fan page? This is some of the questions that nurtured a research having this Facebook fan page as an object of analysis. It was applied an online questionnaire that was built using the help of the online tool QuestionPro. The collected data were stored and tabulated and then were treated, organized and analyzed using the electronic spreadsheets software Calc. The number of respondents allowed the adoption of a sampling error of at most 5%. The quantitative analysis was based on the application of Statistics Descriptive techniques, mainly the use of averages, tabular description and summarization of data through charts and graphs. The data was submitted to a qualitative analysis as well. Key Words: Facebook, Social Media, Health Promotion, Professional Master Degree

Authors: Carlos Antonio Teixeira - Centro Universitário Adventista de São Paulo, Brazil
Ricardo Noboro Isayama - Centro Universitário Adventista de São Paulo, Brazil
Rosemeire Braga Lopes - Centro Universitário Adventista de São Paulo, Brazil

20513 - JIVING WITH SCIENCE: SHARING SCIENCE THROUGH SMALL MEDIA, PUBLIC TRANSPORT AND EDUTAINMENT IN A RURAL SOUTH AFRICAN COMMUNITY OF HIGH HIV PREVALENCE

Jiving with Science is a low-threshold public engagement project that applied principles of edutainment and small media to share evidence-based scientific results and health promotion messages with a rural community of high HIV-prevalence. The project was initiated by the Africa Centre for Health and Population Studies (Africa Centre), an international population research facility based in rural South Africa where the impact of the HIV epidemic is severe (Bärnighausen, Tanser, and Newell. 2009: 405). A central aim of the Centre’s research is to inform national health policy and improve the lives of the local population. Since 1998, the Centre has actively engaged the local public through an integrated communication strategy. Jiving with Science aims to build on this strategy by translating pertinent research findings and evidence based, health promotion
messages into lay terms and delivering them to the public in everyday spaces. The project involved developing, distributing and evaluating three edutainment CDs over 2 years. CDs were distributed freely to community stakeholders, in particular to mini bus taxi drivers, for the entertainment of commuters. The CDs were endorsed by local celebrities and contained a narrative informed by local scientific data on HIV/AIDS interspersed with popular music tracks. CDs were designed by a multidisciplinary team and were tailored to meet the needs of this rural community that has had little access to science. In this paper, we provide insight into the development of the CDs and discuss the results of our summative quantitative survey. In summary, we found that while this might be viewed as an example of how small media methodologies can empower health researchers to create low cost, targeted products to engender positive social change, the strength of this intervention lies in its connection to a well-established research programme and we suggest that researchers keep this in mind when developing similar material. Moreover, although we found that exposure to the CDs to be linked to improved social norms, there does not appear to be an impact on behavior change intentions, which implies that maximum efficacy can only be achieved if these CDs function as part of an integrated communication strategy.

Authors: John Imrie - Univesity College London, United Kingdom
Astrid Jane Treffry-Goatley - University of KwaZulu-Natal, South Africa
Mduduzi Mahlinza - University of KwaZulu-Natal, South Africa

20397 - TO CYBER OR NOT TO CYBER: HOW THE DIGITALIZATION SHAPE THE VIRTUAL ENVIRONMENT OF COGNITION AT INSTITUTIONS OF SCIENCE, TECHNOLOGY AND INNOVATION IN BRAZILIAN AMAZON

This paper presents some results of a doctoral dissertation recently completed, which examines if the processes of digitalization enabled by Information and Communication Technologies - ICTs, from the introduction of Web 2.0 in the Amazonian environment for generating knowledge in Science, Technology and Innovation - STI, induced the creation of cognitive virtual environments for collaborative production, the availability of databases and repositories and digital communications by institutions of STI anchored in the Brazilian Amazon, providing its entrance in the age of glocalization, denominated by Castells as Galaxy Internet [2001] and Lévy as Cyberculture [1999]. Formed by a set of 102 institutions directly involved in the STI system in the Amazon, we seek explanations that could reveal how the actors of this system take use of the cyber reality, either through its numerous multidimensional recourses or the use of digital tools and instruments, or even new forms of interaction and communication occasioned by it. These are issues that require to be included or excluded [in others words, to cyber or not to cyber] at a world in process of cyber civilization, enthroned by ICTs. The creation, diffusion, dissemination and application of specialized knowledge are of increasing importance in material and immaterial production of contemporary societies, and even in the governance of nations. In all of them the specific role of generation knowledge’s processes through STI has become even more central and decisive in their purposes, since the emergence of so-called knowledge-based economies [Drucker, 1993]. The conceptual framework
applied to understand this system of STI in process of virtualization is the Social Network Analysis – SNA, and the Theory of Network is its most salient anchor. Understanding that virtual networks crystallize through the establishment of links, without which no one talks about deterritorialization of networks, but virtual enclaves. The techniques applied to operationalization the research refers to instruments of building graphs and link analysis, highlighting programs as EXCEL, SEMRUSH, MAJESTIC and GEPHI. The results reveal that the STI system in the Brazilian Amazon have not yet incorporated cyberculture as an innovative means of interaction and communication between their institutions producing scientific and technological knowledge.
Authors: Luiz Roberto Vieira de Jesus – Universidade Federal do Pará, Brazil

20469 – TOWARD BETTER COMMUNICATION OF SCIENCE
The world is full of wonder, and it also has problems to solve to succeed the beautiful life and world to the next generation. It is a keen issue to produce future scientists/citizens who possess appropriate scientific knowledge, skills and scientific thinking and who can intelligently participate in discussion in the local and global society. It is also needed that science professionals learn the main ideas of science communication and develop their own strategies to lead them as a part of the citizen.
The Science and School project aims at solving the problems above through communication between high school students and the researchers. It includes activities mediated by the website [http://scienzaescuola.fisica.unina.it] and activities directly on the field. Its key strategy is growing the students who potentially acquire scientific skills and perform themselves as scientifically literate citizens in any settings of the society. The project is officially supported by University of Naples and National Nuclear Physics Institute (INFN), Science and School provides the students with the flavour of scientific research and the world view by opening channels of direct and systematic interaction among students, teachers and researchers. It is designed as a quasi-mirror website of Italian and Japanese languages with English as a bridge so that they can retrieve the same information and then discuss on the same topics of science, resulting in nurturing their cosmopolitan outlook. To achieve the effective communication between Italy and Japan, Science and School puts an emphasis on communication, live experience and world view. It includes: interactive space where the students can ask questions on their science research to university professors; essays to provide broad and integrated overview of science and different disciplines which opens up student’s world view; and other useful information for teachers such as forefront research facilities that are open to school group visit. All pages designed to expose the students to the nature of science, research and communication, resulting also in science professional’s learning opportunity how to effectively communicate with lay publics. Diffusion of Science and School has started with schools mainly in the Napoli region and is rapidly growing with the support of school and scientific institutions, as well as of public authorities. The actual state of the student’s use and improvement in their performance will be reported.
Authors: Midori Takahashi – Shizuoka Kita High School, Japan
Paolo Strolin – University of Naples and National Nuclear Physics Institute, Italy
Ernesta De Masi – Liceo Statale “A. Gatto”
Science is becoming increasingly contentious and politicized. In light of such increasing politicization, scientists need to better connect with public audiences, whose taxes fund approximately 60 percent of the academic research conducted in the U.S. How the American public perceive and understand science and its practitioners will likely affect scientific research and development the federal government supports. One way for scientists to connect with the public is through new communication technologies afforded by advances of the internet. Facebook, Twitter, and other forms of online social media are increasingly breaking down barriers between scientists, societal elites, and lay audiences. Yet, we lack empirical data on scientists’ use and perceptions of social media. In this study, we conducted a survey of tenure-track scientists at a large Midwestern research university asking them about their use of social media for both general and science-related purposes. Using these data, we explored variables that influence general social media use and, more specifically, use of the social networking platforms Facebook and Twitter for science-related purposes. We found that, relative to the general public, fewer scientists reported using social media in general. Among these, the proportion of scientists who use Facebook for science-related purposes is comparable to the public at large. Interestingly, a larger proportion of scientists use Twitter as compared to the general public. This lends some credibly to the idea that social media, particularly Twitter, may be a viable outlet for scholarly discussion and one that may be viewed among scientists as having the potential to increase research productivity. We also found that liberal scientists tended to use Facebook more than their conservative counterparts. This finding is consistent with data collected from the general public and may be indicative of a growing liberal echo chamber, even among scientists, on the social media platform. Finally, the use of social media for science-related purposes, whether active or passive, predicted Twitter but not Facebook use and greater interest in actively seeking new ways to share science was a significant predictor of Twitter, but not Facebook, use. The implications of our findings are discussed.

Authors: Sara K. Yeo – University of Wisconsin–Madison, United States
Michael A. Cacciatore – University of Georgia, United States
Dominique Brossard – University of Wisconsin–Madison, United States
Dietram A. Scheufele – University of Wisconsin–Madison, United States
Michael Xenos – University of Wisconsin–Madison, United States

In 2006, the science communication spaces available in newspapers in Mexico were limited to say the least. Only a few of them had permanent sections of scientific content, although most of them published informative bulletins based on internacional agencies that reported major scientific advances made in the United Status and european countries. Notwithstanding the great circulation of many newspapers, one of them in particular was found to be read by a vast of the population. It is a diary publication of general information with a remarkable yellow note section, and the biggest production in Mexico, with around 315 thousand daily copies and around 1 million 200 thousand daily readers. All of this readers have not been contemplated within the public science communication

Authors: Sara K. Yeo – University of Wisconsin–Madison, United States
Michael A. Cacciatore – University of Georgia, United States
Dominique Brossard – University of Wisconsin–Madison, United States
Dietram A. Scheufele – University of Wisconsin–Madison, United States
Michael Xenos – University of Wisconsin–Madison, United States
projects. Given the above mentioned features of this publication, possibility of collaboration with the newspaper emerged. This has resulted in a weekly section whose content comprises research findings from the Universidad Nacional Autónoma de México (Nacional Autonomus University of Mexico), in an accessible language for all types of public, and of subjects that have to do with everyday life; this with the aim of making a substantial social. This space has been maintained at no cost for the university from the early start, and has now expanded to include more than 15 newspapers and magazines in the republic's interior. The objective of this exposition is to present the development of this Project along its 8 years of existente, and its trascendence into other media that also impact previously unattended public. The contents published in the newspapers are adapted since 2006 to cartel format with a monthly production of 22 thousand copies, that are distributed in stations belonging to the collective transport system Metro and Metrobus of Mexico city, as well as in biblioteques and public spaces in the rest of the country. We aim to present the impact that has been observed in the number of readers, as well as in the expansion to other media and other states, both of which evidence the achievement of our original objective, which was to reach a previously unattended and seemingly uninterested public.

Authors: Ángel Figueroa Perea – Universidad Nacional Autónoma de México/DGDC, Mexico
Alfonso Andrés Fernández Medina – Universidad Nacional Autónoma de México/DGDC, Mexico
Adriana Bravo Williams – Universidad Nacional Autónoma de México/DGDC, Mexico

20246 – USING ANIMATED VIDEOS FOR SCIENCE ENGAGEMENT AND SCIENCE LEARNING
Science education should start at an early age, when children’s scientific knowledge is developing and might include mistakes or misconceptions. But some scientific topics might be difficult to address, namely some “invisible” biological processes. The resources used to introduce these processes need, therefore, to be attractive, with a language suitable for the target audience – simple but accurate. We have been exploring alternative ways, aiming to stimulate young people about science and teach them scientific concepts in a simple and entertaining way. Within this framework, short animated videos that address biological concepts have been developed. Two videos have already been launched, targeting children from 6 to 12 years old: one explores the notion of cells and the different methodologies used by scientists in their research; and the other addresses concepts in evolution. These videos are in the format of webcasts, which allows a broad distribution via the Web, and can be used in schools, as support material for teachers, or outside schools within the family environment. We have been receiving a very positive feedback about these videos, namely from schools. Students find the videos entertaining and teachers consider them a good educational resource to convey scientific concepts that are difficult to explain or that are not yet included in the curricula. Therefore, we proposed to investigate the effectiveness of using such videos as an exclusive educational resource. Using the video that explores the concept of cells, we conducted a study in classes of the 4th grade from three Portuguese Primary Schools. Each class was asked either to see the video (with no
further support), to read a book (containing the same images of the video), or to see the video and perform a complementary hands-on activity. The knowledge acquisition was assessed before and after these tasks. Our results indicate that all the students have learned the biological concepts tested, independently of the task executed, but those that only visualized the video scored less than the other two groups. Our data suggests that animated videos serve the purpose of engaging students in science in an entertaining way, but to take the most advantage of them as educational resources, they should be used in the classroom together with other resources as exploratory material.

Authors: Ana Lúcia Mena – Instituto Gulbenkian de Ciência, Portugal
Catarina Júlio – Instituto Gulbenkian de Ciência, Portugal
Ana Godinho – Instituto Gulbenkian de Ciência, Portugal

20474 – USING SCIENCE-RELATED MEDIA REPORTS FOR DEVELOPING STUDENTS’ UNDERSTANDING ABOUT SCIENCE AND NATURE OF SCIENCE

This quasi-experimental study investigates how media reports of science can be embedded into the teaching of science and examines what effects they have on students' understanding about science concepts and nature of science (NOS). Four eight grade classes, 130 students in total, participated in this study over a 6-week period, during which the topics related to solar system and the nature of matter were covered as a part of the Science Framework for California Public Schools. The classes were from the same public middle school in San Francisco. Two different modes of treatment were used. Students in the control groups (2 CGs) were exposed to the school's normal program of teaching, whereas students in a similar group, the experimental groups (2 EGs), were instructed by using six science-related media reports as a complimentary material. Students' views of NOS were assessed by the administration of the nature of science test (NoST) and the quality of their arguments was assessed by the science-related media reports test (News-Test). To assess students' understanding of the concepts related to solar system and the nature of matter, two questionnaires were used. Before the intervention, there was not a significant difference between these two groups in response to the NoST and News-Tests. However, the results showed that students in the experimental groups had significant gains in most of the NOS aspects from the pre-test to the post-test compared to the students in the control groups. After the intervention, there was not a statistically significant difference between these two groups in relation to their achievement scores on the concepts related to the solar system and the nature of matter; however, students in the experimental groups performed better than the control groups in response to the questions related to the concepts associated with the solar system. This study suggests that using science-related media reports in the classroom has potential to improve students' understanding of science concepts and NOS. Some possible implications for teaching and further research are discussed.

Authors: Gultekin Cakmakci – Hacettepe University, Turkey
Jonathan Osborne – Stanford University, United States
**20677 - USING SEX TO SELL SCIENCE**

Advertisers have long exploited the advantages of using sex to sell products (e.g. Old Spice). However, there are also negative connotations that can become associated with a brand when sex is perceived to be used gratuitously or in a sleazy fashion. The greatest asset of “Science” as a brand is its worthiness: a reputation for being unbiased, accurate and trustworthy. An association of sex with science would, therefore, appear to risk devaluing science even if the use of sex is effective in attracting the public to science. Here I outline a specific case study involving George Murray Levick and the effect of sex in the dissemination of his science about the behaviour of penguins. As a member of Captain Robert Scott’s last expedition, Levick studied Adelie penguins in the austral summer of 1911–12 at Cape Adare, Antarctica, and published the first-ever book on penguins exactly a century ago in 1914. However, he was prevented by the British Museum of Natural History from publishing his observations on the sexual behavior of the penguins: instead he produced 100 copies of a manuscript of the sexual peccadillos of the penguins that was distributed internally at the museum and promptly discarded or forgotten. In 2012, a surviving copy of that manuscript was rediscovered. It outlined instances of infidelities, rape and homosexual behaviour in the penguins. The subsequent publicity generated a lot of interest, to the point where it completely dominated online searches for Levick and penguins. I demonstrate how I was able to use this interest in the sexual behavior of the penguins to tell a broader story about aspects of science involving the penguins. Sex is successfully used to enhance engagement with science, while the integrity of the science is preserved by putting the salacious aspects of the penguins’ behaviour into the context of scientific principles.

Authors: Lloyd Spencer Davis - Centre for Science Communication/University of Otago, New Zealand

**20670 - VIRAL SCIENCE: TOWARDS A DARWINIAN VIEW OF PUBLIC COMMUNICATION OF SCIENCE**

One of the main pending issues in the field of science communication is the lack of a general framework that allows us to analyse this activity from a theoretical standpoint. Among recent perspectives that have caught the attention of scholars in the fields of communication and culture are the ones that consider these processes from an evolutionary perspective. Although there are several versions of this approach, all agree in considering that the process by which an idea spreads in a population is subject to Darwinian-type selection. One such proposal is the one made by biologist Richard Dawkins in his book “The Selfish Gene” (1977). According Dawkins, ideas, like genes are subject to a process of evolution by natural selection. Like genes, ideas (which from this point of view Dawkins calls “memes”) are transmitted (communicated) from one individual to another, and in the process they simultaneously multiply and change. Gossip, fashion, rumours, myths, religions and ideologies are examples of how ideas experiment this type of process. Public communication of science means just that: to spread, to communicate, to share. To propagate ideas. From an evolutionary point of view, the messages of public science communication (understood as the emission of messages with scientific content towards a lay audience, with the intention of permeating their imagination and promoting a “scientific literacy” – cultura
científica—shared by the common citizen) can be considered replicators that spread in a population. It is proposed here that a darwinian/memetic perspective of public science communication might be useful for defining and evaluating concepts such as “success” and “quality”, and for finding new and better ways of planning, evaluating and promoting projects for communicating science and technology issues to lay publics. Some ideas that may add to this perspective are explored, such as network science, and some of the work that has been done by various authors in order to delve into these possibilities is discussed.

Authors: Martín Bonfil Olivera - Universidad Nacional Autónoma de Mexico, Mexico

20447 - VISUALIZING SCIENTIST ON ARGENTINIAN TV

Public perception studies show that the stereotypical images of scientists are dominant. This work analyzes how scientists from different areas are visually represented in Argentinian television in order to evaluate how this media influences the social construction. The analysis focuses on the scientists' characteristics like visual aspect, age, clothing, gender and ethnicity; time on screen, knowledge, quality of speech, job title and physical context in which they are presented are also considered. This analysis is based on 10 programs selected from a corpus of programs considered to be of scientific dissemination - criteria established ad hoc- during the years 2011 and 2013 (n = 174 / n = 142) in 15 different channels. These programs were categorized by their format (documentary, reality, magazine, etc.) and the scientific-technological areas they present (Biological Science, Medicine, Environment, etc.). We also focus on the revision of established format-area relations understanding formats not as communicative packaging loaded content (areas), but as flexible and dynamic significant structures constructed and projected on science and technology. In this way, we wonder how mutually conditioned format and content are. This study allows us to ponder over science and technology in Argentinian television and what social imaginaries this media reinforces in a crucial moment for the audiovisual production in our country. The implementation of a new national law on audiovisual communications is opening the possibility to generate innovative programs, and at the same time is bringing the field of communication and dissemination of science and technology into focus of the current public policies.

Authors: Sandra Murriello - Universidad Nacional de Río Negro, Argentina
Ailen Spera - Universidad Nacional de Río Negro, Argentina
Hernán Andrade - Universidad Nacional de Río Negro, Argentina

20193 - WATER AND OIL DON'T MIX - ON JOURNALISTIC DISSEMINATION OF RESEARCH

There is a widely held notion that (all) research* can and should be disseminated to a wider audience, and that the researchers, as well as journalists, may draw many benefits from collaborating in this manner. The idea, which reigns in large sections of the population, among politicians, journalists, and even researchers themselves is that insofar as a researcher and journalist work together, and both parties are interested therein, the journalist can use a “toolbox” of methods, approaches, and effects to help the researcher disseminate research. The purpose of this paper is to demonstrate that this is a simplification. This will be shown in three ways: firstly I will shortly present the state of the art in this field and
show how the literature about science communication, although pointing to ever more researchers being visible in the media and to ever more cooperation, there are good reasons to expect that the collaboration between researcher and journalist being difficult. In this regard, I will also briefly present the results of a recent Danish study in science communication including a content analysis of 640 newspaper items and a survey of 340 journalists and 340 researchers that were interviewed about their collaboration in connection with daily news production. Following this, I will give an account of a qualitative experiment in science communication conducted at the University of Southern Denmark. The experiment brought 10 researchers without media experience together with each their journalist. Their task was to disseminate the researcher’s findings. This gave rise to much reflection and afterthought, but no research dissemination that could be published as a journalistic product. The experiment thus shows that the idea of research being communicated by journalists using their traditional journalistic news tools is naïve: traditional journalistic tools work best on what they were made for: news journalism. The experiment in this way suggests that Peters is right when he and others claim that because researchers and journalists construct knowledge according to different and incompatible principles, it is very difficult for traditionally trained journalist to disseminate research (Peters et al., 2008). *Research is used as a generic term for both research in science, engineering, health, as well as humanities and social sciences. The term researcher is likewise used to refer to researchers from all these areas.

Authors: Charlotte Wien - University of Southern Denmark, Denmark

20433 - WHAT ARE EUROPEAN SCIENCE COMMUNICATION COMMUNITIES TALKING ABOUT?
This paper seeks to identify the dominant interests and approaches of science communication communities in Europe over recent years. The paper presents findings from a study of contributions from European participants to three conferences each of ECSITE, the European network of science museums and centres, and of the international Public Communication of Science and Technology (PCST) network. The full dataset comprises a total of 1,000 abstracts of proposals to these conferences. The analysis of these submissions identified principally the types of science communication activity in focus, the various sectors of the public, or publics, for which those activities were intended, and the model of communication informing these contributions, grouped as three ‘families’ of models: dissemination, engagement and conversation. The differences and similarities in the content for the two series of conferences are explored in terms of preferred types of activity, target publics and models. One guiding question of the study was: How strong is the evidence across Europe for the frequently declared “dialogic turn”? It is widely assumed that science communication has changed mode decisively over the past decade, This paper examines the evidence for such a trend towards commitment to dialogue- or participation-oriented public science communication. The study was undertaken by the Celsius group at Dublin City University on commission to ECSITE, as the co-ordinator of the EU-funded project, PLACES (Platform of Local Authorities and Communicators Engaged in Science), 2010–2014.
Authors: Brian Trench – Dublin City University, Ireland
20736 - WHAT DOES SUSTAINABILITY MEAN TO YOU? SOCIAL CONSTRUCTIONS OF THE CONCEPT AMONG A CANADIAN PUBLIC AND ASSOCIATED COMMUNICATION CHALLENGES

Since the emergence of concerns over degradation of the environment in the 1960s and the growing interest in environmental protection and sustainability, considerable attention has been given to the concept of sustainability and its meanings, measurement and monitoring and action implications for individuals and societies and policy communities. The term as involved to incorporate economic and social dimensions and temporal considerations when the Brundtland Commission put forward the idea of balance, limits and future perspectives when it described SD as devt that meets the needs of the present without compromising the ability of future generations to meet their own needs. There has been considerable debate over definitions of sustainability, the elements that are foregrounded... Exploring public views on this question has important implications for understanding the challenges possibilities for action and for communication. This presentation focuses on our analysis of results from an open-ended question that was posed to a national sample of 1200 Canadians in May 2013: what does sustainability mean to you? Taking the volunteered responses, identifying key emergent themes, and coding the responses according to the dominant themes. The primary theme that emerged was recognition of balancing economic conditions with environmental considerations. Very little reference was made to the social aspects of sustainability. For those mentioning economic development goals, two independent subthemes were expressed: either this was to be balanced by maintaining resource sensitivity or this was emphasized in terms of retaining current standard of living levels. The challenges afforded by these initial findings suggest the considerable work still to be done and the communication approaches that may contribute to a common global sustainability journey while building on local imperatives and considerations.

Authors: Edna Einsiedel - University of Calgary, Canada

20576 - WHEN SCIENCE BLOGGERS PERSUADE THE AUDIENCE – EFFECTS OF MESSAGE SIDEDNESS, AUTHOR EXPERTISE, AND READER CHARACTERISTICS ON ATTITUDES TOWARD SCIENTIFIC TOPICS

On the Internet, laypersons have a wide range of opportunities to gather science-related information. In this context, science blogs have become an increasingly relevant source for laypersons (Brossard, 2013). These sites with user-generated content may offer further insights on specific topics but may also include statements which do not reflect scientific results accurately. Against this background, it has to be asked to what extent laypersons are affected by reading science blog articles. Specifically, this research investigated the effects of different depictions of scientific uncertainty (ranging from one-sided and assertive statements to a more balanced and two-sided version) on readers’ attitudes. Furthermore, based on the elaboration likelihood model (Petty & Cacioppo, 1986), it was analyzed whether the persuasive effects depended on readers’ need for cognition and their epistemological beliefs and whether source information interacts with text type. In experiment 1 (addressed to parents of minors / N = 82), a blog article
about effects of computer games on children was presented in four different versions: Each version contained three arguments focusing on negative effects that were either phrased neutrally, contained assertive statements, or included hedging. The fourth version contained an additional argument on positive effects of computer games (two-sided information). Results showed that the two-sided text led to a more optimistic view on media usage, while the neutral one-sided version strengthened negative attitudes. However, the assertive version was less effective, indicating that recipients were skeptical when statements were presented as too simple. Moderation analyses showed that recipients with sophisticated epistemological beliefs were affected more strongly by a two-sided presentation of evidence, whereas readers with naïve beliefs rather ignored the conflicting information. In a second experiment (N = 120 parents), information on the blog author (expert vs. layperson) was varied as a further factor. Here, experts’ texts were generally evaluated as more credible, while laypersons’ texts were perceived as particularly unreliable when the argumentation was one-sided. In contrast, experts were “allowed” to present simple articles. However, with regard to attitude formation, source expertise did not exert effects. Implications for the application of the ELM and the practice of science communication will be discussed.

Authors: Stephan Winter – University of Duisburg-Essen, Germany
Leonie Rösner – University of Duisburg-Essen, Germany
German Neubaum – University of Duisburg-Essen, Germany
Nicole C. Krämer – University of Duisburg-Essen, Germany
Carolin Straßmann – University of Duisburg-Essen, Germany

20179 – WHICH MOVIES AND WHAT FOR? ANALYSIS OF “PATTERNS OF USE” OF THE SCIENCE FICTION FILMS IN SCIENTIFIC JOURNALS
Since some films like 2001: A space Odyssey (1968) or Jurassic Park (1993) have been a huge success in audiences, the use of those films in scientific papers has been increased accordingly. Science Fiction (SF) films try to convince us that a certain type of technology, concept, or scientific worldview is possible. These films are used for multiple aims, for example educative or advertising purposes (Kirby, 2010; Weingart, Muhl, & Pansegrau, 2003). However, these functions have been scarcely studied and much less systematized. Therefore, in this paper we propose to quantify and analyze the “patterns of use” of SF films in scientific journals indexed in international databases. Firstly, we selected twenty films between 1902 and 2011 from recognized sources, such as SF movies list of the University of Michigan, the best SF films from the American Film Institute and movies taken from the history of the Hugo awards, among others. Secondly, films selected were detected in the scientific literature using the ISI Web of Science (Thomson Reuters) database. Through quantitative methodologies, we studied the documental types, the journals of publication and the adscription disciplines, among others criteria. By studying the content of the papers we have established seven categories referring to the “patterns of use”. The most important were a) public understanding of science/public engagement, b) the use of film as example of processes, c) as an educational tool, or d) as an argument for or against science. To analyze “patterns of use” we performed a detailed study
of 300 papers where selected films were found, to observe and categorize the specific ways they are used. We found that more than half of the publications belong to the documental type “research articles”. While most of the texts are in subject areas related to film, communication and such technologies, there is a substantial amount of documents related to other scientific fields as Social Sciences, Biomedical Sciences and Engineering. In 70% of cases, the mention of the film takes place in the title, indicating that, even in texts that do not belong to areas of communication, there is a significant number of documents whose main topic is at least one of the selected films. Bib. Kirby, D. A. (2010). The Future is Now. SSS, 40(1), 41–70. Weingart, P., Muhl, C., & Pansegrau, P. (2003). Of Power Maniacs and Unethical Geniuses. PUS (12), 279–287.
Authors: Luciano Guillermo Levin – Centro CTS/Universidad Maimonides, Argentina
Daniela De Filippo – Universidad Carlos III de Madrid, Spain.
Show, Tell & Talks
Espaço do Conhecimento – UFMG (Knowledge Space) is one of the museums of the Federal University of Minas Gerais, Brazil. The space has a planetarium, an astronomical observatory and a long-term exposure, entitled “Demasiado Humano” (All too Human). This exhibition presents to the public the origin of life and the trajectory of the human being on earth, through a multidisciplinary vision, involving various fields of knowledge. Phrases from the philosopher Friedrich Nietzsche and from the writer Jorge Luis Borges were inserted into the beginning of the exhibition, in order to emphasize the unfinished nature of human knowledge. Through the texts on the exhibits, however, the scientific discoveries are presented as incontestable truths, and the exhibition by itself, that has no hands-on activity, does not provide the visitor with a contact with the critical nature of science, with its unpredictability and uncertainty. Such scenario presents itself as a big challenge for the mediator who works in the museum. Thus, our proposal is that the process of mediation should, firstly, include the visitant as a protagonist, and it should also try to reproduce the scientific scenario: it should be 1) subject to constant experimentation, unpredictability and uncertainty; 2) susceptible to modifications; 3) generator of new knowledge; and 4) always permeated with the inventive character of science. From such premise, we have designed the proposal of the educational work for this museum. The strategies adopted, as well as the failures and progress will be presented. We intend to list some points that guide this work, with some conceptions of thoughts from the French philosopher Gilles Deleuze, such as “rhizome” and “becoming”, that could theoretically support our proposal. Financing support: FAPEMIG, CNPq, PROEX-UFMG and CAPES (Edital Jovens Talentos)

Authors: Débora d’Ávila Reis – Universidade Federal de Minas Gerais, Brazil
Juliana Prochnow – Espaço do Conhecimento – Universidade Federal de Minas Gerais, Brazil
João Akerman – Universidade Federal de Minas Gerais, Brazil

Qualia is an ambitious project to develop an open source digital technology evaluation app and web engine to enhance public engagement through improved audience response data. The project involves developing and critically evaluating the utility and validity of an app and web engine that gathers up electronic (e.g. social media and survey response) data to be used by cultural institutions (including science communication practitioners) to assess audience responses in real time, as well as tracking audience responses over time (e.g. over the course of a science festival). This enables live evaluation of audience behaviour and responses at events. Qualia incorporates sentiment analysis, social network feeds and SMS interactions. It also critically engages with a growing call for greater use of mobile technologies in cultural institutions. Throughout the project, the Qualia-generated results have been refined and tested using the conventional social scientific evaluation methods (e.g. at the Cheltenham Science Festival). Qualia System The Qualia System consists of three linked elements: Qualia App,
Qualia Probe and the Qualia Web-Engine. 1. The Android/iOS mobile phone apps provide visitors with an intimate window on the Qualia System through a unique user account. This enables feedback/evaluation, incentivisation (ticketing and privileges), event and navigation information, social media plug-ins and GPS tracking to monitor hotspots flow and enable responsive targeting to clusters of users, etc. using social networking data and other plug ins. 2. The Qualia Probes are sensing 'pods' placed strategically around the event site, capturing real-time information adding another layer of mood sensing through smile detection. The Probes are fitted with a large screen and act as Wi-Fi hotspots, information points and power stations for mobile devices. 3. The Qualia Web-Engine manages and synchronises the interactions between all of the above processes. It provides an administrative backend to the website, apps and probes and an analytics tool which looks for patterns and behaviours in the data collected. This project is funded by the UK’s National Endowment for Science, Technology and the Arts, the Arts and Humanities Research Council and the Arts Council through the ‘Digital R & D Fund for the Arts’. Partners on the project include i-DAT (Plymouth University), the University of Warwick and the Cheltenham Festivals.

Authors: Eric Allen Jensen - University of Warwick, United Kingdom

20564 - ART IN GLOBAL HEALTH: LESSONS FROM ARTIST RESIDENCIES IN HEALTH RESEARCH PROGRAMMES IN LOW INCOME SETTINGS

Art in Global Health was an exciting and ambitious project that took place over 2012/13 http://www.wellcomecollection.org/whats-on/art-in-global-health.aspx. 'Art in Global Health' was a £400,000 project which set up six artist residencies in six Wellcome Trust-funded research centres as a way of teasing out some of the more personal, philosophical, cultural and political dimensions of health research. This exciting project is born out of Wellcome Collection's desire to engage the curious public globally with the health research that the Trust funds – in Kenya, Malawi, South Africa, Thailand, Vietnam and the UK. The residencies lasted for six months, with local artists given a wide brief: to find out about the research being undertaken, to interact with scientists and team members from other disciplines (anthropologists, ethicists, economists, educators and so on) and to produce work in response to the processes of research and discovery they have observed.

Outcomes of the residencies – exhibitions, performances and supporting events are to be brought together for an exhibition at the Wellcome Collection in London in 2014 entitled Foreign Bodies. At the majority of sites the artistic processes and outputs involved engaging with research communities. Artists came from a range of practices: theatre, film, photography, installation and digital media. This session will introduce be a mixture of both presentation, facilitated discussion and film which you can see here http://www.wellcomecollection.org/whats-on/art-in-global-health/reflections.aspx. Participants will be introduced to the 'Art in Global Health' project and its outputs. They will then be invited to explore, through small group discussion with plenary feedback, the potential challenges of bringing artists, scientists and research communities together in a project such as this. The session will be facilitated and presented by: Sian Aggett: From project steering committee and who is conducting the project evaluation, Nana
Dakin who is a director of B-Floor Theatre, a vanguard physical theatre company from Thailand, who conducted their residency with the Wellcome Mahidol–Oxford Tropical Medical Research Unit in Thailand.

Authors: Sian Aggett - Sussex University, United Kingdom

2013 - COMMUNICATING THE VALUE OF SCIENCE--ISSUES, IMPERATIVES AND INSIGHTS
Over the last six decades, US federal investments in scientific research have led to unquestionable economic and societal advances, while expanding human knowledge. Yet, in the current US federal fiscal climate, funding for fundamental research is being challenged in some quarters. This situation has created the need for stakeholders in science to step forward and defend the role that basic research plays in creating the knowledge and workforce necessary to address current and future challenges. Communicating to fellow scientists in this environment is necessary but not sufficient to sustaining, or even expanding, support for fundamental research. A multi-faceted approach will be described for enhancing communication to broader audiences, including policy makers and the general public, increasingly responsible for ensuring the future of scientific progress.

