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Public Communication of Science and Technology



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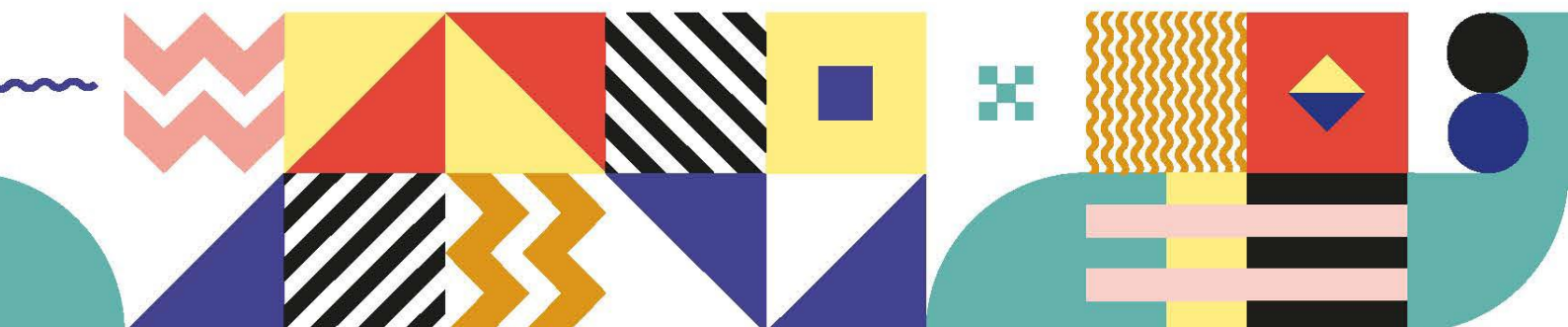
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PCST Conference
Creating Common Ground
Tuesday 11 – Friday 14 April
2023



FULL PROGRAMME



PARTNERS AND SPONSORS

We are thankful to the following partners and sponsors who made the PCST2023 conference possible.

Partners



Sponsors



ELSEVIER



LOCAL ORGANISING COMMITTEE

The PCST2023 conference is organised by a rich variety of Dutch organisations.

We thank all organisations and the supporting individuals for their many contributions.



With professional
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READING GUIDE

This book of abstracts has two main parts. The first part presents various sections with information about the 17th PCST2023 conference, such as welcome addresses by the PCST president, the Local Organizing Committee and the chair of the Programme Committee. It includes practical information and information about amongst others the social programme, a map of the conference venue as well as information about the Grants and Fellowships. It provides a general overview of the conference programme and a section with more details about the sessions. These include background information about the plenary sessions and the key note speakers as well as the special offer of lunch sessions which are organised in collaboration with our partners and sponsors.

The conference programme, in total, exists of the main programme *onsite* which can be attended from **Wednesday 12 till Friday 14 April** in the conference venue De Doelen in Rotterdam in the Netherlands. In addition, it includes information about the online programme, which can be attended *online only* from **Monday 3 till Wednesday 5 April** via registration at the [PCST network website](https://www.pcst2023.nl). Finally, it also includes information about the pre-conference programme which will be held in *various venues in Rotterdam* on **Tuesday 11 April**, the day before the main programme and can be attended for free.

The second part of the book, which has **almost 500 pages**, presents the texts of the abstracts in order of surname of the main authors. It includes the abstracts of the contributors to the main conference programme as well as those contributing to the online and the pre-conference programme.

Several people contributed to the content and making of this book of abstracts. Thanks to Bruce, Carolina, Caroline, Frank, Fred, Jenni, Lena, Liesbeth, Linka, Marlit, Marina, Sook-kyoung and Tessa.

Enjoy reading bits and pieces!

Anne Dijkstra

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WELCOME TO PCST₂₀₂₃ IN ROTTERDAM

Message from Dr Jennifer Metcalfe, president PCST network

This is the 17th PCST conference since it all began in 1989 at Poitiers in France. It has been my absolute privilege to attend all the last 15 conferences since my first one in Montreal Canada in 1994. My participation at the conference happened because I was on a study trip in 1993 visiting Bruce Lewenstein at Cornell University, and he introduced me to Bernard Schiele who was organising the Montreal conference. This began the growth of an extraordinary personal and professional network. At the Melbourne 1996 conference, I met Marina Joubert. At the Berlin 1998 conference, I met Hans Peter Peters. And at Geneva in 2001, I met Luisa Massarani, Melanie Smallman, Massimiano Bucchi, and...



At every conference I have made new friends and re-connected with colleagues. I have always been stimulated to think differently about the way I work as a practitioner and the approach I take to science communication scholarship. I hope those of you who are new to PCST begin a similar experience.

This conference in Rotterdam is a celebration. We celebrate being face-to-face again after five years. We celebrate our 34-year history, we celebrate a record 750+ PCST members, and we celebrate a more mature PCST community, which is seriously examining issues of diversity, inclusion, access and equity.

As a community, we have become increasingly conscious of the gaps—real or perceived—that exist between practitioners and scholars, and the opportunities that come from working together. At this conference we focus beyond this single lens to explore the multiple lenses that create a common ground for the Public Communication of Science & Technology.

After five years, we also celebrate the success of the PCST Scientific Committee's sub-committee system. This system provides a way for all our committee members to contribute to our community.

Our new [PCST network](https://www.pcst2023.nl) website and active social media channels reflect the enthusiasm of that committee led by Michelle Riedlinger. Our constitutional and organisational processes, along with our finances, are kept on track under the leadership of Toss Gascoigne. The delivery of a series of fascinating publicly available member webinars on our YouTube channel is down to the committee led by Ana Claudia Nepote. Our external relations committee, under the leadership of Brian Trench, has delivered significant partnerships and supported the development of PCST symposiums. The Teaching Forum, coordinated by Luisa Massarani, goes from strength to strength from documenting existing courses to the new mentoring program for members.

A special thanks also go to our secretary, Heather Doran and our treasurer, Alexandra Borissova. They keep our Network functioning as it should.

And we wouldn't be having this conference, including the April online component, without the huge efforts of the PCST Program Committee Chair, Marina Joubert, supported by members of that committee. I met weekly for many months with Anne Dijkstra who agreed to take on the role of liaising between the Local Organising Committee (LOC) and the PCST Scientific Committee. The logistical success of this conference was largely due to Anne's diligence and other members of the LOC, including Caroline Wehrmann, Fred Balvert, Liesbeth de Bakker and Frank Nuijens.

Finally, I must thank and celebrate the many years of service given by eight members of the Scientific Committee who are stepping down from the Committee at the end of the conference: Massimiano Bucchi, Sarah Davies, Toss Gascoigne, Marina Joubert, Luisa Massarani, Hans Peter Peters, Bernard Schiele, and Brian Trench. Like these people, I too will be leaving the committee, having been a formally elected a committee member in 2014. However, most of these people, like me, were part of the committee well before formal elections, and Bernard has been there since PCST's inception in 1989.

It's been both an exhilarating and exhausting ride, and I feel honoured and humbled to have served our community on the Scientific Committee over the past 30 years. Thank you.

Join me in connecting, contributing and celebrating at PCST2023.

Jennifer Metcalfe
President PCST network

CREATING COMMON GROUND

Message from Caroline Wehrmann, Anne Dijkstra and Fred Balvert on behalf of the Local Organising Committee PCST2023

It is our great pleasure to welcome you to **#PCST2023** in Rotterdam on behalf of the Local Organising Committee (LOC). We are happy to receive about 650 practitioners, science journalists, information officers, researchers, students, educational staff and others working in the field of science and technology communication from 55 countries at the conference venue De Doelen in Rotterdam.



The **onsite programme** from 12 – 14 April includes presentations of research, reflections on practice and practical workshops and demonstrations. In addition, on Tuesday 11 April 2023 a full **pre-conference day** of 16 exciting and innovative workshops and meetings is organised, while from 3-5 April the **online** programme can be attended via the PCST network website.

We have worked hard with many people to realize this conference, and we are very much looking forward to it. **Many thanks to all** who - in one way or another - make this congress possible!

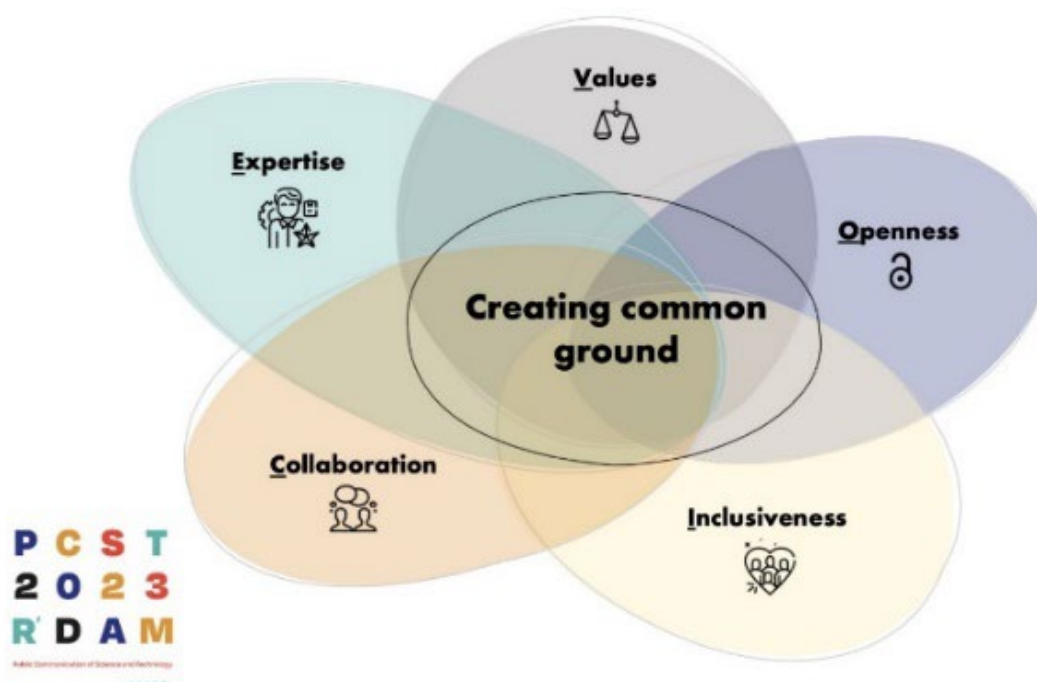
Special thanks to The Dutch Research Council (NWO) - our partner in organizing #PCST2023 - who will actively contribute to our programme with **special lunch sessions**. We are grateful for their participation. We also thank our sponsors Elsevier, GSK and Pfizer. On behalf of NWO, Elsevier and GSK, we kindly invite you to participate in the interesting lunch sessions.

In addition, we are grateful to the supporting organisations and individuals for their generous donations to the Rotterdam Fellows – supported particularly by the Kavli Foundation – and the Diversity & Inclusion Fellowship Fund (more details further on) which helped support over 30 participants to attend the conference.

Conference theme

The LOC of #PCST2023 consists of a broad representation of the Science Communication domain in the Netherlands. When preparing the bid book in 2018, we discussed the theme of the conference at length. Our starting point was: science is under pressure, not only because of society's changing view of the role of scientists as experts, but also because of the increasing pressure to deliver solutions. In addition, the way science is practiced is changing: scientists from different fields have to cooperate and collaboration with government, business, NGOs and general public is necessary. That requires a different role for scientists; they must find and shape that new role in 'society', and learn to deal with it. And this asks for a different, new role for 'science communication' as well. What developments do we see in both scientific practice and in its communication, what do these new roles look like, how are we going to give substance to them?

We wanted to address this kind of questions and search for common starting points. That is why we adopted **Creating Common Ground** as the theme for the #PCST2023 conference. The theme refers to looking for alternatives, critical debate, seeking consensus and collaboration. With Dutch windmills and waterworks as iconic metaphors for the power of searching for these common starting points and reforming coalitions.



Five sub-themes are closely related to Creating Common Ground. They form the acronym **VOICE: Values, Openness, Inclusiveness, Collaboration & Expertise.**

In the contributions of participants, the subthemes are addressed from many perspectives, and ask for exchange of experience, knowledge, ideas and opinions. A few examples:

VALUES: In science and technology, researchers work together with various stakeholders, such as citizens, politicians, policy makers, industry and NGOs. The values and interests of these stakeholders can vary widely. How do they together achieve ethically acceptable, sustainable and socially desirable results of scientific research and innovation?

OPENNESS: Openness and transparency in science can improve the quality of research, promote social support and lead to greater impact of science in society. But due to a variety of reasons, 'open science' has not yet materialised. Scientists and science communication professionals can play an important role in this process.

INCLUSIVENESS: Inclusion has become an important theme in both science and society. New and innovative forms of science communication can be used to reach marginalized groups and engage them in science and technology.

COLLABORATION: Conducting research and working on innovations is not possible without collaboration, in all kinds of forms. Much collaboration is multidisciplinary or transdisciplinary, with a great diversity of participants. Students and teachers from educational institutions are increasingly involved in projects that are about finding solutions to complex social problems. In so-called living labs, they work closely with professionals to solve scientific and social dilemmas.

EXPERTISE: The authority of science is no longer self-evident, just like that of other social institutions. Diverse media provide a platform for alternative views. More than ever, it is the task of scientists to be visible and to proactively participate in the social debate.

During the conference, a team of **curators** will focus on the subthemes, listen carefully to finding similarities or contrasts, common threads. They will try formulating starting points for joint science communication research or common practice. In the closing session, some of their main findings will be shared.

The **art work** of Lauren Raaijmakers, specially made for the PCST2023 conference, has a direct link with several sub-themes. Together with other PCST participants you can discover which relationships you see. The artist is also happy to discuss this with you.

Enjoy Rotterdam and its wider region

All onsite conference sessions will take place under one roof. Conference Centre De Doelen offers plenty of opportunities to meet and network. The venue is located in the heart of the city of Rotterdam and easily accessible. It has an outstanding track record. And, there is also a lot to enjoy in the city of Rotterdam. So, please take the opportunity to explore the city of Rotterdam.

Rotterdam is a vibrant economic hub, hosting many start-ups and new initiatives including in the arts. The city is well known for its modern art museums and galleries. After the destruction of the inner city at the beginning of World War II, the city experimented with modern and experimental architecture and city planning, including the famous cube houses designed by Piet Blom, the more recent Market hall designed by architecture and urban design practice MDRDV, the Erasmus Bridge, named after humanist philosopher Desiderius Erasmus (1466 – 1536). Rotterdam hosts the largest port of Europe, you can visit the harbour by tour boat.

Please note that a number of science museums in Rotterdam and in other cities in the Netherlands will be accessible for free between April 8th and April 16th for PCST2023 participants – with courtesy to the VSC. So please take this chance and enjoy our country.

As you know, the Netherlands have a good reputation in terms of safety as well as accessibility. The country has a rich history, and hosts a number of interesting sights and attractions.

On behalf of the PCST2023 local organising committee (LOC), we wish you an inspiring and fruitful PCST2023!

Caroline Wehrmann – Anne Dijkstra - Fred Balvert

Be inspired by this global science communication gathering

Message from Dr Marina Joubert, PCST-2023 Programme Chair

Melbourne, 1996. Berlin, 1998. Geneva, 2001.
Cape Town, 2002. Barcelona, 2004. Seoul, 2006.
Malmö, 2008. Firenze, 2012. Salvador, 2014.
Istanbul, 2016. Dunedin, 2018. And now
...Rotterdam, 2023!



This is not a complete list of past PCST conference host cities and years, but rather a list of the host cities of the PCST conferences that I was privileged to attend in person. Each of these conferences bring back vivid memories and therefore these cities occupy a special place in my career journey. I came back from each of these meetings filled with new science communication ideas and motivation. I met people that changed the course of my career and opened up new opportunities for collaboration. At every step in my work life, I was able to turn to them for hands-on advice and guidance. They became mentors, guest lecturers and co-supervisors for my students and co-authors on research papers. Some became life-long friends. Being the local host for the 2002 PCST conference in Cape Town South Africa was a special highlight. This event cemented a community of science communication practice in the country, and planted seeds for future research in the field. The ripple effects of PCST-2002 are still felt in South Africa and I was excited to see that there is a new bid to host a future PCST conference in my home country.

After reaping so many benefits from the PCST Network for many years, I agreed to chair the 2023 scientific programme committee. Soon after announcing the conference, the proposals started pouring in. It turned out to be an enormous task to manage the process of reviewing the proposals fairly, and an intricate balancing act to accommodate all those that were accepted. The final programme is packed with sixteen pre-conference workshops, seven plenary sessions, eleven parallel sessions and a series of partner sessions during lunch hours. In the parallel sessions alone, there are 315 lead presenters from 41 countries. I was thrilled to see that 23 authors from South Africa are presenting. Thanks to the initiative and enthusiasm these presenters, PCST 2023 is set to be a feast of innovative and cutting-edge science communication content spanning research and practice in our field.

Of course, I could not build this programme on my own. Jenni Metcalfe took the lead in curating the plenary sessions, while Liesbeth de Bakker and Tessa Zonneveld took charge of the pre-conference day. I had the full support of the scientific programme committee and local organising committee, and must highlight the huge amount of work done by Anne Dijkstra in keeping the process on track and delivering the final programme book. I must also thank Linka Maritz and Lili Rademan, two of my postgraduate students, who helped me tremendously with the task of building the programme and liaising with authors. At times, it felt as if we were building a giant jigsaw puzzle with thousands of pieces, but at least we had a clear mental picture of what we were building.

I hope that all delegates at PCST-2023 will enjoy the conference, engage with its ideas and the important theme of 'finding common ground' and go home invigorated to tackle the ongoing challenges and opportunities that make public communication of science and technology so interesting and rewarding.

Marina Joubert
PCST-2023 Programme Chair

COMMITTEES

PCST PROGRAMME COMMITTEE

The Programme Committee is responsible for the #PCST2023 programme

Chair programme committee:

Marina Joubert – *Africa and the Americas*

Members:

Massimiano Bucchi – *Europe*

Sook-kyoung Cho – *Asia and Australasia*

Heather Doran – *Under 35*

Marlit Hayslett, *Africa and the Americas*

AP Jayaraman – *Asia and Australasia*

Luisa Massarani – *Africa and the Americas*

Jenni Metcalfe – *Asia and Australasia*

Hans Peter Peters – *Europe*

Bernard Schiele – *Africa and the Americas*

PCST SCIENTIFIC COMMITTEE MEMBERS 2021-2023

The Scientific Committee is the governing body of the PCST Network and is responsible for managing the Network

President: Jenni Metcalfe – *Asia and Australasia*

Vice-president: Sook-kyoung Cho – *Asia and Australasia*

Secretary: Heather Doran – *Under 35*

Treasurer: Alexandra Borrissova Saleh – *Under 35*

Chair external relations committee: Brian Trench – *Europe*

Chair finance and rules committee: Toss Gascoigne – *Asia and Australasia*

Chair membership committee: Ana Claudia Nepote – *Africa and the Americas*

Chair programme committee: Marina Joubert – *Africa and the Americas*

Chair web and social media committee: Michelle Riedlinger – *Asia and Australasia*

Members:

Germana Barata – *Africa and the Americas*

Martin W. Bauer – *Europe*

Massimiano Bucchi – *Europe*

Maarten van der Sanden – *Europe*

Sarah Davies – *Europe*

Lloyd Davis – *Asia and Australasia*

Anne Dijkstra – *Europe*

Alice Fleerackers – *Under 35*

Marlit Hayslett – *Africa and the Americas*

AP Jayaraman – *Asia and Australasia*

Carolina Llorente – *Under 35*

Luisa Massarani – *Africa and the Americas*

Luz Helena Oviedo – *Africa and the Americas*

Hans Peter Peters – *Europe*

Mohamed Elsonbaty Ramadan – *Africa and the Americas*

Lei Ren – *Under 35*

Bernard Schiele – *Africa and the Americas*

Melanie Smallman – *Europe*

Guoyan Wang (Ruby) – *Asia and Australasia*

LOCAL ORGANISING COMMITTEE MEMBERS

Caroline Wehrmann – co-chair
Laurens Landeweerd – co-chair
Anne Dijkstra – coordinator
Fred Balvert – finances, social programme
Liesbeth de Bakker – EDI
Leonie de Kluijs – support
Frank Nuijens – publicity
Marjoleine van der Meij – art

STUDENT SUPPORT TEAM

Lena Brandsma
Jitske Fijneman
Nathaniel Germain
Nick Hoofd
Björk Johannes
Anouk de Jong
Julia Kievit
Linka Maritz
Floor Ooms
Carolina Pereira Marghidan
Maud Pfeijffer
Janke Prins
Kelly Rademakers
Tian Qing Yen
Tessa Zonneveld

STUDENT SUPPORT TEAM PRECONFERENCE

Charlotte Daemen
Valentina Gaona
Hessel Hoekstra
Monicah Kirathi
Laura Kuipers
Esther Liefing
Fajar Meirani
Jeanne Muizelaar
Simone Penders
Alice Pravato
Tibisay Sankatsing Nava
Amy van Dijk
Lotte van 't Ooster

The Local Organising Committee is responsible for the organisation of the #PCST2023 Conference

Noelle Aarts
Lucy Avraamidou
Nathalia Azevedo
Marieke Baan
Alexandra Borissova
Jon Chase
Valeria Cernei
Kim Darley Waddilove
Sikke Jansma
Frank Kupper
Anne Land
Cees Leeuwis
Katharine Legun
Philip MacNaghten
Roy Meijer
Henk Mulder
Pedro Russo
Tibisay Sankatsing Nava
Ionica Smeets
Theila Smith
Menno Tummers
Lotte van Burgsteden
Frans van Dam
Margriet van der Heijden
Barry van der Meer
Maarten van der Sanden
Alex Verkade
Jeroen Wiegertjes

PRACTICAL INFORMATION

The PCST2023 conference takes place in conference venue **De Doelen in Rotterdam**. **The entrance for the venue is on Kruisplein 40 at the Willem Burger Hal**. De Doelen is at a few minutes' walk from the Central Station of Rotterdam. Information about travelling to Rotterdam and in the Netherlands and how to buy tickets for public transport can be found on the travel page of the [PCST2023 website](#). Plenary sessions are held in the **Willem Burger Room (Willem Burger Zaal) on the third floor**. There are up to 12 parallel sessions in the rooms on the first, second, third and fourth floors. A floor plan of the venues is added in the next section. Wifi is available in the building. Since there is a limited number of power outlets make sure you devices are charged.

Presentations

We advise you to bring your presentations on a **memory stick**. You – or your chair who can collect them beforehand – can upload these on the laptop available in each of the rooms, preferably, in the break before your session. This allows for last-minute changes. If you use an Apple computer and need to use it bring also your own connector since these are not available in De Doelen.

Pictures – consent and group pictures

At the conference pictures will be taken. These may be used for reporting, for example, at the PCST websites. If you do not want to be included, please inform the photographer at that moment or inform us via PCST-LOC-SEC@tudelft.nl. On **Wednesday 12 April** during the lunch session a photographer is available to make group pictures. These will be made in the Willem Burger Hal on the ground floor.

Social media

Find us on Twitter and Facebook **@PCSTconference**
 Use the hashtag **#PCST2023**
 LINKED-IN page **PCSTConference**
 Please share your pictures with us and use **#PCST2023!**

Lunch and drinks

Lunch is served from **12:45 till 14:15 hours**. About 40% of the offer will be vegetarian. Lunch will be available at the exhibition space on the ground floor (Willem Burger Hal) as well as on the third floor (Willem Burger Foyer). We kindly ask you to not bring your food into the rooms.

Drinks before the Evening lecture on **Tuesday 11 April will be from 17:30 till 18:45 hours** as well as during the social hour on **Wednesday 12 April from 18:15 – 19:15 hours**. Both times in the Willem Burger Hal and Willem Burger Foyer.

Social programme

Optional activities for the Social Programme are scheduled on Wednesday after 19:00 hours, while free access to the Dutch Science Museums is possible in the Weekends before and after the conference, with the option to sign in for a guided tour in the Maritime Museum on Saturday 15 April. For details, see the social programme below.

Special lunch sessions and AGM

On all three days special lunch sessions from **13:00 – 13:45 hours in the Schadee Room** or **13:15 – 14:00 hours in the Hudig Room** will be organised by our partner NWO and sponsors Elsevier and Glaxo Smith Klein. We encourage you to attend these! You can bring your lunch. In addition, on **Thursday 13 April the Annual General Meeting of the PCST network** will take place in the Van Weelde Room from 13:15 – 14:00 hours.

About the dinner on Thursday 13 April

In case you registered for the dinner, this is indicated on your badge. The dinner will be in [Restaurant Jack, Raampoortstraat 10, 3032 AH Rotterdam](#). It is about 5 to 10 minutes' walk from the Doelen. Dress code is smart casual.

We welcome you at Jack at 19:00 hours with cocktails. The end is scheduled for 23:00 hours.

Where can I get a Certificate of Attendance?

You can request a Certificate of Attendance by emailing the following address pcst-loc-sec@tudelft.nl with the request in the subject line. In the body of the email please provide: your title, name and surname, your job title, organisation and country. The certificate will be sent via email to you as a PDF. It will state that you participated in the PCST2023 conference in Rotterdam and will include your title, name and surname, your job title, organisation and country.

COVID-19 measures

Currently there are NO COVID-19 related restrictions in The Netherlands, but of course you are free to use face masks. Please do respect each other's personal sphere as some of us are more susceptible to infections than others, and consider alternative forms of greeting instead of shaking hands, just to reduce risks of spreading. In case you tested positive, take care to not infect others by isolating yourself. In case you need a test, a limited number of COVID-19 self-tests is available for free at the registration desk.

Other

In case you're breastfeeding and need to pump, please go to the registration desk. They will grant you access to a private room on the ground floor with a power outlet and fridge to store the bottle(s).

PCST CONFERENCE code of conduct

To ensure a pleasant and productive conference for all, the PCST Network reminds all participants to respect each other at all times, no matter your differences. This Code of Conduct applies throughout the meeting; should you encounter any difficulties, please use the contact information below

The link to the [following form](#) may be used to report any violations of conduct that you experience or witness at the PCST 2023 Conference in Rotterdam. If your experience qualifies as a crime, please contact law enforcement immediately.

Once the PCST Code of Conduct Committee receives a violation report, we attempt to verify the complaint. If the report is confirmed and a violation was committed, PCST may impose sanctions. These could include having one's membership suspended or barred, being removed from elected positions, and/or being barred from future PCST-related activities. Additionally, the PCST leadership may consider reporting allegations or evidence of misbehavior to the alleged offender's home institution.

For your awareness, this report will be reviewed by the PCST Conference Code of Conduct Committee. Members include:

Sook-kyoung Cho (she/her) skcho0504@kentech.ac.kr or +82-10-8871-4783 (phone)
 Marlit Hayslett (she/her) marlit@hayslett-consulting.com or +1-404-550-2372 (phone/WhatsApp)
 Bruce Lewenstein (he/him) b.lewenstein@cornell.edu or +1-607-227-1161 (phone/WhatsApp)

EXHIBITION SPACE

On the third floor at the Willem Burger Foyer you will find the **sponsor stands** from our sponsors and contributors to the D&I Fund, while two **art works** are exhibited at the ground floor at the Willem Burger Hal. With courtesy to the Science Gallery from Erasmus MC and Lauren Raaijmakers.

The **poster presentations** – some of them interactive and in other formats – can also be found at the ground floor in the Willem Burger Hal in the back where also lunch is served. We encourage you to go there during the breaks, talk to the makers and enjoy them. **All the posters that will be on display also will be presented in one of the visual presentations sessions.**

On the third floor, in the Willem Burger Foyer, you can find the **Journal Editors' table and the book corner**. Information about the journals Public Understanding of Science, JCOM and Cultures of Science is available. The editors will also be there at several moments for a talk, to answer questions and get to know you.

In addition, a table is available to **show your own book** during the conference. If you have published a book in the past two years you are encouraged to leave a copy 'for your perusal' or a leaflet. However, be aware that there is no one to watch and it is at your own risk.

SOCIAL PROGRAMME

Wednesday April 12, between 19:00 – 21:00h

As part of the social program we invite all delegates to visit the exhibition [Through Bone and Marrow](#) at BRUTUS, an artist driven playground, on Wednesday April 12, between 19:00 - 21:00 hours. See the [BRUTUS website](#) for directions.

Free access to science museums and centres for PCST2023 participants

Participants of #PCST2023 will receive **free admission from 8 to 16 April** to more than forty members of the Association of Science Museums and Science Centers (VSC). By showing your conference badge or proof of registration, you can visit a large range of the various science museums in Rotterdam and surrounding cities.

"Science museums and centres provide essential connections between science, technology, culture and society. We encourage an open attitude. We show that science is built on such openness and questioning. And that technology and innovation, and therefore the world of today and tomorrow, cannot do without it either."

For more information: <https://www.vsc-netwerk.nl/>

Watch the short VSC film 'De Wonderzoeker' at [De Wonderzoeker \(EN\) / The Wonderwanderer](#) or find more information at <https://www.vsc-netwerk.nl/waar-vind-je-ons/>

Museums to visit in Rotterdam and surroundings:

[Het Natuurhistorisch Museum](#), Rotterdam; [Maritiem Museum](#), Rotterdam; [Museon](#), the Hague; [Rijksmuseum Boerhaave](#), Leiden; [TU Delft Science Centre](#), Delft; [Space Expo](#), Noordwijk; [Oude Sterrewacht Leiden](#), Leiden; [Science Gallery Rotterdam](#), Rotterdam; [Naturalis Biodiversity Center](#), Leiden.

Other museums free to visit in the Netherlands (check out this [map](#) with the locations of the museums!):

[Science LinX](#), Groningen; [Universiteitsmuseum Groningen](#), Groningen; [Natuurmuseum Fryslân](#), Leeuwarden; [Museum Joure](#), Joure; [Eise Eisinga Planetarium](#), Franeker; [Museum Natura Docet](#), Denekamp; [Cosmos Sterrenwacht](#), Lattrop; [De Museumfabriek](#), Enschede; [Oyfo Techniekmuseum](#), Hengelo; [Batavialand](#), Lelystad; [De Bastei](#), Nijmegen; [De Spelerij - De Uitvinderij](#), Dieren; [Geofort](#), Herwijnen; [Nederlands Watermuseum](#), Arnhem; [Sonnenborgh - museum & sterrenwacht](#), Utrecht; [Sporwegmuseum](#), Utrecht; [Universiteitsmuseum Utrecht](#), Utrecht; [Museum Speelklok](#), Utrecht; [ARTIS](#), Amsterdam; [Museum de Cruquius](#), Cruquius; [Nederlands Instituut voor Beeld en Geluid](#), Hilversum; [NEMO](#), Amsterdam; [Teylers Museum](#), Haarlem; [Zuiderzeemuseum](#), Enkhuizen; [Museum Zaanse Tijd](#), Zaandam; [Natuurmuseum Brabant](#), Tilburg; [De Ontdekfabriek](#), Eindhoven; [De Uitvindfabriek](#), Tilburg; [Next Nature Network \(Evoluon\)](#), Eindhoven; [Discovery Museum](#), Kerkrade; [Watersnoodmuseum](#), Ouwerkerk; [Terra Maris](#), Oostkapelle

Sign-up for a free guided tour in Maritime Museum on Saturday April 15 (limited spots)

You can sign-up for a free guided tour through the **Maritime Museum Rotterdam** on **Saturday April 15 (from 11:00 - 12:00 hours)**. There are limited spots available, so make sure to sign-up on time! Register here: <https://forms.gle/bigRGVVs6iHEemK79>
 Registration is limited to 30 participants.

Maritime Museum Rotterdam

Founded in 1874, the [Maritime Museum](#) is one of the largest and most prominent maritime collections in the world and illustrates six centuries of Dutch maritime history. The permanent exhibition Masterpieces collection shows various model ships, cartography and paintings, navigation equipment, forgotten collections of VOC maps, beautiful pen-and-ink drawings and many other artifacts. Go on a journey with us through the maritime past and present, and discover the enormous influence of the maritime world on our daily lives!

MAP OF CONFERENCE VENUE

The PCST2023 conference takes place in conference centre **De Doelen in Rotterdam**. **The entrance for the venue is on Kruisplein 40 at the Willem Burger Hal.**

Rooms per floor

Ground floor: Willem Burger Hal

First floor: Van der Mandele Zaal

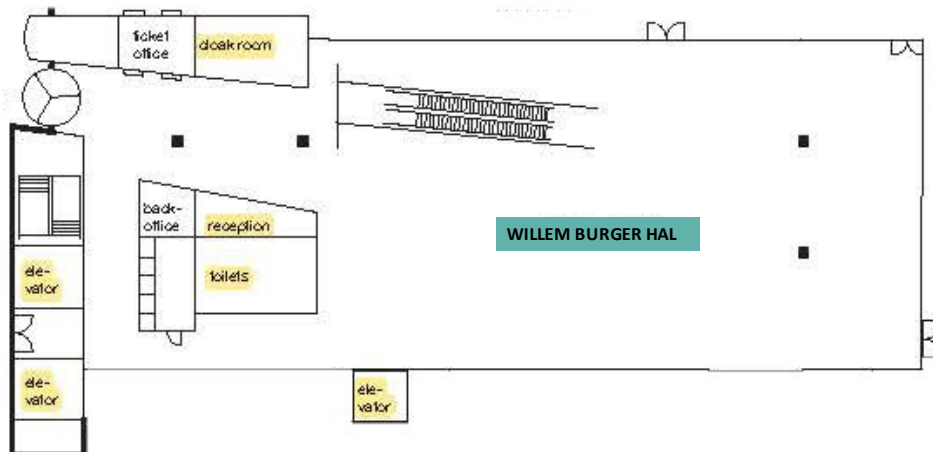
Second floor: Zeelenberg Zaal

Third floor: Willem Burger Zaal, Willem Burger Foyer, Van Beuningen Zaal, Schadee Zaal and Hudig Zaal

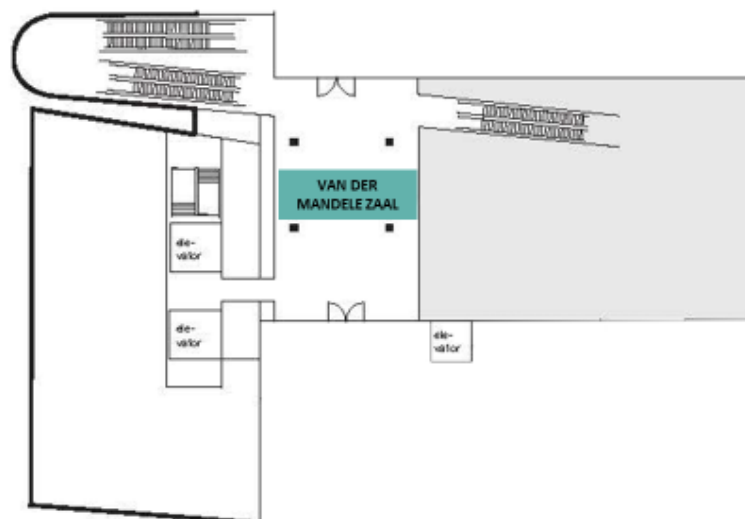
Fourth floor: Willem Burger Zaal, Mees Zaal, Van Wedde Zaal, Ruys Zaal, Van Rijckevorsel Zaal, Plate Zaal and Van der Vorm Zaal

GROUND FLOOR

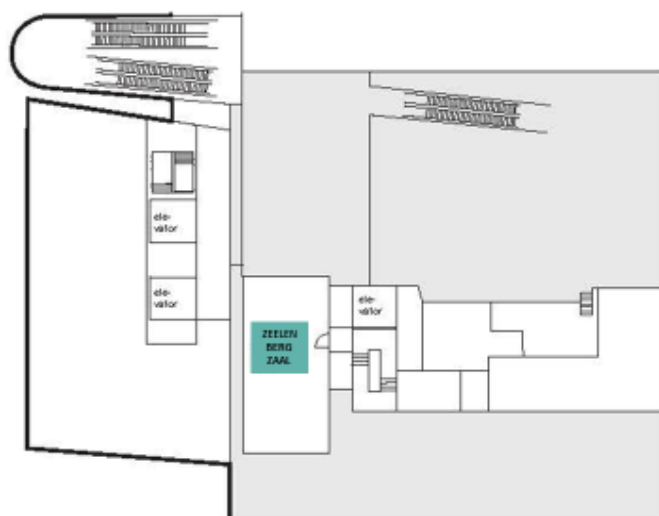
ENTRANCE KRUISPLEIN 40 >



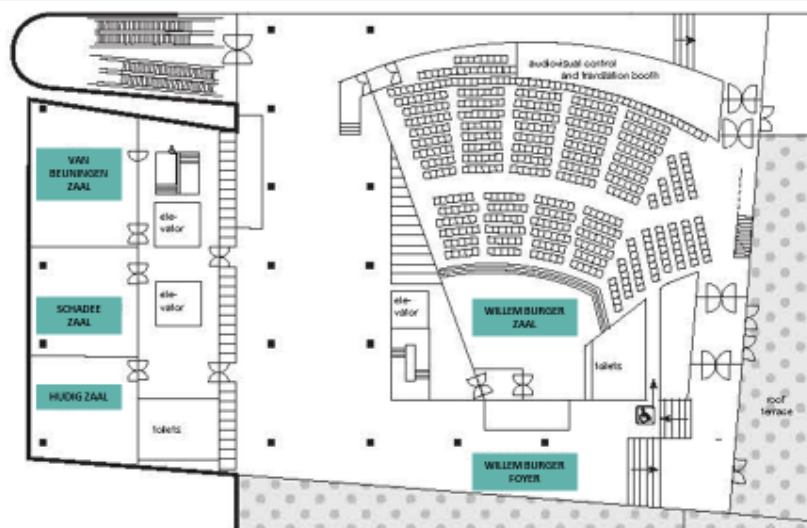
FIRST FLOOR



SECOND FLOOR



THIRD FLOOR



FOURTH FLOOR



GRANTS AND FELLOWSHIPS

To provide financial support to attend the PCST2023 conference, a programme with various grants and fellowships was developed.

The Rotterdam Fellowship programme

The Rotterdam Fellows programme supports people resident in lower-income countries to attend the PCST Conference. The fellowship covers the cost of fares, accommodation, visas and the registration fee. We are grateful to the [Kavli Foundation](#) for its generous donation to cover the travel expenses, while the registration fee was covered by the sponsors and individuals who donated to the Diversity & Inclusion Fellowship Fund.

The Diversity and Inclusion Fellowship Fund

The Diversity and Inclusion programme supports attendance with two types of fellowships: a Travel Fellowship and a Student Fellowship. The Travel Fellowship supports attendance of those representing or identifying with a minority community by helping them cover the cost of fares, accommodation, visas or the registration fee. The term “minority” was understood in a broad sense meaning that belonging to a group whose practices, race, religion, ethnicity, or other characteristics are different from those common to the majority of people in their society were eligible. The Student Fellowship supports the PCST2023 Conference attendance of bachelor, master, PhD student or postdoc by waiving their conference fee. This programme was open to all student participants regardless of country of origin, age, etc.

Support

An independent jury awarded the fellowships. In total, we were able to support over 30 individuals who received funding either as Rotterdam Fellow, Travel Fellow or Student Fellow.

We are grateful to our **supporting organisations and individuals** for their generous donations to make this programme possible, i.e. University Fund TU Eindhoven, University Fund University of Twente, University of Twente DesignLab, Free University of Amsterdam, University of Groningen ScienceLinX, University of Leiden department of Science Communication and Society, Pfizer, Hayslett Communication, Animate Your Science and individual contributions.



PROGRAMME OVERVIEW



PROGRAMME OVERVIEW

In this section an overview of the whole #PCST2023 programme is provided. It is a pleasure to say that #PCST2023 exists of more than the **main onsite programme** from Wednesday 12 till Friday 14 April, 2023. On Tuesday 11 April, a **pre-conference programme** is organised with a variety of workshops in various venues in Rotterdam. The pre-conference programme is free accessible for participants who have registered to the main programme. In addition, an **online programme** is organised from Monday 3 till Wednesday 5 April 2023.

The PCST Network hosts a series of **online conference sessions** to accommodate speakers who were not able to travel to Rotterdam for our onsite conference. The programme features a wide range of individual talks and workshops from science communication practitioners and scholars, with content responding to cutting-edge trends and challenges in our field. Different time slots make it possible for people around the world to participate. There is no fee for tuning in, but registration is restricted to PCST Network members only. The sessions will be presented via Zoom. Please [register](#) separately for each session you wish to attend.

ONLINE OVERVIEW

MONDAY 3 APRIL 2023

Session 1: 09:00 – 10:15 CET

Overview: In this session, presenters will explore how important (potentially life-saving) information is communicated to different audiences and how practices are adapted and developed to account for differences in perspectives.

Session 2: 10:45 – 12:00 CET

Overview: This session is about the places and platforms where we acquire science communication knowledge and how that 'knowledge' is presented and interpreted in turn.

Session 3: 14:00 – 16:00 CET

WORKSHOP Wiki Workshop with the IDEA Network @ University of St Andrews

Session 4: 17:00 – 18:15 CET

Overview: How do science communication and the dissemination of science communication play out in different contexts? What can we learn from different strategies and viewpoints?

TUESDAY, 4 APRIL 2023

Session 1: 09:00 – 10:15 CET

Overview: This session will cover lessons learned from conferences, exhibitions and trans-disciplinary strategies to improve science engagement.

Session 2: 14:00 – 15:15 CET

Overview: In this session presenters will reflect on some specific science communication resources and review the techniques used in the communication process e.g. art, storytelling, cultural relevance, accessibility.

Session 3: 17:00 – 18:15 CET

Overview: In this session we will consider roles and responsibilities, of audiences, science communication practitioners and science journalists.

WEDNESDAY 5 APRIL 2023

Session 1: 10:45 – 12:00 CET

Overview: In this session presenters will explore connections between science communication, politics and social themes.

Session 2: 14:00 – 17:00 CET

WORKSHOP Communicating the science and building common grounds with minorities

PRE-CONFERENCE OVERVIEW

TUESDAY, 11 APRIL 2023

See <https://pcst2023.nl/program/> for details.

Parallel session 1: 09:00 – 13:00h

#	Venue (Room)	Session – Workshop
M-A	ErasmusMC AE-406	Connecting good practices in curriculum development for graduate programmes in science communication
M-B	ErasmusMC SP-2407	Welcome session for first-time PCST participants
M-C	ErasmusMC SP-3411	The value of listening in science communication: The high-impact method for success
M-D	ErasmusMC SP-3401	Identifying indigenous astronomy knowledge systems in 'Westernized' indigenous communities
M-E	ErasmusMC GK-018, GK-022, GK-024	Exploring SciComm through SciArt: PCST 2023 Graduate Student Preconference
M-F	Natuurhistorisch museum	How to evaluate science communication and its impact
M-G	Maritiem museum - Verolmezaal	From goodwill to inclusive and equitable practices – an introduction to inclusive science engagement audiences
M-H	Belasting & Douane museum	A plain language approach to science communication: opening up science to non-scientific

Lunch: 13:00 – 14:00h – on your own account

Parallel session 2: 14:00 – 17:00h

#	Venue (Room)	Session - Workshop
A-A	ErasmusMC SP-3411	Making your science a blockbuster – Creative lessons from television
A-B	ErasmusMC SP-2407	The science of science communication – a practical workshop
A-C	ErasmusMC SP-3401	Grounding AI communication: Myths, imaginations, and realities
A-D	ErasmusMC SP-3417	How to get ahead in your career and make friends: SciComm networks and their vital role in practice & research ecosystems
A-E	ErasmusMC GK-012, GK-018/22/24	Determining your unique role in a transdisciplinary collaboration
A-F	Natuurhistorisch museum	We'll take you on a journey: audience-focused storytelling in public engagement
A-G	Maritiem museum – Verolme zaal	From purpose to practice – Setting up an inclusive creative action plan
A-H	Belasting & Douane museum	Theatre of the oppressed: Exploring our struggles with social justice in science communication

Registration main programme and welcome drinks

16:30: Registration opens at De Doelen Conference Centre, entrance at Kruisplein 40
17:30: Drinks Willem Burger Hall and Willem Burger Foyer

Plenary Welcome session: 18:45 – 20:00h

<i>Willem Burger Room</i>
Welcome session: Crossing the Divide to Common Ground

MAIN PROGRAMME OVERVIEW

WEDNESDAY 12 APRIL 2023

07:45 – 08:30: Registration, coffee & tea *Willem Burger Hal*

Plenary session: 08:30 – 09:45h *Willem Burger Room*

Official opening: Setting the scene – with the Honourary Minister Robbert Dijkgraaf

Parallel session 1: 09:45 – 11:00h

#	Venue (Room)	Session
1-A	<i>Willem Burger</i>	Roundtable: Science Communication of Academic Institutions: What are the Challenges?
1-B	<i>Van der Mandele</i>	Individual papers: Science in the mass media
1-C	<i>Van Weelde</i>	Linked papers: Dialogue, technology and societal change
1-D	<i>Zeelenberg</i>	Mini-workshop: A story, the camera, some sound, oodles of science and too many cooks with diverse expertise – how to save the broth!
1-E	<i>Hudig</i>	Roundtable: Making values work for technological innovation
1-F	<i>Schadee</i>	Science Storytelling: Creating Connections Through a Science Communication Internship Demonstration: Research, science, games and fun
1-G	<i>Van Beuningen</i>	Problem-solving workshop: Arts-based approaches to science communication and education
1-H	<i>Ruys</i>	Problem-solving workshop: Misinformation and polarization dominates online – how can we rethink science communication to create common ground?
1-I	<i>Van Rijckenvorsel</i>	Problem-solving workshop: Workshop your book pitch: Contemporary Issues in Science Communication
1-J	<i>Plate</i>	Problem-solving workshop: Third-order science communication: What is it, and where can I get some?
1-K	<i>Van der Vorm</i>	Roundtable: Facilitating public engagement with science through live comedy performances
1-L	<i>Mees</i>	Roundtable: Emerging careers in science communication: Challenges and opportunities

Coffee & tea break: 11:00 – 11:30h *Willem Burger Hal and Willem Burger Foyer*

Parallel session 2: 11:30 – 12:45h

#	Venue (Room)	Session
2-A	<i>Willem Burger</i>	Roundtable: Is it time for an International Centre for Science Communication?
2-B	<i>Van der Mandele</i>	Roundtable: Truth in Science? Science journalism and the corporate sector
2-C	<i>Van Weelde</i>	Insight talks: Novel approaches and strategies in science communication and engagement
2-D	<i>Zeelenberg</i>	Problem-solving workshop: Bridging the gap – research-practice collaborations in science communication
2-E	<i>Hudig</i>	Roundtable: A conversation about conversation in science communication
2-F	<i>Schadee</i>	Insight talks: Science communication teaching, training and capacity building
2-G	<i>Van Beuningen</i>	Storytelling presentation: We're using AI, translation and scicomm to open up African research
2-H	<i>Ruys</i>	Roundtable: Raising the standards of science communication in Forensic Science
2-I	<i>Van Rijckenvorsel</i>	Workshop: Can a scientist ever be certain of something? Science communication through dialogues about science
2-J	<i>Plate</i>	Workshop: When science engagement isn't about the science – Creating common ground with youth work and informal science learning
2-K	<i>Van der Vorm</i>	Problem-solving workshop: Public engagement – let's share trends, challenges and top tips!
2-L	<i>Mees</i>	Performance: Science is life (30 minutes)

Lunch: 12:45 – 14:15h *Willem Burger Hal and Willem Burger Foyer*

Get your lunch and take it with to one of the sessions listed below.	
13:00 – 13:45: <i>Schadee Room</i> Partner session with NWO (The Dutch Research Council) Discover ROBIN: an interactive animation	13:15 – 14:00: <i>Hudig Room</i> Session with Elsevier Confidence in Research: Implications for researchers and the media <i>Exploring the landmark Economist Impact study</i>

Plenary session: 14:15 – 15:15h *Willem Burger Room*

The ethics of making decisions for communicating science in a diverse world
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Parallel session 3: 15:15 – 16:30h