Authors: Judy Gan - US National Science Foundation, United States
Dana Topousis - US National Science Foundation, United States

20199 - CONCIENCIA TV. A NEW WAY OF TELEVISION MAKING IN VENEZUELA USING TDA (OPEN DIGITAL TELEVISION). SOCIAL INCLUSION MAKES A NEW CONCEPT OF SCIENCE
Science and Technology in Venezuela is an integration of popular and academic knowledge. Although they work independently, they also work together teleologically. Both are relevant and, when they are unified, they help manage the necessities or solve the problems of the people and of the country. This idea is the prelude to LOCTI (Ley Orgánica de Ciencia y Tecnología), a law created to contribute to the democratization of opportunities of scientists, researchers and popular technologists, among others. These professionals have innovative ideas that are independent from their academic degrees, just as the Constitution of the Bolivarian Republic of Venezuela dictates (Art. 110). This criterion took place when Hugo Chávez led a deep transformation of all institutions that were part of the government since 1998. ConCiencia TV’s foundation materializes Chávez’s ideas of cooperation, integration, and the inclusion of different types of knowledge: academic, ancestral, popular, afrodescendant and indigenous. Since ConCiencia TV was launched, we have promoted a concept of science that is unrelated to mercantilism, individualism and exclusion so that all people can have access to our programs. We do not use television to make a profit. Through documentaries, series, interviews, cartoons, the interactive platform of TDA (Televisión Digital Abierta) and better image quality, ConCiencia TV offers a new practice of making television by exposing scientific and technological content that promote the principles of inclusion and equality. Moreover, it is a space where different forms of knowledge can be applied to developing the means of production of the country. All of this is free. Our programs promote participation in harmony with nature as well as constructive criticism of the concept of Science, Technology and Innovation. Furthermore, ConCiencia TV highlights the creative values of Latin Americans in order to contribute to the South American geopolitical integration of
which Simón Bolívar once dreamed. Our intention is to go to Brazil in order to share with people around the world this new Television making experience in Venezuela, as well as to establish partnerships that will allow us to exchange knowledge about social inclusion and public communication of Science and Technology. Authors: Yajaira Freites – Instituto Venezolano de Investigaciones Científicas, Venezuela
Authors varios – Asamblea Nacional de R.B de Venezuela, Venezuela
Authors Varios – Ministerio del Poder Popular para Ciencia Tecnología e Innovación Canal Conciencia – http://www.concienciavtv.gob.ve/
Romer Zerpa – Ministerio del Poder Popular para Ciencia Tecnología e Innovación, Venezuela

20487 - ENGAGING THE PUBLIC WITH BIOENERGY IN THE UK; SCIENCE EDUCATION, COMMUNICATION AND DISCUSSION

The need to find alternative energy supplies has never been greater. Fossil fuels such as oil and natural gas are non-renewable and burning these fuels releases large amounts of greenhouse gases, which contribute to climate change. Bioenergy could contribute to an energy solution relying on renewables while offering the promise that it will solve environmental, social and economic issues. This raises questions such as “Should we be using our farm land to grow energy crops when food prices are rising?“. The development and production of biofuels face challenges in public acceptance as well as scientific and technological improvement. From the outset of public engagement programmes, consultation with stakeholders is essential to ensure the success of initiatives. The delivery of initiatives needs to take into consideration the environment in which they will be offered; approaches adopted in the UK are able to highlight the similarities and differences that are required for undertaking public engagement on bioenergy in different countries. This session will cover how researchers and funding organisations are contributing to science education of young people, communicating their research and facilitating discussion of controversial issues. The topic of biofuels provides a wide scope for developing students' understanding of science and ample opportunity to consider the social and ethical implications. The effectiveness of practical biofuel activities and discussion toolkits to engage young people with bioenergy will be explored. In order to address a decline in practical science in UK classrooms a range of practical activities and resources were developed to support researchers to communicate their work. Twenty practical activities were developed in collaboration with researchers, science education organisations, teachers and pupils to improve practical science education. To stimulate discussion a successful format of role-play and voting that does not require expert knowledge has been created. One of the key principles of these initiatives in science communication and education has been to provide young people access to the latest research and scientists through science fairs and school visits. Another key principle during development was an awareness of accessibility and pedagogical approaches, with a variety of media being produced to support teaching and scientific literacy.
Authors: Tristan MacLean – Biotechnology and Biological Sciences Research Council, United Kingdom
20109 - EXPEDITION MUNDUS - A GAME INTRODUCING THE ESSENCE OF SCIENCE TO A VERY BROAD RANGE OF SCHOOL CHILDREN

A diverse team of scientists is sent on a cosmic expedition. Their mission: to find a planet suitable for human life. In the course of their expedition, they stumble upon an unknown planet, inhabited by aliens who call their planet Mundus. The scientists start exploring: what is gravity like here, and what about seasons? Is the local wildlife dangerous? How does the alien language work? And what do those yellow triangles mean? Expedition Mundus is a new classroom game, in which students explore an unknown planet. To do that, they will have to collect information, exchange data, and publish conclusions: in short, they will have to work like a team of scientists. The game covers questions about language, natural sciences, mathematics and social sciences and may be used in classes about any school subject. The game was made by The Young Academy (Royal Dutch Academy of Arts and Sciences) and De Praktijk. With Expedition Mundus, a teacher can introduce the essence of science to students in one hour. The game is available for free and is already being used in over 1500 schools of all educational levels. We explicitly aim to reach all kids, not just kids who may go on to be scientists themselves. We believe that everyone should learn about science, because it plays such an important role in the world they live in. This way, we help bridge the gap between higher-educated and lower-educated people in our society. Expedition Mundus was originally made for students from 10-14, but it is being played by a much wider age range. Key factors in reaching all educational levels and a broad age range are: - no pre-existing knowledge is required to play - the game is adaptive in terms of the cognitive effort required from players - the information is not presented in a separate layer that can be skipped; when you know how to play the game, you have learned about science - extensive lesson ideas and tips for teachers. The original Expedition Mundus is available in Dutch, both in physical form (game boxes) and digitally (pdf files). In early 2014, the game is translated into English and made available internationally at no charge for further translations. Many scientists have contributed to Mundus with their expertise, including but not limited to Prof. dr. E.A. Crone (Leiden University), Prof. dr. T.J.A.M. van Gog (Erasmus University Rotterdam), Prof. dr. M.J.T.H. Goumans (Leiden University Medical Center) and Dr. A. Sluijs (Utrecht University).

Authors: Alex Verkade - De Praktijk, Science Communication and Education, Netherlands
Caspar Geraedts - De Praktijk, Science Communication and Education - VU University, Faculty of Psychology and Education, Netherlands
Charlotte Vlek - De Praktijk, Science Communication and Education - University of Groningen, Faculty of Mathematics and Natural Sciences, Netherlands
Miranda Jansen - De Praktijk, Science Communication and Education, Netherlands
Yuri Matteman - De Praktijk, Science Communication and Education, Netherlands
Maarten Kleinhans - Universiteit Utrecht, Faculty of Geosciences, Netherlands

20627 - FORENSIC CHEMISTRY: AN INTERACTIVE LEARNING ENVIRONMENT

Difficulty to formulate questions, to reflect, to think critically, to build hypothesis and make deductions. These abilities must be the base to form the learning at the scientific area has been left in second plans, over a teaching disconnected
of the reality from students and structured in an expositive perspective. All this factors has caused indifference of the students to science. It is the point of start of this project Forensic Chemistry: an Interactive Learning Environment. Working with the forensic Science as basilar and motivated theme in an informal teaching space, students are invited to unveil fictions crimes moving out their knowledge to solve problems 1,2. This possibility of interactive learning is based in a structural dynamic of games called RPG3 (Role Play game, meaning game of character’s interpretation) when the players take on an identity in a plot and scenery defined by the game to complete an adventure research. Under these circumstances they “live” a history and have the opportunity to take decisions and to make choices freely. As an Interactive Learning Environment (ILE), the “Forensic Chemistry” is a space planned to offers problems–situations and means (bibliographic, experimental and technologic) to the participants, so that they can, at the moment of interaction with these means, express their ideas directly to the target: resolve the problem presented. During the oriented visit to the ILE “Forensic Chemistry” are presented this steps: reception of the students; presentation of the problem/crime to be solve; learning some techniques of forensic investigation (analysis of fibers, analysis of soil, presumptive test of blood, colorimetric test of narcotics and detection of fingerprints); investigation and collect of traces at the “crime scene”; analysis of the traces and testimonials of the characters involved; discussion with the group about possible hypothesis; denouement and final discussion. Important announce that during all the investigative process realized by students, the members of the project team acts only as orienteers and mediators, allowing the visitors been the real investigators, make questions, formulating hypotheses and making deductions. References 1. Tomcho, Foels, Rice, Johnson, Moses, Warner, Wetherbee, Amalfi, Teaching of Psychology, 2008, 35, 147–159. 2. Kuhn, Pease, Cognition and Instruction, 2008, 26, 512 – 559. 3. Duveen, Solomon, Journal of Research in Science Teaching, 1994, 31, 575 – 582.

Authors: Lediane Marques – Instituto Federal do Rio Grande do Sul, Brazil
Michelle Camara Pizzato – Instituto Federal do Rio Grande do Sul, Brazil
Patrik de Souza Rocha – Instituto Federal do Rio Grande do Sul, Brazil
Rudá de Souza Roveda – Instituto Federal do Rio Grande do Sul, Brazil
Carolina Borba da Silva – Instituto Federal do Rio Grande do Sul, Brazil

20138 – INCLUDING SOCIETY IN SETTING RESEARCH AGENDA’S
To achieve social inclusion and political engagement in setting research agenda’s, the PERARES project advanced the number and ways of operating of Science Shops throughout Europe. Moreover, the project piloted some novel approaches in upstream, interactive Science Communication that empowers both scientists and community groups / civil society organisations (CSOs). Science Shops are intermediaries (often at universities) between researchers and civil society (in any discipline, ‘science’ taken broadly). Often, research is done by students –under faculty supervision– as part of their curriculum. This is offered without financial barriers (often for free), which makes research available to those without budgets as well, thus empowering communities and including their views in local research agendas. The PERARES-project (Public Engagement with Research and Research Engagement with Society), funded by the European Commission from 2010–2014.
(25 partners, 16 countries), set up ten new Science Shops throughout Europe and trained staff and researchers in working with civil society groups (empowering the research world), and shared good practices. Project co-ordinator Henk Mulder will tell about this and discuss other approaches in the project to get more interaction between science and civil society in setting research agenda’s. One approach is to use dialogues on science to articulate research questions. What do experts and citizens (and their organisations) agree that we don’t know but should know? This differs from traditional dialogues, which focus on obtaining policy recommendations (or raising awareness). One action has been to set up an on-line dialogue forum, which builds on prior local, face-to-face meetings of researchers and CSOs. Questions from these (on-line) dialogues move ‘upstream’ into agenda setting by forwarding them to Science Shops (specific questions) or to research funders (themes and broader agendas). This was piloted on nano-technology developments and in later dialogues on social science topics. We made first steps but still face challenges, which will be shared. As part of a new EU-funded project, Engage2020, we are now preparing an overview on public engagement activities for uptake in EU funding programs under H2020. These should empower researchers and funders to actively engage citizens in all four stages of research: Policy making, Program development, Project definition and Research itself. Initial results will be mentioned.

Authors: Henk Mulder - University of Groningen, Netherlands

20503 - IS IT POSSIBLE TO ENGAGE EVERY SOCIAL DEMOGRAPHIC GROUP WITH SCIENCE?
The Wellcome Trust is committed to public engagement with science and aims to engage across all social demographic groups. This session will focus on In the Zone – a £6m GBP initiative linked to the Olympic and Paralympic Games in London – how we designed the initiative to engage new audiences, the challenges we faced and how we overcame them. In the Zone aimed to engage people across the UK who would not normally attend a science event with the science of how the human body works during sport, activity, movement and rest. Our guiding principles were to include hands-on science wherever possible, to make the content personal to our participants and linked to real and current science, and to make our experiences, events and learning as accessible to the widest social demographic possible. In the Zone involved: •Sending a practical science kit to every UK school (over 32,000 kits) •a touring exhibition with online experience, touring to agricultural shows, sports events, music festivals and other family events across the UK •a hands-on sports science pop-up, touring to non-science festivals and events •training for 200 scientists, communicators, youth leaders and sports coaches •a touring science show in schools and at festivals •I’m a Scientist, Get Me Out of Here: In the Zone – web chats between school students and scientists. 66% of all schools in the UK used their practical science kits, and the exhibition and pop-up activity were visited by over 200,000 members of the public. In this session we will briefly describe the steps that we took to ensure In the Zone was socially inclusive. We will describe the challenges that we faced and how we overcame them, and use the independent external evaluation to discuss the main strengths and areas of development from In the Zone. We will invite
our audience to discuss the merits of our approach to social inclusion and look to how these methods might be applied in other contexts, including potential adaptation to enhance the cultural offer of the Olympic and Paralympic Games in Rio 2016, and prominent cultural or sporting events in other countries.
Authors: Leah Holmes - Wellcome Trust, United Kingdom
Amy Sanders - Wellcome Trust, United Kingdom
Stephanie Sinclair - Wellcome Trust, United Kingdom
Chloe Sheppard - Wellcome Trust, United Kingdom
Daniel Glaser - Kings College London, United Kingdom
Clare Matterson - Wellcome Trust, United Kingdom

20611 - KNOWLEDGE CAPSULES ON EARTH SCIENCE: A HIGH-QUALITY AND LOW-BUDGET APPROACH
The Knowledge Capsules are created by the EOS Art Group to communicate the excitement and depth of Earth Science to an audience of non-scientists. The Earth Observatory of Singapore is a national Research Center of Excellence located on the campus of Nanyang Technological University. The Knowledge Capsules are multimedia video clips under 6 minutes and include live-action, interviews, animation and stock footage. This session presents the finished videos as well as the results of the project and details about the interdisciplinary development/production process. To date three have been completed and posted online, with two others in production: A Tale of Two Tsunamis summarizes the ongoing research of Prof Kerry Sieh and his EOS team and collaborators in the coastline of Banda Aceh, Indonesia. https://vimeo.com/69871501 Forensic Volcano Petrology summarizes the ongoing research of Asst Prof Fidel Costa and his EOS team on the petrology of the Merapi Volcano in Indonesia. https://vimeo.com/58225787 Coastal Science summarizes the ongoing research of Asst Prof Adam Switzer and his EOS team in the coastlines of Southeast Asia and the South China Sea. https://vimeo.com/58227048
Authors: Isaac Kerlow - Earth Observatory of Singapore, Singapore

20332 - LABI – OPEN LABORATORY OF INTERACTIVITY FOR THE DISSEMINATION OF SCIENTIFIC KNOWLEDGE AND TECHNOLOGY (LABI)
The Open Laboratory of Interactivity for the Dissemination of Scientific Knowledge and Technology (LABI) of the Federal University of São Carlos (UFSCar, Brazil) is engaged in the development of processes and products of knowledge dissemination guided by the promotion of scientific culture; the relationship between Science, Technology, Society and Environment; the creative use of interactive Technologies; and the connection between Art and Science. One of its main products is the one hour long weekly radio program “Paideia”, presented live. The program begins with the “Sky of the Week”, with instructions on how to observe the sky that week. There are then presented and discussed Science newpieces recently published, in order both to disseminate knowledge and to promote media criticism. The program also brings interviews with researchers and tips for events and publications, among others. The “Sky of the Week” is also presented as a videocast with an average duration of 3 minutes, which brings also a curiosity about Astronomy, spanning from the mythology of the constellations
to topics in Astrophysics and Cosmology. The radio soap opera “Invented Truths” reports – in 37 episodes of 10 minutes each – the findings of Laura, a 15 year old girl whose daily activities lead to imaginary adventures in which she meets scientists and thinkers from different times and places. Aiming to explore and investigate the potential of other interactive media, there was also created the website Laura’s Blog, in which, in addition to reporting her adventures, the personage adds new approaches – usually deeper – to the content related to each episode. Finally, within the interactive exhibition “Memories of a Carbon”, visitors can pilot a spaceship using their bodies (using the resources of the electronic gaming device Kinect) and thus are immersed in a interactive adventure through time and space, in which it is possible to follow – in games and videos – the trajectory of the carbon atoms in the Universe, since their appearance inside a star until arrival to our planet billions of years later. During this journey in search of the carbon atom, visitors, beyond playful experience and interaction with knowledge about the carbon cycle, can learn more about stars, nebulae, planets and other celestial objects.

Authors: Mariana Rodrigues Pezzo – Universidade Federal de São Carlos, Brazil
Adilson Jesus Aparecido de Oliveira – Universidade Federal de São Carlos, Brazil
Tárcio Minto Fabrício – Universidade Federal de São Carlos, Brazil
Gustavo Rojas – Universidade Federal de São Carlos, Brazil

20426 – MARINE SCIENCE OUTREACH THROUGH NON-FORMAL EDUCATION

The best strategy to promote in the society the consolidation of the concept of sustainability, is the education of its children and young. Non-formal education allows the development of concepts that are not included in the official educational projects of the country. This kind of educational approach makes use of a variety of tools, like didactic games, that allow an easier internalisation of the educative message by the target public. “Chile es Mar” is the outreach program of the Millennium Nucleus Center for Marine Conservation from the Pontificia Universidad Católica de Chile (PUC), which was built after observing that Chilean people show a poor knowledge and a low valuation of marine ecosystems, and a small interest in the sustainability of its resources. “Chile es Mar” is organized in three action lines and proposes to transmit, in a ludic manner, scientific knowledge about (a) the peculiarities of the coastal marine ecosystems of Chile, (b) marine biodiversity, its interactions and man’s role, and (c) the conservation and management of Chilean marine resources. To attain this objective our program organizes journeys of marine education at the Estación Costera de Investigaciones Marinas (ECIM), the Marine Laboratory of the PUC, adjacent to the first Chilean marine protected area. The content of the journeys is focused in the promotion of learning through (a) the interaction with marine species: the program has an aquarium room where participants can not only observe and learn about the main species of the region and its characteristics, but also manipulate some specimens in an aquarium specifically designed for this purpose; (b) didactic talks: the journey counts with the support of a monitor specialized in marine biology, who explains participants the concepts associated with the proposed objectives, focusing on the care and conservation of our marine resources; (c) game dynamics: visitors are offered to participate in a series of didactic games (defined as a function of the age group
20684 - INTEGRATING MATH TO EVERY DAY LIFE: DIFFERENT COMMUNICATION STRATEGIES FOR A CONTINUOUS CHALLENGE

There is a pervasive view in most societies that considers mathematics as a narrow field of expertise, open only to the more intelligent, mostly male participants of an elite part of the culture. On the one hand, formal education does not facilitate the incorporation of mathematical ideas and strategies in citizens’ every day practices. On the other hand, though there are some successful math communication strategies in different parts of the world, their effect is very localized and in need of bigger spaces to present, discuss and learn from these experiences. Here we share different perspectives, strategies and modalities used to communicate and involve people in mathematical activities sharing it’s beauty, usefulness and connections with the arts, sciences, literature and technology. Traveling exhibits, mathematics through radio, podcast and blogs, mathematics festivals, math history through games, geometry and arts and more. We concentrate on the experience in Costa Rica, through formal and informal means, to influence education and build a more scientific citizenship, to influence values and beliefs, to bring down the barriers around the use of mathematics in everyday life and to strengthen practices and positive views for everyone.

Authors: Alejandra León-Castellá – CIENTEC, Costa Rica
Anabelle Castro Castro - Instituto Tecnológico de Costa Rica, Costa Rica
science content from these institutions. Once we admit the important role that public relations departments play in helping the mainstream media to discover the importance of science to promote citizenship, and the influence it has in the public opinion, as Caldas (2004) suggests, this project aims to show in a practical way how journalists can measure their efforts in science divulgation through their public relations work. To do this, the author uses the results of a research he did in the public relations field. In other words, he discusses the challenges, perspectives and the applicability of the Return on investment (ROI) method in public relations. In order to achieve this goal, he makes a theoretical, conceptual trajectory of the profile of public relations activity in Brazil from both the academic and professional perspectives. Based on these reflections, the author proposes ways and challenges for the application of the ROI method in Public Relations, especially for public relations departments, which are aimed to divulge science. Authors: Leonardo Siqueira da Rosa – Universidade Estadual de Campinas, Brazil

20107 – MEGAPHONE PROJECT: HEALTH IN LOUDLY SOUND
This proposal aims to present in a didactic manner the dynamics and the results obtained from the “Megaphone Project: health in loudly sound”, conducted in partnership between the undergraduate course in Journalism and a Masters in “Health Promotion “, of the University Center of Maringa (UniCesumar). The project produced and distributed sound materials – in different formats and genres – related to the universe of health, in the Cesumar University Radio (RUC FM, 94.3), an educational broadcaster. The objective was to provide services to the community. The Megaphone: health in loudly sound Project was developed throughout 2012. Journalism students produced two radio programs: the 20 minutes/weekly “Pulsação” (Heartbeat), and the “Momente Pulsação” (Heartbeat Moment), which broadcasted 2–3 minutes information capsules (programetes) about Health Promotion in the daily schedule of the RUC FM. The program “Pulsação” broadcasted interviews and news specifically about the universe of health: from prevention to the latest scientific discoveries in the area, especially the studies conducted by the students of the Master in “Health Promotion” of UniCesumar. The program also focused on awakening journalism students to professional practice committed to society through a reflection on Scientific Journalism. The students of the Master in Health Promotion participation was carried out during the course Media, Culture and Society. Students reflect on important matters to be disclosed to society, suggesting guidelines and granting interviews to undergraduate students in journalism for programs production. The results of this initiative were huge, not only for students, but especially to the population of Maringá. People had the opportunity to hear important discussions that can make a difference in their day by day lives. In 2013, the team of UniCesumar is broadcasting another project with the same name. The journalism students are producing an interview program with professor and masters students about the researches that are being developed in Master in Health Promotion. This experience can be also shown in the presentation at 13th International Public Communication of Science and Technology Conference.
Authors: Ana Paula Machado Velho – Centro Universitário de Maringá / Universidade Estadual de Maringá, Brazil
Vinícius Durval Dorne – Centro Universitário de Maringá, Brazil
**20347 - MEMORIES OF A CARBON – AN INTERACTIVE EXHIBITION**

The interactive exhibition “Memories of a Carbon” – produced by the Open Laboratory of Interactivity for the Dissemination of Scientific Knowledge and Technology (LABI) of the Federal University of São Carlos (UFSCar, Brazil) – uses an electronic game and videos produced specially to this project in order to provide its visitors with the opportunity to soak in a adventure through time and space searching for a carbon atom, from its emergence in the interior of a star until its arrival to our planet some billions of years after. The exhibition site is transformed into a spaceship (through scenography and the use of four televisions which take the place of the ship’s windows). Visitors can fly the spaceship using their bodies (through the use of motion sensors and of actuators that interact with an software specially developed within this project). Between the gaming sessions, the videos are shown, aiming to, by using resources of Science fiction, turn knowledge related to the carbon cycle closer to people of all ages. During the long journey in search of the carbon atom, visitors have, together with a playful experience and the contact with knowledge about the carbon cycle, the opportunity to learn more about stars, nebulae, planets and other celestial objects. The exhibition also includes the possibility of adding a display of meteorites collected in Brazil and other countries and a Paleontology show, which features real fossils and replicas of complete skeletons of dinosaurs. Thus, it is possible to raise various issues related not only to Astronomy, but also to Physics, Chemistry, Geology, Paleontology, Environmental Science, among others.

The conceptual creation of the exhibition took as a guideline and theoretical approach the fact that the narratives presented trigger cultural mechanisms of significance production which are already assimilated in the minds of the public, as, for example, adventure movies, video games, games for phones and computers and children’s literature. Details and photos of the exhibition can be known at the address http://memoriasdeumcarbono.wordpress.com.

Authors: Adilson Jesus Aparecido de Oliveira - Universidade Federal de São Carlos, Brazil
Mariana Rodrigues Pezzo – Universidade Federal de São Carlos, Brazil
Luiz Antonio Garcia Diniz – Universidade Federal de São Carlos, Brazil

**20687 - NEUROSCIENCE GOES TO THE BEACH: BASIC CONCEPTS OF BRAIN FUNCTIONING**

Neuroscience has received great interest of the population. Despite well-grounded criticisms, especially from the emergent field of critical neuroscience, a better understanding of the brain is not only exciting, but also relevant to a better understanding of several “normal” behaviors, brain degeneration (e.g. dementia) and plasticity (e.g. learning, damage), among others. Therefore, it is important that scientists interact more frequently with society. Moreover, since science communication should be informal and subject must actively engage in the process, we decided to implement a science communication event on the beach of Copacabana (Rio de Janeiro). Integrated with the Brain Awareness Week (BAW, Dana Foundation), we placed two stands on the sand of Copacabana with several activities in order to illustrate a variety of brain functions. The main practical activities and brain concepts developed with the public were as follows: 1) Motor representation and learning – subjects had to draw a star looking through a mirror, a very difficult task because of the reversed visual representation; 2)
Brain attentional–motor pathway and reaction time – a ruler measured people’s reaction time in milliseconds; 3) Basic neuroanatomy – subjects had to draw a brain in a shower cap, before and after our explanation of brain basic organization and functions; 4) Visual illusions – visual system interpretation principles, such as movement, color and size; 5) Attention task: selective attention videos displayed through computers and iPads. In addition to the practical activities, we also exhibit posters containing neuroscience important topics, such as exercise, nutrition, drugs, dementia, neuroplasticity and brain decoding. We also distributed flyers and provided additional information online. We received people from all age and educational backgrounds. Event impacts included a very warm feedback from the public, media coverage (11 total reports; 4 radio, 1 TV, 6 online) and accesses to our neuroscience website (300 accesses during event) containing all the informative material and repercussion on social networks. Finally, we also greatly benefited from the event: all the scientists/students involved acquired a better understanding of people’s main questions and curiosities about the brain. This is an important bilateral gain in science communication, since people can actively participate in science by posing questions and pointing relevant knowledge for them.

Authors: Patricia Bado – Universidade Federal do Rio de Janeiro and Instituto D’Or de Pesquisa e Ensino, Brazil
Theo Marins – Universidade Federal do Rio de Janeiro and Instituto D’Or de Pesquisa e Ensino, Brazil
Cristiane Teles – REDE DOR-IDOR, Brazil
Flavia Carvalho Alcantara Gomes – Universidade Federal do Rio de Janeiro, Brazil
Fernanda Tovar-Moll – Universidade Federal do Rio de Janeiro and Instituto D’Or de Pesquisa e Ensino, Brazil
Jorge Moll – Instituto D’Or de Pesquisa e Ensino, Brazil

20565 – OVERLY HUMAN: THE ESPAÇO DO CONHECIMENTO UFMG EXPERIENCE

One of the great difficulties for science museums is to avoid mythicizing science and to stimulate a critical view on the scientific practice and its trends. The need to impress visitors, presenting them the wide range and the spectacular advances of science usually tends to reinforce scientificism in spite of a realistic view on its limits and challenges. This work presents and evaluates the attempts which have been conducted in Espaço do Conhecimento UFMG (www.espacodoconhecimento.org.br/?idioma=en ) in order to promote a critical view of science through exhibition. (1) The first of them is the emphasis on the limited human dimension of knowledge, taking ideas from the German philosopher Friedrich Nietzsche as title and thread of the exhibition; (2) Questioning the possibilities of meeting, the exhibition begins with a kaleidoscope which was inspired by the short story “the Aleph” by the Argentine writer Jorge Luis Borges. It intends to portray a perspective which seeks to reach all knowledge as a Vertigo; (3) Exploring cultural diversity, it brings the cosmogonies of different people in paper scenarios inside which sacred narratives can be heard in their original languages, while translations of passages dealing with the birth of man are read in the following cosmogonies: yorùbá, maxakali, Mayan–quiché, Greek and Judeo–Christian. (4)
As a counterpoint to the mythical perspective, a scenario has been set up with a proto-scientific explanation about the emergence of mankind. Cosmology is represented by the atomistic explanation of Lucretius, with which it is intended to present science as a cultural expression and a historical belief among others and not the absolute truth. (5) In addition to the exhibits, the Museum promotes the “controversial coffee”, in which two experts are invited to discuss controversial issues, highlighting the hypothetical and interpretive character of the scientific discourse; (6) Finally, an exhibit not yet implemented: the overlaying of caricature posters in the shape of students’ notes, questioning the scientific explanations presented by the museum in its main exhibition.

Authors: Bernardo Jefferson de Oliveira – Universidade Federal de Minas Gerais, Brazil
Débora D’Ávila Reis – Universidade Federal de Minas Gerais, Brazil
Verona Segantini Campos – Universidade Federal de Minas Gerais, Brazil

20183 - PONTO UFMG – CHALLENGES OF AN ITINERANT MUSEUM
When an exhibit moves, things, time and space are different. Ponto UFMG Itinerant Museum is an interactive science and technology museum that, because it is built in a mobile unit, can visit schools and towns in the state of Minas Gerais and Brazil which usually do not have access to this kind of activity. It aims to achieve some goals: making science and technology more popular, reaching the audience in its own space and time. It is a tractor trailer adapted into six different rooms. In Brazil, the museum presents an innovative and risky proposal. It does not only transport artifacts and equipment to build external exhibitions, shows and workshops in a total of approximately 800 square meters, but it also offers activities that use technological apparatus in its six internal rooms. Travelling science is challenging, specific and unlimited: you have to be creative because of the reduced space, you need a sharp didactical approach because of the short time, you must go straight to the point because you can afford just a few exhibits. Another innovation is its pedagogical proposal. There are courses for its staff to establish personal interactions with the public, and workshops specially directed for teachers – in order to set a continuum between the formal and the informal learning of science.

Authors: Jessica Norberto Rocha – Universidade Federal de Minas Gerais, Brazil
Tania Margarida Lima Costa – Universidade Federal de Minas Gerais, Brazil
Lara Mucci Poenaru – Universidade Federal de Minas Gerais, Brazil

20359 - REASONS AND FACTS THAT MAKE SCIENCE TO BE IN FRONT PAGE: THE CASE OF A MEXICAN RESEARCHER IN THE LOCAL AND NATIONAL PRESS
Dr. Said Robles-Casolco, researcher from the Tecnológico de Monterrey in Puebla, Mexico and member of the National System of Researches Level 1, has showed up that science can be relevant for newspapers, television, online newspapers and radio. During four years his patents, research, opinions about science and analysis of actual facts have been continuously part of the information agenda and nowadays reporters consider him as an important newsmaker. More than
three hundred notes in local and national press, more than fifty TV coverage in local and national networks, one hundred of mentions in radio and more than one thousand online notes, demonstrate that public communication of science is possible in a country like Mexico, where less than 1% of Gross Domestic Product (GDP) is applied to technological development and innovation. Through this successful case our goal is to share the knowhow we have developed after four years of experience. It means to show our results in the media and how the background and expertise of a Mexican scientist has conquered front pages in Mexican newspapers for example. Also we want to show the importance of Public Relations to get attention from reporters, because we consider they are crucial to achieve results in the media and to have the opportunity to be continuously exposed. Other aspect is to show how science communication empowers scientists, and it is because for a scientist to be in front pages it is been useful to gain access to governmental activities and to receive new projects from students, private and public institutions and companies. These results and activities are a great achievement for the Press Department and Graduates and Innovation School at Tecnológico de Monterrey in Puebla. For that reason our intention is to share our experience to other universities, science centers and scientist in order to be a referent of how science communication can be successful in a developing country like Mexico, that nowadays is facing a new stage in innovation, technology and science because, Mexico’s agenda include a reform to energy laws, which would partly reverse more than 50 years of state owned oil production; and in 2013 Mexico jumped 16 places on Global Innovation Index.

Authors: Maria de Lourdes Esther Mateos Espejel - Instituto Tecnológico de Monterrey - Puebla, Mexico
Paulette Olguín - Instituto Tecnológico de Monterrey - Puebla, Mexico
Adriana Castro García - Instituto Tecnológico de Monterrey - Puebla, Mexico
Said Robles Casolco - Instituto Tecnológico de Monterrey - Puebla, Mexico

20400 - RESPONSIBLE MARINE FOOD: YOUR FOOD, YOUR SEA, YOUR RESPONSIBILITY!
The marine environment constitutes almost 80% of the Chilean territory, houses one of the most productive ecosystems in the world and provides several resources to the country. Nevertheless Chilean people ignore its biodiversity, the marine currents that determine ecosystem dynamics and productivity and, above all, they are not aware of the marine resources that generate incomes to the country. This is the context in which the campaign of responsible food “MAR Alimentación Responsable” is developed. This awareness campaign is focused in the delivery of scientific information about the status of marine resources and about the management measures in force, with the aim of promoting informed and responsible decision-making concerning the consumption of marine organisms. The objectives of the program are (a) make the public familiar with information about the vast diversity and life histories of marine species, and its effect on species response to exploitation, (b) share information about fishing techniques and the status of different resources, (c) inform about the fishing regulatory measures (closing seasons, minimum legal sizes), and (d) deliver recommendations to responsible consumers developed from the integration of information about life
history patterns, fishing techniques, resource status and regulatory measures. For this purpose, a set of different products has been developed which include (a) postcards with information on the main species consumed in the coast of central Chile and its fishing techniques, (b) posters of these species with a layout suitable for children, (c) coasters with synthesized information to be used in restaurants, and (d) didactic individual tablecloths. Furthermore, a QR code has been implemented to allow spreading out all the information generated in this campaign in a clear and massive way.

Authors: Yolanda Sanchez - Centro de Conservación Marina, Ecim, Pontificia Universidad Catolica de Chile, Chile
Miriam Fernandez - Centro de Conservación Marina, Ecim, Pontificia Universidad Catolica de Chile, Chile
Mayra Figueroa - Centro de Conservación Marina, Ecim, Pontificia Universidad Catolica de Chile, Chile

20696 - SCIENCE CENTRES, WHAT KIND OF INTERACTION WITH THE LITTLE CHILDREN?
A Center for Science Communication is supposed to present science in an understandable and enjoyable way, to show visitors the importance of science and technology in the everyday life and for the development of society, but particularly to stimulate in the youngsters an awareness for science, creating moments of fascination to arouse curiosity and desire to know further. This fascination is easier to get the younger is the visitor. However, not all types of expository material is suitable to capture the attention of the little ones. Being still too young to be able to read texts or simply to analyze the phenomenon for themselves, the possibilities get reduced to verbal communication. There are modules with this type of interaction and predefined explanations, where the relationship with the child is the manipulation of levers or buttons that trigger autofeedback mechanisms. In these systems the little children cannot explore science and the respective phenomenon, but only fixates on manipulation and visual impact when it exists, which can distort the purpose of the module, making it a simple scientific playground. The more suitable interaction for children older than 4 years, age in which they begin to discover the world, is experimenting in direct interaction with the explainers. There must be a moment of fascination “Wauu!” . That will lead to curiosity and promote the time to learn by doing hands-on, and when the questions arise, someone has to be there, who has the answers and is able to drive the thrill of discovery forward to willingness to understand what just experienced. It can be argued that small children can visit the Science Centre with their parents and they can explain and guide them. Yet, how many parents are able to answer and on the contrary how many often benefit themselves from the given explanations? In this communication are presented examples of various forms of interaction with small children in the context of activities of “kitchen is a laboratory.”

Authors: Ivonne Delgadillo - University of Aveiro - Fabrica Science Center, Portugal
Isabel Correia - Fabrica Science Center - University of Aveiro, Portugal
Sofía Barata - Fabrica Science Center - University of Aveiro, Portugal
Pedro Pombo - Fabrica Science Center - University of Aveiro, Portugal
There is a general belief that in a science and technology based society, a well informed citizen is able to take better decisions for his life. Several entities whose mission the formal, non formal or informal education is, are working, not only to raise the public awareness and understanding of science, but also to understand how the public feels and knows about science in general. Examples of these efforts are Interactive Science Centers (ISC) which explore specific subjects through interactive exhibitions, labs and talk sessions. Fábrica Ciência Viva Science Center is an ISC managed by University of Aveiro in Portugal. This ISC develops outreach programs and science communication activities dedicated to general public, schools and families. Our work aims the promotion of public engagement with science and technology. At our ISC, the public experiences fascinating environments in a context of free will to learn and explore, opposed to the school’s mandatory syllabus. Although there have been improvements in the number of public visiting ISC, we believe that social inclusion is neglected at different levels. On one hand there are people in remote areas with no access to science contents, and on the other, there are people in environments with no access to scientific information. Over the last four years, an outreach framework for social inclusion was developed by our ISC. This work brings science next to the public, and it includes tailor made traveling contents. During this process it was necessary to overcome an important drawback: financial sustainability for the program implementation, which was obtained through political engagement. We have developed national programs for remote public, such as people and schools from other regions, small villages at the mountains or the long distant Azorean islands. We have also developed a program for Aveiro region that embraces eleven regional municipalities involving citizens and schools. These programs were established through political engagement in a partnership between ISC, University, city Mayors, Regional Governments and the President of the Community of Aveiro Region Municipalities. A specific team is on the road during one year performing several activities relating science, technology and society. In this paper, we present the model developed for our traveling programs, focus on political engagement and social inclusion. All activities, educational strategies and impacts will be analyzed and discussed.

Authors: Pedro Pombo – Fabrica Science Center – University of Aveiro, Portugal
Ivonne Delgadillo – University of Aveiro – Fabrica Science Center, Portugal

The aim of the presentation is to report the Institute Science Today's successful experience in social networks. The Institute is responsible for the publication the oldest scientific magazine of Brazil, Science Today, it was also one of the first national publications in the web page (Science Today Online). In recent years, it has grown enormously in social networks – our Facebook page has now more than 200,000 followers, our Twitter profile has about 50,000, in just over three years of existence, with a huge growth, and our profile on Tumblr, created in 2011, recently surpassed already have 125,000 followers. Our social networks became an important channel of communication with our audience –
Facebook and Twitter are some of the most important sources of access to our website. Moreover, our work with these platforms has increased dramatically our interaction with our readers, whose manifestations are taken into account in guiding our activities. On Twitter, the strategy we adopted is to act as curators of the main channels of news about science: in addition to disseminate our own content, we seek to share news and links posted by others, actively contributing to spread varied scientific content. On Facebook, we highlight the material produced by our own team. In an attempt to make best use of the features offered by the platform, we evaluate several means of presenting our content in the network, as using Facebook’s cover photo as a new section (‘Photo of the Week’) where we highlight important episodes in the history of science and culture. Among the most successful publications in Facebook are also calls for Tumblr posts. In this social network, we propose to use shorter texts, attached to images or videos able to arouse the interest of the public. The flexibility of the tool allows us to cover very actual issues and give strong emphasis on the relationship between science, culture and art. We would like to emphasize that Science Today is a non-profit organization and has no connection with major media groups. In our channels we cherish a serious scientific dissemination that gives space to reflect about science. For all this, we believe that our participation in the event can add much to the discussion on the use of social networks in scientific dissemination. Our proposal is to present our case of success, to discuss with participants our practices and the possibilities offered by these tools.