#	Venue (Room)	Session
3-A	<i>Willem Burger</i>	Individual papers: Science communication theory
3-B	<i>Van der Mandele</i>	Linked papers: Research infrastructures: Connecting scientific facilities to society
3-C	<i>Van Weelde</i>	Roundtable: Toward a unified research agenda for communicating basic science
3-D	<i>Zeelenberg</i>	Problem-solving workshop: Fact-finding mission: How to make scicomm practices with audiences more inclusive
3-E	<i>Hudig</i>	Individual papers: Science communication strategies, challenges and trends
3-F	<i>Schadee</i>	Individual papers: Communicating uncertainty in science
3-G	<i>Van Beuningen</i>	Visual papers: Science communication practice
3-H	<i>Ruys</i>	Individual papers: Evaluation and impact of science communication
3-I	<i>Van Rijckenvorsel</i>	Mini-workshop: How to know when you are using jargon and how to modify it
3-J	<i>Plate</i>	Performance with storytelling and music: Shared music-making as ecosophy – Cultural mapping post-industrial areas of Scotland (30 minutes)
		Demonstration: Congratulations, you are a superorganism! Creation of the microbiome videogame Symbiosville (25 minutes)
3-K	<i>Van der Vorm</i>	Panel discussion: Freedom vs Science: How to Transcend the post-pandemic political divide?
3-L	<i>Mees</i>	Storytelling presentation: CURIOS.TY: Giving V.O.I.C.E creatively to research from the Global South

Coffee & tea break: 16:30 – 17:00h *Willem Burger Hal and Willem Burger Foyer*

Parallel session 4: 17:00 – 18:15h

#	Venue (Room)	Session
4-A	<i>Willem Burger</i>	Linked papers: Contested ground, fertile ground, not common ground
4-B	<i>Van der Mandele</i>	No session
4-C	<i>Van Weelde</i>	Roundtable: Science-Theatre in the Context of Science Communication: Opportunities and Challenges
4-D	<i>Zeelenberg</i>	Mini-workshop on producing film as a research output: More than the story
4-E	<i>Hudig</i>	Individual papers: Institutional science communication
4-F	<i>Schadee</i>	Individual papers: Science communication teaching, training and capacity building
4-G	<i>Van Beuningen</i>	Insight talks: Evaluation and impact of science communication
4-H	<i>Ruys</i>	Roundtable: Between Fact and Fiction. The Difficult quest for common ground in scicomm on AI
4-I	<i>Van Rijckenvorsel</i>	No session
4-J	<i>Plate</i>	No session
4-K	<i>Van der Vorm</i>	Demonstration: A serious game to generate societal values towards emerging technologies
4-L	<i>Mees</i>	Individual papers: Reflections on citizen science

Social hour: 18:15 – 19:15h *Willem Burger Hal and Willem Burger Foyer*

Optional social programme from 19:00 – 21:00h (see above)

THURSDAY 13 APRIL 2023

07:45 – 08:30: Registration, coffee & tea *Willem Burger Hal*

Plenary session: 08:30 – 09:45h *Willem Burger Room*

Finding common ground through communicating with diverse cultures

Parallel session 5: 09:45 – 11:00h

#	Venue (Room)	Session allocation
5-A	<i>Willem Burger</i>	Roundtable: Involving journalists in science engagement between communities and scientists
5-B	<i>Van der Mandele</i>	Individual papers: Scientists and research students as key role players in science communication and public engagement
5-C	<i>Van Weelde</i>	Linked papers: Science, trust and the public good
5-D	<i>Zeelenberg</i>	Maker Workshop with LEGO: Create a 3D print of your thoughts and prototype the engaged university of the future!
5-E	<i>Hudig</i>	Demonstration: A freely available resource for our community: science communication MOOC on edX
5-F	<i>Schadee</i>	Individual papers: Science and its publics
5-G	<i>Van Beuningen</i>	Forum theatre: Dialogical training in a post-truth era
5-H	<i>Ruys</i>	Individual papers: Mis/dis-information and fake news
5-I	<i>Van Rijckenvorsel</i>	Workshop: Can we tell stories about processes? Designing exhibitions on innovation processes
5-J	<i>Plate</i>	Mini-workshop on Pathways Theatre: A method for experimental futures
5-K	<i>Van der Vorm</i>	Reflective workshop: Two science communicators walked into a bar ...
5-L	<i>Mees</i>	Mini-workshop: Toolkits for professionals and researchers: providing common ground for quality science communication

Coffee & tea break: 11:00 – 11:30h *Willem Burger Hal and Willem Burger Foyer*

Parallel session 6: 11:30 – 12:45h

#	Venue (Room)	Session
6-A	<i>Willem Burger</i>	Roundtable: Starting the communication with audience interests or with scientists' strategic goals? A provocative roundtable
6-B	<i>Van der Mandele</i>	Linked papers: Diversity is strength – science communication enabling common ground for climate action
6-C	<i>Van Weelde</i>	Linked papers: The science-media relationship explored from a research and practice perspective
6-D	<i>Zeelenberg</i>	Mini-workshop: The tragicomedy of Athena: training and reflection tool for working towards more rewarding and recognised science communication
6-E	<i>Hudig</i>	Insight talks: Role players in science communication and public engagement
6-F	<i>Schadee</i>	Insight talks: Communicating science in digital spaces
6-G	<i>Van Beuningen</i>	Individual papers: Climate change, energy, and biodiversity as a focus areas for science communication
6-H	<i>Ruys</i>	Individual papers: Novel approaches in science communication and engagement
6-I	<i>Van Rijckenvorsel</i>	Demonstration: ConnectME - App connecting the media to health care experts (25 minutes)
		Demonstration: Science in and out – Creating common ground for community science events – - The Citizen lab model for public engagement (25 minutes)
6-J	<i>Plate</i>	No session
6-K	<i>Van der Vorm</i>	Mini-workshop: Popular science writing
6-L	<i>Mees</i>	Linked papers: Realising sustainable futures: Public communication and engagement to build a better world

Lunch: 12:45 – 14:15h *Willem Burger Hal and Willem Burger Foyer*

Get your lunch and take it with to one of these sessions listed below.	
13:00 – 13:45: <i>Schadee Room</i> Partner session with NWO (The Dutch Research Council) Innovative science communication: the 'WECOM-call'	13:15 – 14:00: <i>Van Weelde Room</i> PCST Network AGM

Plenary 14:15– 15:15h *Willem Burger Room*

(Dis)agreements in finding common grounds – Reflections from science communication theory and research

Parallel session 7: 15:15 – 16:30h

#	Venue (Room)	Session allocation
7-A	<i>Willem Burger</i>	Roundtable: Should we bury or vindicate the deficit model in times of crises?
7-B	<i>Van der Mandele</i>	Roundtable: Scientists writing news: Emergent science news websites as boundary spanners
7-C	<i>Van Weelde</i>	Roundtable: Building a (European) Science Communication Centre on common ground
7-D	<i>Zeelenberg</i>	Demonstration: 'The engagement laundromat': a participatory process for iterating engagement ideas
7-E	<i>Hudig</i>	Roundtable: The voice of young people in the co-creation of knowledge
7-F	<i>Schadee</i>	Individual papers: Citizen science – research and methodological considerations
7-G	<i>Van Beuningen</i>	Visual papers: Science communication research
7-H	<i>Ruys</i>	Insight talks: Science communication and engagement tools and tactics
7-I	<i>Van Rijckenvorsel</i>	Problem-solving workshop: Co-creation card game to drive environmental justice
7-J	<i>Plate</i>	Problem-solving workshop: Developing a language to communicate about the unique role of the academic researcher in societal transformations
7-K	<i>Van der Vorm</i>	Mini-workshop: Relationship-building in Science Communication: Getting Experts Involved with Science Communication
7-L	<i>Mees</i>	Roundtable: Communicating science to young people – can we do better?

Coffee & tea break: 16:30 – 17:00h *Willem Burger Hal and Willem Burger Foyer*

Parallel session 8: 17:00 – 18:15h

#	Venue (Room)	Session
8-A	<i>Willem Burger</i>	Roundtable: Queering science communication: Bringing an LGBTIQ+ lens to #scicomm theory and practice
8-B	<i>Van der Mandele</i>	Roundtable: Co-creation: What's in a buzzword?
8-C	<i>Van Weelde</i>	Roundtable: Science communication for the common good
8-D	<i>Zeelenberg</i>	Demonstration: Walking in the shoes of others: Understanding intersectionality
8-E	<i>Hudig</i>	Individual papers: Science-art linkages
8-F	<i>Schadee</i>	Individual papers: Scientists' and science communicators' views about science communication and public engagement
8-G	<i>Van Beuningen</i>	Individual papers: Communicating about food science and GMOs
8-H	<i>Ruys</i>	Insight talks: Topic-driven science communication research and practice
8-I	<i>Van Rijckenvorsel</i>	No session
8-J	<i>Plate</i>	No session
8-K	<i>Van der Vorm</i>	Problem-solving workshop: When Indigenous and Western ideologies come together: A kōrero/discussion around learnings on co-creating resources to support kaumātua/ elder Māori and whānau/ family
8-L	<i>Mees</i>	Demonstration: 360° Communication in Science: Transmedia strategy regarding the journey to the hadal zone of the Atacama Trench (25 minutes)

Conference dinner and cocktail: 19:00 – 23:00h *JACK*

JACK's restaurant – Raampoortstraat 10, Rotterdam

FRIDAY 14 APRIL 2023

07:45 – 08:30: Registration, coffee & tea *Willem Burger Hal*

Plenary session: 08:30 – 09:45h *Willem Burger Room*

Finding common ground from the science of science communication

Parallel session 9: 09:45 – 11:00h

#	Venue (Room)	Session
9-A	<i>Willem Burger</i>	Roundtable: Finding common ground through journalism
9-B	<i>Van der Mandele</i>	Roundtable: Ethical Principles for Common Ground in Science Communication Theory and Practice
9-C	<i>Van Weelde</i>	Roundtable: Visible Scientists in the age of Covid-19: Characteristics, Changes, Challenges
9-D	<i>Zeelenberg</i>	Demonstration: Using evidence-based pedagogies to create an effective science communication classroom
9-E	<i>Hudig</i>	Individual papers: Engaging with specific communities and publics for science
9-F	<i>Schadee</i>	Individual papers: Public (dis)trust in science
9-G	<i>Van Beuningen</i>	Individual papers: Covid-19 as a focus area for science communication research
9-H	<i>Ruys</i>	Mini-workshop: Science communication models: a practical workshop exploring the nexus between theory and practice
9-I	<i>Van Rijckenvorsel</i>	No session
9-J	<i>Plate</i>	Problem-solving workshop: Who wants to talk about altering the DNA of embryos? Towards precision engagement in dialogic science communication
9-K	<i>Van der Vorm</i>	Roundtable: Bringing Living Labs to Life: Fulfilling the promise of open, active, and innovative public science engagement
9-L	<i>Mees</i>	Problem-solving workshop: Creating common ground: How to come to terms with social sciences

Coffee & tea break: 11:00 – 11:30h *Willem Burger Hal and Willem Burger Foyer*

Parallel session 10: 11:30 – 12:45h

#	Venue (Room)	Session
10-A	<i>Willem Burger</i>	Individual papers: Reflections on justice, equity, diversity, inclusivity and decolonising science communication
10-B	<i>Van der Mandele</i>	Insight talks: Science communication theory, models and strategies
10-C	<i>Van Weelde</i>	Insight talks: Linking science communication theory, research and practice
10-D	<i>Zeelenberg</i>	Individual papers: Models in science communication
10-E	<i>Hudig</i>	Individual papers: Linking science communication theory, research and practice
10-F	<i>Schadee</i>	Discussion: A manifesto for high-quality open science communication
10-G	<i>Van Beuningen</i>	Problem-solving workshop: The ladder of power: Science communication and citizen science
10-H	<i>Ruys</i>	Discussion and storytelling: STEP through the looking glass; stories told of experimental processes
10-I	<i>Van Rijckenvorsel</i>	No session
10-J	<i>Plate</i>	No session
10-K	<i>Van der Vorm</i>	Problem-solving workshop: STEAM uptake and careers: Empowering researchers
10-L	<i>Mees</i>	Linked papers: Public communication of research universities: the activity of central communication offices compared across countries

Lunch: 12:45 – 14:15h *Willem Burger Hal and Willem Burger Foyer*

Get your lunch and take it with to one of these sessions listed below.	
13:00 – 13:45: <i>Schadee Room</i> Partner session with NWO (The Dutch Research Council) Combining science and festivals: Expeditie NEXT	13:15 – 14:00: <i>Hudig Room</i> Session with GlaxoSmithKline Mind the Gap: Notions on public-private collaboration in biomedical science

Parallel session 11: 14:15 – 15:30h

#	Venue (Room)	Session allocation
11-A	<i>Willem Burger</i>	Individual papers: Covid-19 and health communication strategies and role players
11-B	<i>Van der Mandele</i>	Insight talks: Science and its publics, and issues of trust
11-C	<i>Van Weelde</i>	Roundtable: What do emotions 'do' in science communication?
11-D	<i>Zeelenberg</i>	Problem-solving workshop: Advancing Public Engagement in Research: An open discussion of beneficial conditions in various institutional settings
11-E	<i>Hudig</i>	Individual papers: Science in the public and policy domain
11-F	<i>Schadee</i>	Roundtable: Science Communication in Mathematics
11-G	<i>Van Beuningen</i>	Visual papers: Science in mass and social media – research and practice
11-H	<i>Ruys</i>	Individual papers: Communicating science in digital spaces
11-I	<i>Van Rijckenvorsel</i>	Mini-workshop: Scicomm live contest
11-J	<i>Plate</i>	Problem-solving workshop: The kids are alright – Establishing best practice for inclusion of youth in adult-dominated science communication
11-K	<i>Van der Vorm</i>	Problem-solving workshop: Co-creating STEM communication and enhancing sustainability (25 minutes)
11-L	<i>Mees Room</i>	Roundtable: Action networks for Science Communication: building abilities for change

Coffee & tea break: 15:30 – 16:00h *Willem Burger Hal and Willem Burger Foyer*

Closing Plenary session: 16:00 – 17:15h *Willem Burger Room*

Finding common ground between international associations

DETAILED PROGRAMME



ONLINE PROGRAMME

MONDAY 3 APRIL

Session 1: 09:00 – 10:15 CET

Chair: Michelle Riedlinger

Overview: In this session, presenters will explore how important (potentially life-saving) information is communicated to different audiences and how practices are adapted and developed to account for differences in perspectives.

Title	Presenter	Affiliation	Country	Co-authors
Building climate resilience in the Pacific: The Early Action Rainfall (EAR) Watch service	Clare Mullen	Australian Bureau of Meteorology	Australia	
Communication for Inclusion: How can communication practices include people with ambulatory disabilities and older adults in autonomous public transport development?	Tan Wenqi	Nanyang Technological University	Singapore	Shirley Ho (Nanyang Technological University, Singapore)
Femininity as a medium: The grassroots communication practice and dilemma of female barefoot doctors	Gan Pengqi	Peking University	China	
Good riddance, we are still in the old world! Please don't be so precise about science: The deliberate ambiguity of the dissemination of maternal-infant knowledge in China (1941-1950)	Jiyi Yang	Xiangtan University	China	Qing Xiao (Communication University of China)
Framing COVID-19 Booster Dose: Action, consequences and conflict	Nurulaini Abu Shamsi	Universiti Malaya	Malaysia	Nur Aisyah Adila Akbar (Universiti Malaya, Malaysia)

Session 2: 10:45 – 12:00 CET

Chair: Ayelet Baram-Tsabari

Overview: This session is about the places and platforms where we acquire science communication knowledge and how that 'knowledge' is presented and interpreted in turn.

Title	Presenter	Affiliation	Country	Co-authors
Science communication objectives and practices of science news websites as a showcase of gaps between theory and practice	Ifat Zimmerman	Technion – Israel Institute of Technology	Israel	Ayalet Baram-Tsabari (Technion – Israel Institute of Technology); Tali Tal (Technion – Israel Institute of Technology)
India Science: A popular OTT platform for science communication (VISUAL)	Kapil Kumar Tripathi	Vigyan Prasara, Department of Science and Technology, Govt of India and Doing research from AcSiR-	India	

		NISCPR, New Delhi		
Does general science knowledge help acquire new scientific knowledge in genetics with health relevance? The case of the hard of hearing and their families	Sophie Shauli	Gordon Academic College	Israel	Ayalet Baram-Tsabari (Technion – Israel Institute of Technology)
The disparity in access to reliable online information regarding COVID-19 conspiracies across four languages	Dabran Shakked	Technion – Israel Institute of Technology	Israel	Ayalet Baram-Tsabari (Technion – Israel Institute of Technology); Roni Shapira (Technion – Israel Institute of Technology);
The role of cognitive biases in conspiracy beliefs	Lorenzo Gagliardi	University of Insubria	Italy	

Session 3: 14:00 – 16:00 CET

WORKSHOP Wiki Workshop with the IDEA Network @ University of St Andrews

Title	Duration	Presenters	Affiliation	Country
Wiki Workshop with the IDEA Network @ University of St Andrews	2 hours (limit 30 participants)	Kirsty Ross Abd Alsattar Ardati Sara Thomas	University of St Andrews University of St Andrews Wikimedia UK	United Kingdom

Session 4: 17:00 – 18:15 CET

Chair: Marina Joubert

Overview: How do science communication and the dissemination of science communication play out in different contexts? What can we learn from different strategies and viewpoints?

Title	Presenter	Affiliation	Country	Co-authors
Scientists' view about science communication: A classification proposal	Pereira Marcelo	Universidade Federal de Minas Gerais	Brazil	Yurij Castelfranchi (Universidade Federal de Minas Gerais, Brazil); Luísa Massarani (Fundação Oswaldo Cruz, Brazil)
Creating common ground around university scientific research: A demi-autoethnography of the agony and the ecstasy of a public information officer	Judith White	University of New Mexico-Main Campus	United States	Jeffrey White (TextPerts, US)
NASA's IGTV and key lessons for audience management (VISUAL)	Denisse Vásquez-Guevara	University of Cuenca	Ecuador	Ivana Cvetkovic (Cal Poly Pomona University, US)
Debating openness: The evolution of #OpenScience discourse on Twitter	Matthew VanDyke	The University of Alabama	United States	Brian Britt (The University of Alabama, US)
Reader engagement expressions to popular science articles predicted by the use of accessibility strategies	Ifat Zimmerman	Technion – Israel Institute of Technology	Israel	Ayalet Baram-Tsabari (Technion – Israel Institute of Technology);

				Tali Tal (Technion – Israel Institute of Technology)
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TUESDAY, 4 APRIL

Session 1: 09:00 – 10:15 CET

Chair: Toss Gascoigne

Overview: This session will cover lessons learned from conferences, exhibitions and trans-disciplinary strategies to improve science engagement.

Title	Presenter	Affiliation	Country	Co-authors
Virtual nature for science marketing? A New Zealand pilot study on immersive 360° VR experiences for nature connectedness and wellbeing	Wiebke Finkler	University of Otago	New Zealand	Yolanda Van Heezik; Debra Waters; Lara Vlietstra; Lei Zhu; Steve Gallagher; Ryan Walker; Ryan Forlong (all from the University of Otago, New Zealand)
Young Citizen Conferences: Tools for developing youth science culture	Dyah Ratna Permatasari	DoctoRabbit Science Inc.	Indonesia	
Lessons learned from a science variety show	Bonnie Dietermann	Museum für Naturkunde Berlin	Germany	David Ziegler (Museum für Naturkunde Berlin, Germany)
A vision on communication creating common grounds among disciplines, arts and society in scientific research	Rita Giuffredi	CNR (National Research Council of Italy)	Italy	Valentina Grasso (CNR - National Research Council of Italy); Alba L'Astorina (CNR - National Research Council of Italy); Laura Colucci-Gray (University of Edinburgh, UK); Raffaella Spagna (Pianpiccolo Selvatico ETS, Italy)
Portal bridging gaps in science communication, and connecting researchers, scientists and policymakers	Kinkini Dasgupta Misra	VIGYAN PRASAR (DST)	India	

Session 2: 14:00 – 15:15 CET

Chair: Lars Guenther

Overview: In this session presenters will reflect on some specific science communication resources and review the techniques used in the communication process e.g. art, storytelling, cultural relevance, accessibility.

Title	Presenter	Affiliation	Country	Co-authors
Crash Course Química: Creating a blueprint for culturally responsive science learning videos	Soledad Machado Corral	Facultad de Química - Universidad de la República	Uruguay	Heather Lavigne (Education Development Centre, US);

				Alexia Raynal (Education Development Centre, US); Emily Braham (Education Development Centre, US); Kelsey Savage (Complexly, US)
Art to approach science in Brazilian vlogs on YouTube: Usages, advantages, and difficulties	Ana Beatriz Tuma	University of São Paulo	Brazil	
A narrative approach for promoting behavioural changes in sustainability	Franco Bagnoli	Dept. Physics and Astronomy, University of Florence	Italy	Giovanna Pacini (Dept. Physics and Astronomy, University of Florence, Italy)
Literacies for identifying misinformation online	Dabran Shakked	Technion – Israel Institute of Technology	Israel	Ayalet Baram-Tsabari (Technion – Israel Institute of Technology);
Who uses voice assistants to learn about scientific issues? A segmentation analysis of German adults (VISUAL)	Esther Greussing	Technische Universität Braunschweig	Germany	Monika Taddicken (TU Braunschweig, Germany)

Session 3: 17:00 – 18:15 CET

Chair: Marlit Hayslett

Overview: In this session we will consider roles and responsibilities, of audiences, science communication practitioners and science journalists.

Title	Presenter	Affiliation	Country	Co-authors
Socio-scientific issues meet AI technology: Reflections on the cognitive order of society	Esther Greussing	Technische Universität Braunschweig	Germany	Monika Taddicken (TU Braunschweig, Germany); Ayalet Baram-Tsabari (Technion – Israel Institute of Technology)
How to communicate science during polarized elections: The case of Inmetro in 2022 in Brazil	Aline de Oliveira Coelho	Inmetro / Universidade de Coimbra	Brazil	Livia Neto Machado (Inmetro, Brazil)
Who's to blame? Attribution of responsibility for addressing environmental issues in the US	Kathleen Rose	University of Missouri	United States	Vy Luong (University of Missouri, US)
It might not be my place to...: How journalists perceive their roles in environmental communication	Vy Luong	University of Missouri	United States	Kathleen Rose (University of Missouri, US)
Do we need Science and Technology museums?	Sandra Murriello	CITECDE, UNRN	Argentina	Astrid Bengtsson (Comisión Nacional de Energía Atómica, Argentina)

WEDNESDAY 5 APRIL

Session 1: 10:45 – 12:00 CET

Chair: Jenni Metcalfe

Overview: In this session presenters will explore connections between science communication, politics and social themes.