Authors: Marcelo Pereira Garcia – Science Today Institute, Brazil
Thaís Fernandes Santos – Science Today Institute, Brazil
Thiago Camelo – Science Today Institute, Brazil
Sofia Luisa Moutinho de Oliveira – Science Today Institute, Brazil
Carla da Silva Almeida – Science Today Institute, Brazil

20678 – SIGMA PI: COMICS AND SCIENCE COMMUNICATION

Comics are a communication media that present their own language and characteristics, such as talk text in balloons and cartoons in frames that is frequently used nowadays to entertain. Eisner defines comics as sequential art, once the picture frames are in sequence. Among this thematic, manga, the Japanese comics, are characterized by characters with big and over expressed eyes, appraising cinematographic movements in the storyline rhythm. Comics could be also a powerful way to communicate science, once the union of text and image produces an amusing combination that involves the target public, nevertheless this possibility is ignored by researchers that do not believe in diffusing or teaching science at this different way (Tatalovic, 2009). In addition, sometimes the image of crazy scientist or science as a difficult subject back off the public or attract them by the wrong purposes, resulting in a few comics about science. (e.g. Sciencetoons (Srivastava, P.); Newton and Copernicus (Olson, J.C.)). There are some didactic books presenting Physics and Calculus with manga characters and according to Vergueiro is possible to join the entertainment of cartoons in a teaching-learning complementary activity to formal education. Another aspect to be considered is the science literacy related to the process of creating and diffusing scientific manga, once the knowledge and values developed take to

Authors: Adriana Yumi Iwata – Universidade Federal de São Carlos, Brazil
Karina Omuro Lupetti – Universidade Federal de São Carlos, Brazil

20255 - STUDENT GENERATED CONTENT IN SCIENCE COMMUNICATION

Students may take part in science communication in a far more active way than they did so far. Student generated content – in text, video or audio – can extend the scope of means with which scientific institutions adress the public. This needs suitable forms. One of them is the interactive Web magazine. In this session, we would like to present clicKIT, the KIT interactive Web magazine (http://www.pkm.kit.edu/studierendenmagazin.php). In 2013, it has been nominated for the German Award for Online Communication. clicKIT offers several ways, in which the students can participate. First, some of them join the editorial meetings and suggest topics. Secondly, they have the chance to choose topics by proposing them and voting for them on the KIT Facebook page. All the KIT Social Media Activities are linked to the Web Magazine – this, thirdly, has also the effect, that the students can easily give feedback. Moreover, their opinion is part of the Web magazine itself. Each issue contains polls to present statements and thoughts of the students. Very often, they’re presented in a multimedia manner that corresponds to the communicative likings of many young people. Fourthly, we also use videos and audios to show talents of the student, that go beyond their course or discipline. We embed their content after having watched or listened to it and judged it. In the next step, we have started to offer them the possibility to upload their content directly to defined places in the Web magazine. This reflects a change in institutional communication in which we believe: It develops from one way communication, which is more or less controllable, to community communication, which is rather open. However, fifthly, we also offer the students training in communciation and media techniques: The clicKIT editorial office instructs several students, who write articles for the Web Magazine, produce audio files and take photographs. Thus, these students are part of the team – still, the way they work on topics is an expression of their student point of view and, again, enriches the magazine as well as the KIT communication as a whole.

Authors: Klaus Rümmele – Karlsruhe Institute of Technology, Germany
Created in 2006, Universidade das Crianças (Children’s University) is an outreach project that works within the Science Diffusion Nucleus of the Federal University of Minas Gerais (UFMG) in Belo Horizonte, Brazil. Empowerment, interdisciplinarity and social inclusion are the basic objectives over which the project is developed – using science as a vehicle and main action theme, developed with children aged between 9 and 12 years old, mainly in communities in Belo Horizonte area where access to scientific knowledge is scarce. Through hands-on workshops, the project is able to promote empowerment and curiosity among underprivileged children by leaving room for the to pose questions about anything they want to know. These questions are the raw material UC uses to produce texts, short radio programs and animations – and this will be the main goal of the presentation. It’s all a result of an interdisciplinary environment that combines students and researchers from the Biological Sciences, Medicine, Visual Arts and Communication. The creative process is a result of much discussion and exchange of point of view – people from the Arts, Humanities and Life Sciences have a constant contact and teach one another about the inner processes of their area: for times, an element or another is not possible to be put on the plot due to the necessity of scientific accuracy; or a word or two have to be put differently on the script in order to keep the rhythm, tone and the linking of ideas. The result of all this interdisciplinary work and engagement is a high-quality production that counts with nine short animated films – many of them having been awarded prizes in festivals around Brazil and Latin America. The aim of this ‘Show, Tell and Talk’ presentation will be to discuss and show a little of the creative process of the workshops the project does – as well as present some of the products that resulted from this work, such as animated films, audio programs and illustrated texts. Coordination: Dr. Débora d’Ávila Reis Finantial support: CAPES – Edital Novos Talentos 2012 and Nanobiofar (Brazil) Keywords: children, biological sciences, Brazil, social inclusion, interdisciplinarity

Authors: Meghie de Sousa Rodrigues – Universidade Estadual de Campinas, Brazil Marcela Werkema de Oliveira Moraes – Universidade Federal de Minas Gerais, Brazil Fabiano Bomfim – Universidade Federal de Minas Gerais, Brazil Débora d’Ávila Reis – Universidade Federal de Minas Gerais, Brazil
use research evidence in their different work places. Development: We will show a simulation of a DD on a high health problem with session attendees. The aim is to demonstrate EVIPNet Brazil’s strategy to call, organize, convene, and evaluate DD. Participants of the simulation will also learn about DD impact in policy formulation and program implementation and various health issues including, pay-for-performance, dengue fever, and child mortality. Evaluation: Participants will have the opportunity to use a research instrument to assess DD quality and to discuss about potential application of such knowledge translation strategy in their on setting. Keywords: Deliberative dialogue; evidence-informed decision making; knowledge translation; health systems

Authors: Nathan Mendes Souza – Department of Science and Technology, Ministry of Health, Brazil
Jorge Otávio Maia Barreto – Department of Science and Technology, Ministry of Health, Brazil.
13th International Public Communication of Science and Technology Conference

www.pcst-2014.org

5–8 May, Salvador, Bahia (Brazil)

Videos
ADHERENCE STORIES: PUBLIC ENGAGEMENT WITH HIV DRUG ADHERENCE THROUGH AUDIOVISUAL MEDIA

The Africa Centre for Health and Population Studies partners with the South African Department of Health (DoH) in an HIV Treatment and Care Programme in a rural region of high HIV prevalence of South Africa. This is a large, devolved, primary health care programme with more than 21,000 people on antiretroviral therapy (ART). However, drug adherence is poorly understood in the local community and between 10 to 20% of patients fail ART within 2 years of initiation (Bärnighausen et al. 2011; Mutevedzi P et al. 2010 and Manasa et al. 2012). If we want to prevent drug resistance, and improve the health of this community, it is important that this scientific knowledge is shared. This led to the idea of harnessing the novel, participatory visual methodology of digital storytelling to create short, first person video-narratives about ART adherence in this community. We will employ these stories to provide insight into the voices and views of this indigenous, rural population, to increase public understanding of adherence and drug resistance and to stimulate dialogue about this area of biomedical research. In summary, in the Adherence Stories project we aim to: 1. Empower patients and health care workers to share their ART experiences through a series of digital storytelling (short, first person video-narratives) workshops. 2. Create a short film that features a selection of digital stories and a narrative informed by Africa Centre research on HIV drug resistance and adherence. 3. Engage the public in a variety of community settings using this DVD to provide information and encourage dialogue about what is involved in taking drugs, about potential challenges for the individual about and how a community can help people on treatment. 4. Evaluate the impact of this project through a combination of qualitative and quantitative methods. We are very excited about this novel and inclusive model to facilitate scientific communication and to boost community participation in the creation and diffusion of scientific knowledge in this rural and impoverished setting. In the proposed presentation, a selection of these stories will be screened, followed by a discussion concerning the process and outcomes of this public engagement initiative.

Sub-area: New technologies and new practices in science communication.
Proponent: ASTRID JANE TREFFRY-GOATLEY
Institution: AFRICA CENTRE
Country: South Africa
Presenter: Astrid Jane Treffry-Goatley – Africa Centre, University of KwaZulu Natal, South Africa
Authors: Astrid Jane Treffry-Goatley – Africa Centre, University of KwaZulu Natal, South Africa

AT THE SAME TIME, WE NEEDED A PATENT

An institutional film made by Thomson Reuters* entitled “The Innovation Lifecycle” exhibits a linear sequence of discourses of a “patient”, a “research scientist”, a “R&D specialist”, a “drug developer” and an “intellectual property attorney”.

Institution: AFRICA CENTRE
Country: South Africa
Presenter: Astrid Jane Treffry-Goatley – Africa Centre, University of KwaZulu Natal, South Africa
Authors: Astrid Jane Treffry-Goatley – Africa Centre, University of KwaZulu Natal, South Africa

Sub-area: New technologies and new practices in science communication.
Proponent: ASTRID JANE TREFFRY-GOATLEY
Institution: AFRICA CENTRE
Country: South Africa
Presenter: Astrid Jane Treffry-Goatley – Africa Centre, University of KwaZulu Natal, South Africa
Authors: Astrid Jane Treffry-Goatley – Africa Centre, University of KwaZulu Natal, South Africa
The patient starts by showing a pill that “saved [her] life”. She then quickly poses the question, “before it was a pill, what was it?” The drug developer comes in to explain that “the pill was an idea” he had when he studied the saliva of a frog from the Amazon. The rest of the film rapidly presents the drug developer and the other professionals as performing linearly organized very well defined specialized functions that go from an idea to a successful product in the market. In the end, the patient comes back and stresses that the delivering of the pill saved her life. The short film is a perfectly finished piece of communication that elevates the usefulness of science and technology to its highest point. At first sight, one who watches the film would be in pain to be critical of such a way of creating knowledge. In fact, on a few occasions Brazilian students watched the film in classroom, their first reaction was uncritical admiration, confirmation and reinforcement of the marvels of scientific creativity in general. In contrast, this paper draws on the “sociology of translation” to make a critical assessment of the film. First, the film presents the development of a scientific and technological artifact, the pill, as attached to a strictly rational, planned, linear process that proceeds from one stage to the next. This vision of scientific development has proved to be false by a whole range of “laboratory studies” since the late 1970s. Second, and more importantly, the film makes use of a hypothetical case where it is easy to popularize (the benefits of) science and technology to subtly popularize a world of enforced intellectual properties rights. This paper shows several translations enacted by the film, such as the study of the saliva of a frog translated into the salvation of millions of lives. But, the most important translation, which is subtly embedded in the film, is the one that translates the possibility of scientific development into enforcement of intellectual property rights: “we developed the idea into a drug ... at the same time we needed a patent”. * 2 minutes film to be shown during session.

Sub-area: Emerging issues of science and society
Proponent: IVAN DA COSTA MARQUES
Institution: HCTE / UNIVERSIDADE FEDERAL DO RIO DE JANEIRO
Country: Brazil
Presenter: Ivan da Costa Marques – HCTE / Universidade Federal do Rio de Janeiro, Brazil
Authors: Ivan da Costa Marques – HCTE / Universidade Federal do Rio de Janeiro, Brazil

20588 – DARWIN EXPEDITION TRAIL
The video shows the expedition that happened in 2008 and had an intense participation of students, teachers, schools, scientists and general people in 12 cities or small towns. In each one we put commemorative plaques and had several activities: science fairs on evolution and Darwin, theatre and music, exhibitions on local history, slavery, biodiversity etc.

Sub-area: Science communication for social inclusion and political engagement
Proponent: LUCIANE CORREIA SIMÕES
Institution: CASA DA CIÊNCIA/ UNIVERSIDADE FEDERAL DO RIO DE JANEIRO
Country: Brazil
Presenter: Ildeu de Castro Moreira – Universidade Federal do Rio de Janeiro, Brazil
Authors: Ildeu de Castro Moreira – Universidade Federal do Rio de Janeiro, Brazil
Kátia Leite Mansur – Universidade Federal do Rio de Janeiro, Brazil
Fatima Brito – Universidade Federal do Rio de Janeiro, Brazil
Luciane Correia Simões – Casa da Ciência/ Universidade Federal do Rio de Janeiro, Brazil

20722 - DOCUMENTARY ABOUT THE CONTRIBUTIONS OF JOSÉ DE JÚLIO ROZENTAL TO NUCLEAR ENERGY AND SAFETY IN BRAZIL

The 15 minutes DVD edited in full HD format includes testimonies of scientists and images of Rozental’s interviews and narrations in off extracted from his articles. The documentary delivers the contributions of the nuclear physicist José de Julio Rozental to nuclear energy in Brazil. Rozental have integrated, in the Nuclear Engineering Institute (IEN–RJ), the pioneer’s engineering group that built (1963–1965) the third Brazilian and the first nationalized nuclear research reactor. He created in IEN the first Brazilian research group in radioisotopes applications on industry and hydrology. The regulatory control of nuclear facilities was coordinated by Rozental as director of the Brazilian Nuclear Energy Commission (CNEN) (1970–1999). For improve radiation protection on medical practices, he made agreements to grant the certification of the qualification of their professionals. During the radiological accident happened in Goiania in 1987, he was the CNEN coordinator of the operations conducted by CNEN and stayed in Goiania until 1993 looking forward to rescue population’s self-esteem and face the difficulties to build the radioactive waste definitive repository in Abadia de Goiás district. The documentary highlights the lessons learned with the accident, published in the articles written by Rozental and the conferences given by him in many countries after his CNEN retirement in 1993. In 1997, he came back to Brazil to receive Goiania’s citizen title. He died in Israel in 2010. On September 2th, 2007, Rozental wrote, in his last article, published on Goiania’s newspaper O Popular: “In a few days from now will mark the 20th anniversary of Goiania’s radiologic accident, which doesn’t have, so far, similarity with no other in terms of technical dimension and emotions lived. Many lessons were learned and incorporated by regulation authorities from over the world and by scientists linked to the nuclear field. However, other lessons still demand much of dedication and decision to be learned”.

Sub-area: Beliefs, values and scientific citizenship
Proponent: EDUARDO OLIVEIRA SOARES
Institution: PUC- RJ
Country: Brazil
Presenter: Eduardo Oliveira Soares – PUC-RJ, Brazil
Authors: Eduardo Oliveira Soares – PUC-RJ, Brazil
Silvia Maria Velasques De Oliveira – Instituto de Radioproteção E Dosimetria, Brazil
Engagement between researchers and communities who host health research, to nurture mutual-respect and understanding, and promote participation and empowerment is increasingly recognised as essential for the ethical conduct of research. This is arguably particularly important in international research environments, where differences between research staff and communities in wealth, health and exposure to science can be very marked. A novel approach to community engagement with health research has been developed at the KEMRI-Wellcome Trust Research Programme (KWTRP) in Kilifi, Kenya, using participatory methods involving researchers, teachers and students from local secondary schools. The Schools Engagement Programme (SEP) is a component of KWTRPs’ broader community engagement strategy and draws on the research institute’s existing resources, and its need to engage the community, towards additional goals of nurturing local secondary school students’ appreciation of the relevance of science, and to raise educational aspirations. One activity within the SEP is a school-leavers’ attachment scheme aimed at providing an opportunity for secondary school leavers to learn about careers in health research across a range of different areas, including clinical research, laboratory research, social science, community based research and Information Technology. Annually, nine school-leavers, selected through a competitive process, spend three months at the research institute rotating fortnightly through different departments where they gain a range of experiences of health research. Monitoring and evaluation is done through a combination of fortnightly tutorial feedback sessions, evaluation forms and participatory video (PV). During PV sessions, students are taught how to use a camcorder and are given freedom to make their own films to document their experiences and feelings about the scheme. During participatory editing sessions, students reflect on the film footage and prioritise issues deemed important to share with programme staff and supervisors. Over the past 4 years, videos produced using PV have been effectively used to improve the scheme for the students and communicate important issues to supervisors. Video has provided an extremely powerful means of conveying the empowering impact of the attachment on school leavers and advocating support for the scheme among programme staff. This work is published with the permission of the director of the Kenya Medical Research Institute (KEMRI).

Sub-area: Science communication empowering scientists and the public

Proponent: ALUN Iwan Davies

Institution: KEMRI–Wellcome Trust Research Programme

Country: Kenya

Presenter: Alun Iwan Davies – KEMRI–Wellcome Trust Research Programme, Kenya

Authors: Alun Iwan Davies – KEMRI–Wellcome Trust Research Programme, Kenya

Betty Yeri – KEMRI–Wellcome Trust Research Programme, Kenya

Nacy Mwangome – KEMRI–Wellcome Trust Research Programme, Kenya

Sam Kinyanjui – KEMRI–Wellcome Trust Research Programme, Kenya
20621 - HEALTH IN THE BACKYARD: COMMUNITY VIEWS OF RISK IN FARMING PRACTICES IN THE MEKONG DELTA, VIETNAM

In rural Viet Nam the relationships between farmers and their animals are close, with pigs and poultry often kept in vicinity of the houses. The recent history of serious zoonotic outbreaks of novel pathogens such as SARS, H5N1 and Nipah virus has raised awareness of the health risk of such close contact with animals. Our project explored community perceptions of risk in farming practices using simple digital story telling methods. We worked with small groups of farmers, meat handlers and people involved in the rat-for-meat trade in Dong Thap province in southern Viet Nam. Community members were taught to use simple digital cameras, and given advice on picture composition. Over the next week they photo documented anything in their environment that they perceived as a risk to themselves, their families or their animals. Facilitators helped each community member to edit their pictures into a photo story narrated by the participant of between 3 to 7 minutes in length. These photo stories were used to introduce discussion points in semi-structured focus groups with the participants, led by a clinical researcher and an animal health officer. The group members explored the common areas of concern and practices that were perceived as health risks. Transcripts of the focus groups were coded and analysed using Nvivo 10. The project culminated in a series of one-day training workshops for up to 50 farmers, including the project participants, with sessions designed to cover the main topics of concern raised by the focus groups. These included: vaccine regimes and antibiotic use, good practice in pig and poultry farming, animal – human disease transmission and environment. The community generated photo stories were used to introduce each session.

Sub-area: Local community knowledge and global context
Proponent: MARY CHAMBERS
Institution: OXFORD UNIVERSITY CLINICAL RESEARCH UNIT VIETNAM
Country: Vietnam
Presenter: Mary Chambers
Authors: Mary Chambers - Oxford University Clinical Research Unit Viet Nam/ Wellcome Trust Major Overseas Programme, Vietnam
Nicolas Fernandez - Fact & Fiction Films
Linh Phan - Fact & Fiction Films

20657 - IMAGES EXPERIMENTING CLIMATE CHANGE: ART, SCIENCE AND COMMUNICATION

Our research is focused on the study of climate change images that appear frequently on media and educational materials. After an extensive research in magazines, newspapers and websites, we have noticed many repetitive image patterns throughout these materials. These images often invest on representational politics that aim to show more than scenes of a particular event, but also try to engender predetermined feelings, like fear and astonishment – images that are stucked in clichés and settled meanings. In our research we want to problematize these climate change images repetitions, trying to think them beyond the clichés and the fixation of meanings. We propose to consider these images as sensational blocks, as suggested by the theoretical research line followed on our interdisciplinary research group multiTÃO: prolifer-artes subvertendo ciências e educações (CNPq),
in University of Campinas (Brazil). Based on this proposal, the group have been developing artistic creations that seek to provoke distinct experiences with the climate change images so that the current representations and clichés observed on them could be put under tension. In this way, we created videos, photos and an itinerant art installation called “hurricane” to try to promote proliferations of different thoughts and sensations throughout the images and the contact of the public with that. We aim to find ways to generate knowledge from sensory and artistic experiences in order to create new possibilities for exploring issues widely discussed in the media, such as climate change, thereby contributing to the development of new bets in artistic creations and interdisciplinary research in science communication and outreach. This research integrates the activities of the subnet “Scientific Communication and Culture” from Brazilian Research Network on Global Climate Change (Rede CLIMA) and the project “Generation of Alcohol Production Scenarios as Support for the Formulation of Public Policies Applied to the Adaptation of the National Sugar and Alcohol Industry to the Climate Changes (AlcScens) (2008/58160-5)”.

Sub-area: Emerging issues of science and society
Proponent: TAINÁ MASCARENHAS DE LUCCAS
Institution: UNIVERSIDADE ESTADUAL DE CAMPINAS
Country: Brazil
Presenter: Susana Oliveira Dias – Universidade Estadual de Campinas, Brazil
Authors: Taina Mascarenhas de Luccas – Universidade Estadual de Campinas, Brazil
Michele Fernandes Gonçalves – Universidade Estadual de Campinas, Brazil
Fernanda Pestana – Universidade Estadual de Campinas, Brazil
Susana Oliveira Dias – Universidade Estadual de Campinas, Brazil

20248 – ME AND MY BODY
How to stimulate young people about science and teach them scientific concepts in a simple and entertaining way? “Me and my body” is a short animated video that explores the concept of cells and the different methodologies used by scientists in their research. Having as target public children from 6 to 12 years old, our goal is to explain the existence of different types of cells and their function, and how the cell type diversity is essential for the existence of organs, which shapes and functions are also different. In addition, it is addressed how scientific knowledge in biomedicine is acquired, namely the use of in vitro techniques, microscopy and animal research, and scientific research’s contribution to human health. The use of image is beneficial when introducing difficult concepts, still not acquired by children, such as the existence of cells. The video here presented was developed in a webcast format, which allows a broad distribution via Internet. It runs in Portuguese but versions with English and Portuguese subtitles are also available. This video can be used in schools, as support material for teachers, or outside schools within the family environment. The video layout and argument was designed taking in consideration the young age of the target public. However, we believe an older audience public may also find this video attractive, and the scientific content present can therefore reach a wider audience. http://www.youtube.com/watch?v=3l9_inq6vaQ&list=UUlv8o8SQvDGMzBawdZa3dRw

Sub-area: New technologies and new practices in science communication
It should be fast-paced, understandable and above all exciting! Researchers from different scientific fields are challenged to step into the spotlight and present subjects such as leg amputations, login security and Nobel prize-winning authors – in just three minutes each. The annual Researchers’ Grand Prix competition was run for the first time in Sweden in 2012. It is one of the high profile activities taking place during the annual European science festival, Researchers’ Night, in September. Nine Grand Prix regional heats have been held in 2012 and in 2013. The winners are then invited to compete in the national final held in Stockholm during the Nobel prize-giving week. All contestants are given intense presentation skills training. Their challenge is to make the three-minute presentation as captivating and educational as possible. The audience and an expert judging panel select the winner together. The aim of the contest is to increase public interest in science and research. To achieve this researchers must be able to talk about their work in a straightforward and engaging manner, and the competition is designed to encourage and develop the skills and confidence to do this. In its first year, the project involved some 60 scientists and got a lot of media attention. The final is televised nationally by UR (the Swedish Educational Broadcasting Company). The regional heats are organised by universities and science centres. The contest is coordinated by Swedish non-profit association VA (Public & Science) and the final organised by VA together with research councils Formas, Forte, the Swedish Research Council and Sweden’s innovation agency, Vinnova. Researchers’ Grand Prix is inspired by similar international concepts like Famelab and Science Slam, as well as Grand Prix contests in neighbouring Denmark and Norway. Inspired by the success of these projects and the European Song Contest, discussions have recently started with UR about the possibility of organising the contest on a European basis. National competitions would be televised by public service broadcasting companies in participating countries and viewers invited to vote for the best presentations in this European Knowledge Contest. In this session a three-minute video showing the essence of the Swedish Researchers’ Grand Prix will be screened, followed by a presentation about the organisation and implementation of the contest as well as key learnings.

Sub-area: Science communication empowering scientists and the public
Proponent: CECILIA BILLGREN ASKWALL
Institution: VA (PUBLIC & SCIENCE)
Country: Sweden
Presenter: Lotta Tomasson – VA (PUBLIC & SCIENCE), Sweden
Authors: Cecilia Billgren Askwall – VA (PUBLIC & SCIENCE), Sweden
20664 - SCIENCE TO PLAY: A TV MAGAZINE FOR YOUNG PUBLIC

TV and video contents can be excellent tools for science diffusion allowing science to reach more people and remote publics. At Fábrica - Ciência Viva Science Center a project, dedicated to create science contents for the media, was developed and implemented in Portugal. Among the various activities undertaken within the project, those aimed to introduce science to the younger are of particular importance. “FabriKA Science to Play” is a TV magazine dedicated to young public and devoted to science and technology. The goal of this magazine is to promote the public engagement in science and technology and to involve the youngest into science through visual demonstrations and hands-on activities. The magazine involves twenty two programs covering several topics, such as chemistry, physics, biology, robotics and engineering. The programs are divided into advanced topics that can be carried out at our Science Center, and scientific explanations of facts of the everyday life that can be perform with low cost materials. This magazine is running in a national TV channel and it links the public to the Fábrica Science Center activities. The structure of each program is based on the exploration of a theme, typically through hands-on activities or lab sessions. At the end of each program, all materials and components are listed. The young public watching the program is stimulated to perform the experiment at home with the help of family or friends. In this talk the magazine will be presented and explored in detail and its impact will be discussed.

Sub-area: New technologies and new practices in science communication
Proponent: PEDRO POMBO
Institution: FABRICA SCIENCE CENTRE – UNIVERSITY OF AVEIRO
Country: Portugal
Presenter: Pedro Pombo - Fabrica Science Center - University of Aveiro, Portugal
Authors: Pedro Pombo - Fabrica Science Center - University of Aveiro, Portugal
Sofia Barata - Fabrica Science Center - University of Aveiro, Portugal
Miguel Cardoso - Fabrica Science Center - University of Aveiro, Portugal
Marta Condeiro - Fabrica Science Center - University of Aveiro, Portugal
Jorge Costa - Fabrica Science Center - University of Aveiro, Portugal
Sofia Teixeira - Fabrica Science Center - University of Aveiro, Portugal
Ivonne Delgadillo - University of Aveiro - Fabrica Science Center, Portugal

20122 - SCIENCECALIFRAGILISTIC - CRITICAL THINKING AND SCIENCE: A JOURNEY THROUGH THE SCIENTIFIC METHOD

Sciencecalifragilistic is a science education programme that takes neuroscientists and high school students on a journey through the scientific method. This initiative, launched by a group of PhD students and Postdocs from the Champalimaud Neuroscience Programme in Lisbon, Portugal, aims to demystify the scientific process, the role and daily-life of a scientist, while stimulating scientific reasoning, critical thinking and creativity among high school students. To apply, students have to write a motivation letter, where they state their interests and explain why they would benefit from Sciencecalifragilistic. The programme
captured the interest of the school community in Lisbon and, in the 1st year, 12 students were selected for the 6 month-long journey that started in January 2013. To travel through the steps of the scientific method, from the formulation of a question, generation of a hypothesis, to the resolution of a problem, students and tutors joined 3 research projects, developed at the Champalimaud Centre for the Unknown. Along the way, students tested how to condition the behavior of a snail, how external information reaches a cockroach brain and how muscles behave under different motor control demands. More importantly, students were exposed to the way knowledge is built, by trial and error, consecutive iterations and experiments, where results are constantly discussed. Students were, then, challenged to communicate their discoveries in lab meetings, debates and at the Sciencecalifragilistic Symposium. The Symposium gathered students, teachers, neuroscientists, families and friends around this exciting journey. Students presented their research projects in a poster session and shared some hands-on experiments with the crowd. To evaluate the impact of Sciencecalifragilistic, qualitative and quantitative measurements (surveys, human spectrograms, videos, photographs) were collected, and a diary, written by a 15-year old student, documented the process. Data revealed that this programme had a great impact on the student's perception about scientists' daily-life and how science evolves. Also, it increased their interest and participation in science classes at school. To share this experience and to inspire more students, teachers and institutions, Sciencecalifragilistic will participate in a TEDxYouth event in Portugal. We are now getting ready for our next passengers. http://neuro.fchampalimaud.org/en/education/outreach/sciencecalifragilistic/

Sub-area: Science communication empowering scientists and the public
Proponent: CATARINA RAMOS
Institution: CHAMPALIMAUD FOUNDATION
Country: Portugal
Presenter: Catarina Ramos
Authors: Catarina Ramos – Champalimaud Foundation, Portugal
Maria Inês Vicente – Champalimaud Foundation, Portugal
Rodrigo Abril Abreu – CNP–CF and Instituto Superior de Psicologia Aplicada, Portugal
Elsa Abranches – CNP–CF and IMM–UL, Portugal
Ana Mafalda Vicente – CNP–CF, Portugal
Ana Pereira – CNP–CF, Portugal
Zachary Mainen – CNP–CF, Portugal

20249 – THE AMAZING WORLD OF LIVING THINGS: A SHORT STORY ABOUT EVOLUTION

Engaging young public in science is a challenging task. Choosing as target public children from 6 to 12 years old, we developed a short animated video – “The amazing world of living things: a short story about evolution” – that explores concepts of Evolution, and how the diversity of living beings arose from a common ancestor. This video focuses on the Tree of Life, where all living beings are related, and how new species originate. The contribution that studies on Evolution bring to other research areas and to the society are also addressed. The video can
be used in schools, as support material for primary school and kindergarten teachers, or outside schools within the family. It runs in Portuguese but versions with English and Portuguese subtitles are also available. Even though designed taking in consideration the young age of the target public, the video can be used to reach a wider audience. This video is a co-production of the Instituto Gulbenkian de Ciência (IGC) and Instituto de Tecnologia Química e Biológica (ITQB), in Portugal. http://www.youtube.com/watch?v=v7eKrPV-6eQ&feature=c4-overview&list=UUlv8o8SQuDGMzBawdZa3dRw

Sub-area: New technologies and new practices in science communication
Proponent: ANA LÚCIA MENA
Institution: INSTITUTO GULBENKIAN DE CIÊNCIA
Country: Portugal
Presenter: Ana Lúcia Mena - Instituto Gulbenkian de Ciência, Portugal
Authors: Ana Lúcia Mena – Instituto Gulbenkian de Ciência, Portugal
Catarina Júlio – Instituto Gulbenkian de Ciência, Portugal
Ana Sanchez – Instituto de Tecnologia Química e Biológica, Portugal
Ana Godinho – Instituto Gulbenkian de Ciência, Portugal

20733 - THE FREE-CHOICE LEARNING AND CYBERLABORATORY: USING CUTTING EDGE TECHNOLOGY TO BUILD CAPACITY AT THE EDGE OF SCIENCE AND SCIENCE COMMUNICATION

The Oregon Sea Grant’s Free-Choice Learning (FCL) Laboratory is situated at Hatfield Marine Science Center (HMSC), an Oregon State University marine science research facility housing a Visitor Center that functions as a living laboratory for studying self-paced, leisure-time lifelong learning. FCL is the most common type of lifelong learning. It refers to self-sought learning activities that often take place outside classrooms, guided by the needs and interests of the learner. Our FCL lab is invested in studying how people learn through these activities and inform better educational practices in informal science education venues. The National Science Foundation has funded the installation of a research infrastructure within the Visitor Center, using emergent technologies to study behavior, capture responses and adapt content to visitor needs. The “Cyberlaboratory” was established to exploit emerging technologies in a museum setting and across related learning contexts to explore methods for researching cyberlearning – the use of networked computing and communications technologies to support learning. The basic premise underlying the cyberlab is that in order to support cyberlearning experiences in informal science education (ISE), research and evaluation capacity must be built into those systems from the very beginning, allowing for continuous data collection and visitor active participation. The Cyberlab work is motivated not simply by the availability of emerging technologies of interest, but also by ongoing efforts to address research questions around three more broad ISE areas of interest: constructivism, customization, and continuity. In support of that, the new installations allow for embedded data collection, development of adaptive exhibit content, real time assessment and evaluation, and remote visitor observations. Among tools used are the facial detection and recognition system, audio recording engine, Radio Frequency ID System, Accelerometers and
Motion Sensing Systems. The cyberlab collection tools and other resources are intended to be released as open-source products and become collaborative tools, facilitating their integration into other informal learning research sites. In this regard, the proposed video session will present the two years of Cyberlab work since its creation, and discuss how its major research and education activities are collaboratively bridging the edge between marine research and science communication.

Authors: Susan O’Brien – Oregon State University, Oregon Sea Grant, United States
Shawn Rowe – Oregon State University, Oregon Sea Grant, United States
Mark Farley – Oregon State University, Oregon Sea Grant, United States

20319 – VIDEO ABOUT THE IMAGES OF KNOWLEDGE

A five minute video about the process of production and the generated products of Images of Knowledge will be presented. Images of Knowledge is a project that uses scientific images to communicate science for a broad public. The images are chosen among many generated from research and other academic works by professors, students and staff of the Federal University of Minas Gerais (UFMG). Images may derive from several sources such as microscopes, softwares, drawings, photographs and graphics. The TV spot production process involves six steps: Assessment, Contact, Pre-production, Production, Editing/Revision and Video Publishing. Assessment refers to the assessment of potential research images, followed by a preliminary contact with researcher to start up the pre-production phase. The later involves a presentation of the research project and the collection of images to compose a databank that will feed-up the following phases, such as the making of byproducts. Audio-visual material is produced, edited and revised before final approval and publishing in the project website and other UFMG media.

Sub-area: New technologies and new practices in science communication
Proponent: ADRIANA APARECIDA LEMOS TORRES
Institution: UNIVERSIDADE FEDERAL DE MINAS GERAIS
Country: Brazil
Presenter: Ana Paula Domingos Vieira Pahlevan Nejad – Universidade Federal de Minas Gerais, Brazil
Authors: Adriana Aparecida Lemos Torres – Universidade Federal de Minas Gerais, Brazil
Ana Paula Domingos Vieira Pahlevan Nejad – Universidade Federal de Minas Gerais, Brazil
Leonardo Chalub – Universidade Federal de Minas Gerais, Brazil
Glaucia Faria Rodrigues da Silva – Universidade Federal de Minas Gerais, Brazil
Josué Benvindo Santana de Oliveira – Universidade Federal de Minas Gerais, Brazil
Cinthia Campos Procópio – Universidade Federal de Minas Gerais, Brazil
Ana Carolina Gomes Silva – Universidade Federal de Minas Gerais, Brazil
Mariana Muchon Schainberg – Universidade Federal de Minas Gerais, Brazil
Gabriel D’Angelo Louzada – Universidade Federal de Minas Gerais, Brazil
“O Céu da Semana” is a weekly videocast produced and broadcasted since 2010 by the The Open Laboratory of Interactivity for Science Communication (LAbl) from Federal University of São Carlos. In June 2011 the show began to be produced in partnership with Univesp TV, a state TV station. With an average duration of 3 minutes, each videocast presents the main astronomical phenomena of the week, like naked-eye planets, moon phases, planetary conjunctions, meteor showers, bright comets, artificial satellites, etc. Viewers also receive hints on how to observe the sky and identify celestial objects and constellations. The videocast format resembles traditional television weather forecasts, with a narration explaining a simulation of celestial phenomena. In addition to weekly events, the show also brings in each episode some brief explanation about an astronomy topic, from sky lore and constellation mythology to modern astrophysics and cosmology. All shows are available in Youtube (http://www.youtube.com/user/labiuufscar) with almost 200 thousand views and over 2000 subscribers (as of August 2013).

Sub-area: New technologies and new practices in science communication
Proponent: GUSTAVO DE ARAUJO ROJAS
Institution: UNIVERSIDADE FEDERAL DE SÃO CARLOS
Country: Brazil
Presenter: Gustavo Rojas – Universidade Federal de São Carlos, Brazil
Authors: Gustavo Rojas – Universidade Federal de São Carlos, Brazil
Mariana Rodriguez Pezzo – Universidade Federal de São Carlos, Brazil
Tarcio Minto Fabricio – Universidade Federal de São Carlos, Brazil
Adilson Jesus Aparecido de Oliveira – Universidade Federal de São Carlos, Brazil
Workshops
20282 - CHANGES IN THE SCIENCE MEDIA LANDSCAPE: ARE CHANGES IN THE MEDIA DRIVERS FOR CHANGES IN SCIENCE JOURNALISM?

As most of us know, bringing science news is not always easy. Some topics are “sexier” than others and most science (news) media do not offer space (or time) for too much elaboration – cause a gap between what scientists want, what journalists can offer, and what the public needs. With recent changes in the media landscape, most notably the introduction of the Internet, and more specifically the Web 2.0 features, it is important to gain insight into how these developments increase or close this gap. Based on a literature study (internationally oriented) and a group discussion supplemented with individual interviews (nationally oriented: The Netherlands), this session will introduce our findings of changes in the science media landscape in order to initiate a discussion about whether or not these changes are drivers for changes in science journalism practice. In our research, we moved forth from the news of Angelina Jolie’s preventive surgery, as an example of how news diffuses from the private to the public domain and of how different media make different choices in how to bring that news. In the context of science communication specifically, the example is interesting because the news was used to discuss cancer in a broader context, illustrating the various interactions between various participants in this diffusion process, while at the same time illustrating the way in which media go about reporting uncertainties, chances and health risks, etc. In example, journalists were asked if they would use this “human-interest-news” as a “hop-over” to bring more “hard-science-news.” As such, news-criteria – generally established based on regular news – were reevaluated in the context of science news. Another example was the discussion on how changes in the media landscape result in new or different pitfalls and chances for science journalism. According to our experts, the quality of journalistic science stories is not per se dependent on characteristics of a medium but rather on the publication-drift (wanting to be the first to bring the news), manpower, and financial aspects. We propose to host an interactive workshop, using a real and recent case, to let participants experience the complexity of this diffusion process. Would you bring this news? What media would you select, and why? Together with the participants we will validate our existing “tips & tricks” list in a more international context.