Title	Presenter	Affiliation	Country	Co-authors
Chinese science has no past unless it is patriotic: How is the future of science different from the past? A comparative study of biographies of scientists and science news	Zimu Wang	China University of Labor Relations	China	Qing Xiao (Communication University of China)
The social conversation around science and the commodification of science: Making a case for science communication as propaganda	Luis Arboledas-Lérida	Universidad de Sevilla	Spain	
"You can do better than that!" – Climate and Covid-19 experts addressing politics on Twitter	Nicola Peters	Technische Universität Braunschweig	Germany	Kaija Biermann (TU Braunschweig); Monika Taddicken (TU Braunschweig, Germany)

Session 2: 14:00 – 17:00 CET

WORKSHOP Communicating the science and building common grounds with minorities

Title	Duration	Presenter	Affiliation	Country
Communicating the science and building common grounds with minorities	3 hours (limit 25 participants)	Gillie Gabay Crispen Sachikonye Rachel Cowen Kira Ibrahim Getrude Gwenzi	Achva Academic College Manchester University Manchester University The Center for Cumulative Trauma Studies University of Zimbabwe	Israel United Kingdom United Kingdom United States Zimbabwe

PRECONFERENCE PROGRAMME

TUESDAY 11 APRIL

Morning sessions (9:00-13:00)

#	Venue (room)	Session	Chairs	Speakers
M-A (9:00-12:30)	ErasmusMC AE-406	Connecting good practices in curriculum development for graduate programmes in science communication	Luisa Massarani	Bruce Lewenstein Susana Herrera Merryn McKinnon
M-B (9:00-10:30)	ErasmusMC SP-2407	Welcome session for first-time PCST participants	Michelle Riedlinger	Heather Doran Jenni Metcalfe Samantha Vilkins
M-C (9:00-11:30)	ErasmusMC SP-3411	The value of listening in science communication: The high-impact method for success	Marlit Hayslett	Amy Aines
M-D (09:30-11:30)	ErasmusMC SP-3401	Identifying indigenous astronomy knowledge systems in 'Westernized' indigenous communities	Anton Binneman	
M-E (11:00-13:00)	ErasmusMC GK-018/22/24	Exploring SciComm through SciArt: PCST 2023 Graduate Student Preconference	Alice Fleerackers	Anouk de Jong Kelly Rademakers Björk Johannes
M-F (9:00-13:00)	Natuur-historisch museum	How to evaluate science communication and its impact	Anne Land	Imke Hedder Julia Panzer Madelijn Strick Ricarda Ziegler
M-G (9:00-13:00)	Maritiem museum – Verolme zaal	From goodwill to inclusive and equitable practices – an introduction to inclusive science engagement	Vanessa Mignan	Siddharth Kankaria Lewis Hou Jon Chase
M-H (9:00-13:00)	Belasting & Douane Museum	A plain language approach to science communication: opening up science to non-scientific audiences	Eleanor Cornelius	Lali van Zuydam

Afternoon sessions (14:00-17:00)

#	Venue (room)	Session	Chairs	Speakers
A-A (14:00-16:00)	ErasmusMC SP-3411	Making your science a blockbuster – Creative lessons from television	Sam Ridgeway	
A-B (14:00-16:30)	ErasmusMC SP-2407	The science of science communication – a practical workshop	Han Tran	
A-C (14:00-16:00)	ErasmusMC SP-3401	Grounding AI communication: Myths, imaginations, and realities	Markus Gottschling	Kim Luther
A-D (14:00-17:00)	ErasmusMC SP-3417	How to get ahead in your career and make friends: SciComm networks and their vital role in practice & research ecosystem	Kim Waddilove	Hannah Keal Fabien Medvecky Danielle Farrugia Mohamed Ramadan Roselyne Namayi Alexandra Borissova

A-E (15:00-17:00)	ErasmusMC GK-012/18/ 22/24	Determining your unique role in a transdisciplinary collaboration	Joran Buwalda	
A-F (14:00-17:00)	Natuur- historisch museum	We'll take you on a journey: audience-focused storytelling in public Engagement	Jana Wendler	Victoria Shennan Anna-Zoë Herr
A-G (14:00-17:00)	Maritiem museum – Verolme zaal	From purpose to practice – Setting up an inclusive creative action plan	Lieke Ketelaars	Amparo Leyman Barbara Streicher Lewis Hou Alehandra Calderon
A-H (14:00-16:30)	Belasting & Douane Museum	Theatre of the oppressed: Exploring our struggles with social justice in science communication	Nicholle Bennett	

The Preconference Programme is made possible with support of the Erasmus Medical Centre, the Natuurhistorisch museum, the Maritiem museum and the Belasting and Douane museum.



PLENARY SESSIONS

All plenary sessions are held in the Willem Burger Zaal (Room) on the third floor.

Tuesday 11 April 18:45 – 20:00h

Crossing the Divide to Common Ground

Chair: Dr Jenni Metcalfe, director Econnect Communication, President PCST Network

Welcome:

Dr Jenni Metcalfe, President PCST Network

Dr Marina Joubert, Chair of PCST Program Committee, Stellenbosch University, South Africa

Caroline Wehrmann, Co-chair Local Organising Committee, Delft University of Technology, Netherlands

Speaker: Sonya Pemberton, Creative Director, Genepool Productions, Australia

Emmy award-winning science filmmaker Sonya Pemberton shares the trials and tribulations of communicating complex - and often divisive - science to international audiences. From climate change to vaccines to genome editing and nuclear power, we're surrounded by facts and figures, claims and counter claims, and it seems we've never been more polarised. How can we communicate with those who think differently to us? What are the tools that can help build useful conversations around science? How can we move beyond 'preaching to the choir'? Screening excerpts from 'Carbon - The Unauthorised Biography', 'Uranium – Twisting the Dragon's Tail' and 'Jabbed - love, fear and vaccines', Sonya will share her insights and her five top tips for communicating science.

Respondents to presentation:

Professor Lloyd Davis, Science Communication, University of Otago, New Zealand

Dr Massimiano Bucchi, Prof. of Science and Technology in Society and of Communication, Science and Technology, University of Trento, Italy

Wednesday 12 April 08:30 – 09:45h

Setting the Scene: towards a common ground for science communication

Chair: Dr Marina Joubert, Chair PCST Program Committee, Stellenbosch University, South Africa

Introduction: Dr Anne Dijkstra, Coordinator Local Organising Committee, University of Twente, Netherlands

Speaker: The Honourable Robbert Dijkgraaf, Minister of Education, Culture and Science, The Netherlands

Worldwide developments like the COVID-19 pandemic, climate change, and more recently, those with ChatGPT in the field of Artificial Intelligence, have renewed the interest in science communication and the need to understand better how science and society interact with each other. In this formal opening session, Minister Robbert Dijkgraaf will address developments within science communication in the Netherlands in relation to international developments in the field. Last year, the minister dedicated budget for a new Dutch national science communication centre. The plans for the centre will soon be presented.

Panel dialogue: Science Communication in the Netherlands

Professor Noelle Aarts, Socio-Ecological Interactions, Radboud University, The Netherlands
Professor Ionica Smeets, Science Communication and Society, Leiden University, The Netherlands

Moderator: Dr Jenni Metcalfe, Director Econnect Communication, President PCST Network

PCST President's address: Dr Jenni Metcalfe

Jon Chase, Freelance science communicator, Rap Science, United Kingdom

Wednesday 12 April 14:15 – 15:15h

The ethics of making decisions for communicating science in a diverse world

Chairs: Mohammad Elsonbaty, Science Journalist and Science Communication Consultant, Belgium & Dr Fabien Medvecky, Senior Lecturer, University of Otago, New Zealand

In discussion with key note speakers:

- Professor Margaret Kaseje, Tropical Institute of Community Health and Development, Visiting Professor for Health Policy & Planning at Universite Libre des Pays des Grands Lacs in Goma DRC (Kenya)
- Aleida Rueda, science communicator in the Complex Science Center at the National University of Mexico (UNAM); freelancer reporter for: SciDev.Net (Latin America), Salud con Lupa (Perú), Pie de Página (México)

Science communicators face increasingly difficult decisions, from how to deal with misinformation to how to communicate with diverse (and sometimes polarised) audiences to how to navigate changing roles in a fast-moving media landscape. This discussion-based plenary session tackles these challenges head on by asking: How do we make the decisions that we make so as to act ethically as a science communicator. Follow our keynotes and their thought process as they walk us through the challenges they see and face in making complex decisions in a diverse, scientifically rich world.

Thursday 13 April 08:30 – 09:45h

Finding common ground through communicating with diverse cultures

Chair: Toss Gascoigne, Visiting Fellow, Centre for the Public Awareness of Science, The Australian National University

Panel discussion by Rotterdam fellows:

Challenges of science communication in lower-income countries

Panel of Rotterdam fellows

- Luisa Barbosa, Instituto Distrital de Ciencia, Biotecnología e Innovación en Salud, Colombia
- Siddharth Kankaria, National Centre for Biological Sciences, India
- Dr Sibonile Linda Khumalo, Rhodes University Biotechnology Innovation Centre, Zimbabwe
- Israel Bionyi Nyoh, Forest Stewardship Council, Congo Republic

Wealth, Poverty, and Thinking about Science

Keynote speaker: Dr Jahnavi Phalkey, Founding Director, Science Gallery Bengaluru, India

What is the place and purchase of 'culture' in the history of knowledge, knowing, and its further sharing? "While European music was music, everything else remained mere anthropology." Culture took the place of history in the early years of the study of knowledge in societies beyond Europe. Residues of earlier approaches remain embedded in our ways of knowing which becomes interesting when scholars begin to accept that all knowledge and its communication is local. Jahnavi will discuss how public engagement gives us the opportunity to make visible the cultures of knowledge making and its communication.

Thursday 13 April 14:15 – 15:15h

How (dis)agreements matter in creating common grounds – Reflections from science communication theory and research

Chair: Professor Sarah Davies, Science Communication, University of Vienna, Austria

Keynote speaker: Professor Ulrike Felt, Department of Science and Technology Studies, University of Vienna, Austria

What role do values and practices of valuing play in the creation of common grounds? In addressing this question, Ulrike will use moments of disagreement in the context of science communication (whether simple frictions or open controversies) as lenses of reflection. From research, we know that these are privileged moments in which assumptions, experiences, values, and (affective) positions, otherwise remaining tacit, are expressed and become visible. Putting (dis)agreements center offers relevant insights into how valuing matters in creating shared knowing spaces through communication.

Panel discussion: Creating conversations, connections, and collaboration across scholarship and practice for the common good part 1

- Professor Ulrike Felt, Department of Science and Technology Studies, University of Vienna, Austria
- Professor Bernard Schiele, Researcher, IRCST, Canada
- Dr Mamoeletsi Mosia, Managing Director, National Research Foundation-SAASTA, South Africa
- John Besley, Michigan State University, United States of America

Friday 14 April 08:30 – 09:45h

Finding common ground from the science of science communication

Chair: Dr Luisa Massarani, Coordinator of the Brazilian Institute of Public Communication of Science and Technology

Keynote speaker: Professor Dominique Brossard, Department of Life Sciences, University of Wisconsin-Madison, USA

Dominique's keynote talk will discuss some research insights from the science of science communication that could help practitioners, policymakers and academia find common

ground and work together with communities toward building safe, resilient societies in a post-pandemic world

Panel discussion: Creating conversations, connections, and collaboration across scholarship and practice for the common good part 2

- Professor Dominique Brossard, Department of Life Sciences, University of Wisconsin-Madison, USA
- Alice Fleerackers, PhD Candidate, Interdisciplinary Studies, Simon Fraser University, Canada
- Dr Hepeng Jia, Professor and Science Journalist, Soochow University, China
- Dr Yael Barel Ben David, Director of the Citizen Lab, Technion-MadaTech, Israel

Friday 14 April 16:00 – 17:15h

Finding common ground between international associations

Chair: Heather Doran, PCST secretary and Public Engagement Manager at the Leverhulme Research Centre for Forensic Science, University of Dundee

Panel discussion moderated by Brian Trench and Heather Doran

- Cissi Billgren Askwall, Secretary General, Vetenskap & Allmänhet, Sweden, and president, European Science Engagement Association, EUSEA
- Dr Miguel García Guerrero, physicist and science museum curator, Autonomous University of Zacatecas, Mexico, representing Red Pop, the Latin-American science communication
- Dr Anke Wonneberger, associate professor, Amsterdam School of Communication Research and board member, International Environmental Communication Association

Closing

Host: Dr Jenni Metcalfe, Director, Econnect Communication, President PCST Network

- Interview with students curating VOICE
- Announce 2027 conference venue and new scientific committee
- Welcome hosts of PCST2025 in Aberdeen
- Farewell

SPECIAL LUNCH SESSIONS

Each day two special lunch sessions are organised in collaboration with our partner NWO and sponsors Elsevier and Glaxo Smith Klein. In addition, the PCST AGM will be held on Thursday.

Wednesday 12 April

13:00 – 13:45: <i>Schadee Room</i> Partner session with NWO (Dutch Research Council) Discover ROBIN: an interactive animation	13:15 – 14:00: <i>Hudig Room</i> Session with Elsevier Confidence in Research: Implications for researchers and the media
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13:00 – 13:45: *Schadee Room – Lunch session partnered with NWO*

Discover ROBIN: an interactive animation

During this lunch session, we will play the interactive animation **ROBIN**. ROBIN consists of scientific dilemmas which are presented to the viewer in a narrative manner. The choices you make as a viewer determine the subsequent course. Philosopher Tim de Mey was closely involved in the development of ROBIN and 'plays' the film with the audience in a collective way. Afterwards he will enter into dialogue with you, discussing the various answers and the consequences they had.

Thijs Kasbergen, co-owner of Public Cinema, has been involved in producing ROBIN. He explains this process, naming the elements of success but also the areas where concerns lie.

How can this form of science communication gain more international support? We would like to hear your thoughts.

13:15 – 14:00: *Hudig Room – Lunch session sponsored by Elsevier*

Confidence in Research: Implications for researchers and the media

Exploring the landmark Economist Impact study

Science and its practice are undergoing rapid change. The pandemic has transformed scientific endeavour in a number of ways – giving it greater prominence and recognition, but also creating higher expectations around pace and certainty. Navigating huge quantities of information, finding relevant research, knowing what can be relied upon and tying together quality insights has been made harder for researchers, as well as the media.

This panel discussion will be focused on the findings of the 2022 report '[Confidence in Research: Researchers in the spotlight](#)', with independent research conducted by Economist Impact and supported by Elsevier. Using the report findings, the discussion will focus on what gives researchers confidence in research, the role of researchers in society and the challenges they face in adjusting to a public-facing role, as well as their experiences of using social media to communicate their findings.

Ultimately, the discussion will unpack the drivers of confidence in research, and discuss the role that each sector — whether academia, funders, publishers, policymakers and journalists - can play in supporting a credible research ecosystem. What are potential solutions that can support

the scientific research and communications communities in a way that ultimately improves research integrity and (public) confidence in science?

Selected findings:

Misinformation: More than 2/3 of respondents indicated increasing importance of distinguishing quality research from misinformation; public attention and concerns about misinformation may cause researchers to adopt more cautious research practices and rethink their chosen topics.

Researcher Roles: 23% consider fighting against disinformation to be a main role in society. 51% feel responsible for participating in online debate, and 32% of respondents have experienced, or know of a close colleague who has experienced, abuse after posting research online.

Trust: Less than 40% believe that a better public understanding of how research is conducted will be the pandemic's legacy. Policymaker engagement, communication support, and incentive reforms appear important to leverage increased public attention without undermining trust in research.

Support. Opportunities for policymaker engagement, communication support and incentive reforms appear important for reaping the benefits of increased public attention without undermining confidence in research.

Panel: Laura Hassink, Managing Director for Journals, Elsevier
Laurens Landeweerd, Institute for Science in Society, Radboud University
Sadaf Soloukey, PhD-Candidate, Erasmus MC

Chair: Brian Trench, Science communication researcher and Past-president, PCST Network

Thursday 13 April

13:00 – 13:45: <i>Schadee Room</i> Partner session with NWO (Dutch Research Council) Innovative science communication: the 'WECOM-call'	13:15 – 14:00: <i>Van Weelde Room</i> PCST Network AGM
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13:00 – 13:45: *Schadee Room*

Innovative science communication: the 'WECOM-call'

The **WECOM-call** is a call initiated by the Dutch Research Agenda. It is the first call to which scientists can submit science communication projects, with the aim of giving a boost to science communication in the Netherlands. Several projects have been given the chance to get off the ground through this call, including proposals submitted by museums. This makes it a unique call in the Netherlands. Speaker Anne van der Ham will tell you something about the call and successful projects.

In this session, we would like to find out how we could shape a similar call on an international level. What would it take to launch the call abroad? And what kind of projects are we looking for? In a panel discussion, we are happy to let people from the field have their say and are curious about your opinion.

Friday 14 April

13:00 – 13:45: <i>Schadee Room</i> Partner session with NWO (Dutch Research Council) Combining science and festivals: Expeditie NEXT	13:15 – 14:00: <i>Hudig Room</i> Session with GlaxoSmithKline Mind the Gap: Notions on public-private collaboration in biomedical science
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13:00 – 13:45: *Schadee Room*

Combining science and festivals: Expeditie NEXT.

It used to be a quite odd combination, yet in today's times science and (music) festivals work together perfectly. The Dutch Research Agenda is happy to contribute to facilitating science (communication) at existing festivals and has even launched its own science festival for children: **Expeditie NEXT!**

Campaign strategist and managing partner at BKB | Het Campagnebureau Bianca Pander will tell you all about it. Among other things, she explains why children were chosen as target audience and what makes a science festival like Expedition NEXT a real science festival. Not only do we name the considerations made and the learnings taken from the previous editions, we are also looking for input from the international field to help us increase insights when it comes to this form of science communication.

13:15 – 14:00: *Hudig Room – Lunch session sponsored by GSK*

Mind the Gap: Notions on public-private collaboration in biomedical science

Funders of scientific research expect researchers to actively seek collaboration with private companies in order to stimulate societal uptake of research results. Current science policies of national governments and the European Union are positioning science in a context of industrial innovation and economic growth.

Whenever the world is facing serious health crises, such as new emerging diseases and pandemics, governments and supranational organizations, such as the EU, are urging pharmaceutical companies to develop preventive medicine, diagnostic tools and effective therapies rapidly.

However, the role of pharmaceutical companies as well as researchers collaborating with them, is often depicted as controversial by the media and the public. A relevant question to theorists and practitioners of science communication is how to give the public a balanced and fair view of this collaboration, that integrates the perspective of academic research, societal needs, economic entrepreneurship and ethics.

This panel session introduces the bumpy road from excellent research to societal impact through industrial innovation and invites for discussion between all actors.

Panel: Jahnavi Phalkey, Founding Director, Science Gallery Bengaluru, India
Albert Osterhaus, Professor of Virology, TiHO, Hannover, Germany
Daniëlle Zandbergen – Van den Boogaardt, Medical Director GSK, The Netherlands
Robert Al, Head of Technology Transfer Office, Erasmus MC, The Netherlands

Chair: Fred Balvert, Science Communicator Erasmus MC, The Netherlands

PARALLEL PROGRAMME

Parallel session 1: Wednesday 12 April; 09:45 – 11:00

#	Venue	Session	Chairs	Speakers
1-A	Willem Burger Room	Roundtable: Science Communication of Academic Institutions: What are the Challenges?	Alessandra Fornetti	Massimiano Bucchi Isabel Sörensen Anna Maria Fleetwood
1-B	Van der Mandele Room	Individual papers: Science in the mass media 1. What happens to news articles when the scientific publications they covered are retracted? 2. Cancer in the news: An investigation into pseudoscience in cancer reporting in South Africa 3. Journalists and experts: relationships shaping the public discourse of the pandemic 4. Exploring inclusive climate change coverage from the journalists' perspectives: Evidence from South Africa, Nigeria and Kenya 5. Existing strategies aimed at improving health intervention research reporting in mass media: a scoping review 6. The Maya Through the Eyes of Television, a Comparison of Science and Pseudoscience Communication Documentaries	Hans Peter Peters	1. Auste Valinciute 2. Lili Rademan 3. Elina Uutela 4. Dominic Ayegba Okoliko 5. Anel Schoonees 6. Bernard Schiele
1-C	Van Weelde Room	Linked papers: Dialogue, technology and societal change	Sujatha Raman	Katharine Legun Cees Leeuwis Noelle Aarts Sophie Boerman Nina de Roo
1-D	Zeelenberg Room	Mini-workshop: A story, the camera, some sound, oodles of science and too many cooks with diverse expertise – how to save the broth!	NA	Harsh Kumar Khatwani Sonal Katyal
1-E	Hudig Room	Roundtable: Making values work for technological innovation	Clara Boissenin	Anna Aris Willemine Willems Wenzel Mehnert Greta Alliaj
1-F	Schadee Room	Science Storytelling – Creating Connections Through a Science Communication Internship (25 minutes)	NA	Denise Hernandez Dawnne LePretre
		Demonstration: Research, science, games and fun (25 minutes)	NA	Sílvia Simon Carles Alcaide Miquel Duran Fernando Blasco Miquel Solà Joan Grèbol
1-G	Van Beuningen Room	Problem-solving workshop: Arts-based approaches to science communication and education	NA	Marianne Achiam Mairéad Hurley Laura Conner Sabrina Vitting-Seerup
1-H	Ruys Room	Problem-solving workshop: Misinformation and polarization dominates online – how can we	NA	Andy Ridgway Frank Kupper Tessa Roedema

		rethink science communication to create common ground?		
1-I	Van Rijckenvorsel Room	Problem-solving workshop: Workshop your book pitch: Contemporary Issues in Science Communication	NA	Clare Wilkinson
1-J	Plate Room	Problem-solving workshop: Third-order science communication: What is it, and where can I get some? (30 minutes)	NA	Heather Bray
1-K	Van der Vorm Room	Roundtable: Facilitating public engagement with science through live comedy performances	Alice Motion	Olivia McRae James Dolan Hauke Riesch
1-L	Mees Room	Roundtable: Emerging careers in science communication: Challenges and opportunities	Mohamed Elsonbaty Ramadan & Alice Fleerackers	Heather Doran Siddharth Kankaria Meghie Rodrigues Samantha Vilkins

Parallel session 2: Wednesday 12 April; 11:30 – 12:45

#	Venue (Room)	Session	Chairs	Speakers
2-A	Willem Burger Room	Roundtable: Is it time for an International Centre for Science Communication?	Toss Gascoigne & Jenni Metcalfe	Melanie Smallman Marta Entradas Brooke Smith Siddharth Kankaria Ionica Smeets
2-B	Van der Mandele Room	Roundtable: Truth in Science? Science journalism and the corporate sector	Olga Dobrovidova	Jane Gregory Alexandra Borissova
2-C	Van Weelde Room	Insight talks: Novel approaches and strategies in science communication and engagement 1. Introducing the POPSICULE – The Science in Popular Culture and Entertainment Hub of the Australian National Centre for the Public Awareness of Science 2. Learnings from a co-produced puppet theatre show in rural South Africa 3. Using teabags to learn about the climate – insights from a Swedish co-creation project 4. Collaborative design: A powerful force for creativity in science communication 5. Communicating Artificial Intelligence (and the public myths about it) in an interactive exhibition 6. “Borrow a researcher” - a scalable science engagement activity that works 7. Towards inclusiveness: two museum strategies to foster a society of knowledge 8. Beyond the formula: Engaging art to research complex systems 9. Talking about myself: when the scientist meets the artist	Liesbeth de Bakker	1. Anna-Sophie Jürgens 2. Roanne Peters 3. David Borgström 4. Carolin Enzingmüller 5. Kathrin Meyer 6. Lena Söderström 7. Luz Helena Oviedo 8. Marthe Van Gils 9. Donato Ramani
2-D	Zeelenberg Room	Problem-solving workshop: Bridging the gap – research-practice collaborations in science communication	NA	Liliann Fischer Ricarda Ziegler Andreas Scheu Peter Hyldgård
2-E	Hudig Room	Roundtable: A conversation about conversation in science communication	Brian Trench	Massimiano Bucchi Birte Fähnrich Noelle Aarts

				Pedro Russo
2-F	Schadee Room	Insight talks: Science communication teaching, training and capacity building <ol style="list-style-type: none"> 1. Mobilising the South African Youth in Science and Technology Journalism 2. Teaching to Enhance Students' Scientific Attitude: Insights from a Higher Education Course 3. A Binary Star System Model for Designing a Science Communication Training Program 4. A study of teach-in in communicating climate action to the younger generation 5. A Failure to Communicate: Curricular Analysis Reveals Major Deficits in Science Communication Coursework at R1 Universities in the United States 6. CuriosiTY: Broadening participation in a transition year STEM placement programme 7. Planning, developing and evaluating a backbone course for science communicators 	Sarah Davies	<ol style="list-style-type: none"> 1. Michael Ellis 2. Dorothe Kienhues 3. Elaine Reynoso-Haynes 4. Chi-I Lin 5. Andrew Elmowitz 6. Anna Wedderburn 7. Elaine Reynoso-Haynes
2-G	Van Beuningen Room	Storytelling presentation: We're using AI, translation and scicomm to open up African research	NA	Anina Mumm Sibusiso Biyela Ntokozo Nomasiko Msomi Gosaitse Tubatsi
2-H	Ruys Room	Roundtable: Raising the standards of science communication in Forensic Science	Heather Doran	Niamh Nic Daeid Julie Burrill Yahaya Sumara Sulley
2-I	Van Rijckenvorsel Room	Workshop: Can a scientist ever be certain of something? Science communication through dialogues about science	NA	Jelle de Schrijver Lynda Dunlop
2-J	Plate Room	Workshop: When science engagement isn't about the science – Creating common ground with youth work and informal science learning	NA	Stacey Carmichael Kath Edgar Louisa Fox Jackie Bell
2-K	Van der Vorm Room	Problem-solving workshop: Public engagement – let's share trends, challenges and top tips!	Annette Klinkert	Philipp Burkard & Cissi Askwall
2-L	Mees Room	Performance: Science is life (30 minutes)	NA	Karina Lupetti