Sub-area: New technologies and new practices in science communication
Proponent of the session: MARK JEROEN WIM BOS
Institution: THE HAGUE UNIVERSITY/LEIDEN UNIVERSITY
Country: Netherlands
Presenter: Mark Jeroen Wim Bos
Authors: Mark Jeroen Wim Bos - The Hague University/Leiden University, Netherlands
Belinda van der Gaag - The Hague University, Netherlands

20236 - EVALUATING THE IMPACTS OF SOCIAL MEDIA-BASED PUBLIC ENGAGEMENT

As social media platforms expand, science communication practitioners are increasingly considering what their role should be in science engagement. There are important limitations, as well as opportunities, involved in using these media as sites for public engagement with science, some of which are not well
understood. One key question facing science communicators is how to evaluate the impacts of social media-based science engagement. This topic is the focus of the proposed workshop. This workshop draws on methodological development from the Public Engagement with Research Online (PERO) project funded by the UK government Joint Information & Skills Committee that was completed in November 2012 (http://www2.warwick.ac.uk/fac/soc/sociology/staff/academicstaff/jensen/ericjensen/pero). This project yielded recommendations about how to effectively measure the spread and impact of scientific ideas communicated online. Since this time, Dr. Jensen has been working on ways in which the process of evaluating public engagement impact in social media settings can be automated through developing valid forms of (automated) sentiment analysis. This work is currently being conducted as part of the Qualia project, which is funded by the UK’s National Endowment for Science, Technology and the Arts (Nesta), the Arts and Humanities Research Council (AHRC) and the Arts Council: qualia.org.uk. This work will be further developed by a 2014 project on ‘The role of technology in evaluating the non-economic impacts of arts and culture’ (funded by the UNITED KINGDOM’S Arts & Humanities Research Council). This workshop will offer cutting edge advice and practical experience with evaluating science communication impacts on social media, drawing upon techniques and methodology developed through the projects described above. Dr Eric Jensen is Associate Professor (Senior Lecturer) in the Department of Sociology at the University of Warwick. Jensen is a widely published researcher in the field of public engagement, and is an expert in public engagement and impact evaluation methodology. He leads a Master’s module on ‘Researching Science, Media and Public Policy’, convenes the department’s Social Research Methods module and is currently co-authoring the methods textbook ‘Doing Real Research’ for SAGE.

Sub-area: New technologies and new practices in science communication

Proponent of the session: ERIC ALLEN JENSEN
Institution: UNIVERSITY OF WARWICK
Country: United Kingdom
Presenter: Eric Allen Jensen – University of Warwick, United Kingdom
Author: Eric Allen Jensen – University of Warwick, United Kingdom

20344 - HOW SCIENCE DEBATES BUILD NEW DIALOGUES BETWEEN RESEARCH AND SOCIETY

In modern democracies, the results of science and technology are increasingly questioned by the population. Alerted by global warming and its side effects, many people like to know the benefits as well as disadvantages of new technologies and treatments. Is the newest generation of nuclear power plants really safe—and are dams, wind generators and solar cells a desirable alternative? What are the opportunities and threats of GMOs and the application of genetic technologies in the face of a growing world population? How thoroughly have new vaccines been tested—and is it true that vaccinations could adversely affect children’s health? During the past decades doubts about the blessings of scientific and technological progress have significantly mounted. This has been counteracted, mainly in Europe, with programs such as Public Understanding of Science (PUS) or Science in Society, without much noticeable effect though. Now the European Commission is undertaking another attempt. In the beginning of 2014, it will
launch a 70 billion Euro program to stimulate research throughout the continent, also in sensitive fields, to enable Europe to compete with North America and Asia. In Horizon 2020 a vast communication program is embedded in order to achieve the involvement of citizens from the very beginning (expressing their needs) as well as to disseminate the projects’ results and, ultimately, ensure the acceptance of the citizens and especially the young. The European Union of Science Journalists’ Associations EUSJA has offered its expertise to EU officials in the implementation process. A major element, among a whole scope of measures such as Science Cafés and Study Trips, are Science Debates. They will be held about controversial scientific and technological topics and involve scientific experts, political representatives, NGOs and the civil society. Moderated by a science journalist, these four stakeholders find compromises, solutions or at least bridge controversies. At PCST 2014, inventors and designers of the science debate will present it in theory and practice, in Germany, Greece and the US, and explore how the new platforms of dialogue and triilogue can be enhanced around the globe. A hands-on performance will demonstrate the methods of this new two-way communication technique. The audience, for example, will decide on a suitable topic, then divide into scientists, politicians, NGOs, CSOs and citizens and engage in a science debate.

Sub-area: New technologies and new practices in science communication
Proponent of the session: WOLFGANG C. GOEDE
Institution: EUROPEAN SCIENCE JOURNALISTS EUSJA / GERMAN SCIENCE WRITERS TELI
Country: Germany
Presenter: Alexander Gerber – Rhine Waal University, Germany
Authors: Menelaos Sotiriou – Science View – European Union of Science Journalists’ Associations, Greece
Prof. Alex Gerber – European Science Communication D–A–CH, innokomm, TELI
Hanns-J. Neubert – TELI, ScienceCom
Wolfgang C. Goede – European Union of Science Journalists’ Associations, TELI, ISWA

20413 - HOW TO IMPROVE THE SKILLS OF SCIENTISTS IN COMMUNICATING WITH CHILDREN
Although there is agreement about the impact scientists can have on children, it seems strange that they are hardly trained how to do this. In this workshop we want to present a project in the Netherlands that supports scientists in communicating with children. The importance of science and technology in our society is undeniably big and growing. From the moment we rise to the moment we go to bed we are constantly emerged in science and technology; from the phone we use to tweet, to the car we drive and the food we eat. Also, our economy needs more people with skills in technology. With this in mind, it is obvious that we have to embed science and technology in education. Research shows that children lose their enthusiasm for science and technology at a very young age. Therefore, children should be brought into contact with science and technology in a positive way before the age of 10. From then on it should become a recurrent part of the curriculum. Talented scientists can play an important role in teaching children about science and technology. Younger children, just like good scientists,
are curious and creative and they are not afraid to ask questions. There are many excellent examples in which scientists meet children, such as presentations in science centres or workshops at schools. Both children and scientists are always very enthusiastic about these activities, but the scientists are usually only marginally trained. The Royal Netherlands Academy of Arts and Sciences has the ambition to help scientists improve their skills in communicating with 8 - 14 year old children. For this goal a toolkit is being developed in 2013, which supports scientists in different ways. Firstly, we have developed a hands-on training in which scientists learn about inquiry based learning and use this information to set learning goals and develop activities for children. After the training scientists will bring their acquired skills to practice. Secondly, different tools that support scientists are offered online, such as an instructional video, a practical list of do's and don’ts, a selection of activities, possible contexts relevant for children and useful (scientific) literature. In the workshop we want to show participants how we have developed the toolkit. Participants will experience parts of the training and other elements of the toolkit; also we will discuss the development of the toolkit. How did we do it? Why in this way and what have we learned during the process?

Sub-area: Science communication empowering scientists and the public
Proponent of the session: ALEX VERKADE
Institution: DE PRAKTIJK
Country: Netherlands
Presenter: Alex Verkade - De Praktijk, natuurwetenschappelijk onderwijs, Netherlands
Authors: Alex Verkade - De Praktijk, natuurwetenschappelijk onderwijs, Netherlands
Yuri Matteman - De Praktijk, natuurwetenschappelijk onderwijs, Netherlands
Juliette Walma van der Molen - Twente University, Twente University
Welmoet Damsma - Hogeschool van Amsterdam, Netherlands
Maarten Kleinhans - Utrecht University, Netherlands
Marjolein van Breemen - NEMO Science Learning Center, Netherlands
Maarten Reichwein - Utrecht University, Netherlands

20362 - PHYSICAL AND SCIENCE THEATER

considering the difficulties detected by students in the discipline of physics observatory is that something needs to be revised or supplemented in the methodological procedures that would contribute to better school performance. The theater just as scientific enters this increase, enabling the improvement in teaching–procedure aprendizagem. This project was developed with students who were in their first year of high school and had a low income escolar. Apply questionnaires before and after the presentation of the play “PHYSICAL – THE QUEEN OF WAST”. The results showed the effectiveness of this innovative method, with the possibility of physics classes be more enjoyable for learners.

Sub-area: Beliefs, values and scientific citizenship
Proponent of the session: MARIA DE FATIMA SALGADO
Institution: UNIVERSIDADE ESTADUAL DO MARANHAO
Country: Brazil
20863 - POSTGRADUATE RESEARCH NETWORK IN SCIENCE COMMUNICATION

Many postgraduate researchers are working alone or in small groups in their institutions and could benefit from wider contacts. The meeting aims to support postgraduate researchers in science communication by developing contacts between them and strengthening the association with the PCST network that organises the PCST conferences. The meeting will discuss trends and issues in recent postgraduate research in science communication. Participants will be invited to speak about their current projects and the meeting will provide opportunities for networking among postgraduate researchers.

Proponent: BRIAN TRENCH
Institution: PCST SCIENTIFIC COMMITTEE
Country: Ireland
Presenters: Brian Trench, PCST Scientific Committee; co-editor, Handbook of Public Communication of Science and Technology, (Routledge, 2nd edition, 2014)
Vanessa Brasil de Carvalho, Postgraduate researcher, Federal University of Rio de Janeiro and Museu da Vida, Brazil
Maarten C.A. van der Sanden, Assistant professor, Science Communication, Delft University of Technology, Netherlands

20451 - PREPARE FOR 15 SECONDS OF FAME! A WALKTHROUGH IN THE MEDIA FOR SCIENTISTS

Research institutes, funding organizations, and conferences on science communication all promote the development of in-house media training for scientists. Those media trainers who take on this challenge soon find out that the media and scientific research are still vastly separate worlds. Although there are many examples of scientific coverage in the media that has been successful, as well as scientists who are media savvy, there are prejudices at work on both sides that can often take precedence in many situations. With the proliferation of new and social media in the current media landscape, the situation becomes even more complex. After a panel discussion on PCST2012 in Florence, Italy, a former press officer, a web and social media editor, and a scientific journalist embarked on a quest to develop a program titled “A Walkthrough In the Media for Scientists.” To develop an effective approach for the program – one that was based on a mutual understanding – the trio organized international workshops with scientists, science communicators, press officers, and journalists in both Italy and The Netherlands. The material gained from those workshops was then further enriched by inviting these groups of researchers and communication professionals to reflect on and contribute to the text in a specific Facebook group. The resulting material is a short, practical guide that will enable researchers to prepare effectively for media performances, including those that incorporate various, international perspectives. While it is true that “…not every researcher
can be a spin doctor, capable of turning every question to their own advantage”, the authors believe that “every scientist who is well-prepared for media contact will be able to convey their message to the public successfully.” That contributions to this guide were obtained from both sides – from researchers and media professionals alike – gives its readers an opportunity to find common ground. The resulting Walkthrough provides scientists who may encounter media contacts in the near future with a crash course in effective interaction. Due to its practical format, the Walkthrough can also be used as a textbook for interactive, in-house media trainings. In fact, the authors themselves are using it in their own in-house workshops. During this PCST workshop, two of the authors will present the main points of the book while demonstrating their interactive approach to the workshop’s participants.

Proponent of the session: Fred Balvert
Institution: Erasmus University Medical Center Rotterdam
Country: Netherlands
Presenter: Fred Balvert - Erasmus University Medical Center Rotterdam, Netherlands and Souad Zgaoui - Erasmus Medical Center, Netherlands
Authors: Fred Balvert - Erice International School of Science Journalism
Soaud Zgaoui - Erasmus University Medical Center Rotterdam, Netherlands

20382 - SCIENCE IN 3D: CHALLENGES AND OPPORTUNITIES TO ENGAGE PEOPLE IN SCIENCE AND TECHNOLOGIES THROUGH EXHIBITIONS

Abstract: Science museums and science centres play an important role in the public engagement in science and technology, involving every day millions of visitors all around the world. Many new science museums and science centres have been built in the last years, especially in countries that are experiencing a strong growth in East Europe, Middle East, Asia or Latino America. Moreover, temporary science exhibitions are more and more used by research institutes, universities but also private companies or foundations, as a way to communicate their research to lay public. Besides educational programmes and events, the cornerstone of science centers’ and museums’ communication are the exhibitions, that can be interactive, immersive and/or narrative, and use all kinds of media: video projections, historical objects, specimens, hands-on exhibits, new technologies such as virtual or augmented reality, etc. Which challenges and which opportunities exhibitions present for the communication of science and technology, in comparison to other media such as newspapers, magazine, tv and radio? How the exhibition design is evolving, to become more engaging, participatory, ultimately more effective? This interactive workshop will present and discuss the state-of-the-art of science exhibitions development with particular focus on the possible different design approaches, helping participants to reflect on the relationship between the different media, the contents and the visitors’ experience. Format: Length 75’ + 75’ After convenor’s introduction, speakers shortly present their opinion on the topic through the illustration of case studies and/or researches and reflections. Then participants are split in groups, with speakers and convenor acting as facilitators for each group. Groups work will tackle questions such as: - What it is the plus value in communicating
science and technology through exhibits (instead of via radio, tv, etc.)? - There are differences in communicating different sciences (e.g. mathematics vs natural sciences) through exhibitions? - Which kind of engagement different kinds of exhibits involve? - How it is possible to enhance the participation of visitors? - How different people (for culture, age, interests, beliefs etc.) may differently react to different kinds of exhibits? Etc. A general discussion follows. Speakers wrap up the discussion and list main conclusions on posters, that can be then been made available on internet to all participants.

Sub-area: New technologies and new practices in science communication

Proponent of the session: PAOLA RODARI
Institution: INTERNATIONAL SCHOOL FOR ADVANCED STUDIES MEDIALAB
Country: Italy
Presenter: Paola Rodari
Authors: Paola Rodari - International School for Advanced Studies Medialab, Italy
Letícia Rumjanek - Museu da Vida/ Casa de Oswaldo Cruz/Fundação Oswaldo Cruz, Brazil
Matteo Merzagora - Groupe TRACES, France
Ricardo Rubiales - Instituto Metropolitano de Patrimonio, ICOM, Mexico

20750 - SOCIAL MEDIA IN THE PUBLIC COMMUNICATION OF SCIENCE AND TECHNOLOGY – CRASH COURSE AND HANDS-ON EXPERIMENTS FOR RESEARCHERS AND PRACTITIONERS

Using online social media for the public communication of science and technology has become a widespread phenomenon as well as a vital capability for everybody active in the field. In this light the Red de Popularización de la Ciencia y de la Tecnología en América Latina y el Caribe (Red Pop) and the UNESCO Regional Bureau for Sciences in Latin America and the Caribbean jointly organize a pre-conference workshop to create a space for learning-by-doing that stimulates the exchange of innovative practices and the collaboration of PCST researchers and practitioners. The idea is to offer a hands-on workshop for acquiring online media skills in the field of PCST via practical engagement and experimentation in an informal and hopefully fun way. During the workshop we will learn about online media for generating, distributing and curating contents online and will exchange experiences on what works and what challenges we face in various PCST contexts, e.g. museums, research labs etc. During the conference, we will apply the concepts elaborated in the workshop by covering PCST 2014 with online media. We would like to draw special attention to questions of social inclusion in the practice of PCST by approaching this issue in discussions and in practice. The workshop is meant to be useful to participants by taking into account the contexts in which they want to apply their skills as well as by working on challenges they are facing. Duration: 3 hrs workshop time + min. 1 hr social media work during the conference

Topics covered: (1) How to generate, distribute and curate content online – via blogs, Twitter, Instagram, Vine and multimedia collections (e.g. Storify, Timeline JS) (optional: web videos; integration of remote participants, e.g. Hangouts for expert chats); (2) Basics of social media strategies for PCST; (3) How to design socially inclusive social media strategies for online PCST; (4) Reflection of potentials and problems of social media use in various
PCST contexts. Course Language: English (organizers are also fluent in Spanish for on the spot translation) Participants: Social media beginners and experts alike (previous experience welcome but not required!); Researchers and practitioners of PCST; max. 30 Organizers: Alejandra León-Castellá Fundación CIENTEC, San José, Costa Rica Red de Popularización de la Ciencia y de la Tecnología en América Latina y el Caribe alejandraleon@me.com Claudia Göbel UNESCO Regional Bureau for Sciences in Latin America and the Caribbean, Montevideo, Uruguay cgoebel@unesco.org.uy
Sub-area: Beliefs, values and scientific citizenship
Proponent of the session: CLAUDIA GÖBEL
Institution: UNESCO
Country: Uruguay
Presenter: Claudia Göbel – UNESCO Regional Bureau for Sciences in Latin America and the Caribbean, Montevideo, Uruguay
Authors: Claudia Göbel – UNESCO Regional Bureau for Sciences in Latin America and the Caribbean, Montevideo, Uruguay
Alejandra León-Castellá – Fundación para el Centro Nacional de la Ciencia y la Tecnología, Costa Rica
Country: Brazil
Performances
20443 - FROM THE KOSHER PICKLE TO ALBERT EINSTEIN
Spectacular science demonstrations have been developed to meet the need for connecting daily life phenomena with its scientific substance. Using daily objects one learns about Astrophysics, Atmospheric Physics, Newton's Laws, Gravity, Chemistry, Waves and Sound, Fire and Ballistics. The performance uses lots of humor, surprising effects, and awe inspiring actions. The audience is an active participant contributing to the science show. The participants take home with them ideas for experiments they can safely use to demonstrate science. The show can be used to combine Science with: a) Live Music, depending on the availability of live musicians; and b) some Biblical texts, depending on the audience wishes. The show has been successfully performed in the US, South Africa, Ethiopia, Brazil and Israel, for science professionals and teachers, policy makers, grandparents and grandchildren, and school assemblies. Science Demonstrations Science demonstrations are older than science museums. They were brought to the forefront of entertainment from the XVI and XVII centuries onwards. Today they are used to convey messages about science and modern research in science museums and informal learning environments. Connecting science to daily life Too often Science is taught in schools and delivered to the public detached from their lives. Yet there is so much science in everything we develop and do; our entire existence is based on science. This science show demonstrates visually how everyday phenomena have deep roots and explanations in science. Making science accessible and fun Everyone can do experiments. Studying about our world is interesting and can be a lot of fun. This science show is full of humor, delivering surprising effects using food, water, fire and air. Bringing informal learning to formal environments; Professional Teacher training School students need to be included as active participants in the learning process. More questions than answers need to be raised, as this is how science is performed. Using informal learning techniques highlighted by this science show will help professionals develop their learning strategies faster and better. This show is used for professional science educators and teacher training.
Proponent of the session: RONEN MIR
Institution: WEIZMANN INSTITUTE OF SCIENCE
Country: Israel
Presenters: Ronen Mir - Weizmann Institute of Science, Israel
                Debby Mir - Ono Academic College, Israel

20552 - MAGIC X SCIENCE: OUROBOROS SCIENCE THEATER
Science theater is a non formal education strategy to communicate science combining theatrical performances with science contents. It is a class out of the classroom, that entertains and informs at the same time. The interaction between the actors and the participants during the play permits a closer change of informations and knowledge. There are some science theater groups around the world and various in Brazil. Ouroboros is a science theater group that communicates science since 2005, creating and presenting a new play every year and promoting the actors skills improvement related to science and art. Magic X Science is an interactive play (60 min) that Ouroboros theater group presents since 2006.
Special effects (chemical reactions) and the History of Chemistry are on stage with the University students from different courses of Federal University of São Carlos. The story is about a student that needs to do a homework about History of Chemistry and dreams with Merlin and an alchemist making a duel to save the king Arthur. They need to prepare a powerful elixir or a potion that would cure him, and during the play they ask people from the audience to help them in this mission. Visual chemical reactions are performed, such as redox, acid–base, polymerization, chemiluminescence, electron-transfer (flame test) reactions, etc. At the same time people are curious about the “magics”, they get some answers from the student that now explain the experiments. After the presentation, the actors–students explain the main reactions and other doubts of the public. In addition, a questionnaire is answered by these people and the data is analyzed to check the efficiency of communicating science by this non formal way, using the science theater. The play was presented more than three hundred times along these years and people of different ages be entertained and have learned with the Ouroboros science theater.

Proponent of the session: KARINA OMURO LUPETTI
Institution: UNIVERSIDADE FEDERAL DE SÃO CARLOS
Country: Brazil
Presenters: Karina Omuro Lupetti – Universidade Federal de São Carlos, Brazil
Tiago Botassin – Universidade Federal de São Carlos, Brazil
Gustavo Garcia da Costa – Universidade Federal de São Carlos, Brazil
Antonio Rogério Bernardo – Universidade Federal de São Carlos, Brazil
Leonardo C. Balmat – Universidade Federal de São Carlos, Brazil
Ariel Lopes Rodrigues – Universidade Federal de São Carlos, Brazil
Rogerio Augusto Capobianco – Universidade Federal de São Carlos, Brazil
Bruna Barroso – Universidade Federal de São Carlos, Brazil
Adriana Yumi Iwata – Universidade Federal de São Carlos, Brazil

20412 – SCIENCE AND SOCIETY – WHY THEY DON’T UNDERSTAND EACH OTHER – A THEATRICAL PLAY IN FORM OF A READING

Two ladies, Science and Society, meet at the airport, an afternoon at the end of spring. They start a dialogue – actually a discussion with many voices, in which they both complain about not being enough heard and considered by the other. But do they really not understand each other? Or perhaps the two are more familiar than we think? GMOs, nuclear energy, climate change: issues related to science and technology advancement have been animating public debate for decades, creating opposite – or supposedly opposite – sides. On the one hand there are the advocates of the unbridled development of technoscience; on the other those who call for restraints on science’s challenges. Science and Society, our two protagonists, invite us to wonder whether this contrast is real or more like a party game. And what are then the real issues at stake in the ongoing dilemmas that Science and Society are facing?
Length: 1 hour approx.
Science and Society – Why they don’t understand each other has debuted at Genova Science Festival in October 2010 and since then has been successfully
played in several theatres and occasions in Italy. At PCST 2014 it will be presented for the first time in English in the form of a reading.

Show description and pictures
http://www.observa.it/scientisti-e-antiscientisti-2/?lang=it
A short animation made by EFSA (European food safety authority) based on the dialogue
http://www.youtube.com/watch?v=X__D1eWBkXo
A video of the Italian version
http://vimeo.com/30582028

Proponent of the session: MASSIMIANO BUCCHI
Institution: STS PROGRAMME, DEPT. OF SOCIOLOGY, UNIVERSITÀ DI TRENTO
Country: Italy
Presenter: Jennifer - Econnect / Univeristy of Queensland, Australia and Julia Tagueña - Universidad Nacional Autónoma de México and CONACyT (Mexico)
Authors: Massimiano Bucchi et al - STS Programme, Dept. of Sociology, Università di Trento, Italy

20504 - SCIENCE BUSKING - AN INTERACTIVE DEMONSTRATION OF IN THE ZONE – A UNITED KINGDOM WIDE INITIATIVE ENGAGING PEOPLE WITH SCIENCE LINKED TO THE LONDON 2012 OLYMPIC AND PARALYMPIC GAMES

In the Zone was a £6m GBP initiative developed to build upon the national excitement of hosting the Olympic and Paralympic Games in London. Our aim was to engage people across the UNITED KINGDOM who would not normally attend a science event with the science of how the human body works during sport, activity, movement and rest. Our guiding principles were to include hands-on science wherever possible, to make the content personal to our participants and linked to real and current science, and to make our experiences, events and learning accessible to the widest social demographic possible. In the Zone involved:
Sending a practical science kit to every UNITED KINGDOM school (over 32,000 kits);
a touring exhibition with online experience, touring to agricultural shows, sports events, music festivals and other family events across the UNITED KINGDOM;
a hands-on sports science pop-up, touring to non-science festivals and events;
training for 200 scientists, communicators, youth leaders and sports coaches;
a touring science show in schools and at festivals;
I'm a Scientist, Get Me Out of Here: In the Zone – web chats between school students and scientists.
66% of all schools in the UNITED KINGDOM used their practical science kits, and the exhibition and pop-up activity were visited by over 200,000 members of the public. In this session we invite delegates to experience the practical investigations, science busking, and interactive demonstrations we used to engage new audiences at public events such as music festivals, agricultural shows and sporting events. Delegates will be invited to explore breath and breathing, muscle speed, strength and endurance, and the body’s energy needs, by measuring their lung capacity, proposing and testing hypotheses about the structure and function of the human body, taking part in experiments to measure their carbon dioxide production and much more. The audience of this exciting session will leave with a greater understanding of the science of their own body, and inspired by ideas that they could
adapt to celebrate national cultural or sporting events around the world.
Proponent of the session: LEAH HOLMES
Institution: WELLCOME TRUST
Country: United Kingdom
Presenter: Leah Holmes
Co-authors: Leah Holmes – Wellcome Trust, United Kingdom
Helen Louise Latchem – The Wellcome Trust, United Kingdom
Anna Pollard – The Wellcome Trust, United Kingdom
Matthew Hickman – The Wellcome Trust, United Kingdom

20745 – THE BIG VAN THEORY, SCIENTISTS ON THE ROAD
The Big Van Theory is a group of scientists using standup as an innovative communication strategy to promote the public understanding of science. We perform in theatres, schools, museums, bars, scientific fairs and congresses, trying to bring science to nontraditional places and audiences. Founded after the science communication contest FameLab in March 2013, our group consists of 12 scientists from different fields (biology, geology, physics, chemistry, mathematics…) explaining their research in an entertaining yet rigorous manner. Cancer, particle colliders, epigenetics or graphene are some of the topics presented on stage during the show. Typically, the show consists of 4–6 scientists that perform one after the other a 5–10 minute monologue. A Q&A session follows, where we interact with the public and also take questions via Twitter. Starting the tour in September 2013, we have done more than 50 performances in more than 20 venues in Spain, and also internationally: in Geneva (CERN), Rio de Janeiro (World Science Forum) and Buenos Aires. In only 3 months, this new concept of science communication has become a social phenomenon in Spain, attracting a great deal of media coverage with several TV, radio and newspaper interviews and articles.
Proponent of the session: JAVIER SANTAOLALLA
Institution: UNIVERSIDADE DO ESTADO DE RIO DE JANEIRO
Country: Brazil
Presenters: Javier Santaolalla – Universidade do Estado do Rio De Janeiro, Brazil and Spain
Eduardo Sáenz de Cabezón Irigaray – Universidad de la Rioja, Spain
Oriol Marimon Garrido – Universidad de Barcelona, Spain
Alberto Vivó – The Big Vantheory, Spain
Helena González Burón – Instituto de Investigación Biomédica de Barcelona, Spain

20431 – THEATRE OF DEBATE ON THE BIG SCREEN
Proposal To introduce and screen a film of a live performance of Stunted Trees and Broken Bridges (60 min) Y Touring’s 2013 Theatre of Debate production which engages its audiences in debate exploring novel neurotechnologies/crime and neuro justice – followed by a Q&A This proposal will share an example of science communication for social inclusion and political engagement that uses new technologies/practices to empower scientists and the public by offering them opportunities to explore their beliefs, values and increase their scientific literacy by engaging with an artistic exploration of emerging neurotechnologies and
the issues they could pose for science and society Background Y Touring theatre company (25 years old in 2014) is a professional theatre company that works with leading scientists and theatre artists to create and produce Theatre of Debate programmes, to engage young people aged 14 plus and adults in informed debate about social ethical and political questions posed by advances in scientific research. A theatre of debate programme consists of a live performance of a play to engage the audience, followed by a debate using electronic voting (to map what each audience knows, thinks and feels about the theme explored) and access to the Y Touring Resource cloud to deepen the audience’s learning and understanding. Y Cinema In 2011, Y touring started filming live performances of our productions and screening them in cinemas. Each screening is supported by a live facilitated conversation with a scientist/s. In the future the films will be available for streaming. Stunted Trees and Broken Bridges by Ben Musgrave was developed in partnership with the British Neuroscience Association and the Nuffield Council on Bioethics and supported by the Wellcome Trust. About Stunted Trees Beginning in the year 2017, the story revolves around a young man Emerson, who experiences volatile episodes after the death of his mother. He is expelled from school after a violent outburst and then seriously assaults a rival when provoked. Facing trial and becoming increasingly concerned about his inability to control his behaviour, Emerson reluctantly agrees to undergo a brain scan. This scan will determine if he has a brain abnormality and can therefore plead diminished responsibility in court. The outcome of the scan will govern his future, but how reliable is this new technology, and what are the consequences of using it in this way?

Proponent of the session: NIGEL TOWNSEND
Institution: Y TOURING THEATRE COMPANY
Country: United Kingdom
Presenter: Nigel Townsend – Y Touring Theatre Company, United Kingdom
Posters
20702 - ADOPTION OF SCIENCE EDUCATIONAL PRACTICES IN A R&D INSTITUTION

Introduction

To provide research institutions with programs to popularize science and technology is an efficient and effective means of increasing the practice of S&T popularization. Embrapa Food Technology research center is exercising the adoption of educational practices in science and appropriate languages to various audiences to whom they are directed. Some results of a decade of this action are: project portfolio of the area, published articles, experienced teams in demonstrating concepts, phenomena and aspects of food research exploring infrastructure resources, equipment and its knowledge wealth.

Methodology

This process was led by the communication sector that proposed activities to be carried out in the National Week of S&T in 2004. The method used was the persuasion of laboratory researchers. They were invited to present certain topics to lay audiences. In the first year there was only one group present. In the following years the number of participating laboratories as well as the communication creativity increased. The visiting routes were defined so as to allow the visitors to tour the largest number of stops without disturbing demonstrations, questions and answers. People from support areas were recruited to guide visitors and give them general information. In the visitation days the planned program was carried out with flexibility in order to prevent unexpected problems, focusing on the visitors satisfaction, who were mainly students of public schools of the neighborhood. As the visitation finished it was evaluated by the persons in charge of its preparation and execution. Then they celebrated their success and discussed the possible corrections and improvements.

Final conclusions

This report is an example of how creativity in the use of human resources, infrastructure and equipment and the body of knowledge in a research institution contributes to the skill in science communication of the technical staff and its empowerment. The actions to turn science popular through its communication also revealed that scientific knowledge has gained a new value. It should be noted that the process was sustained by the conviction and freedom of each research group to choose to participate. Sponsor Embrapa

Authors: João Eugênio Diaz Rocha – Universidade Federal do Estado do Rio de Janeiro, Brazil

20727 - A SIGHT OF THE LIFE MOLECULE

We describe a workshop entitled “Una Mirada a la molécula de la Vida” (a sight of the life molecule) in which different aspects related to human heritage are put forward trough touch sense using pedagogical materials developed by the “Cascabel” divulgation group of the Facultad de Ciencias of the Universidad Nacional Autónoma de México. The main objective of the workshop is to sensitize society about the blindness and to make available to the blind people scientific information through the proposed activities. The participants in the workshop are shortsightedness and general people. In the activity, each participant gets a box containing 20 pairs of chromosome models and three single ones. All the 20 pairs are different so by touching them the can be differentiated. The eyes of the normal seeing participants are covered with a mask so they can to know the situation of the blond people; at the same time we said about the history and some important aspects about the human heritage.
20538 - AGAINST THE METHOD: COULD THE PHILOSOPHER FEYERABEND CONTRIBUTE TO SCIENCE JOURNALISM?

In my research, I'm examining the relationship between scientific knowledge and traditional knowledge, as well as between conflicting theories of physics to understand how the collaborative environment in journalism could build a more democratic, pluralist and less authoritarian science by means of communication. A question that arises as background is if cyberspace, with its multiplicity, would be capable of changing the scientific orthodoxy, which contributes to the discredit of theories and knowledge always so that new ideas overtake others. Science blogs are changing the way of spreading news, giving scientists and non-scientists the opportunity of being not only the sources, but also the authors of news. However, the increasing use of technology to spread information could be capable of reinforcing the isolation among science and technology areas instead of promoting dialogue between sources and readers. The cyberspace increase access to news production in a decentralized way, but is there room for new theories able to improve the scientific debate? I will present my plan of study and my preliminary hypothesis sustained by concepts of the Austrian philosopher of science Paul Feyerabend to analyze the current situation of science journalism carried out on the internet. Based on Habermas’s “Fé e Saber” (2001) that quotes “the scientific belief that a science which one day will be able to not only to complement but also to substitute personal self comprehension by a self description objectifying, it's not science, it's bad philosophy”, and Feyerabend’s “Adeus à razão” (2010) that quotes that “non experts frequently know more than specialists and should therefore be consulted”. Thus, it's possible to defend the idea that, by means of collaborative journalism in science, we can stimulate the scientific debate, considered essential for science development. This poster is part of an analytical study under development at Labjor-UNICAMP and discusses whether there is room in cyberspace for controversies in science and for the proliferation of conflicts, theories, methods and points of view that are often disconnected from the scientific orthodoxy.

Authors: Bruno de Pierro - Universidade Estadual de Campinas, Brazil

20304 - ALLOWING FOR DIFFERENCES BETWEEN LOW-LITERATES AND LITERATES IN THE DESIGN OF INFORMATIVE PICTURES: PREFERENCES FOR LEVEL OF DETAIL, TYPE OF BACKGROUND, AND TYPE OF FRAME OF ICONS DEPICTING ORGANS

Patient non-adherence to medicines is a major cause of acute hospital admissions that is potentially preventable with targeted patient information. Patient information can be made easier to interpret by use of visuals that are targeted to the informational and perceptual needs of the end-users (Houts, 2006). The use of these visuals has been shown to affect health behavior, for example by depicting the benefits of a therapy for the users, which can encourage motivation to adhere.
According to the literature (see for example, Doak, 1996; Katz, 2006; Dowse, 2011), especially low-literate patients are a vulnerable group for which better targeted information may prove useful. In this paper, a systematic approach to the design and evaluation of icons depicting organs is disclosed. The icons were developed in an iterative process with graphic designers, biomedical, pharmaceutical and communication scientists specialized in visual language. After this process, the icons were presented to future users of such visuals. Using structured interviews, the literacy levels of 191 visitors of a city pharmacy in The Netherlands were determined using Rapid Estimate of Adult Literacy in Medicine – Dutch (REALM-D), after which they were asked to evaluate (1) the level of detail of the depicted organ, (2) the type of background used in that picture, and (3) the type of frame in which the organ was depicted. Results showed that, although there was no significant difference between literate and low-literate participants in their preference for the level of detail or type of background, low-literate people prefer less, or even no, framing. The authors argue that, since literate and low-literate people differ in perceptual preferences, a more interactive design process including those with low literacy levels as active participants would empower them and enhance the quality of the end product.

Authors: Mara van Beusekom – Leiden University Medical Center/Leiden University, Netherlands
Mark Jeroen Wim Bos – The Hague University/Leiden University, Netherlands
Henk-Jan Guchelaar – Leiden University Medical Center, Netherlands
Jos van den Broek – Leiden University, Netherlands

20430 – AN ANALYSIS OF THE SHARES OF SPACES OF SCIENCE AND DIVULGATION OF PUBLIC PARTICIPATION IN THE PORTAL OF THE BRAZILIAN MINISTRY OF SCIENCE, TECHNOLOGY AND INNOVATION (MCTI)

New pages appear on Web daily, addressing issues in Science and Technology (S&T) working in favor of scientific and public understanding and have as its purpose, primarily, the dissemination of scientific communication to the public, comprehensive and wide, promoting a scientific culture, ever closer to society. The Portal of the Brazilian Ministry of Science, Technology and Innovation (MSTI) is the official channel of this government agency on the Internet, making it that way, for his character to report on actions and issues in S&T, considered the initiative of scientific divulgation on web. To understand how the MSTI operates through its government portal, first in regard to scientific publication, some questions were listed for use on site, which will eventually also address aspects that deal with the existence of spaces for public participation in society, precisely because it is a government agency and are highly visible to the general public. It combines electronic services that allow access for many services without apparent concern to contextualize these to access the lay citizen, although there is ample number information pertaining to the Ministry. Few initiatives of accessibility are found in the portal and when they are present, refer to its layout. Finally, we point out that it is not observed attention to user learning, any initiative aiming at scientific literacy or commitment to sustaining a scientific culture to the country. The portal does not demonstrate to enrich the voice from common
or broad questioning and discussion of matters of public interest. In the portal, the space for public participation is scarce and unconvincing, there is no project to guarantee it or encourage it. Interactivity, which would be a step further public participation is non-existent because there is no way of sending society's demands for ministry and immediate return on your part. Thus, it is believed that the standard endorsed by the analysis of portal MCTI reflects how the initiatives of scientific web still present today offer little or no space for participation and interactivity for effective civil society, and, when these channels are provided, are not official and the demands are not brought to the attention of the government or the competent bodies, resulting in no influence and involvement of citizens in decision-making related to S&T.