Parallel session 3: Wednesday 12 April; 15:15 – 16:30

#	Venue (Room)	Session allocation	Chairs	Speakers
3-A	Willem Burger Room	Individual papers: Science communication theory <ol style="list-style-type: none"> 1. The Uses of the Term 'Science Communication' 2. Bridging open science and science communication: A theoretical perspective 3. A constructed mind approach for science communication research 4. Science Communication and Epistemic Cultures 5. What place has history in science communication? Reflections from a lapsed historian 	Emma Weitkamp	<ol style="list-style-type: none"> 1. Bernard Schiele 2. Monique Oliveira & Alice Fleerackers 3. Daniel Silva Luna 4. James Andrew Dolan 5. Harriet Palfreyman 6. Guoyan Wang 7. Hauke Riesch

		6. The construction of civil scientific literacy in China from the perspective of science education 7. Science communication and prophecy		
3-B	Van der Mandele Room	Linked papers: Research infrastructures: Connecting scientific facilities to society	Marjolein Oorsprong	Elise Brouwer Tabea Rauscher Anton Binneman Emma Sanders Frank Nuijens
3-C	Van Weelde Room	Roundtable: Toward a unified research agenda for communicating basic science	Brooke Smith	Rick Borchelt Sara Yeo Marina Joubert T.Y. Branch
3-D	Zeelenberg Room	Problem-solving workshop: Fact-finding mission: How to make scicomm practices with audiences more inclusive	Siddharth Kankaria	Liesbeth de Bakker Kim Darley Waddilove Barbara Streicher Mohamed Daoud Tessa Zonneveld
3-E	Hudig Room	Individual papers: Science communication strategies, challenges and trends 1. A successful mixture: Using multiple communication methods across many audiences in a contentious space 2. Memes and pandemic: a study on reception and strategies for science communication 3. The unique challenges and opportunities for communication and engagement on basic science 4. Lessons for Increasing Science Engagement Across Diverse Communities 5. The use of narratives in communicating neuroscience to low-income status pregnant mothers 6. When science meets society: “getting personal” in first encounters	Brian Trench	1. Melina Gillespie 2. Luís Amorim 3. Ashley Cate 4. Cary Funk 5. Aquiles Negrete 6. Lotte van Burgsteden
3-F	Schadee Room	Individual papers: Communicating uncertainty in science 1. Cutting “Long COVID” Stories Short: Did News Outlets Oversimplify the Uncertainty in Medical Research about Post-COVID Conditions? 2. Don’t skip Uncertainty! Insights from a Study on Communicating Scientific Uncertainty and Advocacy 3. Uncertainty across the sciences: Exploring how experts from different fields experience scientific uncertainty 4. DICEY Science communication in a climate of uncertainty (Lynda Dunlop) 5. Interrogating mediated medicine: Examples from the gene technology and dental amalgam controversies in Sweden	Bruce Lewenstein	1. Anqi Shao 2. Inse Janssen 3. Becca Beets 4. Lynda Dunlop 5. Jenny Eklöf
3-G	Van Beuningen Room	Visual papers: Science communication practice 1. Creating common language: science communication in between scientific disciplines and publics	Melanie Smallman	1. Rita Campos 2. Jane Thomas 3. Jane Essex

		<ol style="list-style-type: none"> Visual communication means we're all speaking the same language Diversity in Science for Social Inclusion: when the diversity wheel becomes a blur Science communication through public-private partnership at CERN Pasta & Haggis Project – A recipe for success Fight resistance: an evolution game More Than Words: Using Images of Science to Reach Broader Audiences Hang out at the engagement laundromat Is technology taking over? The SocketTs exhibition 		<ol style="list-style-type: none"> Andrew Purcell Pauline Mack Daniela Ribeiro Heather Young Jo Bailey Clara Boissenin
3-H	Ruys Room	Individual papers: Evaluation and impact of science communication <ol style="list-style-type: none"> Active Ingredients of Science Communication Impact: A Quantitative Study at a Science Festival Development and Validation of Scale for Reception of Science Communication Collaboratively Contributing to the Value Proposition of Science Engagement in South Africa Leading together: exploring the impacts of collaborative academic leadership Evaluating Youth Engagement with (Geo)Science Communication Models: A Case Study with a Métis Community in Saskatchewan, Canada The engagement blind spot: locations of quality in perceptions of science communication stakeholders 	Julia Cramer	<ol style="list-style-type: none"> Madelijn Strick Leon Yufeng Wu Lindie Muller Ann Grand Courtney Onstad Arko Olesk
3-I	Van Rijckenvorsel Room	Mini-workshop: How to know when you are using jargon and how to modify it	NA	Marlit Hayslett
3-J	Plate Room	Performance with storytelling and music: Shared music-making as ecosophy – Cultural mapping post-industrial areas of Scotland (30 minutes)	NA	Lucy Beattie Luke Daniels
		Demonstration: Congratulations, you are a superorganism! Creation of the microbiome videogame Symbiosville (25 minutes)	NA	Lisa Bailey
3-K	Van der Vorm Room	Panel discussion: Freedom vs Science: How to Transcend the post-pandemic political divide?	Alexandre Schiele	Bernard Schiele Toss Gascoigne Germana Barata
3-L	Mees Room	Storytelling presentation: CURIOS.TY: Giving V.O.I.C.E creatively to research from the Global South	NA	Deborah Minors Schalk Mouton

Parallel session 4: Wednesday 12 April; 17:00 – 18:15

#	Venue (Room)	Session	Chairs	Speakers
4-A	Willem Burger Room	Linked papers: Contested ground, fertile ground, not common ground	Jenni Metcalfe	Fabien Medvecky Mark Harvey Marie McEntee Neihana Matamua Sara MacBride-Stewart

4-B	Van der Mandele Room	No session		
4-C	Van Weelde Room	Roundtable: Science-Theatre in the Context of Science Communication: Opportunities and Challenges	Carla Almeida	Emma Weitkamp Mário Montenegro Simon Parry
4-D	Zeelenberg Room	Mini-workshop on producing film as a research output: More than the story	NA	Lynn Hendricks Karin Hannes
4-E	Hudig Room	Individual papers: Institutional science communication <ol style="list-style-type: none"> 1. Data and engagement in science communication: a comparative study on the public communication of science in research institutions in European and American countries 2. Medialization of science: Evidence from a reanalysis of German surveys of scientists and semi-structured interviews with university public information officers (1983–2014) 3. Image-building by Taiwanese science organizations: a comparison of public universities, private universities and non-university research institutes 4. Do scientific institutes in Poland follow the model of public participation in science? 5. The identity and latent professional profiles of communicators in Portuguese scientific research and outreach organisations 	Michelle Riedlinger	<ol style="list-style-type: none"> 1. Adriana Omena Santos 2. Hans Peter Peters 3. Yin-Yueh Lo 4. Andrzej Jasinski 5. Manuel Valença
4-F	Schadee Room	Individual papers: Science communication teaching, training and capacity building <ol style="list-style-type: none"> 1. Teaching and Training Participation and Engagement in a Changing World: Current and Future Trends in Science Communication Didactics from a Transnational Perspective 2. Learning how to listen: a key aspect in training future scientists for meaningful dialogue with society 3. Science communication training: from recreation to profession 4. Professional transformation of a science engagement practitioner 	Pedro Russo	<ol style="list-style-type: none"> 1. Konstantin S. Kiprijanov 2. Cathelijne Reincke 3. Miguel Garcia-Guerrero 4. Riina Linna
4-G	Van Beuningen Room	Insight talks: Evaluation and impact of science communication <ol style="list-style-type: none"> 1. SciComm100 – Learning through case studies 2. Developing a community-based group to tackle socio-scientific issues: the potential of evaluation 3. Success criteria for informal STEM learning activities: views of practitioners, visitors and researchers 4. Large-Scale Science Engagement Evaluations: Managing the Complexity of Collaboration and Procurement 5. Perceptions of the impact of the SKA in communities surrounding the SKA site in South Africa 	Marieke Baan	<ol style="list-style-type: none"> 1. Sam Ridgeway 2. Yvoni Pavlou 3. Tessa Eysink 4. Lindie Muller 5. Anton Binneman 6. Susana Ambrósio 7. Elisabeth Jurack 8. Angela Monasor

		6. We had the researchers, the social actors, the institutional partner and we made a show. And now what? 7. The influence of podcasting on students' interest in healthy eating – a study on students (14 – 15 years) 8. Myth busters – practice insight		
4-H	Ruys Room	Roundtable: Between Fact and Fiction. The Difficult quest for common ground in scicomm on AI	Annette Leßmöllmann	Olaf Kramer Beatrice Bonami Tilman Gocht Julia Merlot Markus Gottschling
4-I	Van Rijckenvorsel Room	No session	NA	
4-J	Plate Room	No session	NA	
4-K	Van der Vorm Room	Demonstration: A serious game to generate societal values towards emerging technologies	NA	Greta Alliaj Wenzel Mehnert Lena Söderström
4-L	Mees Room	Individual papers: Reflections on citizen science 1. Citizen Science: is it good science? 2. Dark Citizen Science: Scientific Labour Hidden in Plain Sight 3. Involving me, involving you – Attitudes to and experiences of participation in research among Swedish citizens 4. We need to talk about AI: The Case for Citizens' Think-ins for citizen-researcher dialogue and deliberation 5. Tensions in digital citizen science: Dealing with data sharing, hierarchies and expectations on digital platforms for bird observations 6. Citizen Science: public involvement in research processes and public communication of science	Anne Land	1. Lloyd Davis 2. James Riley & Will Mason-Wilkes 3. Lina Rådmark 4. Emma Clarke 5. Helen Verploegen 6. Chiara Piccolo

Parallel session 5: Thursday 13 April; 09:45 – 11:00

#	Venue (Room)	Session	Chairs	Speakers
5-A	Willem Burger Room	Roundtable: Involving journalists in science engagement between communities and scientists	Janice Limson	Merryn McKinnon Alette Schoon Lutz Peschke
5-B	Van der Mandele Room	Individual papers: Scientists and research students as key role players in science communication and public engagement 1. Researchers' Strategic Usage of Public Communication Activities: Theoretical Reflections and Research Desiderata 2. Understanding Basic Scientists' Behavioural Goals for Science Communication 3. Communicator, expert, role-model, carer, other? Sex, gender and science communication 4. Being an expert Who gets to decide?	Massimiano Bucchi	1. Tobias Tönsfeuerborn 2. John Besley 3. Clare Wilkinson 4. Natasha Tassell-Matamua 5. Jacqueline Aenlle 6. Nelius Boshoff 7. Héloïse Dufour

		<ol style="list-style-type: none"> Scientists in Science Communication: An Examination of Agricultural and Natural Resource Podcast Guest Experiences Impacts contributions of PhD graduates: incorporating the voice of science communication SciComm4all: tools to inspire scientists to connect with a multifaceted society 		
5-C	Van Weelde Room	Linked papers: Science, trust and the public good	Katharine Legun	Sujatha Raman Joan Leach Dan Santos
5-D	Zeelenberg Room	Maker Workshop with LEGO: Create a 3D print of your thoughts and prototype the engaged university of the future!	NA	Annette Klinkert Omer Gaist
5-E	Hudig Room	Demonstration: A freely available resource for our community: science communication MOOC on edX	Michelle Riedlinger	Ayelet Baram-Tsabari Bruce Lewenstein Yael Barel Ben-David
5-F	Schadee Room	Individual papers: Science and its publics <ol style="list-style-type: none"> Family participation on science communication about Autism Spectrum Condition High risk situations for vulnerable people Role of Traditional Beliefs on Maternal Mortality in Assam, India Uncovering the impacts of environmental identities and worldviews (EIW), and cultural-historical contexts on adolescents' perceptions on local marine issues What makes a skeptic? Exploring conceptualizations of science skepticism and its consequences 	Marjoleine van der Meij	<ol style="list-style-type: none"> Bianca Hipólito de Oliveira Eileen Focke-Bakker & Pieter van Gelder Nabanita Borah Shu-Min Tsai Simon Fuglsang & Lucilla Losi
5-G	Van Beuningen Room	Forum theatre: Dialogical training in a post-truth era	NA	Sabrina Vitting-Seerup Marianna Achiam
5-H	Ruys Room	Individual papers: Mis/dis-information and fake news <ol style="list-style-type: none"> A study of disinformation and science: the credibility and importance of information sources Recreational resources to combat the misinformation and disinformation around Covid-19 in Mexico Effectively debunking misleading graphs Who are these people? A study into communities on Twitter discussing COVID-19 conspiracy theories The role of the media in vaccination controversies: From misinformation and misleading messages to complex and contextual understandings Assessing perceived credibility of deepfakes: The impact of system-generated cues and video characteristics 	Toss Gascoigne	<ol style="list-style-type: none"> Luís Amorim Diogo Lopes de Oliveira Sanne Willems Maud Pfeijffer Kristian H Nielsen Xinyi Jin
5-I	Van Rijckensvorse Room	Workshop: Can we tell stories about processes? Designing exhibitions on innovation processes	NA	Clara Boissenin Greta Alliaj Nathalie Cimino

5-J	Plate Room	Mini-workshop on Pathways Theatre: A method for experimental futures	NA	Ehsan Nabavi
5-K	Van der Vorm Room	Reflective workshop: Two science communicators walked into a bar ...	NA	Tom Carruthers
5-L	Mees Room	Mini-workshop: Toolkits for professionals and researchers: providing common ground for quality science communication	NA	Alessandra Fornetti Ilda Mannino Joseph Roche Enrico Costa

Parallel session 6: Thursday 13 April; 11:30 – 12:45

#	Venue (Room)	Session	Chairs	Speakers
6-A	Willem Burger Room	Roundtable: Starting the communication with audience interests or with scientists' strategic goals? A provocative roundtable	Ayelet Baram-Tsabari	John Besley Jon Chase Bruce Lewenstein
6-B	Van der Mandele Room	Linked papers: Diversity is strength – science communication enabling common ground for climate action	Andy Ridgeway	Laura Fogg-Rogers Amanda Webber Sophie Laggan Margarida Sardo
6-C	Van Weelde Room	Linked papers: The science-media relationship explored from a research and practice perspective	Anne Dijkstra	Esther Marín González Elisa Nelissen Marco Boscolo Anouk de Jong Karinna Matozinhos
6-D	Zeelenberg Room	Mini-workshop: The tragicomedy of Athena: training and reflection tool for working towards more rewarding and recognised science communication	NA	Marjoleine van der Meij Sem Barendse Anna Aris
6-E	Hudig Room	Insight talks: Role players in science communication and public engagement 1. The need for the science communication communicator 2. Putting Journalists in the shoes of researchers 3. Communication offices: beyond strategic communication 4. Identify Crises: The Role of a Science Show Performer as an Educator and/or Entertainer 5. SciComm my way or no way 6. Mapping participatory science. Insights on formats, barriers, and solution strategies from Germany 7. CitizAir - Empowering citizen action for clean air 8. Communication in participatory science 9. Co-creating the Future – The Power of Social Makerthons in Urban Innovation Ecosystems	Sikke Jansma	1. Tom Carruthers 2. Zuze Matoliro 3. Alessandro Tavecchio 4. Mark Langtry 5. Iván Jalil Antón Carreño Márquez 6. Sabrina Kirschke 7. David Borgström 8. Carolina Llorente 9. Annette Klinkert
6-F	Schadee Room	Insight talks: Communicating science in digital spaces 1. The challenge of splitting a science museum exhibition into physical and virtual spaces 2. Adapting seven siblings from the future, from Finland to Australia to online 3. Experimentation in Accessibility at Science Festivals: Are digital technologies the next frontier?	Laurens Landeweerd	1. Chisako Miyamae 2. Lisa Bailey 3. Julie Ann Fooshee 4. Andrew Purcell

		<ol style="list-style-type: none"> Going global during a pandemic: moving collaborative events online From paper to screen: how to produce a video abstract? Using Social Media as a Novel Platform for Health Research in Malawi Listening to experts: Podcasting as a practice of science communication during the COVID-19 pandemic Turning Scientists into Radio Hosts every week for 6 years 		<ol style="list-style-type: none"> Miguel Ferreira Pauline Helen Mlogeni Anna-Lena Oltersdorf Lindiwe Mafuleka
6-G	Van Beuningen Room	Individual papers: Climate change, energy, and biodiversity as a focus areas for science communication <ol style="list-style-type: none"> Economic ideology, nationalism, and climate change: Chinese public engagement with climate change "Get Involved!": How Science Communication Shapes Individuals' Climate Change Perspectives Prompting reflection on visual art mitigates political division on the perceived relevance of climate change When is climate change happening? The framing of climate futures in journalistic reporting across four countries Is everyone an energy citizen? – A co-constructive definition seeking beyond disciplinary boundaries Mediated deliberation on social media: Understanding public sentiment of nuclear energy development in Singapore using mix-method analysis Using communication to support energy transition in Africa 	Alice Fleerackers	<ol style="list-style-type: none"> Yeheng Pan Laura Bilfinger Isabel Villanueva Lars Guenther Elisabeth Unterfrauner Agnes (Soo Fei) Chuah Israel Bionyi Nyoh
6-H	Ruys Room	Individual papers: Novel approaches in science communication and engagement <ol style="list-style-type: none"> Living Labs as Third Spaces: Low-threshold participation, empowering hospitality, and the social infrastructures of continuous presence Extended Co-Creations – Virtual Technologies and Collaboration in Museums Collaborating for a Night without walls Virtual environment, real impacts: A VR game utilizing Self-Determination Theory to reduce plastic waste The Dream Machine: a science and theatre hybrid communication format experiment 	Liselotte Rambonnet	<ol style="list-style-type: none"> Ingmar Rothe Andrea Geipel Ana Santos-Carvalho Shirley Ho Mário Montenegro
6-I	Van Rijckenvorsel Room	Demonstration: ConnectME - App connecting the media to health care experts (25 minutes)	NA	Anel Schoonees
		Demonstration: Science in and out – Creating common ground for community science events – The Citizen lab model for public engagement (25 minutes)	NA	Yael Barel-Ben David Hani Swirski Keren Dalyot
6-J	Plate Room	No session	NA	
6-K	Van der Vorm Room	Mini-workshop: Popular science writing	NA	Anusuya Chinsamy-Turan Jørn H. Hurum

6-L	Mees Room	Linked papers: Realising sustainable futures: Public communication and engagement to build a better world	Fern Elsdon-Baker	Will Mason-Wilkes James Riley Louise Reardon Adam Michael Packer Caroline MacCalman
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Parallel session 7: Thursday 13 April; 15:15 – 16:30

#	Venue	Session	Chairs	Speakers
7-A	Willem Burger Room	Roundtable: Should we bury or vindicate the deficit model in times of crises?	Petra Nieckchen	Anne-Maria Brennan Frederike Schmitz António Gomes da Costa
7-B	Van der Mandele Room	Roundtable: Scientists writing news: Emergent science news websites as boundary spanners	Jenni Metcalfe	Michelle Riedlinger Lars Guenther Alice Fleerackers Ayelet Baram-Tsabari
7-C	Van Weelde Room	Roundtable: Building a (European) Science Communication Centre on common ground	Joseph Roche	Rosa Arias Jason Pridmore Alessandra Fornetti
7-D	Zeelenberg Room	Demonstration: 'The engagement laundromat': a participatory process for iterating engagement ideas	NA	Jo Bailey Rhian Salmon Maja Horst
7-E	Hudig Room	Roundtable: The voice of young people in the co-creation of knowledge	Paola Rodari & Greta Alliaj	Yvoni Pavlou Omer Gaist Mairéad Hurley Chris Gary
7-F	Schadee Room	Individual papers: Citizen science – research and methodological considerations 1. A methodological approach to co-design citizen science communication strategies directed to quadruple-helix stakeholders 2. Epistemologies of the crowd: considering situated knowledge in citizen science 3. Anticipating the audience: a linguistic ethnographic study into a citizen science project on air quality 4. Citizen science and scientific communication: toward a more inclusive pattern 5. Deconstructing citizen science – a framework on communication and interaction using the concept of roles 6. Science communication through citizen science by people with low literacy skills	Mohamed Elsonbaty Ramadan	1. Joana Magalhaes 2. Ana Barbosa Mendes 3. Sofie Verkest 4. Federica Cagnoli 5. Susanne Hecker 6. Kirsten Bevelander
7-G	Van Beuningen Room	Visual papers: Science communication research 1. Reaching underserved communities through circular education: a new science education and outreach programme 2. "If you talk too loud, they will stare at you" – A study on social inclusion in science communication through museums 3. Communication as an ingredient to foster student's empowerment in rural territories: GOMA an educational active ecosystem of active citizenship	Heather Doran	1. Joana Bordalo 2. Björk Johannes 3. Raquel Branquinho 4. Luthando Zuma 5. Adriana Omena Santos 6. Andreia Jorge

		<ol style="list-style-type: none"> COVID-19 Myth Busters project Audiovisual and science communication in engineering: the use of videos for technology transfer on non-destructive testing Botanic gardens as hubs of science communication: roles and perspectives of communicators from U.K. and Portugal Humour in science communication. It's not about how, it's about why. Shooting the messenger: Who should talk about gene editing in meat production? Creating an innovative and engaging web-based research journey Opening opportunities to engage PhD students in science communication 		<ol style="list-style-type: none"> Eduardo Sáenz-de-Cabezón Heather Bray Sheau Tsuey Cham Ana Santos-Carvalho
7-H	Ruys Room	Insight talks: Science communication and engagement tools and tactics <ol style="list-style-type: none"> Audio-visual tools to communicate Science: The various lives of the video abstract Embedding informal science learning in youth development work African-language science podcast entertains through presenter chemistry Beyond Horizon, breaking through communication barriers When researchers collaborate with out-of-academia volunteers: the case of Wikipedia editors Duran Towards personalized science communication by active listening The power of a relationship: museum community engagement How to do meaningful public engagement in the context of open science? Seeing is believing – using film to encourage students to become scientists 	Marlit Hayslett	<ol style="list-style-type: none"> Miguel Ferreira Stacey Carmichael Sibusiso Biyela Leon Houben Duran Miquel Fred Balvert Luz Helena Oviedo Erik van Seville Pauline Helen Mlogeni
7-I	Van Rijckenvorsel Room	Problem-solving workshop: Co-creation card game to drive environmental justice	NA	Edward Duca Kurt Calleja
7-J	Plate Room	Problem-solving workshop: Developing a language to communicate about the unique role of the academic researcher in societal transformations	NA	Caroline Wehrmann Joran Buwalda
7-K	Van der Vorm Room	Mini-workshop: Relationship-building in Science Communication: Getting Experts Involved with Science Communication	NA	Jacqueline Aenlle
7-L	Mees Room	Roundtable: Communicating science to young people – can we do better?	Carolina Llorente	Gema Revuelta Julia Lorke Christian Humm Hannah R. Feldman

Parallel session 8: Thursday 13 April; 17:00 – 18:15

#	Venue	Session	Chairs	Speakers
8-A	Willem Burger Room	Roundtable: Queering science communication: Bringing an LGBTIQ+ lens to #scicomm theory and practice	Clare Wilkinson	Eleanor Armstrong John Noel Viana Alice Motion
8-B	Van der Mandele Room	Roundtable: Co-creation: What's in a buzzword?	Konosoang Sobane	Riina Linna Andrea Geipel Ines Montalvao

				D.A. Eva Durall Marjoleine van der Meij
8-C	Van Weelde Room	Roundtable: Science communication for the common good	Sujatha Raman	Anne Dijkstra Mohamed Elsonbaty Ramadan Fabien Medvecky
8-D	Zeelenberg Room	Demonstration: Walking in the shoes of others: Understanding intersectionality	NA	Merryn McKinnon
8-E	Hudig Room	Individual papers: Science-art linkages <ol style="list-style-type: none"> 1. Seeing COVID-19 through Art: Examining the Potential Effects of Visual Art on Social Media Engagement and Information Recall 2. Scientific and artistic thought and creative behaviour: the communication of science, technology and art convergence 3. 'Make sure to stay safe': using art and trust to navigate research collaborations through an evolving social crisis 4. The changing effect of scientific impact on science communication through art 5. Live From The Lab: Exploring the Communication of Science Through Contemporary Music 6. The "Knowledge Trails" project - communicating history of science through gamification 	Luisa Massarani	<ol style="list-style-type: none"> 1. Isabel Iruani Villanueva 2. Laercio Ferracioli 3. Amanda Webber 4. Joaquín M. Azagra-Caro 5. Alice Motion 6. Leda Sampson
8-F	Schadee Room	Individual papers: Scientists' and science communicators' views about science communication and public engagement <ol style="list-style-type: none"> 1. Chinese scientists' view of medialization linked to leader recognition, perceived media role and past experience 2. Science Communication Activities as Potential "Pockets of Belonging" for STEM Graduate Students 3. Understanding the impact of role and identity in researcher's engagement in science communication and advocacy 4. "One might tweet just for money": Organisational and institutional incentives for researchers' science communication and engagement practices 5. Only what can be counted, counts: The perils of ignoring Third Order thinking in the generation of veterinary professionals 	Toss Gascoigne	<ol style="list-style-type: none"> 1. Yihong Tan 2. Nichole Bennett 3. Alison Sheaves 4. Kaisu Koivumäki 5. Jennifer Manyweathers
8-G	Van Beuningen Room	Individual papers: Communicating about food science and GMOs <ol style="list-style-type: none"> 1. Busting myths of biotech: An experiment on countering consumers misperceptions of genetically modified food 2. Food Safety Operational labs – a collaborative approach for science communication of societal relevant and complex food safety topics 3. GM All Over Again? Reflecting on a Systematic Literature Review on Attitudes to the Use of New Breeding Techniques in Food 	Germana Barata	<ol style="list-style-type: none"> 1. Nico Spreen 2. Ilse Marschalek & Maria Schrammel 3. Will J. Grant 4. Zheng Yang

		4. As special public: occupational literacy and its effects on GMOs attitude of Chinese civil servants		
8-H	Ruys Room	Insight talks: Topic-driven science communication research and practice <ol style="list-style-type: none"> 1. Finding common ground to support the local energy transition: Perspectives on community energy management in Wisconsin, USA 2. State-Mandated Disinformation on Contraception and Abortion: The Role of Government in Undermining Medical Consensus 3. Scarcity of female eponyms in school and street names - even fewer science female eponyms 4. Communicating Climate Change in an Oil Economy 5. Off the charts: A comparative analysis of the use of data visualisations in news media science stories in South Africa and the U.S. 6. Building stories about climate change in Southern European media 7. Knowledge transfer as a wicked problem: How can organisations create common ground between science and the media? 	Sook-kyoung Cho	<ol style="list-style-type: none"> 1. Mikhaila Calice 2. Emma Harcourt 3. Sílvia Simon 4. Per Hetland 5. Marnell Kirsten 6. Esther Marín González 7. Anna-Lena Oltersdorf
8-I	Van Rijckenvorsel Room	No session	NA	
8-J	Plate Room	No session	NA	
8-K	Van der Vorm Room	Problem-solving workshop: When Indigenous and Western ideologies come together: A kōrero/discussion around learnings on co-creating resources to support kaumātua/ elder Māori and whānau/ family	NA	Nancy Longnecker Katrina Bryant
8-L	Mees Room	Demonstration: 360° Communication in Science: Transmedia strategy regarding the journey to the hadal zone of the Atacama Trench (25 minutes)	NA	Bárbara Léniz Julián Rosenblatt

Parallel session 9: Friday 14 April; 09:45 – 11:00

#	Venue	Session	Chairs	Speakers
9-A	Willem Burger Room	Roundtable: Finding common ground through journalism	Felicity Mellor	Alexandra Borissova Jane Gregory Susan Swanberg An Nguyen
9-B	Van der Mandele Room	Roundtable: Ethical Principles for Common Ground in Science Communication Theory and Practice	Fabien Medvecky	Joan Leach Michiel Van Oudheusden Laura Lindenfeld Hua Tian
9-C	Van Weelde Room	Roundtable: Visible Scientists in the age of Covid-19: Characteristics, Changes, Challenges	Marina Joubert	Simone Rödder Declan Fahy Germana Barata T.Y. Branch
9-D	Zeelenberg Room	Demonstration: Using evidence-based pedagogies to create an effective science communication classroom	Merryn McKinnon	Mark Sarvary Kitty Gifford
9-E	Hudig Room	Individual papers: Engaging with specific communities and publics for science	Frank Kupper	

		<ol style="list-style-type: none"> 1. A crusade to prevent soil erosion: collaborative work among scientists and farmers to enhance adoption of biotechnological innovations in Mexican Agriculture 2. Enhancing agency around water treatment and monitoring in remote communities: a case study of science engagement in the Amakhala Game reserve in South Africa 3. Living in the vicinity of wind turbines: residents' experiences and underlying considerations 4. Expertise and communicating about infectious disease: The negative impact on veterinarian/horse owners' relationship through living with Hendra virus 5. "Lots of People at the Table": A call for democratization of innovation in rural U.S.A. 6. Experiencing science communication from a midsize city in a low-income country: Reflections of the volunteer ecosystem 		<ol style="list-style-type: none"> 1. Lourdes Mateos-Espejel 2. Thandiswa Nqowana 3. Sikke Jansma 4. Jennifer Manyweathers 5. Lauren Murfree 6. Iván Jalil Antón Carreño Márquez
9-F	Schadee Room	<p>Individual papers: Public (dis)trust in science</p> <ol style="list-style-type: none"> 1. Cues of (dis)trust in content about science: Comparing journalistic, social, and alternative media 2. Trust in science among digitized publics in Germany and South Africa: A comparative study 3. Who's afraid of public mistrust in science? 4. Do we trust research for the reasons we think? Insights from studies on trust in humanities research 5. Trust and expertise online – new insights for practice and research 6. Is science for the rich and powerful? Investigating the relation between income and trust in science across 145 countries 	Ana Claudia Nepote	<ol style="list-style-type: none"> 1. Justin Schröder 2. Anne Reif 3. Brian Trench 4. Gustav Bohlin 5. Andy Ridgway 6. Simon Fuglsang
9-G	Van Beuningen Room	<p>Individual papers: Covid-19 as a focus area for science communication research</p> <ol style="list-style-type: none"> 1. Covid-19 editorial cartoons in Australia, South Africa and the UK: mixing politics, science and scientists 2. Evaluating expertise during the COVID-19 pandemic 3. Communicating COVID-19: Characterizing risk as personal property and responsibility 4. A teachable moment: The dynamics of new vocabulary use in media and reader comments during the COVID-19 pandemic 5. Digital public sphere and social actors that guided the discussions about vaccines on Instagram and Facebook in Brazil during the COVID-19 pandemic (2020-2021) 6. Readers' comments as a public arena for the scrutiny of science: a study of science news comments in two Brazilian newspapers during the Covid-19 pandemic 7. The Medial Construction of Scientific Experts and Their Trustworthiness A Qualitative Study of German Online Coverage of Covid-19 	Carolina Llorente	<ol style="list-style-type: none"> 1. Emma Weitkamp 2. Esa Välierronen 3. Philippa Spoel, Emily Cooke & Catherine Copley 4. Yael Rozenblum 5. Luisa Massarani 6. Carla Almeida 7. Tobias Tönsfeuerborn

9-H	Ruys Room	Mini-workshop: Science communication models: a practical workshop exploring the nexus between theory and practice	NA	Jennifer Metcalfe Susanna Hererra
9-I	Van Rijckenvorsel Room	No session	NA	
9-J	Plate Room	Problem-solving workshop: Who wants to talk about altering the DNA of embryos? Towards precision engagement in dialogic science communication	NA	Presenters: Diewertje Houtman & Bertrand Burgers Contributors: Mirte de Wit, Sam Riedijk & Boy Vijlbrief
9-K	Van der Vorm Room	Roundtable: Bringing Living Labs to Life: Fulfilling the promise of open, active, and innovative public science engagement	Caroline Wehrmann	Loes Witteveen Christian Pentzold Caroline Wehrmann Ingmar Rothe
9-L	Mees Room	Problem-solving workshop: Creating common ground: How to come to terms with social sciences	NA	Katharina Bock Andrea Geipel

Parallel session 10: Friday 14 April; 11:30 – 12:45

#	Venue	Session	Chairs	Speakers
10-A	Willem Burger Room	Individual papers: Reflections on justice, equity, diversity, inclusivity and decolonising science communication 1. Decolonising science communication? Transformations in the Caribbean part of the Kingdom of the Netherlands 2. The role of inclusive science communication in research/action transdisciplinary projects 3. How science outreach with children can promote equity and diversity 4. Rotterdam Market Vaccinations: a campaign based on the equity principle 5. Getting the ball rolling on equity: Using a virtual 'Ball Run Challenge' to engage First Nations Australians living in remote communities 6. Exploring perspectives of minoritized community walking group leaders to make access to nature more equitable, diverse and inclusive	Bruce Lewenstein	1. Tibisay Sankatsing Nava 2. Susana Herrera 3. Luiz Lima & Joana Bordalo 4. Inge Merkelbach 5. Shanii Phillips 6. Richard Holliman
10-B	Van der Mandele Room	Insight talks: Science communication theory, models and strategies 1. The Koru Model illustrates influences on an individual's engagement with and use of information 2. Progression from deficit to dialogue models of science communication: Lessons and opportunities from Biotechnology science innovation 3. Defusing deficit thinking in science communication practise 4. You're right – science communication IS advocacy!	Erik van Seville	1. Nancy Longnecker 2. Linda Khumalo 3. Frank Nuijens 4. John Meyer 5. Jessica Turner-Skoff 6. Frederike Schmitz 7. Nico Pitrelli 8. Heloise Dufour

		<ol style="list-style-type: none"> 5. Trees are the solution: How to leverage your science and make your expertise work for you 6. Patient engagement in basic research: not as easy as it sounds 7. Communicating knowledge for policy under conditions of uncertainty: towards a civic science education 8. Building large scale programs while keeping it inclusive: an elusive goal? 9. Creating webs of impact within learning ecosystems: Use collaboration to advance your mission and extend your networks 		<ol style="list-style-type: none"> 9. Jessica Turner-Skoff
10-C	Van Weelde Room	Insight talks: Linking science communication theory, research and practice <ol style="list-style-type: none"> 1. Bringing research and practice together - Insights from the German project Transfer Unit Science Communication 2. What do we mean when talking about 'formats' and 'target groups' in science communication? Finding a common understanding 3. Complex but manageable: Effects of communicating complexity and concrete actions in the context of the future energy strategy on individuals dealing with this socio-scientific issue 4. Lessons from Haraway and data feminism for the use of data visualisation in science communication 5. Building narratives: Learnings from our initiatives conveying fundamental science to the public 6. Can metaphors create common ground? On the promises and pitfalls of metaphor in science communication 7. Responsible Innovation: from research to hackathon 8. Cognitive biases in storytelling for science communication 9. Functional, experiential, and symbolic connections to science: A framework for exploring the brand of science 	Brooke Smith	<ol style="list-style-type: none"> 1. Liliann Fischer 2. Julia Panzer 3. Dorothe Kienhues 4. Marnell Kirsten 5. Anusheela Chatterjee 6. Gudrun Reijnierse 7. Ehsan Nabavi 8. Hannah Little 9. Becca Beets
10-D	Zeelenberg Room	Individual papers: Models in science communication <ol style="list-style-type: none"> 1. When Does Reading Translate to Learning? Extended Cognitive Mediation Model in Public Knowledge of Solar Energy 2. Scientists' Understanding of Expertise in Value Disputes: Measuring the Linear Model 3. Collaborative curation with the public within practice-based research methodology 4. In Search of Dialogue: How the Discourse of Science Communication Community Shapes the Way They Behave 5. Involving me, involving you – Attitudes to and experiences of participation in research among Swedish citizens 	Melanie Smallman	<ol style="list-style-type: none"> 1. Shirley Ho 2. Nils Bienzeisler 3. atharina Bock 4. Saeed Jafari 5. Gustav Bohlin

10-E	Hudig Room	Individual papers: Linking science communication theory, research and practice <ol style="list-style-type: none"> 1. Public Accountability: Explicating a Concept for Science Communication Research and Practice 2. Incubating Engagement - approaches for stimulating reflexivity and connecting science communication theory and practice 3. The reasoning in 'motivated reasoning': The role of scientific knowledge and personal interest in science-related dilemmas 4. Deferring to experts or disliking participation? Understanding the socioeconomic determinants of science (dis)engagement 5. Close to home or collective goals – socioeconomic status is correlated to engineering problem-finding and relevance 6. The Price We Pay for Progress: Autonomy, exploitation, and risk in US publics' technology narratives 7. Can media coverage really increase paper citation? — Reflections on the neglected sides of medialization of science based on Chinese sample 	Bernard Schiele	<ol style="list-style-type: none"> 1. Declan Fahy 2. Rhian Salmon 3. Yael Rozenblum 4. Lucilla Losi 5. Laura Fogg-Rogers 6. Roberta Weiner 7. Yihong Tan
10-F	Schadee Room	Discussion: A manifesto for high-quality open science communication	NA	Karinna Matozinhos Francesca Conti Giulia Bonelli Marzia Mazzoneto Cristina Luís
10-G	Van Beuningen Room	Problem-solving workshop: The ladder of power: Science communication and citizen science	Jenni Metcalfe	Toss Gascoigne Anne Leitch Christina Standerfer
10-H	Ruys Room	Discussion and storytelling: STEP through the looking glass; stories told of experimental processes	NA	Elaine Quinn Lorna Donlon Helen Roche
10-I	Van Rijckensvorse Room	No session	NA	
10-J	Plate Room	No session	NA	
10-K	Van der Vorm Room	Problem-solving workshop: STEAM uptake and careers: Empowering researchers	NA	Danielle Martine Farrugia Edward Duca Shruti Sundaresan Amanda Mathieson Jon Rea Lucky Dlamini
10-L	Mees Room	Linked papers: Public communication of research universities: the activity of central communication offices compared across countries	Manuel Valenca	Marta Entradas Giuseppe Pellegrini Sarah Kohler

Parallel session 11: Friday 14 April; 14:15 – 15:30

#	Venue	Session	Chairs	Speakers
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11-A	Willem Burger Room	Individual papers: Covid-19 and health communication strategies and role players <ol style="list-style-type: none"> 1. "Covid-19 care Kit": a social controversy discussed by the public with scientific arguments used both to assert and to deny a health treatment 2. Scientists during the Covid-19 pandemic: From running toward to running away from the public 3. Effects of communication strategies on user engagement and audience's reactions toward COVID-19 vaccine on Weibo 4. Implications of science communication for NGOs in addressing COVID-19 in Bangladesh: A qualitative reflection 5. Development of a Culturally Relevant Inclusive Online STEM Workshop for Families in the Time of COVID-19 6. Science communication on a controversial topic to hospital health professionals – Which channels are best suited? 	Katrien Kolenberg	<ol style="list-style-type: none"> 1. Marina Ramalho e Silva 2. Hella de Haas 3. Jiaojiao Ji & Ting Hu 4. Habib Mohammad Ali 5. Kei Kano 6. Veronica Kvalen Pilskog
11-B	Van der Mandele Room	Insight talks: Science and its publics, and issues of trust <ol style="list-style-type: none"> 1. Public understanding of climate change in Taiwan and India: From the perspective of gender and culture 2. The Everyday Science Reasoning Scale - how do Non-Scientists Reason with Science? 3. What if we could train our audiences? 4. Square One: Developing the Science Communication Research and Development Roadmap of the Philippines 5. Motivated Distrust of Abortion Science: Public Health Threat and Science Communication Challenge 6. Trust and mistrust of the MMR vaccine: Finding common ground for science communication? 7. The role that people that seek trust information about food-related myths play as fact-checkers 8. Opaque Transparency: open science and the crisis of trust 9. It's OK to have doubts: Making sense of uncertainty when looking for 'common ground' 	Luz Helena Oviedo	<ol style="list-style-type: none"> 1. Yuh-Yuh Li 2. Yael Bareil-Ben David 3. Marlit Hayslett 4. Mark Ivan Roblas 5. Emma Harcourt 6. Antoinette Fage-Butler 7. Carolina Moreno-Castro 8. Laurens Landeweerd 9. Ferdoos Esrail
11-C	Van Weelde Room	Roundtable: What do emotions 'do' in science communication?	Daniel Silva Luna	Brian Trench Luisa Massarani Christian Humm Stephen Hughes Sabrina Vitting-Seerup
11-D	Zeelenberg Room	Problem-solving workshop: Advancing Public Engagement in Research: An open discussion of beneficial conditions in various institutional settings	NA	Anna-Zoë Herr Sabrina Kirschke Mhairi Stewart
11-E	Hudig Room	Individual papers: Science in the public and policy domain <ol style="list-style-type: none"> 1. Objection, Your Honor! We don't understand the forensic science 	Alessandra Fornetti	<ol style="list-style-type: none"> 1. Julie Burrill 2. Anne Leitch 3. Anna-Sophie Jürgens

		<ol style="list-style-type: none"> 2. Campground or battleground: how does neoliberalisation of the coastal influence community engagement 3. Funny Infection: Humour and the Cultural Meanings of Contagion in Popular Entertainment 4. Challenges and benefits of collaboration between specialists and “laypersons-neophytes” 5. Public engagement with science policies for small island states: A case study for Malta 6. Fit for target: citizens' perceptions in policy design 		<ol style="list-style-type: none"> 4. Frédéric Naudon 5. Danielle Martine Farrugia 6. Barbara Saracino
11-F	Schadee Room	Roundtable: Science Communication in Mathematics	Erin Henning	Ionica Smeets Anna Maria Hartkopf Julia Cramer
11-G	Van Beuningen Room	Visual papers: Science in mass and social media – research and practice <ol style="list-style-type: none"> 1. “Not validated by colleagues”: How preprints are explained in the Flemish and Dutch press 2. Allies competing for dominance: Exploring Chinese scientists and journalists’ different perception of science journalism 3. Exploratory study of diets in the Spanish newspapers' headlines 4. The difference in framing between ocean climate change and ocean plastic, a content analysis of press releases. 5. Impact of the research field and time periods on the relationship between scientific impact and social media influence of scientific papers 6. Upgrade disinformation to national level? A study of fake news typology in COVID-19 7. Science communication in Social Sciences and the Media: the story of an improbable friendship 8. Competing media discourses: environment friendly, agriculture development, and suicide in Paraquat coverage 9. The anniversary of the Higgs boson discovery - a case study in communicating fundamental research 	Jenni Metcalfe	<ol style="list-style-type: none"> 1. Elisa Nelissen 2. Hepeng Jia 3. Isabel Mendoza-Poudereux 4. Aike Vonk 5. Yuanyuan Zhou 6. Chun-Ju Huang 7. Susana Ambrósio 8. Yu-Chan Chiu 9. Ana Godinho
11-H	Ruys Room	Individual papers: Communicating science in digital spaces <ol style="list-style-type: none"> 1. Science bloggers on Hypotheses.org: communities and co-authorship 2. Pleasurable, promotional, and political? The complex engagements between professionals and viewers around YouTube ear wax removal videos 3. Mapping the landscape of environmental news in digital media in western Mexico 4. How do you argue with a meme? 5. Online Video-sharing sites and their policies on scientific issues 6. Vaccination-related content on TikTok: beyond classic vaccine stances 	Anne Dijkstra	<ol style="list-style-type: none"> 1. Elsa Poupardin 2. Elizabeth Toon 3. Ana Nepote 4. Hannah Little 5. Joachim Allgaier 6. Francesca Comunello

11-I	Van Rijckenvorsel Room	Mini-workshop: Scicomm live contest	NA	Eduardo Sáenz-de-Cabezón
11-J	Plate Room	Problem-solving workshop: The kids are alright – Establishing best practice for inclusion of youth in adult-dominated science communication	NA	Hannah R. Feldman
11-K	Van der Vorm Room	Problem-solving workshop: Co-creating STEM communication and enhancing sustainability (25 minutes)	NA	Jane Essex
11-L	Mees Room	Roundtable: Action networks for Science Communication: building abilities for change	Diogo Lopes de Oliveira	Miguel Garcia-Guerrero Rae Ostman Jordi Díaz

ABSTRACTS



ABSTRACT

Aarts, Noelle

When & where: Parallel session 1-C, Wednesday, 12 April 09:45 – 11:00, *Van Weelde Room*
 Title: Society and Synthetic Cells - Challenges and Dilemmas
 Format: Linked papers
 Author: **Noelle Aarts**, Radboud University Nijmegen, Netherlands
 Chair(s): Sujatha Raman
 Co-author(s): Lotte Krabbenborg

Two years ago, 14 experts accepted the invitation to be part of the so-called Future Panel on Synthetic Life. The panel included members with expertise in chemistry, physics, synthetic biology, social sciences and public engagement, legal procedures, ethics, media, bio art, risk assessment, policy and management and biotech-industry. The overall aim of the Future Panel was to give substance to the four pillars of responsible innovation (RI): anticipation, reflexivity, inclusiveness and responsiveness. As such, in a series of meetings the panel discussed issues related to the question: how should we organize the development of the syncell in such a way that it contributes to a fair, just and sustainable world? The aim of this panel was to write a position paper with an initial agenda for future political, academic and public debate regarding the responsible innovation of the synthetic cell.

In this study we analyze the process through which the position paper came about. The focus was on the various frames that were brought to the fore in the future panel discussions, including how these were interactionally constructed, selected and used. A crucial moment was when one of the participants introduced a helpful metaphor: “It seems we want to build the bus, but nobody cares about how to build the bus”. Another crucial moment took place when two panel members decided to reject co-authorship as they could not agree with the way their contributions were combined with those of others.

Our study confirms the potential controversial nature of synthetic cell technology and the communicative and institutional challenges that arise when putting RI in practice. Several recommendations are made for discussing the building of a synthetic cell with relevant stakeholders in the context of RI, including the wider public.

ABSTRACT

Achiam, Marianne

When & where: Parallel session 1-G, Wednesday, 12 April 09:45 – 11:00, *Van Beuningen Room*
 Title: Arts-based approaches to science communication and education
 Format: Problem-solving workshop
 Author: **Marianne Achiam**, University of Copenhagen, Denmark
 Chair(s):
 Co-author(s): Mairéad Hurley, Laura Conner, Sabrina Vitting-Seerup

This workshop introduces and discusses arts-based approaches as a way to enable boundary crossing in science communication and education. By acknowledging and harnessing multiple modes of knowing and sense-making, arts-based (or STEAM) approaches can not only transcend the disciplinary possibilities of both the sciences and the arts, they can also prompt equitable and participatory forms of science communication. Arts-based approaches thus have the potential to promote cognitive, experiential and emotional engagement with complex, trans-disciplinary topics, such as sustainability, climate change and the biodiversity crisis.

In this workshop, we will first share practical experiences and empirical research into arts-based methods in undertaking science communication and education activities. Speakers' experiences range from training science communicators, to community-building for climate mitigation, and professional development of educators from formal and informal contexts.

Next, we will carry out a "Thought Swap" exercise in order to elicit participants' thinking about the role of emotion and sensory experience in science education and communication, and what that might offer audiences. In this technique, participants create two lines facing each other. The session leaders introduce a prompt, and facing pairs discuss the prompt. Each partner summarises their partners' thoughts in a quick share out to the group. Participants then pair with the next person in line for the next prompt. Prompts will take a point of departure in the presented experiences and research.

Finally, we will draw out the main points of the "Thought Swap" exercise and engage participants in a more general discussion, offering perspectives from recent research.

The workshop speaks directly to the theme of the conference because it engages participants - researchers and practitioners - in collaborating and co-creating knowledge about arts-based methods in science communication and education. It thus directly demonstrates the expansion of epistemological perspectives that characterises arts-based methods.

ABSTRACT

Aenlle, Jacqueline

When & where: Parallel session 5-B, Thursday 13 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: 5. Scientists in Science Communication: An Examination of Agricultural and Natural Resource Podcast Guest Experiences
 Format: Individual papers
 Author: **Jacqueline Aenlle**, Kansas State University, United States
 Chair(s): Massimiano Bucchi
 Co-author(s): Jamie Loizzo, Lisa Lundy

As trust in science continues to fluctuate, it is important to create opportunities for scientists to communicate with the public and develop trusting relationships with consumers. While some agricultural and natural resource (ANR) scientists and Extension agents participate in various outreach opportunities, many do not and face several barriers to participating, such as a lack of incentive, knowledge, or confidence. Podcasts have served as an innovative way to share and make scientific knowledge more accessible to larger public audiences. This study aimed to examine the experiences of ANR scientists and Extension agents who have served as a guest on science podcasts. In total, 18 scientists from a land grant university completed the survey in its entirety, and five voluntarily participated in a follow-up interview. On podcasts, participants discussed topics including environmental, food, and human sciences. The results of this study showed that the podcast guests identified as white, Hispanic/Latino, and Asian and were balanced between males and females. Podcast guests had little to no formal science communication training but were highly educated individuals involved with formal or informal education, and had spoken on podcasts about agriculture and occasionally topics such as environmental science, food, natural resources, and human sciences. Guests indicated that institutions could better support science communicators by providing additional training and professional development opportunities. Future research should examine how peer modeling can be used to recruit more scientists to science communication opportunities and explore how organizations and institutions can better collaborate with scientists and support their outreach via workshops and other training opportunities.