Authors: Andressa de Almeida França – Universidade Federal de São Carlos, Brazil
Carlos Roberto Massao Hayashi – Universidade Federal de São Carlos, Brazil
Maria Cristina Piumbato Innocentini Hayashi – Universidade Federal de São Carlos, Brazil

20465 – ATTITUDES AND HABITS OF HIGH SCHOOL BRAZILIAN STUDENTS IN RELATION TO EVERYDAY INFORMATION

Much of our habits, values and customs come from our social relations, and they influence on our perception about a certain subject or object. This is explained by Vygotsky's sociocultural theory, which we used as a theoretical basis for our research. In the works of Vygotsky, it is also possible to verify the influence of culture on perception and cognitive development of people. We seek, in this abstract, verify some cultural aspects present in the opinion of Brazilian high school students. Here, part of a larger research will be presented. In this presentation, we will focus on questions about habits and attitudes of students towards reading of information available in their daily lives, such as package insert, food packaging information, equipment manuals, etc. The data collection occurred in the years of 2010 and 2011 and it was held in a capital and in the countryside of the five Brazilian regions. Our interview took place by means of a questionnaire (quantitative) and focus groups (qualitative). In this abstract, we present a question of the questionnaire, but a larger analysis, covering both steps (quantitative and qualitative) and the results of each region, will be presented later in the complete paper. In question 18, students were asked about their behavior in relation to the information available in their day-to-day. The following questions were presented: Do you read package inserts?; Do you read information on food packaging?; Do you check technical specifications/manuals?; Do you follow medical advice when making treatment/diet?; Do you keep yourself informed during an epidemic?. The response options were: Yes, often; Yes, sometimes; and No, never. By conducting an analysis of all students’ responses (national sample) we can highlight that most of the students answered “Yes, sometimes” or “No, never” to all previous questions, except for the question: “Do you keep yourself informed during an epidemic?” which showed a large percentage of “Yes, often”. One of the important points, which may have contributed to such result, is the fact that when some epidemic takes place, the media constantly brings news about the subject,
and once the television and the internet are the major means of information used by young people, it goes without saying that the percentage of students who are frequently aware of this sort of subject is high (involuntary information).

Authors: Raquel Roberta Bertoldo - Universidade Estadual do Oeste do Paraná, Brazil
Marcia Borin da Cunha - Universidade Estadual do Oeste do Paraná, Brazil
Olga Maria Ritter Peres - Universidade Estadual do Oeste do Paraná, Brazil
Angela Camila Pinto Duncke - Universidade Federal do Rio de Janeiro, Brazil
Marcelo Giordan - Universidade de São Paulo, Brazil

20499 - AUDIENCE OF BRAZILIAN STUDENTS IN SCIENCE AND TECHNOLOGY PROGRAMS ON TELEVISION

Perception surveys of science and technology (S&T) are important to analyze how people are dealing with issues related to this subject. In the years of 2010 and 2011 we conducted a survey with young people from the 5 Brazilian regions. The research was conducted in a capital and in the countryside of each Brazilian region. The interviews were conducted in two stages: a quantitative (questionnaires) and a qualitative (focus group). In this abstract, the result of a question with an excerpt from the student’s speech will be shown. In this evaluation, the subject discussed relates to the students’ habit of watching programs that deal with S&T. Table 1: Watch TV programs that deal with S&T

<table>
<thead>
<tr>
<th>Region</th>
<th>Yes, often</th>
<th>Yes, sometimes</th>
<th>No, never</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midwest</td>
<td>13.4%</td>
<td>74.1%</td>
<td>12.5%</td>
</tr>
<tr>
<td>Northeast</td>
<td>18.6%</td>
<td>65.7%</td>
<td>15.7%</td>
</tr>
<tr>
<td>North</td>
<td>17.5%</td>
<td>73.2%</td>
<td>9.3%</td>
</tr>
<tr>
<td>Southeast</td>
<td>14.7%</td>
<td>67.5%</td>
<td>9.3%</td>
</tr>
<tr>
<td>South</td>
<td>13.9%</td>
<td>67.1%</td>
<td>9.3%</td>
</tr>
</tbody>
</table>

By the answers presented in the questionnaire, we can see that watching S&T TV programs is not a priority for the students interviewed. This may be related to the fact that the open TV schedule does not broadcast programs that cover this subject in a primetime, as reported by a student from Brasilia/DF. In addition, the TV programs are superficial, without depth in the subject. E: Who is going to wake up Saturday 6:30am to see a program of science and technology? Q: That really is a problem E: There should have a more accessible schedule (+) Q: Do you think that if Globo Ciência were shown in a more accessible schedule (+) Perhaps (+) Saturday afternoon... you would watch? E: Few people would... ( + ) Q: And you that are young? E: I would... E: If it explains a subject that contains many details (+) it would be good, because there are interviews on TV (+) as it was shown on Globo Reporter /.../ about sedentarism, they did not explain so well this reportage, so, these issues must be well explained (+) to make some things understandable (+) P: They end up making the thing very superficial (+) E: They end up making a poor and superficial reportage (+) only address the issue (+) but do not cover the subject in depth (+) Among young Brazilians who watch S&T programs on TV, we realized that in the north and northeast of the country there is a greater habit of watching this type of program. We also point out that the south and southeast region have the highest percentage of young people who never use this means of information to gain knowledge on this subject.

Authors: Raquel Roberta Bertoldo - Universidade Estadual do Oeste do Paraná, Brazil
Marcia Borin da Cunha - Universidade Estadual do Oeste do Paraná, Brazil
Olga Maria Ritter Peres - Universidade Estadual do Oeste do Paraná, Brazil
Angela Camila Pinto Duncke - Universidade Federal do Rio de Janeiro, Brazil
Marcelo Giordan - Universidade de São Paulo, Brazil
20348 - BIOLOGICAL EVOLUTION AND RELIGIOUS BELIEFS: ATTITUDES OF YOUNG BRAZILIAN STUDENTS

Faculty of Education and Research Nucleus on Education, Divulgation and Epistemology of Evolution “Darwin” – São Paulo University Teaching biological evolution has as object the understanding of concepts constructed along the history of evolutionary biology, but treating evolution as just another common subject being taught is not appropriate. The reason lies in the fact that the evolutionary ideas play a central role in the organization of biological thought, and are indispensable for understanding most of the concepts and theories found in the biological sciences. Despite its relevance, many investigations about the teaching of evolution have considered the limited public understanding about the subject a problem, showing that there is still much to advance the investigation about learning in this field of knowledge (Dagher and Boujaoude, 1997; Bianchini and Colburn, 2000; Alters and Nelson, 2002). This study was to verify the acceptance of the theory of biological evolution of 2,365 High School students from 84 public and private schools from all regions of Brazil and map possible relationships between the attitudes of students about evolutionary theory and their religious beliefs. Data collection was done through the use of an instrument in the form of a questionnaire developed by the project “Relevance of Science Education” (ROSE) where the student is asked to indicate his level of interest in a Likert scale 1–4 on various topics of science. Responses range from “strongly disagree” to “strongly agree”. Results’ reporting that religion is valued by young people participating in the survey say that people are religious and have faith and understanding and believe in religious doctrines. With regard to the acceptance of the evolutionary theory, the data indicates that there seems to be a relationship between religiosity and acceptance of biological evolution. This is an important result, because it signals a break with the absolutist view that the acceptance of evolution is incompatible with religious faith and religious beliefs prevent the acceptance of the evolutionary theory. These results suggest that in the future we can have more flexible population interpretations of religious doctrines and most sensitive scientific issues. Keywords: biological evolution, science education, science and religion.

Authors: Helenadja Mota Rios Pereira - Universidade de São Paulo, Brazil
Nelio Bizzo - Universidade de São Paulo, Brazil
Ana Maria Santos Gouw - Universidade de São Paulo, Brazil

20515 - BRAZILIAN POP MUSIC AS AN INSPIRATION FOR A RADIO SHOW ON SCIENCE AND TECHNOLOGY

The role of music as an instrument for artistic expression of a culture and a society is undisputable. Since science and technology are being rapidly assimilated into the representation of modern societies, its appropriation through musical experience would only be natural. Brazilian music is widely recognized by its richness in terms of sounds and rhythms as well as for the lyrics that bring about fine poetry, although meaningless union of words can also be found. In this work, we analyze some characteristics of a radio show entitled “Rhythms of Science” (Ritmos da Ciência, in Portuguese), which explores Brazilian popular music (MPB) as the inspiration for texts on science and technology. Since 2009 “Rhythms of Science” is broadcast through a university radio station – UFMG Educativa FM,
in Belo Horizonte, Brazil. It is also available on the internet (www.ufmg.br/naondadavida). About five minutes-long, the program briefly evokes a specific song, relating the lyrics or part of it with a scientific subject. The relationship is sometimes evident but eventually the words are just a start point for bringing about curious facts about a theme. Producers are aware that a text of only 1,200 characters will not be enough to explain the complexity of some scientific topics. Nonetheless, this may trigger the curiosity and interest for science in a public that would not usually listen to conventional science shows, especially because there is a link with a cultural or artistic fact. We will explain the steps involved in the production process, including how inspiration is invited into the scene, and how this is intimately connected to the different profiles of producers (mostly undergraduate students from biological sciences or humanities). A preliminary analysis showed that the most frequent themes are zoology, botany and ecology but also included physiology, genetics, physics and astronomy. The link with culture, informality and informative content of the programs are suitable for their use in elementary and high school, the reason why they have been included in educational material for teachers to be used in Sciences and Biology classes.

Authors: Enise Castro Silva – Universidade Federal de Minas Gerais, Brazil
Tatiane Resende – Universidade Federal de Minas Gerais, Brazil
Bárbara Ávila Maia – Universidade Federal de Minas Gerais, Brazil
Adlane Vilas-Boas Ferreira – Universidade Federal de Minas Gerais, Brazil

20585 - CHALLENGES AND STRATEGIES FOR SCIENTIFIC COMMUNICATION AT UNIVERSIDADE FEDERAL DE SANTA CATARINA

This poster aims to discuss the context, challenges and strategies for Scientific Communication developed by Communications Agency (Agecom) at Universidade Federal de Santa Catarina (UFSC). For more than 20 years, Agecom develops several journalistic services and products, in order to communicate, in an accessible language, scientific production of researchers at UFSC. Nowadays, one of the main challenges is uphold this legacy, give greater visibility to the scientific findings, at the same time dealing with the restructuring of Agecom and its limited resources. The strategies adopted can be summarized in the following lines of action: - Produce - investigate and write news stories focusing on science and maintain a database of researchers. - Connect - promoting connection between media and researchers, mapping channels that produce scientific news, establishing partnerships with post-graduate and other research sources. - Organize existing information: curation of news and information already published, creation of newsletters and specific areas for science of the UFSC’s website. - Disseminate - extend the range of informational materials through the website, social media and contact with local and national vehicles. Over the years, the professionals at Agecom have been developing several products and services that support the strategies: - Hot line - a service provided by telephone, suggesting UFSC’ specialists as source of information for the press. - Experts Guide – it’s a PDF guide with the name, research fields and contact information of UFSC's researchers. - Newsletter and website area dedicated to Science Journalism. - Post-Graduation’s information: calendar of admission and defenses. - Press office for scientific
events and collaboration in publishing projects. The main trend is to converge to Internet-based products and services, due to production process constraints, and also as a way to provide updated information and flexible distribution. Summarizing, Agecom has an important role in disseminating scientific information produced at UFSC. Its journalists and media professionals have the responsibility of working as mediators and curators of information and news, and thus building bridges between research centers and society.

Authors: Laura Tuyama – Universidade Federal de Santa Catarina, Brazil
Alita Diana Küchler – Universidade Federal de Santa Catarina, Brazil
Margareth Vianna Rossi Claussen – Universidade Federal de Santa Catarina, Brazil
Moacir Loth – Universidade Federal de Santa Catarina, Brazil
Rosiani Bion de Almeida – Universidade Federal de Santa Catarina, Brazil

20201 - CLIma TE CHaNGE, JOurNa LISm aND NETWOrK CLIma TE: a CaSE STuD y FOr THE rIO +20 CONFErENCE

Public attention on climate change (MCs) is fundamental to the phenomenon something that makes sense to the population. Thus, access and dissemination of news by qualified sources on the subject, become essential to contribute to the education and public understanding of climate challenges and their environmental impacts. This bias, the media fulfills an important social function in the transmission of technical and scientific knowledge to society. Across the Network CLIMATE serves as generate and disseminate knowledge to meet the interests of the country and the challenges of MCs. Subsidize the media with their studies is also the target network. A perfect symbiosis, the result of which is the expansion of access to specialized knowledge to the public. Thus, we aimed to study on the contribution of the network in the diffusion of knowledge to the press during Rio +20 – the UN event, held in Brazil in 2012, with extensive media visibility sustainability. The research has important social contribution to the extent that its result is indicative of the popularity of content with high scientific quality in the areas of vulnerability, mitigation, and adaptation strategies MCs. The empirical corpus study has 36 articles published in the Folha de São Paulo, during Rio +20. The data were selected based on monitoramente materials that contained the expression ‘Rio +20’. Secondly, where the materials were cataloged addressed themes associated with the 13 subareas Network. The research result shows that none of the 36 subjects used the Network researchers. The analysis of the sample indicates that, during the course of the Rio +20, the network had a significant limitation for its popularization of knowledge about the MCs and their impacts, while diffusing information to the press and, consequently, to the general public. Nevertheless, to avoid reductive evaluation of the study, we suggest future analysis from another aspect, that is, the communication process during the construction of the news. The study was funded by CNPq through the subnet Agriculture Network CLIMATE. The research comes from studies in the dissertation on the challenges of coverage of MCs, developed at Post Communications, Federal University of Pernambuco, with support from the Agronomic Institute of Pernambuco. Authors: Roberio Daniel da Silva Coutinho – Universidade Federal de Pernambuco, Brazil
20356 - COMMUNICATION FOR HEALTH PROMOTION WITH DF STUDENTS
This work presents a Fiocruz Brasília’s Communication Advisory’s (Ascom) experience held with 81 students (between 10-11 years-old) from a DF’s public elementary school. The experience has been based on a Dialogical Communication view, inspired in Paulo Freire (1977), and has developed strategies due to health promotion and to a wide health concept. Ascom has dealt with others technical institutional areas to lead games and entertainment activities with the students, in order to make them understand the healthy food’s and environmental and personal care’s importance to a healthier life. The activities have been selected from Health Ministry’s (HM) datas about dengue and child obesity in the school region: Sobradinho II. The information acceptance and assimilation have been observed from a questionnaire answered by the students. The activities have been held on May 27, 2013, in the Centro de Ensino Fundamental (CEF) 07, in Sobradinho II. According to the Health Ministry, Sobradinho was, by that time, one of the most affected by dengue at that region. From January to May, 583 cases of the disease had been notified, as well as a high transmission risk, in an average of 776.73 cases for 100.000 inhabitants. Some games have been held, such as: Health Quiz and Dengue Game, in which players must identify, in a panel, images of places where dengue’s mosquitoes’ larvae can be reproduced. Health Ministry’s datas pointed that 16.7% of the teenagers (from 10 to 19-years-old) were overweight. It has been conducted in the school the game Learn to eat having fun, that simulates a self-service restaurant, with food replicas so the players can serv themselves. Afterwards, there are explanations, lead by nutritionists, about food choises, and healthy food concepts are discussed. Awaited outcomes • To develop, from January 2014, activities related to the health problems of 10 DF’s elementary and high schools. • To verify, by a research, if the methodology answers the project’s goals to, by communication, stimulates the Science popularization and the diffusion of a wide health concept to the school comunity • To use communication tools, such as radioweb, and make it available to the local community, and to share the experiences in the schools.
Authors: Nayane Yuri Taniguchi Cunha – Fundação Oswaldo Cruz, Brazil
Cecília de Almeida Lopes – Fundação Oswaldo Cruz, Brazil
Ana Carolina de Oliveira – Fundação Oswaldo Cruz, Brazil

20648 - CONSTRUCTION OF AN INTERACTIVE SPACE OF LIFE SCIENCES: FINDING A WAY THROUGH THE DIFFICULT DIALOGUE BETWEEN SCIENTISTS AND ARTISTS
Open in 2013, the Interactive Space of Life Sciences is located in the city of Belo Horizonte, Minas Gerais, Brazil. Integrated to the Museum of Natural Sciences and Botanical Garden of the Universidade Federal de Minas Gerais, it represents an innovative environment where technology and art are combined with conventional education tools such as anatomical models of the human body and
The main idea is to mix the scientific content about the human body with the possibility of experimenting the biological functions in games and interactive activities specially developed locally. The team invited to develop the concept of the space included several university professors from different areas of the biological sciences and arts. In this work, we will discuss the difficulties found in the dialogue between scientists from the biological area and arts, who were engaged in the construction of games, videos and installations. The challenge for the biological sciences group was to transpose the scientific contents and concepts for the interactive environments into animated videos, games and interactions produced by faculty of visual arts and technology. The data collected through interviews with the involved artists and scientists will be presented in a juxtaposition to understand their different views on communicating science, in an attempt to contribute for future mediation in dialogues of this type.

Authors: Audrey Ivanenko Salgado - Universidade Federal de Minas Gerais, Brazil
Adlane Vilas-Boas - Universidade Federal de Minas Gerais, Brazil
Camila Megale Leite - Universidade Federal de Minas Gerais, Brazil
Andrea Haibara - Universidade Federal de Minas Gerais, Brazil
Theo Mota - Universidade Federal de Minas Gerais, Brazil
Janice Henriques Silva - Universidade Federal de Minas Gerais, Brazil
Juliana Carvalho Tavares - Universidade Federal de Minas Gerais, Brazil
Gleide Avelar - Universidade Federal de Minas Gerais, Brazil
Mauricio Gino - Universidade Federal de Minas Gerais, Brazil
Wallace Lages - Universidade Federal de Minas Gerais, Brazil
Francisco Marinho - Universidade Federal de Minas Gerais, Brazil
Fabrício Fernandino - Universidade Federal de Minas Gerais, Brazil
Pablo Gobira - Universidade Estadual de Minas Gerais, Brazil

20254 - DEVELOPMENT OF THE ONLINE DATABASE SYSTEM AS A FUNCTION OF SCIENCE COMMUNICATION BETWEEN MUSEUM CURATORS AND MUSEUM USERS

We consider that museum curators are one of the scientists who should have the science communication skill which leads to some sort of social inclusion. This presentation introduces an online database system which can help science communication between museum curators and the public. It is called “Science Literacy Passport β” and is part of our ongoing research project which started in 2012 at National Museum of Nature and Science, Tokyo (NMNS). There are two purposes of the above-mentioned research. One is to establish the museum utilization model in which science literacy is fostered in the knowledge circulating society. Another one is to establish an interactive lifelong learning system as a new museum function. “Science Literacy Passport β” system was launched in July 2013 with 17 partner institutions including NMNS (as of August 2013). The alliance is composed of Japanese domestic museums in five areas and a science center abroad to achieve science communication nationally and internationally. Briefly speaking, museum curators input the data of their educational programs into the database using a common framework which was proposed in the conference of PCST 2010 (Ogawa et al., 2010). The data is shared between not only museum curators but also the museum users who have a special card called PCALi. PCALi is
short for Passport of Communication and Action for Literacy. This card is scanned when taking part in the program at museums and the personal learning history is recorded on the system. In addition to that, surveys of each program are held online and museum curators can receive feedbacks from the participants to run better programs or to develop new ones. This helps the curators to learn from each other. Finally, museum users themselves can share their thoughts between each other by leaving comments on each program’s page. Overall there are three ways of communication: 1) between museum users themselves; 2) between museum curators themselves; and 3) between museum users and curators. This system will be carried until the beginning of 2016. To enrich the database, we are trying to collect and develop programs related to the local community's current affairs. Fukushima, which is in one of the five areas of our alliance, has museums that run outreach programs about radiation. Examples like this will be explained together with the system itself.

Authors: Yoshikazu Ogawa – National Museum of Nature and Science, Japan
Motoko Shonaka – National Museum of Nature and Science, Japan
Mika Matsuo – National Museum of Nature and Science, Japan
Tsutomu Okada – Fukushima University, Japan

19905 - DISSEMINATION AND VALUATION OF ASTRONOMY IN CHILE
The Region of Antofagasta, Chile has natural geographical features that transformed it into an astronomical heritage recognized worldwide. The Paranal Observatory on Cerro Paranal and the Large Millimeter Array Atacama ALMA, have settled in this area and provide a numbers of opportunities that aim to the development of Chile. Unfortunately these potentialities are not being used. It becomes important to strengthen an astronomical culture necessary to create awareness of the economical and cultural opportunities that this science can provide to the development of the region. In this sense, the media is able to make many contributions and changes considering that they are the most powerful information tool, its influence is global, it is highly related to the citizens, and also the media is a key player in the information society. Therefore the objective of this research is to establish the valuation that the media, academic, social and political leaders of the Antofagasta Region in Chile have of the astronomical potential for cultural and economical development and its further dissemination.

Authors: Teresa Vernal – Universidat Pompeu Fabra, Spain

20622 - DIVERSE PERSPECTIVES OF SCIENCE COMMUNICATION IN INDIA AND BRAZIL: A CASE STUDY
The paper presents a comparative analysis of diverse perspectives of science communication patterns emerging from the experiences gained through “India-Brazil Knowledge Network”, that offers a dialogue on public communication of science, technology, culture and society in two countries. The paper explores a common ground from different fields to evolve science communication truly as an interdisciplinary area with equal participation and contribution of scientists and specialists from different sectors, i.e, scientific, technological, communication, cultural, and social. The lessons learnt from the dialogue form part of present
study that suggests a steady progress to bring together common platforms of interactions and expressions. The first in the series “Sharing Science” is a monumental document of valuable contributions from scholars of India and Brazil. A yet another voyage of “Sharing Science: Science and Art Dialogue” is in the making that covers a wide range of contributions of scholars from two countries combining sciences and arts. The plurality and commonality of their needs, concerns and challenges offer opportunities for both the giants to joining hands and synergizing efforts in the area of science communication. A combination of creativity driven science and media has been able to lay down foundations of rich initiatives. If scientific literacy implies disseminating knowledge of science, its wonders, scope, application, etc., then perhaps in Indian and Brazilian context ‘scientific and technological temper’ has more meaning and relevance. What we should be looking for that our populations at large should develop a scientific outlook rather than being told about facets of science alone that allows informed and logical application of science and elimination of superstitions and ignorance. The study reveals that an organic approach has taken shape and making inroads. India and Brazil are poised with many challenges that offer opportunities and possibilities. A comparative study suggests that Brazil generally follows a western model of public communication involving “the science museums, planetariums, exhibitions, lectures, audio-video media and high-end technological application” approach, whereas India focuses on “folk forms, Vigyan Jatha, print and visual media, road-shows, and people’s involvement” approach. The study may help “India–Brazil Knowledge Network” dialogue to workout commonalities in current approaches and evolve a common approach.

Authors: Manoj Kumar Patairiyia – National Council For Science & Technology Communication, India
Maria Inês Nogueira – University of Sao Paulo, Brazil

20502 - DO BRAZILIAN STUDENTS READ SCIENTIFIC DISSEMINATION MAGAZINES?
In the years of 2010 and 2011 we developed a survey that examined the perceptions of science and technology (S&T) of Brazilian high school students. The study was based on Vygotsky’s sociocultural theory, which indicates that culture influences perceptions. One of the points analyzed in the survey was the search of students for magazines covering topics related to S&T. The sample was composed of students from capitals and from the countryside (one per region). In each city we interviewed students, from 2 classes in 2 schools, using quantitative (perception questionnaire) and qualitative (focus group) methods. The covered subjects corresponded to themes related to S&T. In this paper, we present the analysis of the question 4 from the questionnaire, in which students should decide on the type of magazine they read most often. Only the percentage of magazine readers, dealing with science and technology, and those who do not have the habit of reading any sort of magazine is shown. Other options were, for instance, life of famous people, sports, etc. Table 1: What sort of magazines do you usually read most often? Midwest Northeast North Southeast South Ecology/Environment/Nature 2,3% 5,0% 5,1% 3,0% 3,6% Scientific Dissemination 2,8% 1,3% 1,9% 6,5% 12,7% None/I don’t read magazines 14,8% 13,2% 21,0% 12,6% 19,3% By analyzing
the data we can highlight that scientific dissemination (SD) magazines have low percentages of reading by students. However, the southern region achieved a higher rate (12.7%) compared to other regions, in other words, this percentage is approximately twice the southeast region, which is more than double from other regions. In this sense, it seems obvious for us the cultural influence of each region in the formation of habits and access to means of dissemination of science. The ecology and environment magazines also had a lower percentage of reading; the north and northeast regions had the highest percentage, but no more than 5.1%. A high rate of students do not read magazines, and the highest percentages are found in the northern and southern regions. Further reading data will be presented in the complete article, through the speech of students during the focus groups. We realize that, even with the wide variety of SD magazines and journals available, including online editions of easy access, read about science is not an act performed often by Brazilian students.

Authors: Raquel Roberta Bertoldo – Universidade Estadual do Oeste do Paraná, Brazil
Marcia Borin da Cunha – Universidade Estadual do Oeste do Paraná, Brazil
Olga Maria Ritter Peres – Universidade Estadual do Oeste do Paraná, Brazil
Angela Camila Pinto Duncke – Universidade Federal do Rio de Janeiro, Brazil
Marcelo Giordan – Universidade de São Paulo, Brazil

20352 – ENERGY SOURCES: THEME FOR SCIENCE EDUCATION
This poster describes the experience of a research on the topic of energy matrices carried out by high school students. The proposal was to use the theme energy matrices to conduct an interdisciplinary study on sources of electricity, addressing technical, historical and environmental aspects. It was intended through the chosen theme to relate science content covered in high school with the said theme with regard to matters of industrial development, new technologies and environmental impacts. The specific forms of electricity generation under study were: hydroelectric, thermal, wind, solar photovoltaic and heliothermic energy. The discussion of energy matrices is directly related to the impacts generated by different forms of electricity generation. The emission of gases that cause the greenhouse effect by power plants and the environmental demands of hydroelectric power plants configure contemporary issues that should be present in any discussion on development strategies, since these two sources are characterized as the main forms of generating electricity today. Meanwhile, renewable energy such as solar photovoltaic and wind, are structured today as viable sources from the technological and economical standpoint. Several authors as Mortimer (2002), Bazzo (2007, 2011), Delizoicov (2009) and Chassot (2003) advocate the application of the STS approach in the development of science education in primary and secondary education as a way to enhance the educational process. The proposed STS approach in education is to study scientific contents of physics, chemistry and biology from technological applications and impacts generated by such applications, using general themes (water, waste, pollution, energy) as catalysts in the educational process. The study of the characteristics of technology for generating electricity occurred through the linking of educational content with technological applications, taking as reference the analysis of environmental and
social impacts. The implementation of the project consisted on the preparation of the demonstrative models of the themes, being those an artistic model and a technical scale model. The public communication of the project involving Science and Technology took place through participation in school fairs, conferences on energy and events promoting science and technology.

Authors: Giovani Zanetti Neto – Universidade Federal do Espírito Santo, Brazil
Maria das Graças Ferreira Lobino – Instituto Federal do Espírito Santo, Brazil
Laércio Ferracioli – Universidade Federal do Espírito Santo, Brazil

20375 - EVALUATION OF DISSEMINATION STRATEGIES OF NATIONAL INSTITUTE OF SCIENCE, INNOVATION AND TECHNOLOGY IN HEALTH

The dissemination of scientific knowledge is important to the democratization of knowledge within a society reducing inequality. It is critical that researchers act for broaden the dialogue with society. Founded in 2009, the National Institute for Science, Innovation and Technology in Health (Citecs) is based at the Public Health Institute of the Federal University of Bahia and was created with the objective of establishing a research network and to promote the dissemination of knowledge to society. Citecs is part of the National Institutes of Science and Technology Program, initiated by the Ministry of Science and Technology of Brazil. This study aims to evaluate the Citecs´s actions and science dissemination. Methodology: It is a case study divided into two stages. In the first one, we analyzed the releases produced by Citecs and articles published from June 2011 to June 2013. Frequencies were calculated using SPSS 11.0. The second stage of the study examined the dissemination strategies through interviews with researchers.

Authors: Marcelle de Oliveira Cardoso – Universidade Federal da Bahia, Brazil
Luis Eugenio Portela Fernandes de Souza – Universidade Federal da Bahia, Brazil
Chandra Lima Maciel – Universidade Federal da Bahia, Brazil
Mariana Adeodato Alves de Souza – Universidade Federal da Bahia, Brazil

20685 - EXHIBITION: SCIENCE COMMUNICATION THROUGH COMICS AND CARTOONS A NEW PERSPECTIVE IN THE FIELD OF PUBLIC COMMUNICATION OF SCIENCE AND TECHNOLOGY

Little is known about the use of comics and cartoons for communication of science and technology. Universidade de São Paulo, Brazil, hosts at Faculty of Communication (ECA-USP) the Comics Observatory where is offered a graduate program on comics- http://observatoriodehistoriasemquadrinhos.blogspot.com.br. Yet, even in this research center there are not, until this moment, studies related to the public communication of science and technology using comics and cartoons. By October, 17-20, 2011, Universidade de São Paulo hosted a bi-national (Brazil-India) symposium and a workshop on public communication of science and technology: Building Knowledge Networks Brazil-India, when it was organized, by Teixeira, a parallel exhibition of science’s comics and cartoons: “Communicating Science Through Comics and Cartoons”, with works of two Brazilian cartoonists, Sthar-Mar Vasconcelos (Universidade Federal de São Paulo), João Garcia (Institute for Technological Research of the State of São Paulo) and works of the scientist and Indian cartoonist, Pradeep K. Srivastava (Central Drug Research Institute, Lucknow, India). This exhibition was also organized, by
Teixeira, on 9th International Conference on Hands-on Science (Antalya, Turkey). By August 2011, ECA-USP hosted the “First International Symposium of Comics” (Jornadas Internacionais de Histórias em Quadrinhos). A second edition of this Symposium was led in August 2013. In 2011 International Symposium, Teixeira presented the results of a bibliographic research on PubMed database about the uses of comics and cartoons to health communication and an analysis of comics and cartoons published on “Jornal da Paulista”, the newspaper published by the communication office of the Universidade Federal de São Paulo from 1987 to 2003. In 2013 Second International Symposium, Teixeira presented the science comics and science cartoons of the Brazilian cartoonists Garcia and Vasconcelos. This poster presents introductory information on the possibility of using comics and cartoons in the public communication of science and technology. KeyWords: Comics, Cartoons, Science Communication, Media Social

Authors: Carlos Antonio Teixeira - Universidade de São Paulo – Centro Universitário Adventista de São Paulo, Brazil
Pradeep K Srivastava - Central Drug Research Institute, India
Sthar-Mar Vasconcelos – Universidade Federal de São Paulo, Brazil
João Garcia – Instituto de Pesquisas Tecnológicas, Brazil
Paulo Rogério Gallo – Universidade de São Paulo, Brazil
Maria Inês Nogueira – Universidade de São Paulo, Brazil

20734 - FAMILY ENGAGEMENT IN LIVE ANIMAL TOUCH-TANKS AND NATURAL TIDEPOOLS: LINKS TO LEARNING AND CONSERVATION DIALOGUE

There is a large body of research that focuses on museum interactive science exhibits as rich places for learning (e.g. Gutwill and Allen, 2010). Some studies have demonstrated increasing efforts to justify the overall value of visitor experiences within U.S. Zoos and Aquariums in particular (e.g. Falk et al. 2007; Fraser & Sickler 2009). Although there is limited research on the impact of live animal encounters, the few studies point out that such exhibits can be rich settings for learning science. Furthermore, there is a general belief that touching and/or interacting with live animals facilitate affective reactions of care, therefore helping create conservation awareness. Conservation then becomes an important topic within science museums, aquariums and other institutions alike. Research shows that AZA (Association of Zoos and Aquariums) accredited venues in North America measurably impact conservation attitudes and understanding of adult visitors. The impact of live animal interactions on visitors’ conservation attitudes has been investigated in many studies with inputs for research in education, psychology, sociology, cultural studies and tourism, most pointing to positive correlations, at least to some degree (e.g. Ballantyne et al., 2007; Falk et al., 2007; Hughes, 2011; Kisiel et al., 2012). In regards to public ocean literacy, aquariums and marine science centers play a pivotal role in education efforts, by offering the public the opportunity to engage in marine science learning and fostering visitor-animal interactions that can promote conservation attitudes. The proposed poster session will illustrate preliminary results from my research project to investigate families’ discourse and action while engaging in activities at the live animal touch-tank at
Hatfield Marine Science Center (HMSC) and at the Natural Tidepools at the Oregon coast. The goal is to triangulate inferences about their scientific learning outcomes and examine possible correlations between this type of activity and promotion of conservation dialogue as prompted by the settings' affordances. The multimodal analysis of families' engagement will place the activity as the unit of analysis. Mixed methods will be employed, including in-person and video observations, on-site surveys and interviews. Possibly, this project will be replicated during a second phase at a similar informal education setting in Brazil, where touch-tanks have increasingly become very popular.

Authors: Susan O'Brien – Oregon State University – Oregon Sea Grant, United States
Shawn Rowe – Oregon State University – Oregon Sea Grant, United States

20387 – FILM AND SCIENCE: AN ANALYSIS OF THE STEREOTYPES PRESENT IN THE CHILDREN’S FILM FRANKENWEENIE, TIM BURTON

Children’s films are part of the universe and the daily lives of children. Far from constituting impartial and neutral in their representations, they are full of meanings and discourses that influence the constitution of the child, collaborate to the formation of contemporary identities of children, support new forms of representation and produce other cultures, establishing itself as authentic archetypes of social prestige in a society that focuses on culture media. This article aims to analyze, in the light of cultural studies, the film Frankenweenie. Produced by Disney, directed by Tim Burton and written by John August, Frankenweenie is a stop-motion animated film that has duration of 87 minutes and that was filmed in black and white. The film tells the story of Victor Frankenstein, a small scientist who loses his dog Spark in a car accident and after de loss decides to resurrect the animal through a scientific experiment. The main objective of this article is to analyze how the processes related to the marking of gender identities and reinforcement of stereotypes associated with scientists and scientific practice are present in Frankenweenie. For example, women represented in the film appear always associated to domestic activities. The only woman who occupies a position in the labor market and in the scientific universe is a substitute teacher of science. However, she is presented in a negative way, being characterized as bad scientist. Burton also reinforces stereotypes of scientists through the characterization of Victor and his science teacher. Both are portrayed as lonely, self-centered, endowed with superior intelligence and misunderstood by the common people. The methodology applied to this article will be the content analysis, a method characterized by using a set of techniques that attempt to describe and interpret communication contents. Through content analysis, it is expected to understand the messages in the film and analyze it on a deeper level, interpreting the meanings present in Frankenweenie. This study will allow the crossing of discourses on science to the field of scientific divulgation, showing that cultural production can be excellent sources of research on cultural studies of science.

Authors: Graziele Scalfi – Universidade Estadual de Campinas, Brazil
Maisa Maryelli de Oliveira – Universidade Estadual de Campinas, Brazil
**20668 - FUNNY SCIENCE IN THE NEIGHBORHOOD**

Funny Science in the neighborhood is a Program of the Science Faculty (UNCPBA-Argentina) in cooperation with the Municipality of Tandil. It is a temporary ‘hands-on’ exhibit that makes a tour for neighborhoods of the city, generating interest in science, among people of all ages and backgrounds, by the presentation of devices and demonstrations, mainly physics, carefully chosen to be entertaining as well as educative. At present it has almost 60 interactive modules with hands-on experiments; the work-team is integrated by scientists, teachers, technicians and students from the Faculty. It intends to promote the diffusion and popularization of science and technology to the general public, but is primarily aimed to people who live in underserved communities. Between 2012 and 2013, we carry out 14 exhibitions, with about 500 kids among others, in each one. A science interactive exhibition bases its strategies on the visitors actions, providing activities, experiences and devices to interact with, questioning and wondering, discovering not only features of the world that surrounds it, but also their ability to find answers. This encouraging process, that provides ways for discover and develop skills and knowledge, contributes to empowerment and make of these places an optimal tool to improve the quality of life of the most vulnerable sectors of society breaking down barriers socio-economic, gender, disabilities, of age. The scientific experiences in the exhibition do not distinguish between the public. The interactive exhibition as a “public space” is full of meaning, but it is essential to develop strategies to approach those for which it is especially directed, since their condition of vulnerability and exclusion, not naturally favors their assistance. It is thus necessary to conquer new scenarios, where the citizen lives, providing relevant information and making socially stimulating activities that encourage attendance, participation and ownership. So we go to the neighborhood!!! In practiced, the exhibition is established for a week in each one. Previously we visit the place, connect and talk with teachers and neighborhood representatives, to gather information about the target audience, which is very broad in terms of ages and interests. This presentation aims to communicate and share the experience gained over this time. The identification and analysis of the successes and weaknesses, allow us to infer strategies to improve and strengthen the action.

Authors: María Luján Castro – Universidad Nacional del Centro de la Provincia de Buenos Aires, Argentina
Ana Laura Echegaray – Universidad Nacional del Centro de la Provincia de Buenos Aires, Argentina
Marisol Martínez – Universidad Nacional del Centro de la Provincia de Buenos Aires, Argentina

**20580 - GENETIC COUNSELLING IN THE BRAZILIAN PRESS: BETWEEN THE STATE’S BIOPOLITICS AND THE INDIVIDUAL CHOICE**

Our work analyses how journalism covers the genetic counselling (GC), a way – developed from technoscientific advances in molecular biology – of assessing the occurrence or risk of occurrence of genetic disorders in specific individuals, their families and future descendants. The “non-directiveness” is one of the most
emphasized principles in the contemporary practice of GC: from objective and impartial information each patient freely – and responsibly – takes “informed decisions” (having children or not, adjusting his diet, changing his lifestyle...). We are interested in evaluating how these phenomena are portrayed by the brazilian press; more specifically, we aim to identify, through textual and content analysis, which actors (public authorities, scientists and patients, for instance) are involved with the processes of GC and what sort of engagement is this (which mechanisms of legitimation or invalidation they employ at the discursive level, how they bargain their interests, position themselves regarding scientific controversies and ethical and political conflicts, what are their expectations concerning the new technologies in the field of genomic medicine, how they perceive genetic tests offered directly to consumers, etc.). 55 reports were gathered, corresponding to the period from 2000 to 2012 and collected in the following media: “Folha de São Paulo”, “O Estado de São Paulo” and “G1”. The research was conducted with the software QDA Miner, which facilitated the semantic and content analyses, and also the use of advanced statistical tools. Our results suggest that, at the level of representation and public discourse, GC takes place in a context in which, on the one hand, it is up to citizens the individual health care and the management of their own risks and their family's risks. On the other hand, it would be the responsibility of the State to regulate the practice of GC in controversial cases, as well as to manage the risk factors related to the population. Thus, aware citizens, provided with technoscientific information, engage themselves in disease prevention and in optimizing health, while State and experts intervene in the moral dilemmas, scientific controversies and in the calculation of risks to society. Therefore, GC would be quite distinct from the eugenic policies of the early twentieth century, in which states coercively disciplined individual conduct and regulated population to promote the “improvement of the human race”.
Authors: Bruno Lucas Saliba de Paula – Universidade Federal de Minas Gerais, Brazil
Yurij Castelfranchi – Universidade Federal de Minas Gerais, Brazil

20489 – HOMELESS PEOPLE GO TO UFRGS PLANETARIUM
Science divulgence, interdisciplinarity and accessibility represent great challenge to anyone who works with Science education. Probable the most important ability to be developed by researchers who communicate Science is to simplify the scientific language and to incorporate interdisciplinary concepts without generate misconceptions. Even more difficult is to present and discuss scientific knowledge with disable people or people who live in social vulnerability conditions, like the ones that live without a roof over one's head in the big cities. The Planetarium of Federal University of Rio Grande do Sul (UFRGS), in the south of Brazil, in order to celebrate the National Science and Technology Week, offers to homeless people planetarium sessions about the Solar System and many others astronomical contents. The program presented is followed by free discussions about themes they are interested in. Someone are: why the sky is blue; how one can identify planets in the dark sky; why there are Moon Phases; why some constellations can be observed at night in the summer but do not in the winter; and so on. One can affirm that, when homeless people have opportunity to learn Science
in educational places like a Planetarium or Museum, they fell much better with themselves and they become a little bit more active. Science divulgence may help the promotion of the social inclusion.

Authors: Maria Helena Steffani - Universidade Federal do Rio Grande do Sul, Brazil

20316 - IMAGES OF KNOWLEDGE

Images of Knowledge is a project that uses scientific images to communicate science for a broad public. The images are chosen among many generated from research and other academic works by professors, students and staff of the Federal University of Minas Gerais (UFMG). Images may derive from several sources such as microscopes, softwares, drawings, photographs and graphics. Although the image itself is the trigger for the communication of the scientific object, the project involves production of TV spots with the researcher which are made available through a website (www.ufmg.br/imagensdoconhecimento). All images are explained by a caption and short texts in a section referred as “More on the topic” which provides more details on the research in focus. Since the project is carried out in a sector linked to the University Center of Communication (Núcleo de Divulgação Científica - NDC - i.e. Center for Scientific Dissemination) the images can be used to represent the institution and has been used in the past in the University calendar, postcards, bookmarks, and a photographic exhibition entitled “Images of Knowledge”. In this project, undergrad students from a variety of fields such as Social Communication, Film and Animation, and Product Design are in touch with distinct sectors within the Center of Communication, where the NDC is located. Everywhere, theory and practice are brought together into activities involving audiovisual and content production and editing, graphic creation, text writing, and the use of other web tools. Since it embraces research projects from various fields, it is interdisciplinary in character. Students’ daily experience connects embracing of scientific knowledge, dissemination of research results and a close relationship with local community. The project has contacted some researchers to talk about their contribution to science. We will be presenting the contribution that the project gives to create a culture of science popularization among researchers of the University. Although the video spots created are broadcast in the University cable channel and video channel (UFMGTube), there is a difference from the programs produced especially for the TV. The implications of constructing this methodology will be discussed.

Authors: Adriana Aparecida Lemos Torres - Universidade Federal de Minas Gerais, Brazil
Ana Paula Domingos Vieira Pahlevan Nejad - Universidade Federal de Minas Gerais, Brazil
Leonardo Chalub - Universidade Federal de Minas Gerais, Brazil
Josué Benvindo Santana de Oliveira - Universidade Federal de Minas Gerais, Brazil
Cinthia Campos Procópio - Universidade Federal de Minas Gerais, Brazil
Ana Carolina Gomes Silva - Universidade Federal de Minas Gerais, Brazil
Clara Vasconcellos de Castro - Universidade Federal de Minas Gerais, Brazil
Pedro Mol Arreguy Diniz - Universidade Federal de Minas Gerais, Brazil
Glaucia Faria Rodrigues da Silva - Universidade Federal de Minas Gerais, Brazil
20602 - INTERNATIONAL SCIENCE COMMUNICATION – INTRODUCING A NEW APPROACH
The international German university of Rhine-Waal is starting a degree programme on International Science Communication in autumn 2014. The curriculum is explicitly transdisciplinary, consisting one half each of the basics of all the main natural and economic sciences, as well as the theory and practice of science journalism, PR, and political communication. A transcultural perspective will allow for a comparative approach towards the different science systems, media landscapes, societal issues, attitudes towards science and technological change, as well as different political cultures. We therefore expect the 3-year programme to be the first of its kind worldwide. It is going to be taught entirely in English, will involve several work placements, a compulsory semester abroad, and will be tuition-free also for Non-German and even Non-European students. The only entry barrier (apart from outstanding language skills) will therefore be talent, potential and motivation of the applicants. Didactically the course will make extensive use of experience-based blended-learning concepts. Considering the innovative character of the study programme we would very much like to discuss the pros & cons of the curricular outline with the PCST community, in Salvador, and establish international cooperations for student exchange and joint research projects.
Authors: Alexander Gerber – Rhine Waal University, Germany

20290 - KNOWLEDGE PLATFORM: INVOLVEMENT AND PARTICIPATION OF THE COMMUNITY IN HEALTH PROMOTION ACTIVITIES AND KNOWLEDGE PRODUCTION – WORKSHOP OF CORDEL’S LITERATURE
The development of new strategies for collective investigation, as the actions of science popularization are essentials tools for health promotion, to improve the life quality of the population and therefore the control of diseases and health questions. One of the projects developed by the Laboratory of Clinical Epidemiology of the Institute of Clinical Research Evandro Chagas /ICREC is the “Knowledge Platform”, with the objectives to develop socio-educational and cultural actions for the interest of the collective about the importance between science, health and the environment, creating educational tools that facilitate the participation and involvement of the community. One of the suggestions of the association of patients of ICREC was the realization of a workshop about Brazilian literature, as a way to rescue and value the Brazilian culture. We choose Cordel’s Literature, popular poetry printed and published in illustrated brochure and has its origin in the songs of the medieval Portuguese troubadours, commenting on the news of the time using verses. In the workshop, was used the brochure “ABC of Leishmaniasis” as an example, for being one of the diseases treated at ICREC and was conducted with 12 participants (patients, relatives/riends and workers of ICREC) and involved the reading/construction of their own verses. Three groups were formed and the participants produced their verses about experiences in health. We conduct an event on 08/22/2013, the day that commemorates the
Brazilian Folklore, with about 50 guests from the inside and outside of ICREC. The President of the Brazilian Academy Cordel’s Literature was invited to hold a lecture. We also performed one sieve, a typical circle kind of dance that came from Portugal and established roots in Brazil. All workshop participants, teachers and elementary students in a public school and other guests attended the sieve in the gardens of ICREC to the sound of the Folkloric Group. There was also an exhibition of the collection provided by the Brazilian Academy Cordel’s Literature containing string arrays and woodcuts at Plaza of Oswaldo Cruz/ICREC. Our initiative has contributed to the production of new knowledge, a way to improve the quality of life, enhancement of self-esteem, and social inclusion of individuals. This exercise of citizenship joins the understanding that health promotion is, ie, a form of objectification of fundamental human rights.

Authors: Michele Aparecida da Ferreira Moreira de Oliveira – Fundação Oswaldo Cruz, Brazil
Eloisa Leal da Hora – Fundação Oswaldo Cruz, Brazil
Dinair Leal da Hora – Fundação Oswaldo Cruz, Brazil
Luciana Collier – Fundação Oswaldo Cruz, Brazil
Michele Machado Meirelles de Barros – Fundação Oswaldo Cruz, Brazil
Maria de Lourdes Benamor Teixeira – Fundação Oswaldo Cruz, Brazil
Maria Isabel Fragoso da Silveira Gouvea – Fundação Oswaldo Cruz, Brazil
Odilio de Souza Lino – Fundação Oswaldo Cruz, Brazil
Claudia Teresa Vieira de Souza – Fundação Oswaldo Cruz, Brazil

20626 – LITERATURE OF SCIENCE FICTION AS A TOOL FOR DISSEMINATION IN THE SCIENCE CLASSROOM

The legacy of science to society has always been very contradictory and varied. Currently, science can be seen as the beginning of a better world, but also as a research area potentially dangerous. Through science fiction literature, we show how science and technology can express public concerns over its potential negative impacts, and secondly, the excessive optimism regarding their results, leading to a form of representation of the aspirations of society. This type of literature deals with the hopes and fears generated by scientific discoveries and portrays the images and myths about science itself, thus representing a good source of discussion within the school. In this paper, we propose a guide for the implementation of the literary “Player Number 1 ” by Ernest Cline (2012 ), as a teaching tool to be used in the classroom by the science teacher in high school classes. The book has the characteristic of being a futuristic science-fiction, showing points of current technological world. This guide for the development of pedagogical proposal includes a preparation class, a presentation on the book to stimulate their reading, and then the presentation of excerpts that should be worked with students highlighting selected topics. The aim is that students are led to reflect on the moral and ethical aspects of the application of scientific knowledge, based on the reading and discussion of excerpts from this book, focusing mainly on one of the cross-cutting themes: environment. Taking as an example the words “… All burning fossil fuels led through a ugly side effects , such as increasing the temperature of our planet and the change in the environment. So now the polar ice caps are melting, sea levels are rising and the weather is all...
messaved up. Plants and animals are dying in record numbers, and many people are starving, without a home." Thus, the proposal will have to be applied to stimulate reflection, combining reality and fiction to students’ everyday lives, enriching way of methodological possibilities available to the classroom. To finalize the proposal prompted students to answer a questionnaire in order to assess what they think of the use of science fiction books in the classroom as a teaching, which will later be evaluated.

Authors: Danielle Cristina Duque Estrada Borim – Centro Federal de Educação Tecnológica Celso Suckow da Fonseca, Brazil
Marcelo Rocha Borges – Centro Federal de Educação Tecnológica Celso Suckow da Fonseca, Brazil

20385 – MEDIA AND THE DEAF COMMUNITY: PERSPECTIVE OF A MEDIA ADAPTED FOR THE DEAF COMMUNITY ACCESS TO SCIENTIFIC DISSEMINATION

Deafness is an invisible disability that is not perceived by society in general. There are no pairs of glasses, the wheelchairs, identifying it. In addition, the deaf population has approximately six million Brazilians. Faced with the social relevance of this population and the advancement of the process of science communication in Brazil, operating in an increasingly interdisciplinary, critical for increasing appreciation and understanding of science by society, the study of my dissertation at the Post-undergraduate Biological Chemistry, sub-area Education, Management and Dissemination in Biosciences, completed in August 2011, was based on the following question: the process of science communication reaches the deaf? Before we realize the importance of knowing them as readers of informal information, ie the media after questioning their knowledge within the sciences. For the study of the thesis, we intend to explore more articles attesting that a guided reading and adapted arouses the interest of the deaf in learning the Portuguese language and consequently of Sciences. We will investigate how to adapt the print media in Portuguese literate deaf readers on a visual–spatial language and how this collaboration interfere in the formation of scientific knowledge of those deaf. The goal is to find what the best media approach adapted to inform the young deaf. Create a fortnightly supplement adapted for reading literacy in deaf Libras (Brazilian Sign Language) involving, among other news, better dissemination of science for this population.

Authors: Roberta Savedra Schiaffino – Universidade Federal do Rio de Janeiro, Brazil

20438 – OPINIONS, INTERESTS AND ATTITUDES OF YOUNG BRAZILIAN IN FACE OF SCIENCE: AN EVALUATION IN NATIONWIDE

The disenchantment of students in science education and career in science has led to a movement in the academic field in favor of listening to what students have to say about their science classes, their scientific topics of greatest interest and its position against several issues related to science and technology. One of these movements is the project The Relevance of Science Education (ROSE), based at the University of Oslo, and implemented in more than 40 countries. In Brazil, ROSE was first applied in 2007. From the first observations with the ROSE, there was the need to know what are the interests, preferences and attitudes of young
people towards science and technology nationwide. Thus, the research described here aimed to implement the ROSE project in Brazil in a nationally representative sample, consolidating the profile of Brazilian youth in relation to science and technology and discuss how the comprehension about the relevance of Scientific knowledge for young people can influence the teaching of science being presented nowadays in schools. The research, which is essentially quantitative, lies within the field of educational assessment and used as tool for data collection a closed questionnaire with 245 items whose answers are expressed in a Likert scale of 4 points. The study sample was drawn through a stratified sampling by 26 states and the Federal District with proportional allocation, having as sampling universe the sample of the Programme for International Student Assessment (PISA) in Brazil in 2009. In all, 2365 students participated in the survey, coming from 84 schools located in all Brazilian states. The data reveal that the Brazilian, in general, has great interest in the scientific topics covered in school. Among these, the ones that arouse their interest are those related to the human body. Regarding the position of young people with environmental challenges, we consider that the Brazilians have predictive attitudes of positive environmental behavior. In relation to science school, the young Brazilians consider discipline interesting, although not having preference for it over other disciplines. There is a positive relation to the general subject, both with respect to its importance as to its usefulness. Although they showed interest in science education, both boys and girls have low interest in joining a scientific career. We also observed that young Brazilians have a generally optimistic attitude towards science and technology.

Authors: Ana Maria Santos Gouw – Universidade de São Paulo, Brazil
Nelio Bizzo – Universidade de São Paulo, Brazil

20346 – ORGANIZATIONAL IDENTITY AND THE CHALLENGE OF A SCIENTIFIC DISSEMINATION TOWARD SOCIAL INTEGRATION: SITUATIONAL ANALYSIS OF THE ACTIONS OF A RESEARCH UNIT

The spreading of the science in Brazil has had a history of difficulties. The first and timid initiatives date from the twenties and thirties, and aimed at the public authorities' awareness with the only purpose of creating scientific institutions and enhance the good practices of researching. The early 21st century was marked by the expansion of actions related to the dissemination and popularization of the science, such as the creation of museums and scientific centers, expanding number of magazines and books publications, social network web pages about scientific themes, specialized journalism and, above all, public policies to foster social integration through the acquisition of scientific knowledge. Nonetheless, only a small portion of Brazilian people has access to the science produced in Brazil. The present study was aimed at leading to reflection on the development of actions linked to the promotion of scientific activities at the research unit facility under study, and the difficulties in publicizing the science which would benefit the social integration and a strong political commitment. It is believed that the greater difficulty lies on the institutional structure, created with basis on the science centers profiles in the early decades of the twentieth century, which are those that prioritize the researching and the assistance to the core activities researchers, relegating the dissemination into the background with
less importance. For this study, it was used the Action Research method, having started with a situational analysis of the ongoing activities at the institutional unit, defined as the master plan goal. This first step allowed to point out issues involving the institutional identity. Therefore, intending the methodological development continuity, it was defined as its theoretical basis, the Organizational Identity field (PRATT, FOREMAN, GIOIA, SHULTZ, CORLEY). The main conclusion provided by this initial stage already performed, was the perception about the great challenge of the institution, in its process of transformation aiming for the adequacy to new practices required by the public policies, mainly with regards to the social integration.

Authors: Giuliana Capistrano Cunha Mendes de Andrade – Laboratório Nacional de Astrofísica – Universidade Metodista de São Paulo, Brazil
Márcia de Souza Luz-Freitas – Universidade Federal de Itajubá, Brazil
Elizabeth Moraes Gonçalves – Universidade Metodista de São Paulo, Brazil

20297 - OUTREACH ACTIVITIES OF INCT-INOFAR

This summary aims to present the actions of Outreach Activities of the National Institute of Science and Technology of Drugs and Medicines – INCT-INOFAR (http://www.inct-inofar.ccs.ufrj.br), sectored at Center for Health Sciences, Federal University of Rio de Janeiro, with financial support from the Foundation of Research Support of the State of Rio de Janeiro – FAPERJ / BR and the National Council of Scientific and Technological Development– CNPQ/ BR, through activities guided by initiatives to contribute to the rational and safe use of medicines, as well as to disseminate and popularize the sciences involved in the discovery of new drugs. The “Portal dos Fármacos” (http://www.portaldosfarmacos.ccs.ufrj.br) observatory Web, acts as a tool capable of representing authentic and accredited source of dissemination of Pharmaceutical Sciences, stimulating activities and virtual practice INCT-INOFAR, mainly in the dissemination of leaflets, cartoons and educational videos covering updated subjects that is related to the Rational Use of Antibiotics, prepared by workers specialists team of INCT-INOFAR. Arguing that education, in one of its many pedagogical aspects, is an important tool to encourage the spread of knowledge, INCT-INOFAR also develops educational activities with primary public school students in the city of Rio de Janeiro, in order to promote and disseminate the importance of science as an effective instrument for the promotion of social citizenship, contributing to improve the quality of life. The specific accomplishments in outreach, scientific popularization and dissemination are broken down chronologically in a portfolio, released recently by INCT-INOFAR, where you can check the actions developed in schools and scientific events. For other outreach in primary school were created puzzle based on cartoons published in Portal; Also was developed a game of Human tray, wich treat by racional use of medicine.

Authors: Natália Medeiros de Lima – Universidade Federal do Rio de Janeiro, Brazil
Eliezer Jesus de Lacerda Barreiro – Universidade Federal do Rio de Janeiro, Brazil
Ana Cristina da Mata SILVA – Universidade Federal do Rio de Janeiro, Brazil
Ana Carla dos Santos – Universidade Federal do Rio de Janeiro, Brazil
Lucia Beatriz Torres – Universidade Federal do Rio de Janeiro, Brazil
20278 - POP SCIENCE UFU: SCIENCE POPULARIZATION ON INITIATIVES AT PUBLIC SCHOOLS AND BROADCAST ON RADIO, TV, NEWSPAPERS AND INTERNET, MADE BY TEACHERS AND STUDENTS OF THE JOURNALISM COURSE

It presents results of the project “Science/UFU – the news agency and the web radio of the journalism course/UFU working for the diffusion and popularization of science on printed newspaper and college and radio tv in Uberlandia, MG, developed with funds from FAPEMIG and which made possible, through actions taken at the “News Agency” Laboratory of the Journalism Course/UFU, through activities with printed newspaper, radio, tv and internet, the diffusion and popularization of Science in Uberlandia, MG and its region. It has been developed and implemented on the webradio “Radio In” the program “Science on the air” which worked with the diffusion and popularization of the countless productions/discoveries and scientific experiments of the institution’s researchers, with accessible language to the general society. It also made possible the production and distribution of the printed newspaper “Science on the Agenda” and the factsheet “Transformation”, this one with specific content related to science and drugs abuse. Further to that, have been produced and broadcasted short interstitials called “UFU Sciente Minute!” which, with the interstitials from “Science on the air”, have been broadcasted during the breaks of the college radio and tv. Different tools and communication media have been used to diffuse and popularize the scientific production, through edu-communicative works with different transversal themes related to Science and Technology (S&T), further to the capacity-building of scholarships and of the public teachers to work with the science production theme. The project, already finished, was developed between 2010 and 2013 and had support from teachers, lab technicians, scholarship students, further to countless others.

Authors: Adriana Cristina Omena dos Santos – Universidade Federal de Uberlândia, Brazil
Ana Cristina Menegotto Spanenberg – Universidade Federal de Uberlândia, Brazil

20337 - POPULARIZATION ACTIONS OF FOOD SCIENCE AND TECHNOLOGY IN SOUTH AND METROPOLITAN REGIONS OF RIO DE JANEIRO STATE

The absence of knowledge on concepts and practices in Food Science and Technology (S&T) and the lack of specialized staff in agricultural educational institutions are factors that may reduce the interest of the students on this field. Such limitations may be overcome through actions to increase awareness, curiosity and motivation for attending technical training in Food S&T, which may constitute current educational techniques and encouraging the interest by potential agribusiness activity. Thus, it was established a partnership of Embrapa with Carlos Chagas Filho Research Support Foundation, Federal Institute of Education, Science and Technology of Rio de Janeiro Campus Pinheiral and the Technical College of Federal Rural University in order to accomplish it. It was carried out a diagnosis of the physical and educational structure of these educational institutions and localities conditions. Subsequently, the popularization of Food S&T program promote five training courses, including the construction of a webpage and a discussion forum. The point of views of the participants of courses
and forum were evaluated. The actions of Food S&T popularization were training courses for agricultural technicians, brochures, website and discussion forum that were open to the general public were well evaluated to the audiences. The evaluation of the action of promoting teaching as a manner to popularize Food S&T was valid in the judgment by the participants. All of them (100%) thought that the proposed objectives for the courses were achieved, from which over 85% said that their expectations were fulfilled and for more than 92% practical application of the knowledge was achieved. For all courses there were more positive aspects pointed out spontaneously by the participants than negative. The promotion of the forum was effective to popularize Food S&T for general public and considered valid by the participants. For them, 55% of the information received were relevant and for 80% the information was useful for their daily life. Regarding the item “what did you like most on this forum?” it is observed that most people commented on the lectures demonstrating great acceptance of the format of the lectures and the chosen topics. By looking at the reactions and suggestions received, we see the need to intensify the actions of Food S&T popularization in the metropolitan and the southern areas of Rio de Janeiro state. Financing: FAPERJ – Carlos Chagas Filho Research Support Foundation.

Authors: Renata Torrezan – Embrapa Food Technology, Brazil
João Eugênio Diaz Rocha – Embrapa Food Technology, Brazil
Maurício Vivas de Souza Barreto – Embrapa Food Technology, Brazil
José Arimathéa Oliveira – Instituto Federal do Rio de Janeiro, Brazil
Ricardo Crivano Albieri – Universidade Federal Rural do Rio de Janeiro, Brazil
Fernando Teixeira Silva – Embrapa Food Technology, Brazil
Elida da Conceição Jorge – Instituto Federal do Rio de Janeiro, Brazil
Sôlimar Oliveira de Faria Verra – Empresa de Assistência Técnica e Extensão Rural do Rio de Janeiro, Brazil
Patrik Camporez Mação – A Gazeta – Sucursal São Mateus, Brazil

20434 - PREDICTING THE LINES OF COMMUNICATION CONFLICT: DIMENSIONS OF CONCERN ABOUT FLAVOR AND AROMA BIOTECHNOLOGY AMONG CITIZENS AND EXPERTS

Flavor and aroma compounds are essential for a wide range of everyday products (e.g. food, scent and care), but most of these substances are produced on a petrochemical basis. New biotechnological procedures are intended to replace those conventional methods, especially in terms of sustainability. However, public discourse and consumer assumptions about using micro-organisms and synthetic biology for e.g. flavor production seem to be quite skeptical. The present research explored the beliefs and judgments of both consumers and experts regarding the future use of flavor and aroma biotechnology. The analysis of dimensions which stakeholders and (future) consumers consider problematic serves as a base for applying conceptual knowledge on public acceptance of new technology and prediction of communication challenges. We thus conducted qualitative interviews with 10 experts (e.g. academics, NGO) on biotechnology and with 10 laypersons. Findings indicate that consumers tend to worry about industrial agents with mere capitalist interests abusing the ‘secret’, uncontrollable biotechnology for delivering dangerous or disgusting food products. A clear preference for authentic,
natural foods emerged that implies a structural conflict with the ‘manufactured’, artificial processes of biotechnology. Consumers either rejected biotechnology for this reason entirely or insisted on strong governmental control of production and/or clear product labeling. Experts identified a broad set of dimensions of possible communication conflicts: Referring to the public debate about genetic engineering researchers and industry representatives complained about news media reporting that is heavily influenced by NGOs. The ‘absolutism’ of green attitudes may maneuver biotechnology research and industries into a ‘bad guy’ role, which inevitably leads low-involved consumers to reject flavor and aroma biotechnology. The empirical exploration of those emerging communication conflicts allows application of concepts from science communication, such as judgments heuristics of lay audiences (Ho et al. 2009) and models of mediated conflicts (Kepplinger et al. 1991). News media and control authorities are identified as key agents who need to find a balanced communication on advantages and risks while preserving lay audiences’ trust in them at the same time. In this sense, the presentation is intended to stimulate discussion among session attendants on research and practice implications of findings.

Authors: Stefanie Wahl – Department of Journalism and Communication Research Hanover, Germany
Christoph Klimmt – Department of Journalism and Communication Research Hanover, Germany
Beate Schneider – Department of Journalism and Communication Research Hanover, Germany
Thomas Scheper – Institute of Technical Chemistry Hanover, Germany
Ralf Berger – Institute of Food Chemistry Hanover, Germany
Sascha Beutel – Institute of Technical Chemistry Hanover, Germany

20427 – PROGRAMME FOR THE PROMOTION OF THE MARINE NATURAL HERITAGE OF CHILE
The promotion of natural heritage is a fundamental tool to improve collective conservation consciousness. Such tool is particularly relevant in the case of the marine natural heritage, since most of it is not directly observable. Thus, the visual approach to the vast diversity of marine organisms, habitats, resources and landscapes is the ideal starting point for the promotion of an heritage of primary importance for any coastal country. In the case of Chile, the need to generate consciousness for the conservation of the sea, its resources and its productive ecosystems is even clearer since most of the Chilean national territory is in the Ocean and the exploitation of its resources yields important economic incomes to the country. The programme “Descubre Chile” aims at promoting this visual approach by showing beautiful and suggestive images of marine environments and organisms of Chile. In the compilation of these images several particularities of the Chilean culture and of the Chilean marine ecosystems are taken into account in order to enhance its impact on the public: (1) the environments: the population easily internalizes a great number of visual concepts related with the terrestrial natural heritage of Chile and for that reason a series of images of the equivalent marine environments are shown: forests, deserts and flowery meadows; (2) the poetry and the sea: the coast of central Chile, where the main activity of the programme is centered, is the home of several writers, from which
Pablo Neruda stands out for his relevance in the international poetry scene; (3) the identity of the Chilean sea: the richness and diversity of marine ecosystems, the picturesque “caletas” and the power of the waves, are some of the most distinctive icons of the Chilean sea. The programme “Descubre Chile” expects on the one hand to stimulate the curiosity of Chilean people for learning more about the Chilean sea, and on the other hand to instill in them the concern about the conservation of their sea and its valuable resources.

Authors: Yolanda Sanchez – Pontificia Universidad Catolica de Chile, Chile
Mayra Figueroa – Pontificia Universidad Catolica de Chile, Chile
Miriam Fernandez – Centro de Conservación Marina – Estación Costera de Investigaciones Marinas – Pontificia Universidad Catolica de Chile, Chile

20256 – PUBLIC POLICIES FOR SCIENCE POPULARIZATION IN BRAZIL: 10 YEARS OF THE NATIONAL SCIENCE AND TECHNOLOGY WEEK

Non-formal education is extremely important for the permanent formation of individuals and for the promotion of collective interest in science, technology and innovation. However, it was only ten years ago that the Brazilian government acknowledged the importance of science popularization and started to work in partnership with other sectors of the Brazilian society to support wide spread science popularization activities in the country. Therefore, although the concept of science popularization has only been introduced in the Brazilian public policy agenda ten years ago, the country has seen a considerable raise in science and technology popularization activities over these past years. Before 2004 governmental support to science popularization was restricted to eventual public callings for the creation of new science museums or isolated actions to strengthen science education in schools. This scenario is greatly changed today, and the government recognizes the need to stimulate scientific growth as well as science popularization. This recognition is clear in the official actions and plans, which have been adopting directives such as the widening of public participation and the valuing of education, science and technology. The National Science and Technology Week is one of the results of this new agenda. In this year of 2013 the National Week will have its 10th edition and the effects and consequences of this initiative are beginning to show. Over the past 9 years, the number of activities recorded during the National Week has increased from 1,842 to 28,148 and the number of cities that participate has increased from 242 to 722, about 13% of all Brazilian municipalities. It is expected that in 2013 the National Week will reach 1,000 Brazilian municipalities. The long term goal of this national event is to promote activities in all of the 5,561 Brazilian cities until 2022, the bicentenary of the Brazilian independence. It is possible to estimate that over these past 9 years the National Week has reached more than 10,000,000 Brazilians. Here we present the history of The National Science and Technology Week, its role in the promotion of social inclusion, its contribution to the development of a scientific culture in the country and to the development of new initiatives, and the perspectives for the future of science popularization in Brazil, considering the very positive results that have been achieved by the ongoing science popularization public policies.

Authors: Leda Cardoso Sampson Pinto – Ministério da Ciência, Tecnologia e Inovação, Brazil
Background: Children from the age of 12, or in some countries from the age of 7, are legally allowed to give their consent/assent for participation in medical scientific research. The information provided in the consent document plays a pivotal role in their informed decision-making. However, very little research has been performed on the readability of these documents. As research on consent materials for adults indicates a readability gap between reading level of the document and the target group, such a gap could also be present in pediatric material. Therefore, pediatric materials were analyzed for readability and compared to other texts for children. Methods: Twenty-two pediatric consent documents from two major academic hospitals in the Netherlands were collected. Three 100-word samples were selected from paragraphs on research aim, procedure, and risks & benefits. Readability was assessed with four tools: Flesch Reading Ease, Flesch–Douma Reading Ease, Flesch–Kincaid Grade Level and Gunning Fog Index. In addition, length of the documents (words/pages) and use of illustrations was recorded. Reading books for children were used as a comparison of reading levels. Results: Consent forms had an average Flesch Reading Ease of 49.71 and Flesch–Douma Reading Ease of 63.73, both well below the standard for adult material. Average Flesch–Kincaid Grade Level was 9.86 and Gunning Fog 13.28, equal to the reading level of at least a 15-year old. Length of the forms varied from two to eleven pages, with an average of 5 pages, average length in words was 1746. In only 3 forms illustrations were used to support the information. Flesch Reading Ease for comparison material was 71.75, Flesch–Douma Reading Ease 83.80, Flesch Kincaid Grade Level 6.54 and Gunning Fog 9.06 The difference in readability between consent material and comparison texts was significant for all tools. Discussion: The readability gap observed in adult consent materials is also present in pediatric documents. Although readability instruments can only offer an indication of reading ease, the current results are supported by the lack of understanding observed in young research participants. We plea for more awareness among writers of pediatric consent material, as informing children is of ethical as well as legal importance in enabling voluntary consent and assent. In order to overcome the limitations of readability instruments, further research should be performed with the intended target group.

Authors: Ronella Grootens-Wiegers – Leiden University – Science Communication & Society, Netherlands
Martine Vries – Leids Universitair Medisch Centrum, Netherlands
JosvandenBroek-LeidenUniversity–ScienceCommunication&Society, Netherlands

How should we frame our considerations and arguments formed for emerging science, especially, after reading the related news and reports? When people form opinions toward emerging scientific issues, the general public is predisposed to rely directly upon the views of the most easily accessible information type: mass media (Popkin, 1994) Nanotechnology became a vital Science &Technology topic around the world, which is hugely related to the development and
competitiveness of national economic (Su, 2008). Taiwan’s government invested around US$ 98 million to start a six-year national program (from 2002 to 2008): National Program of Nanotechnology (NPNT). Since the potential damage of Nanotechnology are raised as an ethical, social, and environmental concerns by researchers (Macnaghten, Kearnes, & Wynne, 2005), it’s worth placing importance on the diversity and objectivity of reporting in our media context related to nanotechnology. This investigation collects news from United Daily News in Taiwan, and utilizes content analysis to illustrate descriptive and thematic characteristics of media coverage of nanotechnology from 2002 to 2009. In order to develop a coding frame for further analysis, we first looked through the main sections of whole news articles. The first four sections are Business, Lifestyle, Science & Technology and Education. Following the rule of systematic sampling, 10% of news articles are taken from our raw news database as sample. One in every 10 articles will be chosen as sample; total 178 articles are chosen. Based on these samples, we try to investigate and identify the main topics and content frames toward nanotechnology by which establish the coding instrument for our further analysis. There are 74 terms and concepts that are identified as main topics toward nanotechnology in the news including the terms related to (1) the actors, like government and private organizations: Industrial Technology Research Institute and Hon Hai company…etc (2) The scientific terminology and applications with regard to nanotechnology: Nano Ceramic and Microfabrication Technology…etc (3) The nano commercial products: nano home appliances…etc (4) The social events: the outbreak of Severe acute respiratory syndrome (SARS) in Taiwan and National Program of Nanotechnology (NPNT) was approved…etc. Further result’s figures, tables and discussion will be presented on poster.

Authors: Nick Allum – University of Essex, United Kingdom
Pei-Ling Lin – University of Essex, United Kingdom

20522 – SCIENCE AMONG POLITICIANS: CREATING INNOVATIVE FORUMS FOR DIALOGUE
VA is a non-profit organisation that promotes openness and dialogue between the public and researchers. VA has recently developed two novel concepts aimed at connecting politicians and researchers. We believe that both of them are promising methods in the field of communicating science to policy-makers. It should also be possible to develop them further and to adapt them to different conditions and cultures in other countries. Coffee with researchers Almedalen Week is an annual event that takes place in the city of Visby in Sweden. It is considered to be one of the most important forums in Swedish politics. During the week, politicians, policy makers, lobbyists, journalists, business leaders and representatives of NGOs, universities and the public meet to discuss topical issues. The Week had 20,000 visitors and more than 2,200 scheduled activities in 2013, including seminars, debates and speeches. During Almedalen Week 2013, VA organised “Coffee with researchers” at which Almedalen attendees were invited to discuss scientific issues with senior scientists from a range of research fields. The aim was to connect scientists with a range of stakeholders. VA rented an outdoor lawn and the scientists each sat on a picnic blanket with coffee and muffins. Passers-by were invited to sit down with a scientist and discuss
a scientific topic over a cup of coffee. In this way, we created an opportunity for busy politicians and other policy-makers to meet scientists in a relaxed and informal environment. VA sees great promise in this concept and will continue to develop it. Science cafés in Parliament It is important that Swedish Members of Parliament have some knowledge of science and scientific methodology. It is also crucial that they know how to find and interpret new scientific findings within their areas of responsibility. To support this, VA has organised a series of science cafés aimed specifically at politicians and office holders in the Swedish Parliament, in collaboration with the Parliamentary Secretariat for Research. The events took place in the main café inside the parliament itself and this novel approach was much appreciated, attracting both civil servants and MPs. The first science café focused on health issues and the second one on the different cultures within the political parties. One challenge is that politicians have little spare time to attend events. Moving the events into the Parliament is one way of overcoming these time constraints.

Authors: Klas-Herman Lundgren - VA (PUBLIC & SCIENCE), Sweden
Cecilia Billgren Askwall - VA (PUBLIC & SCIENCE), Sweden
Lotta Tomasson - VA (PUBLIC & SCIENCE), Sweden
Karin Larzdotten - VA (PUBLIC & SCIENCE), Sweden
Maria Lindholm - VA (PUBLIC & SCIENCE), Sweden

20259 - SCIENCE COMMUNICATION IN WEB 2.0: THE CASE “AGRO SUSTENTÁVEL”
Since the expansion of 2.0 digital instruments, the access to information has become quite easier. Especially social media, which stimulate the exchange of information, enhance collaboration in virtual environments and offer access to a significant number of publications and networks, have contributed to that. Within this context, the Brazilian Agricultural Research Corporation (EMBRAPA) launched a Facebook profile named “Agro Sustentável”. It was created for the United Nations Conference on Sustainable Development (Rio +20). It has proven to be an important tool for expanding science communication and to dialogue with stakeholders on sustainable agricultural technologies and practices. Between January and July 2013, the Facebook page provided nearly 300 content items and about 16.000 fans were registered, a number that, over the last 3 months, has been growing by about 12% per month. The general reach rate of these posts over the 7 month is about 90% of the total number of followers. The average involved user rate was about 1.000 people per post, which is 7% of the reach. The average engagement rate was 475 people per post, or about 50% of the involved users and 3% of the total number of profile fans. According to studies of Socialbakers, the reference for the average engagement rate is 0.29%. Among the engaged users, on average 31% were fans. This means that 69% were reached by the viral effect caused by their “facebook friends” and that they recognized the information as relevant enough to interact and engage with it. To understand the impact of science communication at “Agro Sustentável”, it is essential to consider also that within the 20 posts with the highest reach, 45% are related to technical and scientific publications, open for download. Also, the same posts are rated as
the most engaging, compared to other categories of posts. Finally, social media like Facebook, can be used as an efficient channel for people to find scientific content and share it with other, high qualified scientific and interested people and by doing so create a network.