ABSTRACT

Aenlle, Jacqueline

When & where: Parallel session 7-K, Thursday 13 April 15:15 – 16:30, *Van der Vorm Room*
 Title: Relationship Building in Science Communication: Getting Experts Involved with Science Communication
 Format: Mini-workshop
 Author: **Jacqueline Aenlle**, Kansas State University, United States
 Chair(s):
 Co-author(s):

Many communication professionals rely on the engagement of scientists to support and strengthen our communication efforts. Though some scientists enjoy working with communicators, many still have reservations. This mini-workshop will explore how to better engage with scientists. This 50-minute workshop is focused on the relationship between scientists and communicators or journalists, discusses recent testimonials from subject matter experts on their experiences interacting with different communicators and journalists, and describes which opportunities they are more likely to accept. The workshop will start by sharing common barriers to scientists participating in science communication efforts and ways organizations are addressing these barriers. Next, participants will hear from a panel that includes podcast hosts, Extension agents, and university scientists who have participated in a variety of outreach opportunities. These testimonials will be pre-recorded and shared via video at the conference. After allowing adequate time for discussion of workshop participants' experiences with building relationships with scientists and challenges they've faced, we will conclude this workshop by examining the role of trust (e.g., the trust equation as presented in the Trusted Advisor by David Maister, Rob Galford, and Charles Green) in this relationship, existing trust survey instruments, and items of trustworthiness to consider when working with scientists to discuss their work. This workshop will be of interest to science writers, podcasters, and multi-media producers since many of the examples and testimonials are from these fields. Attendees will leave the workshop with a better understanding of trust dimensions, reservations of scientists when participating in science communication, and tips for strengthening relationships with scientists to increase their willingness to participate in science communication.

ABSTRACT

Ali, Habib Mohammad

When & where: Session 1, Wednesday, 5 April 10:45-12:00, Zoom
 Title: Implications of science communication for NGOs in addressing COVID-19 in Bangladesh: A qualitative reflection
 Format: Online conference
 Author: **Habib Mohammad Ali**, University of Liberal Arts Bangladesh, Bangladesh
 Chair(s): Jenni Metcalfe
 Co-author(s): Bishaka Tanchangya

Overview: In this session presenters will explore connections between science communication, politics and social themes.

Bangladesh, a country of South Asia, is affected by climate change, refugee migration, and health crises. Along with the government, NGOs have been providing services to those affected by these crises across the country. NGO professionals communicate science-based information to raise awareness of different health hazards caused by floods, droughts, salinity in water due to sea rise, tornados, and COVID-19 among the vulnerable groups. It seems that science communication plays a supportive role through these NGO professionals in the social development of Bangladesh. Therefore, NGOs can be perceived as active social agents and stakeholders that apply, promote and organize science communication to address the needs of different disadvantaged communities. It has been observed that NGOs, under the terms of risk and health communication, have played a key role in raising awareness of COVID-19 to counter misinformation by disseminating science-based information among target groups and stakeholders.

This proposal, based on an ongoing qualitative study, will discuss the implications of science communication for NGOs in Bangladesh with a focus on COVID-19 prevention scenario. It follows an exploratory case study approach to investigate the issue by focusing on Rupantor (Transformation), an NGO located in the coastal zone of Bangladesh. It will also shed light on how this NGO relies on science-based stakeholders and sources for developing preventive messages of COVID-19 pandemic in its health and social interventions. The proposal, with a critical reflection, will identify themes, messages, channels and other aspects of the risk communication campaign process to address COVID-19 by that NGO. The data collected and analyzed through utilizing semi-structured interview and discourse analysis methods found that the NGO used Facebook, YouTube and their website as their prime channels to promote the information about COVID-19 prevention and engage the audiences of the rural areas. Themes of its campaign messages include applying health and hygiene measures, preventing misinformation, stopping discrimination against the repatriated workers, stopping child marriage during this crisis, responding to cyclones with COVID-19 crisis, and eating healthy diets. To collect and organize science-based information for developing campaign messages, the NGO professionals relied on the regular announcements of the World Health Organizations, Institute of Epidemiology, Disease Control and Research Bangladesh, Ministry of Health and Family Welfare Bangladesh and other related trustworthy sources.

The study tried to advance the theory of participatory science communication by exploring the NGO's discursive role to communicate the COVID-19 prevention messages and its spaces to engage local people and NGO members in developing YouTube materials and social media content on the risk and science communication issues. The findings of this study will be presented through Power Point presentation slides with different themes and photographs. It will also include one video of the campaign with English subtitles and the web-links of its online materials. The knowledge from this study will benefit NGO workers in other parts of the world to develop their interventions to address such crises while relevant scholars can find newer avenues for further studies on examining the role of NGOs in communicating risk and science related issues for public welfare. It will also contribute to scholarship and theory building in the understudied area of NGO-related participatory science communication.

ABSTRACT

Allgaier, Joachim

When & where: Parallel session 11-H, Friday 14 April 14:15 – 15:30, *Ruys Room*
 Title: 5. Online Video-sharing sites and their policies on scientific issues
 Format: Individual papers
 Author: **Joachim Allgaier**, Hochschule Fulda, Germany
 Chair(s): Anne Dijkstra
 Co-author(s):

YouTube now has almost 2,7 billion users worldwide. It is one of the most popular of various online video-sharing platforms, that have become influential information sources for many people around the world. This also concerns scientific, technological and science-related topics such as COVID-19, vaccination, climate change, artificial intelligence, biotechnology and many others. The potential of online videos for public science and technology communication is in fact huge. However, since many online-video platforms do not have gatekeeping and quality control mechanisms in place they are also accused of being spreaders of misinformation, disinformation and hostile conspiracy theories related to science, technology and research. In this talk some of the policies that online social media platforms have set up as potential answers to such accusations, are reviewed, and the available evidence on whether they are successful or not is assessed. Here the routes taken sometimes vary considerably and platform-specific problems will be presented and discussed critically. Only very few of the platforms have specific policies installed. In the cases where community rules or guidelines are formulated these are often very vague and general, and often it is nontransparent when and what content or creators are sanctioned. A particularly interesting example is YouTube's policy for de-monetizing content that denies anthropogenic climate change. Here only very specific statements concerning anthropogenic climate change denial are affected while other statements that oppose climate science are not affected by this specific policy. This development points to the necessity that science communication research must also develop an understanding of anti-science discourses in order to assist effective potential ways of policing these in popular online social media platforms.

ABSTRACT

Alliaj, Greta

When & where: Parallel session 4-K, Wednesday, 12 April 17:00 – 18:15, *Van der Vorm Room*
 Title: A serious game to generate societal values towards emerging technologies
 Format: Demonstration
 Author: **Greta Alliaj**, Ecsite - European Network of Science Centers & Museums, Belgium
 Chair(s):
 Co-author(s): Wenzel Mehnert, Lena Söderström

‘You have been chosen to sit on the Citizen World Council and decide in good conscience what will be best for the future of the World.’ Thus begins the players’ adventure in the game newly developed by the EU-funded TechEthos project to elicit societal values, attitudes and concerns from the public, while introducing them to the world of new and emerging technologies, such as Extended Reality, Neurotechnologies, or Climate Engineering.

In co-creation with science engagement professionals and based on gamification principles, TechEthos has developed a collaborative, serious game that transmits the trade-offs and unintended consequences in the evolution of technologies. Three play rounds introduce technology subfields, possible application areas and societal and ethical impacts, each with their own consequences on three social factors that need to be kept in equilibrium throughout the game. Teams of players will try the game in six European countries (Austria, Czech Republic, Romania, Serbia, Spain, and Sweden) in the autumn of 2022. Its deployment by science centres and museums will include collaborations with associations and organisations supporting vulnerable groups, in view of a more inclusive participation in such activities.

During the demo session, conference participants will be able to hear from the game developers, practitioners and researchers about their experience with the game, including its application in different contexts. They will also explore a physical copy of the game, play themselves through a game round in small groups, and hear about our findings, including what worked and what could be improved. We hope the game's modularity and open access will inspire others to take up and enhance the tool and develop new sets in their areas of work.

ABSTRACT

Almeida, Carla

When & where: Parallel session 9-G, Friday 14 April 09:45 – 11:00, *Van Beuningen Room*
 Title: 6. Readers' comments as a public arena for the scrutiny of science: a study of science news comments in two Brazilian newspapers during the Covid-19 pandemic
 Format: Individual papers
 Author: **Carla Almeida**, Museu da Vida - Fiocruz, Brazil
 Chair(s): Carolina Llorente
 Co-author(s):

During the Covid-19 pandemic, science, scientists, their knowledge and discoveries became not only an everyday subject, but also an object of public scrutiny. Traditional media, by providing wide coverage of the topic, opened a privileged space for this scrutiny to take place. Interested in examining the modes of (dis)authorisation of scientific discourse in Covid-related debates held in traditional media, we collected 123 comments from readers of 14 science news on the subject published in the online version of two Brazilian newspapers – Folha de S.Paulo and O Globo – between April 12 and May 9 of 2020. We then conducted a discourse analysis, mobilizing concepts from Charaudeau's Semiolinguistic Theory, through which we sought to identify discursive markers of acceptance/reaffirmation, weighting/negotiation and rejection of the authority of science/scientists and the argumentative device supporting the different positions of the readers.

The comments analysed suggest readers generally supportive of science, who use expert/pedagogical language in their interventions to comment and explain the science behind reported studies. Although we did not identify a position of total rejection of science, stories about controversial topics, such as (hydroxy)chloroquine, generated comments questioning scientific methods and researchers' motivations. Among these critical comments, we verified a dispute of authority among the readers – who can talk about science? We also identified among the comments on (hydroxy)chloroquine news stories a strong polarization between supporters and critics of the drug's use, reflecting the political polarization in Brazil, governed by a right-wing denialist president who then defended the drug's use as a Covid treatment against the Brazilian scientific authorities, represented mostly by the left. In this sense, our study contributes to current discussions on the legitimacy of science in a context of increasing denialism and intense circulation of misinformation and on the complex relationships between science and politics.

ABSTRACT

Almeida, Carla

When & where: Parallel session 4-C, Wednesday, 12 April 17:00 – 18:15, *Van Weelde Room*
 Title: Science-Theatre in the Context of Science Communication: Opportunities and Challenges
 Format: Roundtable
 Author: **Emma Weitkamp**, UWE, United Kingdom
 Chair(s): **Carla Almeida**
 Co-author(s): Mário Montenegro, Simon Parry

Science and theatre may have been in dialogue since ancient times, but interest from the science communication community increased sharply following the success of Michael Frayn's play *Copenhagen* (1998). Much of the interest in theatre exploring scientists or scientific themes has come from disciplines traditionally associated with theatre, such as literary studies or applied theatre. This round table seeks to explore the field from the distinct perspective of science communication scholarship, specifically encompassing theatrical productions which address science communication objectives. We consider what science-theatre has to offer those working in science communication and some of the reasons that practitioners have for combining science and theatre in their work. We invite the audience to consider both the opportunities and challenges presented when bringing together science and theatre in a science communication context. The panellists are each invited to present a short provocation drawing from their experience as researchers and practitioners in this area, offering insights to those interested in including science-theatre within their research or practice. Initial questions from the chair will be used to initiate a discussion between the panellists, after which we will invite questions from the audience.

Speaker perspectives:

Emma Weitkamp will present findings from a global survey of science-theatre practitioners, exploring the diversity of professionals involved, who range from actors to historians, ethicists, scientists and science communicators, and their motivations for working with science and theatre, which comprise pragmatic, personal and fundamental goals. Her short provocation will raise questions about the roles and values of science-theatre and addressing the benefits and challenges practitioners see to combining these two grammars. Emma is co-author (with Carla Almeida) of *Science & Theatre: Communicating Science and Technology with Performing Arts* (Emerald Publishing). Her research explores the intersections of science and arts, including performative and visual media.

Mário Montenegro will focus on the collaborative dramaturgical work with scientists, which he has been developing with Marionet theatre company, at the University of Coimbra. From an audience's perspective, the resulting theatre plays are gateways to the hidden functioning of the scientific endeavour, revealing the structure and work relationships behind scientific development. From the participant scientists' perspectives, this kind of work expands their communication and interrelationship abilities, and constitutes a forum where they talk publicly

about matters related to their profession that they might not state elsewhere. As a theatre director, actor, playwright, professor of Performance and Theatre Studies at the University of Coimbra and senior researcher at the Centre for Interdisciplinary Studies, Mario will draw on a range of practice perspectives. He is the Artistic Director of Marionet (www.marioneteatro.com), a theatre company focused on the interplay between theatre and science.

Simon Parry draws our attention specifically to theatre engaging with health themes. He will discuss implications for contemporary theatre and performance practices of the increasing politicisation of health in the UK and elsewhere. He will explore case studies of theatre companies and reflect on how they have attempted to incorporate health themes and expertise in their programming and producing processes. Simon is Senior Lecturer in Drama and Arts Management at the University of Manchester. His research explores the politics and aesthetics of creative practice at the intersection of science, health and performance. He is the author of *Science in performance: theatre and the politics of engagement* (Manchester: MUP, 2020) and is currently co-editing a new Routledge Companion to Performance and Science with Adele Senior and Paul Johnson.

ABSTRACT

Ambrósio, Susana

When & where: Parallel session 4-G, Wednesday, 12 April 17:00 – 18:15, *Van Beuningen Room*

Title: 6. We had the researchers, the social actors, the institutional partner and we made a show. And now what?

Format: Insight talks

Author: **Susana Ambrósio**, University of Aveiro, Portugal

Chair(s): Marieke Baan

Co-author(s):

Science Communication in education is seen as a late bloomer and its recognition not only by the general public but also by educational researchers themselves has a long road ahead. A Research Centre in education is developing an innovative initiative which intends to put researchers and social actors together to talk to a wide audience about education. The initiative is entitled “Educação à Escuta” (“Listening Education”). The show (videocast and podcast) deals with different education themes monthly (including fake news, inclusion, citizenship, sustainability, active learning, critical thinking), gathering different moderators and different guests, to bridge science and society.

The initiative has national dissemination since it is produced in partnership with one of the most important national non-academic publishers and it is disseminated on the publisher’s social media channels. This partnership also encourages reading habits since in each show suggestions of books associated with the theme are shared. This combination of science, society and reading habits is important since a new study concluded that 61% of national citizens have not read any book in 2020.

Questions for a follow-up discussion on how to evaluate this initiative include: What is the impact of the show on the audience and how does one measure it? To what extent do moderators’, guests’ and public’s perspectives on the show converge and how would one triangulate them? Is the show considering different types of diversity? How could moderators’ and guests’ motivations regarding their participation on the show be analysed? How would one characterise the interactions between researchers and social actors? To what extent is their dynamic based on the same values and interests? Is this partnership promoting an effective science communication practice? Is the show really promoting common ground? These and more questions emerged from ongoing practice and research and the PCST conference seems to be the right place to share, listen and learn.

ABSTRACT

Ambrósio, Susana

When & where: Parallel session 11-G, Friday 14 April 14:15 – 15:30, *Van Beuningen Room*
 Title: 7. Science communication in Social Sciences and the Media: the story of an improbable friendship
 Format: Visual papers
 Author: **Susana Ambrósio**, University of Aveiro, Portugal
 Chair(s): Jenni Metcalfe
 Co-author(s): Maria Helena Araújo e Sá

Science communication initiatives contribute greatly to shaping the science-society relation over time and universities and their researchers have a main role in the appropriate development of that relationship, regardless of the communication channel chosen. One of these channels is the Media, despite the fact that news about science compete in space and time with other types of news. Moreover, even within “science”, the Media do not consider all the science fields in the same way, e.g. Social Sciences are perceived as less scientific, less interesting, less authoritative or even irrelevant when compared to Natural Science.

Bearing this in mind and also acknowledging that science communication about Social Sciences is scarce, a Research Centre in Education designed two challenging science communication initiatives in partnership with regional media. The initiatives intended to contribute to scientifically support citizens' perspectives on Education, also known as common sense, since it seems that everybody has an opinion about Education topics regardless of all the science around it. These initiatives also intended to promote open science and enhance science communication practice among researchers.

The first initiative started in 2018 and it is a biweekly column called (H)À Educação (There's Education) in a regional newspaper. The second initiative was entitled Educação à Escuta (Listening Education) and took place during 2020. It consisted of a weekly talk, live on regional radio station, in the morning show, in which researchers talked with the hostess about various topics in the area of education.

We intend to present these two initiatives in more detail, underlining that Media and Social Sciences, apparently improbable friends, can be strong allies in science communication and enhance common ground between multiple role players, as researchers, citizens and social actors. We also intend to underline the importance of collaboration with actors from outside academia, namely media with local/regional audiences, as they are an important platform to reach out a more inclusive science communication.

ABSTRACT

Amorim, Luís

When & where: Parallel session 3-E, Wednesday, 12 April 15:15 – 16:30, *Hudig Room*
 Title: 2. Memes and pandemic: a study on reception and strategies for science communication
 Format: Individual papers
 Author: **Luís Amorim**, Oswaldo cruz Foundation, Brazil
 Chair(s): Brian Trench
 Co-author(s): Marina Ramalho

The massive use of the internet and the intense sharing of information via social networks have triggered profound transformations in communication, putting us in front of new and complex challenges that mark the post-truth era. Among them, the rampant circulation of disinformation stands out, with severe consequences for society, as we could observe in the Covid-19 pandemic, in different countries, such as Brazil and the United States. Despite increasing attention and the focus of new research, the issue of disinformation, given its impact on society, is still poorly understood.

In our study, using eye tracking, we sought to understand the importance of the source of information and the reception of credible and false news among 23 young people, analyzing the fixation of the gaze on the name of the journal that publishes texts. Our study brought evidence about the unimportance of the source of information for the evaluation and intention of sharing health news and that texts with characteristics of fake news would be shared due to subjective issues mainly related to the theme, without concern for credibility. In the second part of the study, we aim to better understand how the topic of disinformation and the importance of the source has arrived and been approached within high school classrooms. An exploratory approach with five semi-structured interviews with teachers of this level of education shows an increase in the topic in the classroom, with the theme of disinformation and fake news having been brought up by both teachers and students, in different contexts, scientific or not. However, the topic still seems to lack a better-established framework for discussion, treatment, and analysis by teachers, having been treated by them in the classroom with different approaches, some of which are the discussion of the importance and credibility of the source of information (newspapers, websites, social networks, books, lives, scientists, politicians) and the functioning and confidence in science.

ABSTRACT

Amorim, Luís

When & where: Parallel session 5-H, Thursday 13 April 09:45 – 11:00, *Ruys Room*
 Title: 1. A study of disinformation and science: the credibility and importance of information sources
 Format: Individual papers
 Author: **Luís Amorim**, Oswaldo cruz Foundation, Brazil
 Chair(s): Toss Gascoigne
 Co-author(s):

The massive use of the internet and the intense sharing of information via social networks have triggered profound transformations in communication, putting us in front of new and complex challenges that mark the post-truth era. Among them, the rampant circulation of disinformation stands out, with severe consequences for society, as we could observe in the Covid-19 pandemic, in different countries, such as Brazil and the United States. Despite increasing attention and the focus of new research, the issue of disinformation, given its impact on society, is still poorly understood. In our study, using eye tracking, we sought to understand the importance of the source of information and the reception of credible and false news among 23 young people, analyzing the fixation of the gaze on the name of the journal that publishes texts. Our study brought evidence about the unimportance of the source of information for the evaluation and intention of sharing health news and that texts with characteristics of fake news would be shared due to subjective issues mainly related to the theme, without concern for credibility. In the second part of the study, we aim to better understand how the topic of disinformation and the importance of the source has arrived and been approached within high school classrooms. An exploratory approach with five semi-structured interviews with teachers of this level of education shows an increase in the topic in the classroom, with the theme of disinformation and fake news having been brought up by both teachers and students, in different contexts, scientific or not. However, the topic still seems to lack a better-established framework for discussion, treatment, and analysis by teachers, having been treated by them in the classroom with different approaches, some of which are the discussion of the importance and credibility of the source of information (newspapers, websites, social networks, books, lives, scientists, politicians) and the functioning and confidence in science.

ABSTRACT

Arboledas-Lérida, Luis

When & where: Session 1, Wednesday, 5 April 10:45-12:00, *Zoom*
 Title: The social conversation around science and the commodification of science: Making a case for science communication as propaganda
 Format: Online conference
 Author: **Luis Arboledas-Lérida**, Universidad de Sevilla, Spain
 Chair(s): Jenni Metcalfe
 Co-author(s):

Overview: In this session presenters will explore connections between science communication, politics and social themes.

Can Science Communication take on a propagandistic character in some circumstances? Are there propagandistic activities embedded into the so-called 'social conversation around science'? To date, the connection between Science Communication and propaganda remains both theoretically underdeveloped and empirically unexplored (except for some partial exemptions to the latter). And rightly so: experts tend to assume that Science Communication has nothing to do with propaganda. Against such a backdrop, this conference presentation aims to demonstrate that there may be more propaganda embedded into the social conversation around science than is often assumed. It will be specifically argued that the commodification of academic research makes the case for approaching some instances of Science Communication as an issue of propaganda. In recent decades, science policy has been primarily oriented towards making academic institutions more economically autonomous from states, so the commodification of academic research has become a 'necessary policy' for contemporary societies regarding academic science. But it cannot proceed any further without the support or acquiescence on the part of the public, so consent must be 'manufactured'—the legitimization of the commodification of academic knowledge at the societal level is an indispensable dimension of the commodification of science as such. This novel approach to Science Communication will be theoretically grounded; its implications will be discussed in the light of some empirical evidence taken from the Spanish press; and it will be contrasted to previous interpretations of the connection between Science Communication and the commodification of academic research. The ultimate purpose of this conference presentation is to contribute to that critical scholarship that has recently focused on how the 'capitalist pressures' endured by contemporary knowledge production are reshaping Science Communication.

ABSTRACT

Arias, Rosa

When & where: Parallel session 7-C, Thursday 13 April 15:15 – 16:30, *Van Weelde Room*
 Title: Building a (European) Science Communication Centre on common ground
 Format: Roundtable
 Author: **Rosa Arias**, Science For Change, Spain
 Chair(s): **Joseph Roche**
 Co-author(s): Jason Pridmore, Alessandra Fornetti

This roundtable will bring together key voices involved in establishing the new pan-European Science Communication Centre that has been funded by the European Commission from 2023 until 2027. The centre will build on the common ground of eight research and innovation actions that were funded under the European Commission's 2018–2020 Horizon 2020 Science with and for Society (SwafS) Work Programme: CONCISE, RETHINK, QUEST, NEWSERA, TRESCA, ParCos, ENJOI, and GlobalSCAPE. To-date, these have been the only research and innovation actions funded by the European Commission under its research funding framework in the specific field of science communication. The eight research projects received almost €10 million in research funding from the European Commission under the topic "SwafS-19: Taking Stock and Re-Examining the Role of Science Communication." This roundtable will bring together the coordinators and key partners of those eight projects who have combined their resources and experience to develop a plan for the new European Science Communication Centre. The speakers will offer their vision on how the €10 million investment in science communication research has created a common ground to build the new centre and will invite audience members to suggest how such a centre can best support all science communication researchers and practitioners across the continent and around the world. The speakers will discuss plans for the European Commission funded project COALESCE ("Coordinated Opportunities for Advanced Leadership and Engagement in Science Communication in Europe") to co-design a self-sustaining European Competence Centre for Science Communication that will help create, curate, and share resources, tools and training, as well as coordinating communities of practice and developing excellence criteria to support the future of science communication research and practice. More than 15 members of the COALESCE consortium team will be in attendance to maximise opportunities for networking and further discussion after the session.