Authors: Aline Bastos - Embrapa, Brazil
Daniel Nascimento Medeiros - Embrapa, Brazil
Fernanda Muniz Junqueira Ottoni - Instituto Mapa, Brazil

20709 - SCIENCE IN REGIONAL JOURNALISM’S ASSIGNMENT: THE NEWS’ AGENCY SCIENCE AND CULTURE’S EXPERIMENTAL WORK, FROM FEDERAL UNIVERSITY OF BAHIA

The “News’ Agency Science and Culture” is a instance specialized in Scientific Journalism, which is part of an Extension Program of Federal University of Bahia (UFBA) called “Art, Science and Culture”. Resided at the Communication Faculty (FACOM/UFBA), the Project, that has emerged in 2010, is pioneer at Bahia’s State, and had its origins in the FACOM/UFBA’s First Course of Specialization in Scientific and Technologic Journalism. While as an online vehicle, the Agency publicizes the universities’ researches from Bahia, with emphases in UFBA’s scientific and technological productions. All the news produced can be accessed through the website www.cienciaecultura.com.br. For informative content, are found available reports, interviews, Innovation, Science and Technology’s events publishes, opinion articles and videos. The website lays out, also, a wellspring of information bank with the Bahia's State main researchers. It is about an innovating instrument focused in the journalists interested in scientific themes. Inside the News Agency’s objectives is the support to initiatives of scientific publicizing, as also contribute to the student’s sensitization and formation in journalism specialized in Science. Presently, the Agency, has four trainees, students from the Communication Bachelor's degree, with habilitation in Journalism, from FACOM/UFBA, which act in a 20-hour weekly work routine, supervised by one specialized journalist. Along the Agency's daily practice experience, several questions are part of the productive routine, as well as in an instance of the journalistic field. Others are about the necessity of academic production valorization through the scientific publishing field. It is a understanding that, only in this way, the society will recognized the investments in Innovation, Science and Technology’s value and necessity. Furthermore, the News’ Agency Science and Culture is bound to an optative subject taught by the project coordinator, the Professor Doctor Simone Terezinha Bortoliero. With the goal of amplify the Agency’s production publishing, was consolidated an agreement with the editorial office “Science & Life”, of the A Tarde Journal, for the publication of the news produced by the trainees. Key-Words: News Agency; Scientific and Technologic Journalism; Science Publicizing.

Authors: Mariana Menezes Alcântara – Federal University of Bahia, Brazil
Edvan Lessa – Federal University of Bahia, Brazil
Nádia Conceição – Federal University of Bahia, Brazil
Victória Libório – Federal University of Bahia, Brazil
Emile Conceição – Federal University of Bahia, Brazil
Simone Terezinha Bortoliero – Federal University of Bahia, Brazil
20336 - SCIENCE POPULARIZATION ACTIONS FOR TEACHING FOOD SCIENCE AND TECHNOLOGY IN RIO DE JANEIRO STATE

Over the last few years several initiatives have been undertaken in Brazil and around the world for the popularization of science, especially by research institutions and interactive museums that have sought to broaden their operation scope. Embrapa Food Technology, located in the municipality of Rio de Janeiro, has a staff which includes 53 researchers with M.Sc and/or Ph.D. degrees and a significant reserve of information in food science and technology (S&T) that can and should be made available for broadcast and popularization science programs. Hence, this research center has developed several actions to disseminate their activities through courses, seminars, field days, events and visits to its facilities and more recently specific actions which focus on popularizing aimed at Food S&T. Aiming to develop dissemination actions and cooperate with new dynamic learning, Embrapa Food Technology established a partnership with Carlos Chagas Filho Research Support Foundation, Technical College of Federal Rural University (CTUR) and Federal Institute of Education, Science and Technology of Rio de Janeiro Campus Pinheiral produced eight animations related to food processing and held a symposium to discuss the teaching of Food S&T in Rio de Janeiro state. The animations themes were: fruit pulp, dehydrated vegetables, jellies and jams, minimal processing of vegetables, cheese, good manufacturing practices, canned fish fillet and production of French bread. These animations were intended to be used as supplementary education to fix concepts of Food S&T. The symposium “Teaching of food S&T in the state of Rio de Janeiro: is there anything to innovate?” held on December 6th, 2012, at Embrapa Food Technology was focused on teaching professionals and those who are willing to spread knowledge in this area, bringing together 60 professionals from all over the State. The experience gained with this project was presented and raised suggestions for collaboration between institutions of Food S&T. There was a great acceptance by the participants of the format of the event (lectures). Also, the participating public approved the chosen topics and lectures, in terms of knowledge, clarity, approach, resources, practical application and qualified personnel. Regarding the contents of the event, 100% of the participants felt that the information received has a practical application in their day-to-day, and 97% believed that it brought additional information.

Authors: Renata Torrezan – Embrapa Food Technology, Brazil
João Eugênio Diaz Rocha – Embrapa Food Technology, Brazil
Carlos Eduardo Gabriel Menezes – Instituto Federal do Rio de Janeiro, Brazil
Ricardo Crivano Albieri – Universidade Federal Rural do Rio de Janeiro
Raphael Santos Marques da Silva – Embrapa Food Technology, Brazil

20713 - SCIENTIFIC JOURNALISM AT DIVERSÃO COM CIÊNCIA E ARTE MUSEUM.

The paths walked by science and technology (S&T) can be decisive for changes in society, and features the necessity of establishing rapprochement processes between science and population at large. In Brazil, various policies have been adopted to diminish the gap between science and society. Notable amongst the measures taken are the publication of specific notices on science popularization,
and the launch of the Brazilian National Science and Technology week (SNCT) in 2004 by the Ministry of Science, Technology and Innovation. In a local context, the event features the scientific journalism activities from Diversão com Ciência e Arte Museum (DICA) from Physics Institute of Universidade Federal de Uberlândia. DICA museum comprises interactive spaces which allow guests to be familiar with S&T. Besides, DICA promotes public lectures, courses, displays and events. In this context, SNCT – Uberlândia, organized by the museum in a partnership with the City Hall of Uberlândia and the Instituto Federal do Triângulo Mineiro pursues integrate community and the scientific universe. During SNCT event, DICA team works on mobilizing local schools and researchers, promoting a joint work for dissemination of science. By enhancing journalism actions, broadening the dialogue between the museum and the media and the preparation of publications on dissemination of science are fundamental actions so the science dissemination mission succeeds. Therefore, since the first SNCT – Uberlândia, a parallel work concerning the preparation of press releases and articles for the media as a whole, which consequently feed DICA website and SNCT – Uberlândia blog has been done. All the actions mentioned, which feed themselves back, have as a scope address the activities that took place during SNCT – Uberlândia and publicize projects and researches related to SNCT main theme. Noticeable results are the production of newsletters and the Science and Technology for Social Transformation – “Ciência e Tecnologia para a Transformação Social”, which pursues disseminate knowledge, publicizing issues related to science and technology, and also SNCT – Uberlândia activities. Both available on DICA Museum website (www.dica.ufu.br). Thus, the mobilizing proposal of SNCT contributes to the consolidation of the scientific journalism team of DICA Museum, allowing the participation of UFU journalism students in activities developed by the museum. Financial support: Fapemig and CNPq

Authors: Silvia Martins dos Santos – Universidade Federal de Uberlandia, Brazil
Dalira Lucia Cunha Maradei Carneiro – Universidade Federal de Uberlândia, Brazil

20486 - SECONDARY SCHOOL STUDENTS AND GENETICALLY MODIFIED ORGANISMS (GMOs): PARADOXICAL EFFECT OF KNOWLEDGE ON THEIR ATTITUDES TOWARDS GMOs

The European public generally adopts a negative attitude towards GMOs, especially related to food production. Research suggests that attitudes are dependent on the mastery of related knowledge. Although media frequently mention concepts like ‘genes’ and ‘genetics’, lay people have difficulties with explaining GMO-related concepts. As these concepts are studied in the secondary school biology curriculum, we therefore expect secondary school students being able to participate in debates about GM foods relying on a sound knowledge base. In this study, we questioned whether a higher mastery of the knowledge base results in specific and altered attitudes towards GMOs? In the present study, a test was administered to 4076 secondary school students of the second (age 13-14), forth (age 15-16) and sixth (age 17-19) year. This knowledge test consisted of true/false and short answer questions about genetics, biotechnology and commercialization of GM food. Second, a scale was presented to determine attitudes towards GMOs. The average knowledge score was low (M= 7.80, SD= 3.46, max 20), but increases
with age and the field of study (general, technical and vocational). The same trends can be observed for GMO-attitude, although on average, most students reflect a positive attitude towards GMOs (M= 3.40, SD=.59, max 5). This suggests a linear relationship between knowledge and attitude towards GMO. Regression analysis results reveal a weak relationship: 10.8% of the variance in attitude is explained by the knowledge test score (F(1,4071)= 495). When focusing on students with the lowest knowledge level (Lower 30%), the relationship weakens (F(1, 1141)= 40.2; 3.4% explained variance). This GMO knowledge-attitude paradox suggests that a minimal knowledge level has to be attained in order to detect a linear relationship. The latter is confirmed by the results of a comparable study, but involving university students. Secondly, the low mastery level suggests that the school curriculum should guarantee that correct definitions and a correct theoretical base on biotechnology (and GMOs) are presented to students, but also how this is related to their daily life. This implies discussing socio-economic aspects as well as ethics concerning GMOs. As such, this could prevent the emergence of misconceptions about genetics that obstruct the development of a nuanced and grounded attitude towards GMOs although even now the students’ attitude is rather positive.

Authors: Jasmien Maes – Ghent University, Belgium
Godelieve Gheysen – Ghent University, Belgium
Martin Valcke – Ghent University, Belgium

20294 - SPACES OF SCIENTIFIC KNOWLEDGE IN HEA LTH PROMOTION

The research “The Museology as diffusion and popularization element of Science, Health and the Environment” integrated project “Activities in Health and Environment: an initiative for dissemination and popularization of science”, developed at Laboratory of Clinical Epidemiology of the Institute of Clinical Research Evandro Chagas/ICREC Oswaldo Cruz Foundation/Fiocruz is based on the conception that museums/science centers around the world have a big importance in the educational process. To celebrate the importance of the brain, in april/2013 institutions all around the world promoted activities about neuroscience and the Museum of Life/Fiocruz promoted the fourth edition of “Celebrating the Brain: So many Neuroemotions”. The objectives were provided the participants access to scientific knowledge about how the brain works as the organ responsible for what happens in the body and the human mind. Patients of ICREC, their friends/relatives and ICREC workers, who have participated in various activities to promote health, suggested a visit to the exhibition. They participated in some activities about the brain, via guided tour, the exhibition of the collection of cadaveric anatomical specimens from Museum of Pathology/Oswaldo Cruz Institute and in the “Perception Lab” they performed various experiments about physics. The visitors also observed different neurons under a microscope and pay a visit in Moorish Castle, in the exhibition “Past and Present – Science, Health and Public Life,” where they learned about the history of Fiocruz, important moments that marked the history of health in Brazil and some of the best known Brazilians scientists. They also observed the brains of various animals, comparing models of these organs in fish, birds, reptiles and mammals and tested the memory with images produced by a game. Participants felt that this visit was an important learning tool and these spaces
contribute to the welfare and knowledge production. This initiative allowed the participants of ICREC access to a scientific and cultural knowledge, which should be extended to other clientele served by the Unified Health System, because we know that among the various understandings of health technologies the education and information stands out, intermediating attention and health care and contributing to the enhancement of motivation and self-esteem and social inclusion of those citizens and also stimulating the social relations that individual.

Authors: Eloisa Leal da Hora – Fundação Oswaldo Cruz, Brazil
Dinair Leal da Hora – Fundação Oswaldo Cruz, Brazil
Michele Machado Meirelles de Barros – Fundação Oswaldo Cruz, Brazil
Maria de Lourdes Benamor Teixeira – Fundação Oswaldo Cruz, Brazil
Maria Isabel Fragoso da Silveira Gouvea – Fundação Oswaldo Cruz, Brazil
Odilio de Souza Lino – Fundação Oswaldo Cruz, Brazil
Claudia Teresa Vieira de Souza – Fundação Oswaldo Cruz, Brazil

20178 – THE BLUE MARBLE: A DISCOURSE ANALYSIS OF IMAGES OF THE EARTH PUBLISHED ON THE APOD WEBSITE

With the advent of space exploration images of the Earth from outer space became available. Among them is one of the most published images of all time – the Blue Marble Earth – of which there exist already several versions. These particular images evoke the idea of us looking at ourselves from a cosmic perspective. In addition to its use in public communication of science and technology, these images are widely used in environmental and humanitarian campaigns, institutional advertising etc., as they are images that refer to a global awareness and planetary citizenship. They make us reflect on humanity and the planet Earth, being thus invested with a symbolic dimension, in addition to scientific or technical ones. Yet, is this symbolic dimension present in the discourse of science communication that uses these images? With this question in mind, we examine publications at the Astronomy Picture of the Day (APOD) website that make use of these images. APOD is a website linked to NASA and one of the first sites directed towards public communication of astronomy; publications with commented astronomy pictures are made daily since 1995, having the website a collection of over 5000 different images. Using the perspective of Dominique Maingueneau’s discourse analysis, we critically examine the various discursive elements present on the site – e.g. descriptions, links and hypertext, selection of images, FAQs, biographies of authors, images, captions and other textual and paratextual elements – in order to characterize: (i) the type of science communication discourse used, and (ii) the specific discourse of the publications with Blue Marble images. Based on this analysis, the APOD appears to be a website that is discursively constructed in a very credible fashion while, at the same time, relaxed and close to the reader. In the specific analysis of the publications that make use of Blue Marble Earth (10 in total), various discursive strategies were use and will be characterized in this study. We found discursive elements that evoke the Earth’s fragility and need of preservation, the role humanity plays on it and other related aspects. Thus, in addition to the dissemination of scientific knowledge about the Earth and space exploration, these publications perpetuate and reinforce the discourse that gives these images the power to alter our perspective and our way of thinking about
the planet and humanity.
Authors: Joana Brás Varanda Marques – Universidade Federal de São Carlos, Brazil
Luciana Salazar Salgado – Universidade Federal de São Carlos, Brazil

20318 - THE IMPACT OF BROAD ACTIONS TO DISSEMINATE SCIENCE: A CASE STUDY FROM THE INTERNATIONAL YEAR OF CHEMISTRY

In 2011, International Year of Chemistry (IYC), several activities were taken over in favor of research and education in chemistry. In Brazil, many organizations representing the Chemical society were responsible for promoting lectures, developing educational materials, coordinating exhibitions, among other nationwide actions. Such activities were widely publicized by press as well by other institutional sources or even by individual initiatives. In this context, this paper analyzes records of such dissemination in Brazil, from small notes about the occurrence of coming up events to special articles with focus on chemistry. It was found that the main sources of publication about IYC were press vehicles and academic institutions, while the two most widespread types of activities were lectures and exhibitions. An appreciable part of the records on the IYC contextualizes the date and mentions the importance of chemistry, but considerations regarding these topics decrease throughout the year. Furthermore, it was noticed that dissemination work reflects the seasonality of the activities promoted. The analysis also reveals that lectures are the most reported activities by academic institutions, which moreover, they are the sources that more cite researchers. References to chemistry as professional area are more frequent in contents published by professional organizations, but they are very rare in cases of individual initiatives. Finally, the visibility of activities may be associated with sources of dissemination, which present different degrees of diffusion in society. Such results seem to suggest that popularization of the IYC exhibited distinct profiles according to the source of dissemination and the public whom it was intended to, since it was possible to identify differences in how academics, members of industry, professional organizations and individuals publicize chemistry. Although these features make sense, it is plausible to question how far the disclosure of chemistry, as it has been observed, may contribute to the purpose of disseminating, to the widest possible audience, the importance of chemistry as a knowledge area and professional field. Besides, it is evident that the success of the dissemination work demands on the articulation among the various sectors of chemistry (including academy, industry and government), the press and the government, in order to promote and support activities that disseminate the real identity of chemistry.
Authors: Leila Cardoso Teruya – Universidade de São Paulo, Brazil
Guilherme Andrade Marson – Universidade de São Paulo, Brazil

20614 - THE INVISIBILITY OF THE NEWSPAPER OF PERNAMBUCO IN RELATION TO SOCIAL AND ENVIRONMENTAL IMPACTS IN THE CONSTRUCTION OF THE OIL REFINERY IN SUAPE

The issue of the impacts of industrial production processes is one of the most challenging, because on the one hand, offers positive impacts mainly from an economic standpoint, on the other hand, presents a lot of environmental problems and negatives impacts in society health, and enhance social problems already
existing. Contrary to what happens in most developed countries that seek cleaner energy production, Brazil has increasingly invested in mining and oil imports which consequently generates the expansion of the Brazilian refining park in several states, particularly in the southern coast of Pernambuco through the construction of the Abreu e Lima (RNEST). Environmental communication is a field of study in growth worldwide, specifically focused on the role of human communication on environmental issues and has been constituted in various fields of study, among them the speech and rhetoric, public participation in decision-making processes policy, risk communication, and media and environmental journalism, the latter being the focus of the approach in this study by investigating how the media covers environmental issues and effects that generate perceptions and values. Analyzes the impact of the construction of new petrochemical complex in Pernambuco newspaper Jornal do Comercio and Diario de Pernambuco. Analytical data set consists of 18 journalistic texts of selected online issues from August 2007 to July 2010, identifying the location of the text, the discursive genre, themes, ideologies and social voices within the discourse to the concepts of environmental communication, the perspective of health and the environment. It was identified that there is a developmental ideology that sustains economic growth without a critical view and face the social transformations within the RNEST, lack of concern related to the environmental impacts, exacerbated optimism regarding the new industries and lack of plurality of voices in the discourse. No matter addressed the environmental impacts from the perspective of the environment as part of the social determinants of health. Communication needs to be recognized as a human right, so that people have the right to express themselves. We need the media to give visibility to a plurality of views on the same theme. The dialogic action in building a democratic identity of citizens as subjects of human right is strategic to guarantee the health and life.

Authors: Mariana Olívia Santana dos Santos – Centro de Pesquisa Aggeu Magalhães-Fundação Oswaldo Cruz, Brazil
Isaltina Maria de Azevedo Mello Gomes – Universidade Federal de Pernambuco, Brazil
Idê Gomes Dantas Gurgel – Centro de Pesquisa Aggeu Magalhães-Fundação Oswaldo Cruz, Brazil
Lia Giraldo da Silva Augusto – Centro de Pesquisa Aggeu Magalhães-Fundação Oswaldo Cruz, Brazil

20456 – THE POPULARIZATION OF SCIENCE AND THE ROElE OF
The popularization of science is aimed at approaching the general public to Science and Technology (S & T), particularly the young, awakening them to understanding science in a playful and everyday language through interactive science presentations conducted in schools, laboratories, museums and exhibition houses arranged for this purpose. Therefore, it is necessary linkage between laboratories to perform UFMA Exposure Science interactive public squares (plazas, parking and shopping excursions academic) providing integration between science and technology and population, explaining the experiences in everyday language thus approaching the public of scientific and cultural. Nevertheless, the population realizes experience can be observing information experiments
systems transmit scientific information contained in that or that experience. The realization of the experiences in public square is that science as cross walls and academic “Science goes to where the people be.” By the way we are promoting education, at the same time young people have contact with science hope this trouble can help youngest kidding with science and choose your professions and thus the science is accessible to everyone. Nevertheless the coordinators of the Laboratory “Ilha da Ciência” Department of Physics UFMA have worked on several projects for this purpose such as effective participation in SNCT held annually in Brazil, observation astronomical with title “Maranhão, Look at Sky”! Recently, this Laboratory acquired a unit for the Mobile Science to promove this activities itinerant exposure according results presentation in this Conference. Key Words: Popularization of Science, Education and Information Systems Authors: Antonio José Silva Oliveira – Universidade Federal do Maranhão, Brazil Ana Maria Nelo – Universidade Federal do Maranhão, Brazil Carlos Cesar Costa – Universidade Federal do Maranhão, Brazil

20599 - THE PRODUCTION OF MEANINGS ABOUT ASPECTS OF MODERN PHYSICS IN UNDERGRADUATE PHYSICS STUDENTS MEDIATED BY SCIENTIFIC DOCUMENTARIES: THE CASE OF THE CHAUVET CAVE

Many researchers point out that the educational experiences of students, learning about science, are beyond the school environment. These can occur through science museums, observatories, television, and other media. In parallel, there is a growing concern, in the academic, educational and political, on the inclusion of aspects of modern physics in high school. This research investigated which meanings are produced on aspects of modern physics in the context of a course of Physics Teaching Practice, when doing activities mediated by the use of scientific documentaries. To accomplish the data collection we use questionnaires, interviews and audiovisual recordings during the work done with students of the discipline with the aim of analyzing the discourses produced by them. The theoretical framework used for this research is on the analysis of discourse, especially in texts of Eni Orlandi published in Brazil. We seek to understand how certain discourse was formulated, taking into account the historicity of the wording and the amount of memory. The notion of discourse is understood as an effect of meaning between speakers. When we ask how such speech/writing was formulated we are referring to the conditions of production of the wording, with the characterization of these conditions as not only the immediate and own discursive situations in which selected speeches. We must admit that, apart from the immediate, the language implies production conditions socio-historical, and also consider that, in addition to material conditions, all understanding of a discourse presupposes the existence of imaginary conditions.

Authors: Aldo Gomes Pereira – Instituto Federal de Educação Ciência e Tecnologia, Brazil Maria Jose Pereira Monteiro de Almeida – Universidade Estadual de Campinas

20292 - THE QUESTIONS NETWORK

The Questions Network (Red de las preguntas) is a digital project developed by Universidad de los niños EAFIT. This project collects questions from children and teenagers and answers them using different formats, trying to encourage curiosity, critical thinking and the circulation of knowledge. The Questions Network works
through a microsite where children and teenagers can leave their questions by filling out a form. These questions are filtered and classified before being published. Each month a topic is chosen, and a group of questions related to it is published on the microsite. One of them is then answered in a video, audioclip, or by text. The others are shared on the social networks Facebook and Twitter, inviting people to give an answer to them. The answer to the main question of the month is put together by a communicator, supported by one or more researchers specialized in that topic. The idea is to have a critical approach to the question so the answer can make people curious, encourage more questions about the topic and generate controversy. In The Questions Network, questions have an author. Every time a child leaves a question on the microsite, he/she is asked to leave his/her name, age and contact information. Each child is notified when his/her question is published and answered. The project is open to every young Spanish speaker in the world; to participate, a child only needs curiosity and internet access. The project also looks to involucrate researchers from many areas, encouraging them to think about the essence of their work and to share their knowledge in a simple but rigorous way. Questions in the network also give life to some other projects like ¡llegó carta! (You got mail), a radio program to be transmitted on the digital radio station “Acústica” and published in The Questions Network microsite. This program, inspired by a popular question-answer game, will present in each episode one of the questions from The Questions Network, in the form of a letter written to the author of the question and providing him/her with an answer. The Questions Network is, essentially, a science communication project inspired by children’s curiosity, which seeks to promote the knowledge produced by research, inviting children and adults to adopt a sharper view of the world they live in.

Authors: Ana María Jaramillo Escobar – Universidad de los Niños Eafit, Colombia
Ana Cristina Abad Restrepo – Universidad de los Niños Eafit, Colombia

20732 - THE RICH DO NOT LIKE SCIENCE? A NEW INSIGHT OF THE GLOBAL RESULTS OF ROSE PROJECT AND A NEW PROPOSAL TO BRING TO LIGHT STUDENTS ATTITUDES TOWARDS SCIENCE AND TECHNOLOGY

In the closing ceremony of PCST 2012 held in Italy, the presidential address called the attention to the paper we had presented at that event (Santos-Gouw et al 2012), in which the popularity of science and scientists showed a clear tendency. In the context of the Relevance of Science Education Project (ROSE) (Sjøberg & Schreiner, 2010), highschool students of rich countries tended to disagree with some statements about science and technology, while students from less developed countries tended to show an opposite tendency. They tended to have a more optimistic view of the role of scientists in society. An extensive item analysis was carried out in order to select itens with a higher statistical discrimination power, so that further research could be carried out in the future, allowing further comparisons, creating a shorter instrument. Meanwhile, a new analysis was carried out, trying to understand reasons which could explain such results, which defined a paradox: the more a society is developed thanks to science and technology (amongst other things), the less its citizen tend to value science and technology. This new analysis carried out with in depth consideration of the Brazilian results (Tolentino-Neto 2008; Bizzo e Pellegrini, 2013) tends to show
that results are less dramatic than what first sight could indicate, as the paradox stated above do not have a linear correlation between presented variables and proved not to be true in the Brazilian context. In addition, there are indications that the relevant variable for the correlation is not GNP or compound indexes, such as GINI, HDI etc, but rather some indication of the real educational services provided to the population. Therfore, the paradox could possibly be rephrased as follow: the more quality science education is provided the more informed and critical students are.

Authors: Nelio Bizzo – University of São Paulo, Brazil
Ana Maria Santos Gouw – University of São Paulo, Brazil
Graciela Oliveira – University of São Paulo, Brazil
Jaqueline Pinaffo – University of São Paulo, Brazil

20586 - THE ROLE OF SCIENCE MUSEUMS IN SCIENTIFIC CULTURE (CATAVENTO, SABINA AND UNICAMP EXPLORATORY MUSEUM)

The increasing interest for Science reveals the importance of museum institutions in Science and Technology for their educational, motivational and recreational traits. There has been a visible increase in Brazilian scientific production within the last ten years. This reality has been reflected in the making of national public policy to ST&I, with important reflexes on academia and, to a narrower extent, on the private sector. Within the scope of a scientific culture formation, it can be attested, however, a real, though timid, growth of dynamic (hands-on) museum-driven initiatives, aiming to attract and stimulate interest in ST&I in society, and, in special, in children and teenagers. Even though the national discourse points towards the strategic potential of ST&I for the development of the country, science education still has a lot to improve, as it can be observed by the negative results of national and international tests within the areas of Science, Mathematics and Reading. What would, then, be the contribution of science centers and museums towards a formation of a national scientific culture? How do the processes of establishment and management of these institutions come about and how do they articulate with municipal public policies? In order to be able to understand these dynamics and the interface museum institutions make with educational, political, managerial and social sectors, the present research examines three different museum propositions. It consider their educational and recreational aspects, as well as of managerial–financial nature. The research is a multiple case study. The selected institutions are located in São Paulo state, the Brazilian science hub which concentrates most of the resources and research. They are: Catavento Cultural (state–run, located in São Paulo city), Sabina School Park of Knowledge (municipal, in the city of Santo André, inland State of São Paulo) and Exploratory Museum of Science (university–run, at Unicamp, in Campinas). Results of the research show the need of improvement in managerial and financial areas; the relative importance of museums in science education; the narrow diversity of pedagogical actions with the public and teachers; the low usage of museums as public tools, integrated to the cities; and the difficulty in promoting accessibility in all its forms. On the other hand, it was possible to see a considerable level of
Science fairs have originated in the 1960s with the concern about improvement of science learning and divulgation. This was linked to worldwide valorization of role of science as a tool for national development after the end of Second World War. Nowadays in Brazil this kind of initiative has the support of government policies, which allowed to create a network of national, regional and local science fairs. Since 2005 the CECIERJ Foundation, a state government agency, promotes science fairs, by the FECTI program, with the goal of engaging the participation of secondary school students. The FECTI science fair has become more popular, with an increase participation of schools, teachers and students of more and more counties of Rio de Janeiro State. Despite this, little is known about perception of participants about the FECTI. The present study attempted to evaluate how the participation in this project has influenced students and teachers. After the last FECTI, the attending teachers answered a survey and reported their perceptions about effects on students, school participation, their motivation and the impact on their teaching practice, the evaluation of some organizational aspects and in the last and optional question a description of development of research project with their students. The data has been collected by the answers of thirty-one participants, sixteen males and fifteen females, eighty-seven percent (87%) of them from public schools, about thirty-seven percent (37%) of the teachers’ total. Emerging from the answers of these teachers is the following evidence: 1) ninety percent (90%) of teachers claimed that students improved their learning; 2) ninety-seven percent (97%) answered that students developed many skills including communication, empathy, engage in collaborative work and responsibility, besides improved their self-confidence and the interest in science content; and 3) all teachers emphasized that doing research projects with their students contributed in some way to their teaching practice. The majority of respondents felt that participation experience in the FECTI shows there are another ways to teaching and learning science. These testimonials enhance the relevance of science fairs in science and technology diffusion.

Authors: Vera Cascon – Fundação Centro de Ciências e Educação Superior a Distância do Estado do Rio de Janeiro, Brazil
Chrystian Carlétti – Fundação Centro de Ciências e Educação Superior a Distância do Estado do Rio de Janeiro, Brazil
Renata Guimarães Dümpel – Fundação Centro de Ciências e Educação Superior a Distância do Estado do Rio de Janeiro, Brazil
Sônia Guimarães Camanho – Fundação Centro de Ciências e Educação Superior a Distância do Estado do Rio de Janeiro, Brazil
Mônica Santos Dahmouche – Fundação Centro de Ciências e Educação Superior a Distância do Estado do Rio de Janeiro, Brazil
The Museum of Science and Technology School of Mines, Federal University of Ouro Preto several years developing outreach activities and science education. From its facilities, seeking the intersection between Science, Technology, Arts and Science Education Project Arises, Storytelling, Mediation. The project aims to contribute to the dissemination of scientific knowledge, stimulating and enriching learning through play. Before the advent of television and the internet, experiments and experiences of each were shared among family and friends. Had time and space for grandparents and parents convey the stories of family or place. These stories passed from generation to generation, often made myths mouth storytellers, that held, in the magic of his words, the attention of children and adults. The storyteller lost his place for the video where the history is so rich in images, it does not take any effort of imaginative fantasy. Given this reality, to rescue the playful, the development of the senses and feelings, the taste for oral expression and body and a taste for knowledge, we have the contribution of the arts. Thus the mediation of art can go that route because excites the senses, the imagination and desires and causes restlessness. Interact directly with visitors arouses curiosity and enhances the interest in what they will find in the context of the museum. Relationships multiply, forming a network able to reach other areas, in other contexts, a succession of enriching experiences for the delicious discovery of knowledge. The storytelling as a way to mediate between audience and artwork or technical and scientific knowledge, the strategy was chosen for this project through the character creation Juju. She is a storyteller timeless. Characterized by his costume consisting of a skirt of colorful scarves, vest, white wig, hat and his inseparable chest small leather, full of stories. The Museum during the weekends Juju welcomes children of any age as long as willing to venture into the Museum collections, without prejudice. The visit is intended to be instructive, but, above all, very entertaining, through the various exhibitions. Mediation begins at the entrance of the building, with a brief talk about the history of the city and the museum. From there the path goes through stories and games with each exposure culminating with the “magic” of the stone that moves, a performance using a sample of quartzite flexible. The mediation varies according to public.

Authors: Marta Vieira Babsky – Universidade Federal de Ouro Preto, Brazil
Gilson Antonio Nunes – Universidade Federal de Ouro Preto, Brazil

The workshop metallic materials corresponds to the first activity of the project “Science of matter in Basic Education: Building a Sustainable Future”, which aims to disseminate Materials Engineering with students and teachers of basic education, creating mechanisms within the community to promote awareness actions environment. The dissemination workshop was done by means of posters, brochures and banners. In presenting the workshop for students of basic education was used theatrical expression to facilitate absorption of the contents, relax the
audience and attract a greater number of participants. The members of the plays were students of undergraduate and basic education. Some participants initially aimed only at the certificate, but in the course of the workshop, began to think differently were amazed and motivated because of the knowledge acquired.

Authors: Maria de Fatima Salgado - Universidade Estadual do Maranhão, Brazil
Antonio José Silva Oliveira - Universidade Federal do Maranhão, Brazil
Jailson Cunha - Universidade Estadual do Maranhão, Brazil
Luiz Cassio Ribeiro Salazar - Universidade Estadual do Maranhão, Brazil

20707 - UNIVERSITY FOR A DAY AS INSTRUMENT OF SOCIAL INCLUSION

Due to our experience in university extension activities with students of high school we understand the distance and unknowledge of these in relation to brazilian public universities, which include the process of joining the University of São Paulo (USP), the activities that are developed in the university as teaching, research among others, including gratuitous of public universities. In order to minimize this framework, the Institute of Physics of São Carlos (IFSC) institutionalized in 2011 the program "University for a day", devised by the group of Crystal Growth and Ceramic Materials in 2003. Seeks to provide high school students from public or private the opportunity to meet and experience the college environment of the Campus USP - São Carlos. Most activities take place in a laboratory class called “Room of Knowledge” which has infrastructure for activities of nature demonstrative involving fundamental concepts of physics. The program's main goal is to promote access to public universities contributing to social inclusion, especially those of low income or with limited access to information. Also seeks to increase the interest of students by Exact Sciences in particular the area of Physics, strengthening ties between the university and the public, showing students what opportunities that Physics provides, in addition to clarifying the means of access to courses, presenting information necessary for the career choice. The program includes a lecture on universities and the admission requirements, the student assistance, the structure of the campus, the everyday of university, research activities, teaching and extension of the IFSC, the courses offered and the opportunities in the labor market. After free lunching at the restaurant university, know the campus, the IFSC and the library. Finally, the Show of Physics conducts experimental demonstrations related to everyday technologic applications of physics and correlated sciences, totaling six hours of visit. From May 2011 to December 2012 were attended 8005 students, of whom 22 were admitted to one of four undergraduate courses the IFSC. Only in 2013, through the month of July 2245 students from 56 educational institutions participated the program, of which 64% were from public schools.

Authors: Herbert Alexandre João - Instituto de Fisica de Sao Carlos - Universidade de São Paulo, Brazil
Ariane Baffa Lourenco - Instituto de Física de São Carlos – Universidade de São Paulo, Brazil
Jerusha Mattos Camara – Universidade Federal de São Carlos, Brazil
The project “Social Determinants of Health in the framework of Social Epidemiology: developments for health promotion in access to scientific knowledge” developed by the Institute of Clinical Research Evandro Chagas / ICREC, Oswaldo Cruz Foundation/Fiocruz, Rio de Janeiro resulted in other studies as called “knowledge Platform: involvement and participation of the community in actions to health promotion and production of knowledge” that has allowed the construction of new practices and forms of knowledge production shared between researchers, health professionals and the community. The development of this project has the participation of the patient association “Fighting to Live - Friends of ICREC” and establishing a partnership with the Community Advisory Board (CAB) of ICREC, a group that accompanies research on HIV/AIDS and has the role of ensuring that the rights of volunteers of clinical research are respected. In this study, a workshop was held to promote the exercise of creative expressions that include and strengthen the individuals in actions for health promotion and qualify the ICREC community on themes relating to the research, prevention and health promotion through photography. The workshop was held over three days (November/2012) and had 15 participants (volunteers in ICREC research projects and workers from ICREC: gardening, security, cleaning, members of the CAB). The workshop was organized in three modules: Building Image, Digital Photography and Image Editing. The participants were organized and conducted photos that represent “What is research in the community perception?” at Fiocruz campus and in their communities. Each participant chose one of the pictures produced by themselves and summarized in a few words how the “research” was represented in the selected photo. Some of the sentences were: “The union is strength among all”, “Research is the struggle for survival”, “Union of all without prejudice,” “The animals means life and healing people, the blood and suffering of them gives life” , “Love is life’s, and friends are the greatest treasure that life can give!”. The production of images, more affordable and widespread, presents itself as an innovative proposal that seeks to uncover the eyes of the community, for new possibilities of expressions, self-image and action in the world, besides being a tool that articulate the theme of prevention, health promotion and culture.

Authors: Claudia Teresa Vieira de Souza – Fundação Oswaldo Cruz, Brazil
Luciana Kamel – Fundação Oswaldo Cruz, Brazil
Juan Carlos Raxach – Fundação Oswaldo Cruz, Brazil
Eloisa Leal da Hora – Fundação Oswaldo Cruz, Brazil
Dinair Leal da Hora – Fundação Oswaldo Cruz, Brazil
Odilio de Souza Lino – Fundação Oswaldo Cruz, Brazil
Michele Machado Meirelles de Barros – Fundação Oswaldo Cruz, Brazil
Valdiléa Gonçalves Veloso dos Santos – Fundação Oswaldo Cruz, Brazil
Index
INDEX

A

Abranches, Elsa 230
Abreu, Rodrigo Abril 230
Afonso, Bruno 82
Afonso, Germano Bruno 58
Aggett, Sian 202
Akerman, João 200
Akiya, Naonori 121
Aguirre, Claudia 52, 57, 66
Albieri, Ricardo Crivano 277, 284
Alcântara, Mariana Menezes 164, 283
Aldemita, Rhodora R. 110
Allum, Nick 281
Almeida, Carla da Silva 64, 65, 122, 217
Almeida, Maria Jose Pereira Monteiro de 290
Almeida, Rosiani Bion de 259
Álvarez, Claudia Juárez 130
Amorim, Luís 65
Andrade, Giuliana Capistrano Cunha Mendes de 275
Andrade, Hernán 193
Angola, Bañuelos Cedano Marcela 253
Antenor, Samuel 71, 72
Aram, Arul 134
Arancibia, Florencia P. 145
Araujo, Raul 20
Ariza, Vladimir 125
Arribas, Luisa Fernanda González 63
Arzuaga, Fabiana 88
Askwall, Cecilia Billgren 95, 228, 282
Augusto, Lia Giraldo da Silva 185, 247, 289
Ashong, Clifford 103
Autzen, Charlotte 92
Avelar, Gleide 261

B

Babsky, Marta Vieira 294
Bado, Patricia 212
Balli, Enrico M. 55, 159
Balmat, Leonardo C. 247
Balvert, Fred 13, 241
Barata, Germana 25, 39
Barata, Sofía 215, 229
Barba, Maria de Lourdes Patiño 109
Barkela, Berend 100
Barreiro, Eliezer Jesus De Lacerda 275
Barreto, Jorge Otávio Maia 220
Barreto, Maurício Vivas de Souza 277
Barros, Michele Machado Meirelles de 272, 287, 296
Barroso, Bruna 247
Bastos, Aline 283
Bauer, Martin William 30, 31, 55, 72
Beisel, Uli 166
Berardi, Andrea 155, 173
Berger, Ralf 278
Bernardo, Antonio Rogério 247
Bertoldo, Raquel Roberta 256, 264
Beusekom, Mara van 124, 254
Beutel, Sascha 278
Bevilacqua, Diego Vaz 45, 54, 66
Beyer, Maria Emilia 54
Bizerra, Alessandra 93
Bignante, Elisa 173
Bizzo, Nello 257, 274, 292
Björkman, Jenny 26
Boete, Christophe 166
Bomfim, Fabiano 219
Borda, Marcela Lozano 51, 125
Borges, Marcelo Rocha 273
Borim, Danielle Cristina Duque Estrada 273
Bortoliero, Simone Terezinha 164, 283
Bos, Mark Jeroen Wim 118, 124, 162, 236, 254
Botassin, Tiago 247
Botelho, Juliana Santos 147, 149
Breemen, Marjolein van 239
Breton, Camille 20
Brito, Fatima 224
Broek, Jos van den 96, 108, 124, 254, 280
Brossard, Dominique 65, 91, 189
Brown, Helen 116
Brudny, Vera 50
Bucchi, Massimiano 34, 43, 248
Bultitude, Karen 36
Burgos, Estrella 39, 63
Burón, Helena González 249

C

Cabello, Patricia Rios 107
Cacciatore, Michael A. 189
Cafezeiro, Isabel 89, 113, 132
INDEX

Cakmakci, Gultekin 191
Caldas, Maria das Graças Conde 110, 112, 171, 293
Camacho, Sônia Guimarães 293
Camara, Jerusha Mattos 295
Camargo, Aline Cristina 141
Camelo, Thiago 217
Camilli, Francesca 195
Campos, Annie Maria Umaña 52
Campos, Verona Segantini 213
Candotti, Ennio 35
Capobianco, Rogerio Augusto 247
Cappuccio, Nelsa María Bottinelli 52
Cardoso, Marcelle de Oliveira 265
Cardoso, Miguel 229
Carlétti, Chrystian 70, 293
Carneiro, Dalira Lucia Cunha Maradei 285
Carrillo-Trueba, César 38, 52, 114
Carvalho, Luiza Nathalia de 149
Carvalho, Vanessa Brasil de 65, 240
Cascon, Vera 293
Casolco, Said Robles 214
Castelfranchi, Yuriy 38, 51, 72, 148, 269
Castro, Anabelle Castro 209
Castro, Carolina Moreno 65, 103, 176
Castro, Clara Vasconcellos de 270
Castro, Luisa Reis de 166
Castro, María Luján 268
Cerrato, Simona 159
Cesard, Nicolas 166
Chalub, Leonardo 232, 270
Chagas, Catarina 61, 63
Cham, Sheau Tsuey 143
Chambers, Mary 21, 226
Chapita, Greyson 142
Chávez, Maria Antonieta Saldívar 157
Cheah, Phaik Yeong 21
Cheng, Donghong 23
Cheveigné, Suzanne De 24
Chipasula, Tamara 142
Claussen, Margarethe Vianna Rossi 259
Coller, Luciana 272
Conceição, Emile 283
Conceição, Nádia 283
Conde, Marta 229
Connelly, Charlotte 93
Corley, Elizabeth A. 91
Correia, Isabel 215
Cossa, João Emídio Jacinto 49
Costa, António Gomes da 94
Costa, Carlos Cesar 178, 290
Costa, Gustavo Garcia da 247
Costa, Jorge 229
Costa, Maria Conceição da 86
Costa, Maximino 49
Costa, Tania Margarida Lima 213
Coumou, Hilde 153
Coutinho, Roberio Daniel da Silva 259
Craig, Brett J. 138
Cruz, Juan Carlos García 18, 183
Cruz-Mena, Javier 48, 65, 111
Cunha, Jailson 295
Cunha, Marcia Borin da 256, 264
Cunha, Nayane Yuri Taniguchi 260

D

Daelli, Velentina 165
Dahmouche, Mônica Santos 293
Damsma, Welmoet 239
Dantas, Regina 89
Dapeng, Wang 23
Davies, Alun Iwan 21, 225
Davies, Gareth 116
Davis, Lloyd Spencer 192
Delgadillo, Ivonne 215, 216, 229
Delizoicov, Demetrio 137
Delou, Cristina Maria Carvalho 113
Desmond, Nicola 142
Devilee, Jeroen 96
Dias, Susana 46, 227
Díaz, Kenia Valderrama 61
Dijkstra, Anne 30, 74
Ding, Xiaojun 121
Diniz, Luiz Antonio Garcia 211
Diniz, Pedro Mol Arreguy 270
Dorne, Vinícius Durval 210
Duarte, Isabel Margarida 175
Dümpel, Renata Guimarães 293
Duncke, Angela Camila Pinto 256, 264
Dunckel, Betty 127
Dunwoody, Sharon 14, 36
E

Ebina, Kuniyoshi 121
Echegaray, Ana Laura 268
Einsiedel, Edna 195
El-Hani, Charbel Niño 38
Elliot, Jo 80
Emde, Katharina 105, 133
Engstrom, Martha Corley 138
Erthal, Flávio 69
Escobar, Ana Maria Jaramillo 291
Espejel, Maria de Lourdes Esther Mateos 214

F

Fabrício, Tárcio Minto 208, 233
Fagundes, Vanessa Oliveira 150
Falade, Bankole 30, 144
Fares, Djana Contier 93
Farley, Mark 232
Fayard, Pierre 176, 178
Featherstone, Helen 33
Fernandez, Miriam 209, 215, 279
Fernandez, Nicolas 226
Fernandino, Fabrício 261
Ferracioli, Laércio 265
Ferrari, Marcelle Correia 110
Ferreira, Adlane Vilas-Boas 258
Ferreira, José Ribamar 66
Figueroa, Mayra 209, 215, 279
Finkler, Wiebke 146
Fleming, Jean 25
Flipse, Steven 74, 179
Flores, Natalia Martins 152
Flores, Rafael Fernández 97
Fonseca, Luiz Eduardo 49
Fonseca, Marina Assis 124
França, Andressa de Almeida 255
Franco, Federico 50
Fredericks, Azeza 54, 79
Freitas, Elze de Souza 271
Freitas, Márcia de Souza Luz 275
Freites, Yajaira 203
Frodeaman, Robert 26

G

Gaag, Belinda van der 236
Gallo, Paulo Rogério 266
Gan, Judy 202
Gano, Gretchen 29
García, Adriana Castro 214
Garcia, João 266
Garcia, Marcelo Pereira 217
Garnier, William 185
Garrido, Oriol Marimon 249
Garroti, Carina Pascotto 112
Gascoigne, Toss 23, 24, 25
Geraedts, Caspar 204
Gerber, Alexander 24, 94, 150, 238, 271
Gheysen, Godelieve 85, 286
Giering, Maria Eduarda 174
Gino, Mauricio 261
Giordan, Marcelo 256, 264
Gires, Auguste 123, 152
Giulio, Gabriela Marques Di 16
Glaser, Daniel 207
Göbel, Claudia 243
Gobira, Pablo 261
Godinho, Ana 191, 228, 231
Goede, Wolfgang C. 238
Golombek, Diego 48, 66
Gomes, Flavia Carvalho Alcantara 212
Gomes, Isaltina Maria de Azevedo Mello 152, 184, 289
Gomes, Rachel Dias 149
Gonçalves, Elizabeth Moraes 275
Gonçalves, Michele Fernandes 227
Gondwe, Mzamose 87, 169
Gonzalez, Jorge Padilla 52, 109
Gopichandran, Ramchandran 59
Gore, Michael M. 66, 154
Goto, Takayuki 121
Gouvea, Maria Isabel Fragoso da Silveira 272, 287
Gouveia, Fabio 135
Gouw, Ana Maria Santos 257, 274, 292
Grootens-Wiegers, Ronella 108, 162, 280
Guchelaar, Henk-Jan 124, 254
Guimarães, Maria Cristina Soares 139
Guimarães, Vanessa F. 135
Günther, Lars 14, 183
Gurgel, Idê Gomes Dantas 184, 189
Gurgel, Ivã 156

H

Haibara, Andrea 261
Hald, Marianne 43
Hayashi, Carlos Roberto Massao 255
Hayashi, Maria Cristina Piumbato Innocentini 255
Haynes, Elaine Reynoso 24, 46, 52, 57
Haynes, Lakeram 176
Hernández, Martha Elena Cambre 53, 56
Heyderman, Robert 142
Hickman, Matthew 54, 249
Hioki, Koichiro 121
Hirschfeld, Daniela 64
Holliman, Richard 19, 27, 33, 116
Holmes, Leah 207, 249
Hora, Dinair Leal da 272, 287, 296
Hora, Eloisa Leal da 272, 287, 296
Horst, Maja 34

I

Iannini, Ana Maria Navas 104
Ikebe, Yasushi 29
Imrie, John 187
Iracet, Érica Ehlers 174
Irigaray, Eduardo Sáenz de Cabezón 249
Isabel, González Guerrero Laura 253
Isayama, Ricardo Noboro 186
Itoh, Masayuki 121
Iwata, Adriana Yumi 218, 247
Iwokwagh, Nicholas Sesugh 115

J

Jacquemyn, Erik 41, 62
Jafferally, Deirdre 173
Jansen, Miranda 204
Jenkins, Tricia Alegra 231
Jensen, Eric Allen 27, 185, 201, 237
Jesus, Luiz Roberto Vieira de 188
Jia, Hepeng 83
Jiménez, Patricia Aguilera 70, 81
João, Hebert Alexandre 295
Johnson, Dale 127
Jonathan, Miguel 89
Jorge, Elida da Conceição 277
Juárez, Claudia 130
Júlio, Catarina 191, 228, 231
Jurdant, Baudouin 178

K

Kakkar, Preeti 72
Kamel, Luciana 296
Kano, Kei 121
Kennedy, Eric B. 102
Kera, Denisa 170
Kerlow, Isaac 112, 207
Kinyanjui, Sam 225
Kleijn, Julian van der 118
Kleinhans, Maarten 204, 239
Klerk, Mirande de 162
Klimmt, Christoph 105, 133, 278
Krämer, Nicole C. 198
Küchler, Alita Diana 259
Kudo, Mitsuru 121
Kulichova, Zuzana van der Werf 153

L

Lacerda, Francinete Francis 260
Lages, Wallace 261
Lamy-Peronnet, Rafaela Samagaia 137
Land–Zandstra, Anne 96, 162
Larsdotter, Karin 95, 229, 282
Latchem, Helen Louise 21, 249
Laursen, Sheena 48
Legoh, Finarya 182
Leiper, Lucy 33
Leite, Camila Megale 261
Lelliott, Anthony 80, 167
León–Castellá, Alejandra 52, 62, 209, 243
Lessa, Edvan 283
Levin, Luciano Guillermo 39, 197
Lewenstein, Bruce 13, 25, 39, 54, 83, 122
Liang, Xuan 91
Libório, Victória 283
Lima, Adriana 293
Lima, Natália Medeiros de 275
Lima, Rodrigo Correia de 260
Lima, Susana Herrera 45, 131, 169
Lima, Vera Lúcia de Souza e 174
Lin, Pei-Ling 281
Lin, Yin 35
Lindholm, Maria 282
Lindegaard, Luz 52, 57, 70
Lindenmeyer, Luciana Pereira 129
Link, Elena 105, 133
Lino, Odilio de Souza 272, 287, 296
Liu, Xuan 72
Lobino, Maria das Graças Ferreira 265
Lock, Simon J 36
Longnecker, Nancy 87, 135, 169
Lopes, Cecília de Almeida 260
Lopes, Rosemeire Braga 186
Lorencet, Andrea 30, 41
Loth, Moacir 259
Louis, Connie St 19, 86
Lourenco, Ariane Baffa 295
Louzada, Gabriel D’Angelo 232
Luccas, Tainá Mascarenhas de 227
Lundgren, Klas–Herman 282
Lupetti, Karina Omuro 218, 247

M

Mação, Patrik Camporez 277
MacFadden, Bruce 127
Machado, Carmen Silva 117
Maciel, Chandra Lima 265
MacLean, Tristan 203
Macnaghten, Philip Martin 16
Maenami, Haruhi 121
Maes, Jasmien 85, 286
Magalhães, Bárbara 148
Mahlinza, Mduduzi 187
Maia, Bárbara Ávila 258
Maier, Michaela 99, 101
Mainen, Zachary 82, 230
Masi, Ernesta De 188
Mano, Sonia 135
Mansur, Kátia Leite 69, 224
Marandino, Martha 93
Marc, Joëlle Le 38
Marín, Efraín Cruz 18
Marinho, Francisco 252
Marins, Theo 212
Markowitz, Ezra M. 100
Martins, Carla Macedo 129
Marques, Ivan da Costa 132, 223
Marques, Joana Brás Varanda 288
Marques, Lediane 205
Marques, Maria Aldina 175
Marques, Tiago 82
Marson, Guilherme Andrade 288
Martineau, Céline 156
Martínez, Marisol 268
Martínez, Vanessa 97
Massarani, Luisa 50, 52, 55, 68, 122
Mathieu, Anne Lise 70
Matsuo, Mika 262
Matteo, Yuri 204, 239
Matterson, Clare 207
Mazon, Juan Tonda 63, 168
Mazzonetto, Marzia 70, 95
Mdala, Chisomo 142
Medeiros, Daniel Nascimento 283
Medina, Alfonso Fernández 130
Mejlgaard, Niels 28
Mena, Ana Lúcia 191, 228, 231
Mendizabal, Victoria 88
Mendoza, Mónica Beatriz 151
Meneguello, Cristina 81
Menezes, Carlos Eduardo Gabriel 284
Mero, Graciela 53, 175
Menzagora, Matteo 20, 90, 156, 242
Metcalfe, Jennifer 48, 74
Mignan, Vanessa 156
Mikami, Naoyuki 29
Miller, David 19
Miller, Steve 23, 24
Milnitsky, Renan 156
Minamoto, Toshifumi 121
Mir, Debby 41, 246
Mir, Ronen 41, 62, 246
Mistry, Jay 173
Mizumachi, Eri 121
Molen, Juliette Walma van der 239
Moll, Jorge 212
Montero, Cecília 128
Moraes, Marcela Werkema de Oliveira 219
<table>
<thead>
<tr>
<th>Name</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morales, Ana Paula</td>
<td>86</td>
</tr>
<tr>
<td>Morales, Emilia Sánchez</td>
<td>97</td>
</tr>
<tr>
<td>Morales, Manuel Martínez</td>
<td>120</td>
</tr>
<tr>
<td>Moreira, Ildeu de Castro</td>
<td>35, 58, 224</td>
</tr>
<tr>
<td>Mori, Mikihiko</td>
<td>123</td>
</tr>
<tr>
<td>Morimura, Yoshitaka</td>
<td>121</td>
</tr>
<tr>
<td>Mota, Theo</td>
<td>261</td>
</tr>
<tr>
<td>Motoki, Tamaki</td>
<td>43</td>
</tr>
<tr>
<td>Moxon, Elizabeth</td>
<td>43</td>
</tr>
<tr>
<td>Mulder, Henk</td>
<td>206</td>
</tr>
<tr>
<td>Munhoz, Marcelo Gameiro</td>
<td>156</td>
</tr>
<tr>
<td>Muñoz, Miguel Fernando Pacheco</td>
<td>18</td>
</tr>
<tr>
<td>Murphy, Padraig</td>
<td>172, 195</td>
</tr>
<tr>
<td>Murriello, Sandra</td>
<td>45, 46, 193</td>
</tr>
<tr>
<td>Mwangome, Nacy</td>
<td>225</td>
</tr>
<tr>
<td>Nahuelhual, Evelyn</td>
<td>99</td>
</tr>
<tr>
<td>Nakayama, Akie</td>
<td>1211</td>
</tr>
<tr>
<td>Nardelli, Thereza</td>
<td>148</td>
</tr>
<tr>
<td>Naula, Deanne</td>
<td>93</td>
</tr>
<tr>
<td>Nava, Roberto Hinojosa</td>
<td>253</td>
</tr>
<tr>
<td>Navarro, Mariechel J.</td>
<td>24, 110</td>
</tr>
<tr>
<td>Nazir, Joanne</td>
<td>104</td>
</tr>
<tr>
<td>Negrete, Aquiles</td>
<td>77</td>
</tr>
<tr>
<td>Nejad, Ana Paula Domingos Vieira</td>
<td>232, 270</td>
</tr>
<tr>
<td>Pahlevan</td>
<td></td>
</tr>
<tr>
<td>Nelo, Ana Maria</td>
<td>178, 290</td>
</tr>
<tr>
<td>Nepote, Ana Claudia</td>
<td>128</td>
</tr>
<tr>
<td>Neresini, Federico</td>
<td>30, 41</td>
</tr>
<tr>
<td>Neto, Antônio Julio Rebelo</td>
<td>184</td>
</tr>
<tr>
<td>Neto, Giovani Zanetti</td>
<td>265</td>
</tr>
<tr>
<td>Neubaum, German</td>
<td>196</td>
</tr>
<tr>
<td>Neubert, Hannes-J.</td>
<td>238</td>
</tr>
<tr>
<td>Neuhaus, Janine</td>
<td>150</td>
</tr>
<tr>
<td>Neves, Rosiclcer</td>
<td>49</td>
</tr>
<tr>
<td>Nielsen, Kristian H.</td>
<td>24, 43</td>
</tr>
<tr>
<td>Nieto, Luz María Hernández</td>
<td>89</td>
</tr>
<tr>
<td>Nogueira, Maria Inês</td>
<td>263, 266</td>
</tr>
<tr>
<td>Nunes, Gilson Antonio</td>
<td>294</td>
</tr>
<tr>
<td>Nyirenda, Deborah</td>
<td>141</td>
</tr>
<tr>
<td>O'Hara, Kathryn</td>
<td>119, 160</td>
</tr>
<tr>
<td>Obot, Charles Dennis</td>
<td>103</td>
</tr>
<tr>
<td>Ogawa, Yoshikazu</td>
<td>262</td>
</tr>
<tr>
<td>Ogodo, Ochieng</td>
<td>12, 64</td>
</tr>
<tr>
<td>Okada, Alexandra</td>
<td>164</td>
</tr>
<tr>
<td>Okada, Tsutomu</td>
<td>262</td>
</tr>
<tr>
<td>Olényi, Sebastian</td>
<td>144</td>
</tr>
<tr>
<td>Olesk, Arko</td>
<td>25</td>
</tr>
<tr>
<td>Olguín, Paulette</td>
<td>214</td>
</tr>
<tr>
<td>Oliveira, Adilson Jesus Aparecido</td>
<td>208, 211, 233</td>
</tr>
<tr>
<td>Oliveira, Ana Carolina</td>
<td>260</td>
</tr>
<tr>
<td>Oliveira, Antonio José Silva</td>
<td>130, 178, 240, 290, 295</td>
</tr>
<tr>
<td>Oliveira, Bernardo Jefferson</td>
<td>38, 124, 213</td>
</tr>
<tr>
<td>Oliveira, Graciela</td>
<td>292</td>
</tr>
<tr>
<td>Oliveira, Guímel Fonseca</td>
<td>270</td>
</tr>
<tr>
<td>Oliveira, José Arimateá</td>
<td>277</td>
</tr>
<tr>
<td>Oliveira, José Carlos</td>
<td>89</td>
</tr>
<tr>
<td>Oliveira, Josué Benvindo Santana</td>
<td>232, 270</td>
</tr>
<tr>
<td>Oliveira, Maisa Maryelli</td>
<td>148, 267</td>
</tr>
<tr>
<td>Oliveira, Marielle Medeiros</td>
<td>271</td>
</tr>
<tr>
<td>Oliveira, Martin Bonfil</td>
<td>187</td>
</tr>
<tr>
<td>Oliveira, Michele Aparecida da Ferreira</td>
<td>272</td>
</tr>
<tr>
<td>Moreira de</td>
<td></td>
</tr>
<tr>
<td>Oliveira, Silvia Maria Velasques</td>
<td>224</td>
</tr>
<tr>
<td>Oliveira, Sofia Luisa Moutinho</td>
<td>217</td>
</tr>
<tr>
<td>Oliveira, Benedito</td>
<td>89</td>
</tr>
<tr>
<td>Oreja, Roberto Feltro</td>
<td>18, 183</td>
</tr>
<tr>
<td>Osborne, Jonathan</td>
<td>191</td>
</tr>
<tr>
<td>Osseweijer, Patricia</td>
<td>144, 153</td>
</tr>
<tr>
<td>Otto, Shawn Lawrence</td>
<td>238</td>
</tr>
<tr>
<td>Ottoni, Fernanda Muniz Junqueira</td>
<td>283</td>
</tr>
<tr>
<td>Oviedo, Luz Helena</td>
<td>127</td>
</tr>
<tr>
<td>Paiva, Eduardo Nazareth</td>
<td>89</td>
</tr>
<tr>
<td>Pansegrau, Petra</td>
<td>30, 31</td>
</tr>
<tr>
<td>Papagayo, Diana</td>
<td>125</td>
</tr>
<tr>
<td>Pareja, Emilia Hermelinda Lopera</td>
<td>103, 176</td>
</tr>
<tr>
<td>Patairiya, Manoj Kumar</td>
<td>24, 136, 263</td>
</tr>
<tr>
<td>Paula, Bruno Lucas Saliba</td>
<td>269</td>
</tr>
<tr>
<td>Paulino, Rocio Ramirez</td>
<td>158, 163</td>
</tr>
<tr>
<td>Pavão, Antonio Carlos</td>
<td>41, 66</td>
</tr>
<tr>
<td>Pedretti, Erminia</td>
<td>104</td>
</tr>
<tr>
<td>Pellegrini, Giuseppe</td>
<td>106</td>
</tr>
</tbody>
</table>

---

**INDEX**
Perea, Ángel Figueroa 130
Pereira, Aldo Gomes 290
Pereira, Ana 230
Pereira, Eduardo Erick de Oliveira 113
Pereira, Helenadja Mota Rios 257
Peres, Olga Maria Ritter 256, 264
Perkins, Nick 12, 72
Permatasari, Dyah Ratna 126
Pestana, Fernanda 227
Peters, Hans Peter 35, 36, 68
Pezzo, Mariana Rodrigues 208, 211, 233
Phan, Linh 226
Pierro, Bruno de 253
Pimenta, Denise Nacif 139
Pinaffo, Jaqueline 292
Pinto, Leda Cardoso Sampson 279
Pinto, Sonia 164
Pizzato, Michelle Camara 205
Plessis, Hester du 59, 158
Poenaru, Lara Mucci 213
Polcuch, Ernesto Fernández 50, 62
Polino, Carmelo 34, 51
Pollard, Anna 249
Pombo, Pedro 215, 216, 229
Portilla, María Edith Escalón 120, 131, 169
Post, Senja 100, 101
Pressi, Leonardo Frederico 69
Priest, Susanna 43, 55
Prochnow, Juliana 200
Procópio, Cinthia Campos 232, 270

R

Ramírez, Luz Lazos 17, 18, 184
Ramos, Catarina 82, 230
Ramos, Rui 175
Rask, Mikko Tapani 28
Ravn, Tine 28
Raxach, Juan Carlos 296
Raza, Gauhar 59, 158
Reeves, R. Guy 166
Reichwein, Maarten 239
Reis, Débora d’Ávila 61, 200, 213, 219
Ren, Fujun 68, 72
Ren, Jie 68
Rennie, Scott 82
Resende, Tatiane 258
Resende, Tatiane 258
Restrepo, Ana Cristina Abad 43, 61, 291
Retzbach, Andrea 100, 101
Revuelta, Gema 24, 27, 45, 48
Ribeiro, Silvar 164
Rifkin, William Douglas 13
Roberts, Raimundo 99
Roberts, Stephen 66
Robinson, Thomas Derek 140
Rocha, Heitor Costa Lima da 260
Rocha, Jessica Noberto 171, 213
Rocha, João Eugênio Diaz 252, 277, 284
Rocha, Luísa 117
Rocha, Patrik de Souza 205
Rodari, Paola 46, 159, 165, 242
Rodrigues, Ariel Lopes 247
Rodrigues, Maria Elizabeth de S. 174
Rodrigues, Meggie de Sousa 43, 219
Rodrigues, Myriam García 143
Rodrigues, Sandra Maria S. 174
Rodríguez, Ana Victoria Perez 72
Rodríguez, Myriam García 142
Rojas, Gustavo 29, 30, 208, 233
Romero, Xenia Rueda 17, 184
Rosa, Leonardo Siqueira da 210
Rosen, Cecilia 111, 160
Rösner, Leonie 196
Rothberg, Danilo 141, 155
Roveda, Rudá de Souza 205
Rowe, Shawn 232, 267
Rubiales, Ricardo 242
Rueda, Aleida 84, 111
Rumjanek, Letícia 242
Rümmele, Klaus 218

S

Sahoo, Subhasis 30, 31
Saikkonen, Samps 120
Sales, Carla Paolucci 139
Salgado, Audrey Ivanenko 261
Salgado, Luciana Salazar 288
Salgado, Maria de Fatima 240, 282
Salter, Zarin 135
Sanchez, Ana 231
Sanchez, Yolanda 209, 215, 279
<table>
<thead>
<tr>
<th>Name</th>
<th>Page Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sanden, Maarten C. A. van der</td>
<td>74, 117, 240</td>
</tr>
<tr>
<td>Sander, Vanessa</td>
<td>148</td>
</tr>
<tr>
<td>Sanders, Amy</td>
<td>36, 207</td>
</tr>
<tr>
<td>Santaolalla, Javier</td>
<td>249</td>
</tr>
<tr>
<td>Santos, Adriana Cristina Omena dos</td>
<td>276</td>
</tr>
<tr>
<td>Santos, Ana Carla dos</td>
<td>275</td>
</tr>
<tr>
<td>Santos, Daniele Martins dos</td>
<td>78</td>
</tr>
<tr>
<td>Santos, Mariana Oliveira Santana dos</td>
<td>184, 279</td>
</tr>
<tr>
<td>Santos, Silvia Martins dos</td>
<td>285</td>
</tr>
<tr>
<td>Santos, Thaís Fernandes</td>
<td>217</td>
</tr>
<tr>
<td>Santos, Valdílea Gonçalves Veloso dos</td>
<td>296</td>
</tr>
<tr>
<td>Scalfi, Grazielle</td>
<td>80, 267</td>
</tr>
<tr>
<td>Scanlon, Eileen</td>
<td>116</td>
</tr>
<tr>
<td>Schainberg, Mariana Muchon</td>
<td>232</td>
</tr>
<tr>
<td>Schall, Brunah</td>
<td>106</td>
</tr>
<tr>
<td>Scheper, Thomas</td>
<td>278</td>
</tr>
<tr>
<td>Schertzer, Daniel</td>
<td>123, 152</td>
</tr>
<tr>
<td>Scheufele, Dietram A.</td>
<td>91, 189</td>
</tr>
<tr>
<td>Schiaffino, Roberta Savedra</td>
<td>273</td>
</tr>
<tr>
<td>Schiele, Bernard</td>
<td>24, 59</td>
</tr>
<tr>
<td>Searle, Suzette</td>
<td>132</td>
</tr>
<tr>
<td>Shan, Liran Christine</td>
<td>74</td>
</tr>
<tr>
<td>Sheppard, Chloe</td>
<td>207</td>
</tr>
<tr>
<td>Shonaka, Motoko</td>
<td>262</td>
</tr>
<tr>
<td>Shukla, Rajesh</td>
<td>30, 31, 72</td>
</tr>
<tr>
<td>Silva, Ana Carolina Gomes</td>
<td>232, 270</td>
</tr>
<tr>
<td>Silva, Ana Cristina Da Mata</td>
<td>275</td>
</tr>
<tr>
<td>Silva, Ascendino Flavio Dias e 179</td>
<td></td>
</tr>
<tr>
<td>Silva, Carolina Borba da</td>
<td>205</td>
</tr>
<tr>
<td>Silva, Douglas Falcão</td>
<td>50, 58</td>
</tr>
<tr>
<td>Silva, Ducenir Paz da</td>
<td>240</td>
</tr>
<tr>
<td>Silva, Enise Castro</td>
<td>258</td>
</tr>
<tr>
<td>Silva, Fernando Teixeira</td>
<td>277</td>
</tr>
<tr>
<td>Silva, Glaucia Faria Rodrigues da</td>
<td>232, 270</td>
</tr>
<tr>
<td>Silva, Janice Henriques</td>
<td>261</td>
</tr>
<tr>
<td>Silva, Ladiélio Ferreira Maciel da</td>
<td>260</td>
</tr>
<tr>
<td>Silva, Raphael Santos Marques da</td>
<td>284</td>
</tr>
<tr>
<td>Silva, Wenderson Francisco Ferreira da</td>
<td>240</td>
</tr>
<tr>
<td>Simis, Molly J.</td>
<td>139</td>
</tr>
<tr>
<td>Simões, Luciane Correia</td>
<td>223, 224</td>
</tr>
<tr>
<td>Sinclair, Stephanie</td>
<td>54, 207</td>
</tr>
<tr>
<td>Sittenfeld, David</td>
<td>29</td>
</tr>
<tr>
<td>Skeldon, Kenneth</td>
<td>33</td>
</tr>
<tr>
<td>Smallman, Melanie</td>
<td>26, 146, 170</td>
</tr>
<tr>
<td>Snik, Frans</td>
<td>96</td>
</tr>
<tr>
<td>Soares, Eduardo Oliveira</td>
<td>224</td>
</tr>
<tr>
<td>Soares, Giselle</td>
<td>161</td>
</tr>
<tr>
<td>Sotiriou, Menelaos</td>
<td>238</td>
</tr>
<tr>
<td>Souza, Claudia Teresa Vieira de</td>
<td>272, 287, 296</td>
</tr>
<tr>
<td>Souza, Luis Eugenio Portela Fernandes</td>
<td>265</td>
</tr>
<tr>
<td>Souza, Mariana Adeodato Alves de</td>
<td>265</td>
</tr>
<tr>
<td>Souza, Nathan Mendes</td>
<td>220</td>
</tr>
<tr>
<td>Spanenberg, Ana Cristina Menegotto</td>
<td>276</td>
</tr>
<tr>
<td>Spek, Peter van der</td>
<td>13</td>
</tr>
<tr>
<td>Spera, Ailen</td>
<td>193</td>
</tr>
<tr>
<td>Squires, Andrew</td>
<td>116</td>
</tr>
<tr>
<td>Srivastava, Pradeep K</td>
<td>266</td>
</tr>
<tr>
<td>Staveloz, Walter</td>
<td>62</td>
</tr>
<tr>
<td>Steffani, Maria Helena</td>
<td>58, 270</td>
</tr>
<tr>
<td>Stevens, Edward James</td>
<td>33</td>
</tr>
<tr>
<td>Stevenson, Veronica Harwood</td>
<td>98</td>
</tr>
<tr>
<td>Stocklmayer, Susan</td>
<td>45, 54, 55, 127, 132, 154</td>
</tr>
<tr>
<td>Stone, Peter</td>
<td>143</td>
</tr>
<tr>
<td>Straßmann, Carolin</td>
<td>196</td>
</tr>
<tr>
<td>Strolin, Paolo</td>
<td>188</td>
</tr>
<tr>
<td>Steiner, Kate</td>
<td>55</td>
</tr>
<tr>
<td>Su, Leona Yi-Fan</td>
<td>91</td>
</tr>
<tr>
<td>Suerdem, Ahmet</td>
<td>41, 65, 72</td>
</tr>
<tr>
<td>Suga, Makiko</td>
<td>121</td>
</tr>
<tr>
<td>Sumner, Janet</td>
<td>116</td>
</tr>
<tr>
<td>T</td>
<td></td>
</tr>
<tr>
<td>Tagüeña, Julia</td>
<td>23, 50, 52, 248</td>
</tr>
<tr>
<td>Takahashi, Midori</td>
<td>188</td>
</tr>
<tr>
<td>Takanashi, Katsuya</td>
<td>121</td>
</tr>
<tr>
<td>Takeuchi, Noboru</td>
<td>58</td>
</tr>
<tr>
<td>Talavera, Marisa</td>
<td>53</td>
</tr>
<tr>
<td>Tartas, Jean-Roland</td>
<td>123</td>
</tr>
<tr>
<td>Tatalovic, Mico</td>
<td>64</td>
</tr>
<tr>
<td>Tavares, Juliana Carvalho</td>
<td>261</td>
</tr>
<tr>
<td>Tchiguirinskaia, Loulia</td>
<td>123, 152</td>
</tr>
<tr>
<td>Teixeira, Carlos Antonio</td>
<td>180, 186, 266</td>
</tr>
<tr>
<td>Teixeira, Maria de Lourdes Benamor</td>
<td>272, 287</td>
</tr>
<tr>
<td>Teixeira, Sofia</td>
<td>229</td>
</tr>
<tr>
<td>Teixeira, Tattiana Gonçalves</td>
<td>180</td>
</tr>
<tr>
<td>Teruya, Leila Cardoso</td>
<td>288</td>
</tr>
<tr>
<td>Thibaud, Virginie</td>
<td>90</td>
</tr>
<tr>
<td>Tinnaluck, Yuwanuch</td>
<td>176</td>
</tr>
<tr>
<td>Tomasson, Lotta</td>
<td>95, 228, 229, 282</td>
</tr>
<tr>
<td>Tome, Kristine N.</td>
<td>110</td>
</tr>
<tr>
<td>Torres, Adriana Aparecida Lemos</td>
<td>232, 270</td>
</tr>
<tr>
<td>Torres, Lucia Beatriz</td>
<td>275</td>
</tr>
</tbody>
</table>
INDEX

Torrezan, Renata 277, 284
Townsend, Nigel 250
Trama, Jacque Sarphatie 13
Treffry-Goatley, Astrid Jane 21, 187, 222
Trench, Brian 24, 27, 34, 43, 194, 240
Tresca, Laura 12
Tuyama, Laura 259

V

Valcke, Martin 85, 286
Valderrama, Lorena B. 99
Valdés, Valentina Martínez 120
Väliverronen, Esa 120, 167
Varela, Adalberto Furtado Mendonça 49
Vargas, Rosalía 66
Varguez, Milagros 97
Vasconcelos, Sthar-Mar 266
Velho, Ana Paula Machado 210
Venkateswaran, Thathamanglam
Viswanathan 59
Verkade, Alex 118, 204, 239
Vernal, Teresa 262
Vestergaard, Gunver Lystbaek 181
Vianna, Beatriz 14
Vicari, Rosa 123, 152
Viglio, José Eduardo 16
Vilas-Boas, Adlane 147, 261
Villegas, Gabriela Frías 27, 77, 84
Vinnik, Ekaterina 82
Vivó, Alberto 249
Vogt, Carlos 31, 39, 41, 51, 86
Vries, Martine 108, 280

W

Wahl, Stefanie 278
Watanabe, Graciella 156
Watanabe, Masataka 35
Wehrmann, Caroline 74, 153
Weingart, Peter 31
Wien, Charlotte 194
Williams, Adriana Bravo 76, 130, 190
Williams, Andy 19
Winter, Stephan 196

X

Xenos, Michael 91, 189

Y

Yagi, Ekou 29
Yahia, Mohammed 12
Yeo, Sara K. 91, 189

Z

Zgaoui, Souad 241
Zhang, Huiliang 68
Zhu, Xiaomin 128
Zinn, Jens 16
Zviniene, Saule Maciukaite 29
The PCST is organized by:

Support Partners Platinum

Support Partners Silver

Local Partners

Media Partner

Partners