Joseph Roche is the Director of Research at the School of Education in Trinity College Dublin. He is an Associate Professor in Science Education and leads the Science & Society research group which coordinates international research projects on science communication, informal learning, citizen science, public engagement, and higher education science. He is the Principal Investigator of GlobalSCAPE — a European Commission funded research project exploring the global state of science communication. Joseph has worked at NASA and is a visiting scholar at Harvard. He is a Fellow of Trinity College Dublin and is the author of the textbook "Essential Skills for Early Career Researchers".

Rosa Arias is the CEO and Founder Science for Change. She is a Chemical Engineer and has an MSc in Energy. Rosa is the creator of the citizen science App OdourCollect aimed at building

collaborative odour maps based on citizen observations. She is a member of the Science at the Spanish Parliament Initiative. She is the coordinator of the NEWSERA project, with the main goal of integrating citizen science in science communication and the coordinator of the Catalan Cluster at TRANSFORM. She is also the coordinator of the recently funded Horizon Europe project — COALESCE — which aims to establish a European Centre for Science Communication. Jason Pridmore is the Vice Dean of Education for the Erasmus School of History, Culture and Communication and an Associate Professor in the Department of Media and Communication at Erasmus University Rotterdam. Jason directs the educational resources of the faculty including the education professional services personnel and oversees the bachelor and (pre) masters programmes in three departments. He is the coordinator of the TRESKA project, Project Exploitation Manager and Data Security Manager on the BIM-SPEED project, Project lead at EUR for the Ashvin Project, and Principle Investigator on the Mobile Privacy Project. He and his team will soon be participating in the upcoming SPATIAL project as well as the European Centre for Science Communication (COALESCE).

Alessandra Fornetti is Executive Director of the TEN Program on Sustainability at the Venice International University (VIU), Italy. With a humanities background, she has been working for almost two decades in the field of sustainability developing international projects on capacity building, communication and dissemination with experiences in China, East Europe and Central Asia. In her role as Executive Director, she promotes the dialogue among the different stakeholders to support the creation of knowledge networks bridging research, policy makers, corporate and the wide public. She currently coordinates H2020 project QUEST on Science Communication and leads comm&diss in H2020 project MUHAI on Artificial Intelligence.

ABSTRACT

Aris, Anna

When & where: Parallel session 1-E, Wednesday, 12 April 09:45 – 11:00, *Hudig Room*
 Title: Making values work for technological innovation
 Format: Roundtable
 Author: **Anna Aris**, VU Amsterdam, Netherlands
 Chair(s): **Clara Boissenin**
 Co-author(s): Willemine Willems, Wenzel Mehnert, Greta Alliaj

There is now a robust acceptance of the importance of values in the development of technological innovation. The EU-funded SockETs (www.sockets-cocreation.eu) and TechEthos (www.techethos.eu) projects both wish to contribute to aligning the development of technologies with societal values and needs, in a real-world context and in interaction with citizens, technology owners and developers, researchers, and policy makers.

The two projects have their own way to approach this shared objective, which call upon values to play different roles. SockETs aims to strengthen the maturity of societal engagement in technology innovation communities, through the SockETs Labs. An initial understanding of cultural values informed the choices, such as allowing for local adaptation of the delivery of public engagement. By adopting a reflexive evaluation method, values informing conceptions of technology and citizen engagement emerged along the way and were captured throughout the learning process. On the other hand, TechEthos seeks to bring societal values, attitudes and concerns into ethical guidelines for technologists and researchers. Value eliciting is an explicit goal in its methodology, which goes on to inform an ethics by design approach that puts values at its center.

Prompted by questions from the chair, speakers will explore the role of values: from their meaning for each project, to how they were approached in practice, and how they evolved throughout the process. Speakers will also turn inwards to reflect on the hurdles of projects that involve such a diverse set of partners, who at times had different understandings of what was initially considered shared values. How was this diversity accommodated and how were eventual clashes resolved?

We hope that an honest exchange on our choices and processes can help inform the reflections of other researchers and practitioners as they consider their own and their teams' values, and the variety of roles values can play.

Speaker perspectives:

Anna Aris is currently a PhD candidate at the Athena Institute (VU Amsterdam), where she is doing research on open science and public engagement. While she has previously covered a wide range of projects, ranging from healthcare to educational systems to digitization, a silver lining in her research interests concerns the interplay between science, technology and society. Having an academic background in Anthropology and professional experience in Design Thinking, Anna combines ethnographic research methods with more collaborative design and

storytelling methods with the aim to contribute to more democratic technological development. As part of her involvement in SockETs, she has used her background to conduct the reflexive evaluation process. Particularly, she has focused on facilitating a collective learning process together with the SockETs lab owners in order to unpack the diverse values driving societal engagement practices, as well as identifying key insights and opportunities for more democratic technological development.

As a postdoctoral researcher in Science Communication, Willemine Willems is interested in a broad range of questions concerned with democratising science and technology. As part of the SockETs project team, she was involved in mapping the sociotechnical imaginaries of the case study countries. On the basis of desk research and interviews with national societal engagement experts, insights were collected about how science and technology were being valued and their role in citizens', policy makers' and politicians' understanding of their national future. This helped the project understand the diversity of values that shapes public engagement opportunities, which informed the set up of the SockETs labs. Building on this, Willemine was involved in designing and conducting the reflexive evaluation process of the SockETs labs which helped lab owners to design activities tailor-made for their local contexts and encourage a reflexive attitude that allows for values to emerge.

As a Scientist in the Societal Futures team of the Center for Innovation Systems & Policy at AIT - Austrian Institute of Technology, Wenzel Mehnert has been active across all aspects of TechEthos's work with societal awareness and acceptance, including the development of the project's technology scenarios and that of public engagement methodologies. He also forms part of the team that analysed the results of value eliciting exercises, blending qualitative and quantitative data to form a cross-national picture of the attitudes, values and concerns of citizens towards new and emerging technologies, results that he will be able to draw upon in the roundtable discussion.

ABSTRACT

Armstrong, Eleanor

When & where: Parallel session 8-A, Thursday 13 April 17:00 – 18:15, *Willem Burger Room*
 Title: Queering science communication: Bringing an LGBTIQ+ lens to #scicomm theory and practice
 Format: Roundtable
 Author: **Eleanor Armstrong**, Stockholm University, Sweden
 Chair(s): **Eleanor Armstrong**
 Co-author(s): John Noel Viana, Alice Motion

Lesbian, gay, bi+, trans, gender diverse, non-binary, intersex, agender, asexual, aromatic, and queer (LGBTIQ+) people face specific issues as scientists, science communicators, and people that are affected by novel scientific knowledge and products. With the unique and important contributions they can make to science communication, it is vital to bring ‘queer’ and ‘science communication’ together in dedicated events, products, and networks – not just for queer visibility, but as a protest against oppressive heteronormative practices and as a call for queer emancipation and liberation.

Yet, science communication research has done little to examine the intersection between queerness and science communication. Even recent scholarly articles on equity, access, and diversity in science communication rarely address queer themes. What would it take to queer science communication well? How do we responsibly, morally, and respectfully engage with LGBTIQ+ people and their lives?

Queered science communication is about individuals and communities — recognising their context, their historical and contemporary interactions with STEM, their needs, and the ways in which science communication can address injustices and promote their welfare. Queer science communication also goes beyond localised cases of reporting on queer lives and interests. It interrogates who and what is represented in wide-spanning, public science communication work. It asks: Who has agency, who speaks, and who is heard?

This roundtable will focus on concrete examples of queering science communication from a forthcoming edited collection. Participants will draw on their individual work to reflect on what it means to ‘queer’ science communication theory and practice. The discussion held in this roundtable will be dynamic and audience-focused with open opportunities for interaction and engagement throughout the session.

Eleanor Armstrong, a postdoctoral researcher at Stockholm University researches how outer space environments are taught about in informal science education. Her doctoral research looked at who is represented in space science galleries in three London museums where Eleanor used queer feminist approaches to focusing on representation in these galleries. Eleanor will discuss what it means to queer science communication theory and teaching practice. Eleanor's contribution to the roundtable will build on her work on queer science communication teaching and queering public science spaces and science communication workshops. In this discussion, Eleanor will examine how understanding and engaging with queer identities and queer theory could strengthen science communication in multiple domains.

John Noel Viana is a postdoctoral research fellow in responsible innovation. John's contribution to this roundtable focuses on a chapter he co-authored with colleagues in the Philippines. The chapter explores the role queering in both science and science communication can play in promoting equity and societal change in countries where LGBTQIA+ people still experience discrimination. This contribution provides a powerful exploration of queering science communication in the Philippines, where the queer and colonized remain subjugated and dispossessed by social, economic, and cultural conditions. Drawing from the lived experience of queer Filipino science communicators in various contexts, it will discuss how respectfully queering the field is important for raising awareness, protecting human dignity, and liberating society.

A/Prof Alice Motion is a chemist and science communicator based at The University of Sydney. Alice's research focuses on open science and Science Communication, Outreach, Participation and Education (SCOPE).

Alice Motion will highlight the unique contributions queer people can make to science communication outreach. It highlights the important roles that storytelling, code-switching, and performance have played in queer communities and the critical value of these skills in contemporary science communication practice.

ABSTRACT

Azagra-Caro, Joaquín M.

When & where: Parallel session 8-E, Thursday 13 April 17:00 – 18:15, *Hudig Room*
 Title: 4. The changing effect of scientific impact on science communication through art
 Format: Individual papers
 Author: **Joaquín M. Azagra-Caro**, INGENIO (CSIC-Universitat Politècnica de València), Spain
 Chair(s): Luisa Massarani
 Co-author(s):

Science communication is important to raise public awareness of science. There are two types of science communication: public outreach and public engagement. Public outreach implies that researchers include scientific contents in their artistic work and public engagement that they exchange scientific knowledge with art stakeholders. The former is unilateral, whereas the latter is bilateral and thus implies a higher degree of commitment of researchers with the public. One channel of science communication is art. However, some institutional ambivalence may shape involvement in science communication as a deviation from the academic norm of achieving scientific impact. Scientific impact is the repercussion of researchers' scientific work on later scientific works. Deviance theories, particularly labelling and stigma theories, suggest that researchers focused on scientific impact will be less involved in science communication, especially in public engagement, which deviates even further than public outreach from the norm. Double standards theory suggests that privileged researchers (those who have already achieved scientific impact) may have wider opportunities to be involved in science communication. The analysis of responses to a survey of some 2,500 Spanish artistic researchers supports these claims. Public outreach through art is more frequent than public engagement through art. The effect of scientific impact on public outreach through art is initially negative and then positive after a threshold, which confirms polarisation among artistic researchers. The effect of scientific impact on public engagement is always negative, indicating the difficulties of a deeper commitment of researchers with the public. Striking a good science-art balance inhibits these relationships, so the recommendation is to use the existing margin to increase incentives for science communication without affecting scientific impact.

ABSTRACT

Bagnoli, Franco

When & where: Session 2, Tuesday, 4 April 14:00-15:15, *Zoom*
 Title: A narrative approach for promoting behavioural changes in sustainability
 Format: Online conference
 Author: **Franco Bagnoli**, Dept. Physics and Astronomy, University of Florence, Italy
 Chair(s): Lars Guenther
 Co-author(s): Giovanna Pacini

Overview: In this session presenters will reflect on some specific science communication resources and review the techniques used in the communication process e.g. art, storytelling, cultural relevance, accessibility.

We describe an action performed during a formation course for technical and administrative personnel (starting with 200 people) in the University of Florence.

One of the main drawbacks emerged while filling the GreenMetric survey was the lack of an active attitude in proposing, promoting, discussing, implementing and communicating the sustainable and environmental-friendly activities. We found that many interesting and impacting activities actually carried out had not been advertised nor communicated. This problem can be addressed by a proper policy, which has however the drawback of not including novel activities, nor those carried voluntarily by employees. Moreover, we think that self-organisation and peer pressure is much more effective than imposed rules.

We developed a narrative approach composed by a video and a questionnaire. The video starts with the quest for ways of performing “real” space travels, i.e., travels that covers large space distances. Due to relativistic constraints, this needs a long time, and therefore a big spaceship with a numerous crew. The discussion about the requirements of the spaceship and the strategies for managing the lifestyle of the crew serve to point out the necessity of recycling, saving energy, keeping temperature under control, not polluting, using renewable sources, etc. Finally, we conclude that we already own such a spaceship: it is our Earth.

<https://youtu.be/dAYHpH4VaLU>

The questionnaire investigates which “good practices” (like using public transportation, saving water and energy, etc.) are used or are considered worth the related inconveniences. It was administered twice, before and after the video, the second time accompanied by the possibility of suggesting further good practices.

The goals of the action were to furnish a narrative image that, considering preliminary tests, is well accepted and remembered, to measure the “change of attitude” of participants and to promote a reflection about the possible behavioural changes in their life or work.

ABSTRACT

Bailey, Jo

When & where: Parallel session 3-G, Wednesday, 12 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 8. Hang out at the engagement laundromat
 Format: Visual papers
 Author: **Jo Bailey**, Te Pūnaha Matatini / Massey University, New Zealand
 Chair(s): Melanie Smallman
 Co-author(s): Rhian Salmon, Maja Horst

This visual presentation complements the proposed mini-workshop entitled ‘The engagement laundromat: a participatory process for iterating engagement ideas’. It presents a workshop process and toolkit that Bailey and Salmon have been evolving since 2020. It was developed as a vehicle to help scientists within an Aotearoa New Zealand ‘Centre of Research Excellence’ come together to consider public engagement for their cross-disciplinary projects, and has also functioned as a useful tool to develop our own reflexivity about engagement and the science-society relationship in an iterative loop. We conduct our own theory-informed engagement practice with our participants as they think about their own engagement, and the process informs our thinking on theory about public engagement with science. The laundromat uses the light humour of washing metaphors and a design-led approach to cycle through a series of exercises to build common understanding, to ‘human-centre’ the proposed engagement and to encourage reflexivity about it. The toolkit has gone through several cycles as both an in-person and remote delivery, and we present the open-source materials here for others to consider for their own practice.

ABSTRACT

Bailey, Lisa

When & where: Parallel session 3-J, Wednesday, 12 April 15:15 – 16:30, *Plate Room*
 Title: Congratulations, you are a superorganism! Creation of the microbiome videogame Symbiosville
 Format: Demonstration
 Author: **Lisa Bailey**, University of South Australia, Australia
 Chair(s):
 Co-author(s):

How do you bring together museum designers, videogame developers and microbiologists to communicate concepts about microbiology? The videogame Symbiosville, aimed at increasing awareness and understanding of the human microbiome, was developed for the MOD. exhibition HEDONISM in 2019. The game is loosely inspired by the Sims, and you control a human character who navigates a town (Symbiosville). The character is always hungry or bored, and so you are constantly required to make choices for the character with regard to food or activity. These choices affect the diversity of the character's microbiome, where the game aims to develop the most diverse, and therefore resilient and robust, microbiome. Failure to do so may lead to the need for a faecal transplant!

The intended outcomes of this game are for visitors to understand that personal choices in relation to activity and diet can impact the microbiome. Understand some of the roles of the microbiome in human health.

This presentation will review the process of communicating and collaborating across a multidisciplinary and diverse set of stakeholders with different expectations and concerns about game design, and invite you to create a character and explore the world of Symbiosville. Here you can get to know your tiny residents and learn how to keep them (and you) happy.

ABSTRACT

Bailey, Lisa

When & where: Parallel session 6-F, Thursday 13 April 11:30 – 12:45, *Schadee Room*
 Title: 2. Adapting seven siblings from the future, from Finland to Australia to online
 Format: Insight talks
 Author: **Lisa Bailey**, University of South Australia, Australia
 Chair(s): Laurens Landeweerd
 Co-author(s): Mikko Myllykoski

SEVEN SIBLINGS FROM THE FUTURE exhibition was developed by the Heureka Science Centre in Helsinki, Finland and the Finnish Innovation Fund Sitra to honour Finland's 100 years of independence.

The original Finnish version of the exhibition explores the future of Finland in 2067. Visitors meet seven siblings, who are each driven by a particular set of values that map to the Finnish culture, and as the visitor interacts with each sibling they learn about possible trajectories for technologies, climate change and the future of work. This exhibition though has universal truths about humanity and the future that is relevant for all audiences.

In this insight talk I will discuss the 14-month process of adapting an exhibition from Finland to Australia, including

- A new more sustainable approach for touring exhibitions as ideas
- Timelines, processes and structures to facilitate international collaborations of this nature
- Content adaptation informed through academic research, foresight processes, and collaboration with advisors both across Australia and in Finland.
- Consideration in adaptation of the seven characters across different cultural contexts. In imagining the future we have created clues in the exhibition to shift visitor assumptions and challenge ideas about language, invisible disability, gender and sexuality, and cultural backgrounds.

The adaption of the Finnish SEVEN SIBLINGS exhibition by MOD. has allowed for the application of research and science to inform design considerations as well as providing a template for other centres to collaborate with Heureka, and MOD. on the ideas informing this exhibition, which is currently being adapted again for staging at Arizona Science Centre in 2023.

ABSTRACT

Bailey, Jo

When & where: Parallel session 7-D, Thursday 13 April 15:15 – 16:30, *Zeelenberg Room*
 Title: 'The engagement laundromat': a participatory process for iterating engagement ideas
 Format: Demonstration
 Author: **Jo Bailey**, Te Pūnaha Matatini / Massey University College of Creative Arts, New Zealand
 Chair(s):
 Co-author(s): Rhian Salmon, Maja Horst

'The engagement laundromat' is a mechanism for creating common ground between the theory and practice of science communication through an intentionally-designed collaborative workshop process that asks participants to explicitly identify values and differing expertise with a focus on inclusivity, equity and openness.

Designed for scientists and science communicators who want to unpack and thoughtfully (re)design their plans for engagement and science communication, this process takes participants through eight 'cycles' including 'gathering your dirty laundry pile' and 'sorting the washes' to 'rinsing and wringing', 'hanging washing on the line' and 'pressed and ready to wear'. Each 'cycle' has a corresponding theory-informed exercise.

The overall approach borrows from the field of design. It uses 'cultural probes' as projective techniques, with paper garments containing prompts that feel straightforward, but elicit the articulation of motivations, attitudes and biases without specifically asking for them. This design-led approach seeks informal qualitative responses (drawings, statements, stories). In this context, the laundromat format is exploratory, not confirmatory and allows autonomy for participants to shape both their science communication outputs, and their own engagement philosophy.

Established within a Centre for Research Excellence in Aotearoa New Zealand with five iterations to date (three residential retreats and two online facilitated versions), and publication of an associated peer-reviewed article, we plan to launch the engagement laundromat resources at PCST 2023. In this workshop, therefore, we will demonstrate the process, share our resources and discuss ways that members of the PCST community can adapt and apply these ideas and tools to their own contexts.

ABSTRACT

Balvert, Fred

When & where: Parallel session 7-H, Thursday 13 April 15:15 – 16:30, *Ruys Room*
 Title: 6. Towards personalized science communication by active listening
 Format: Insight talks
 Author: **Fred Balvert**, Erasmus MC, Netherlands
 Chair(s): Marlit Hayslett
 Co-author(s):

Vaccine hesitancy is listed by the WHO as the top 10 greatest threats to global health. It is defined as an attitude towards vaccination which leads to the choice to be vaccinated or not, and to the possible vulnerability of the individual. Hesitation is amplified by disinformation spread in media and social media. In addition, public distrust in governments and authorities plays a role.

Medical professionals have a relatively high level of public confidence. They can support individual citizens in making an informed choice by listening to personal concerns and providing customized scientifically based information.

Doubts among the general public about vaccination emerged in the Netherlands during the large-scale vaccination campaigns against COVID-19. Medical professionals of Erasmus MC reported that doubts about various aspects of vaccination were reasons for patients not to be vaccinated, rather than anti-vaccination attitudes.

The Departments of Communications and Internal Medicine, in collaboration with four Dutch university medical centers and regional GP networks, started the 'Vaccination Doubt Telephone' in November 2021. This service, staffed by trained medical students with a medical specialist or GP as backup, is available daily for the general public to discuss concerns about vaccination and provide personal medical advice. The service is offered in four languages: Dutch, Arabic, Turkish and Berber.

More than 26,000 people have called the Vaccination Doubt Telephone, with sometimes over 1,000 calls a day. The operators were able to track public interest over time in the topics: specific medical conditions, effectiveness of vaccination in general, side effects, booster vaccination, vaccination and pregnancy, and logistic matters.

The low-threshold approach and independent nature of the service may explain the high number of calls. This great need for accessible and independent information suggests that this form of 'personalized science communication by active listening' can be used more widely for major societal issues.

ABSTRACT

Baram-Tsabari, Ayelet

When & where: Parallel session 6-A, Thursday 13 April 11:30 – 12:45, *Willem Burger Room*
 Title: Starting the communication with audience interests or with scientists' strategic goals? A provocative roundtable
 Format: Roundtable
 Author: **John Besley**, Michigan State University, United States
 Chair(s): **Ayelet Baram-Tsabari**
 Co-author(s): Jon Chase, Bruce Lewenstein

Where should science communication start? One perspective is that the scientific community should prioritize communication that starts with understanding the needs of the people in particular communities and focusing on addressing their goals. In recent years, this perspective has often put emphasis on understanding and addressing the concerns of marginalized audiences. This perspective also often emphasizes creating opportunities for dialogue with the expectation that interaction will lead to stronger science-society relationships. This perspective appears increasingly common in academic discussions of engagement although it remains difficult to get science communication practitioners to engage in genuine dialogue.

An alternative perspective advanced by the 2022 book *Strategic Science Communication* argues strategy should start with scientists identifying tentative behavior-like outcomes they want to see from their communication efforts. Starting with scientists' priorities allows scientists to prioritize audiences relevant to their goals. This perspective draws on social science to differentiate behavior-like goals from potential cognitive and affective communication outcomes (such as beliefs about risks/benefits, efficacy, trustworthiness, and emotions). A challenge with this perspective is that it may prioritize audiences that communicators have already identified, rather than less visible groups. It also places the onus on scientists to prioritize goals and objectives related to their own behaviors and perspectives. Many scientists will not have the experience or willingness to set such goals.

In practice, these perspectives may not be mutually exclusive, but they do point in different directions. The audience-first perspective suggests that the scientific community should establish mechanisms and norms for listening and responding to others' perspectives. In contrast, the goals-first perspective suggests helping individual scientists and organizations build out their own strategic capacity. This roundtable will foreground the two broad paths forward from the perspective of both two leading researchers and an experienced practitioner, followed by robust audience participation.

John Besley will argue that identifying audience-specific, behavioral goals is key to making evidence-based engagement decisions. Further, he will argue that science communicators often have behavioral goals they want to achieve and it is unwise to ignore these goals. Scientists' most common goals, according to research, are having people consider scientific evidence when making civic, business, or personal decisions. Getting youth to consider science careers is also common.

Understanding and respecting others' goals is important but being strategic suggests a need to remain clear about priorities. That being said, there is nothing strategic about ignoring others'

perspectives and communicators should always have a goal of updating their own goals in response to new evidence and insights. Indeed, John will argue that a further key advantage of goal transparency is that such openness gives communicators more opportunity to be reflexive about communication choices, including choices about tactics, objectives, and goals.

Bruce Lewenstein: building on his work with Ayelet, Bruce will argue that getting scientists to focus on the audience, rather than on their science, is often the hardest part of science communication training. "Start with the audience" is a standard mantra in those trainings. One of Bruce's standard lines, one he has heard repeated by other science communication trainers, is: "If you take nothing away from this workshop, remember – the audience comes first!" These hard-won truths draw both on communication theory and on the lived experience of generations of science communicators.

The shift from a dissemination or "deficit" model to one of public engagement is fundamentally about learning to take the perspectives of others. In his provocation for this roundtable, Bruce will provide a few key examples, both from practice and from theory, of why starting with audiences and their goals should be the science communicator's priority.

Jon Chase is a science communicator, author and science rapper who is currently working at Leiden University, Netherlands as a project scientist on the EU funded GlobalSCAPE project. He will describe how practitioners like himself manage the tension between starting from the scientists' goals and meeting audiences' needs.

Jon He has spent more than a decade doing science shows at venues across the British Isles to all audiences and has also co-authored a number of popular science books, including *The Science of Star Wars* and *The Science of Jurassic World*. In 2017 he was awarded the UK's Josh Award in Science Communication but he's perhaps best known for his science raps, which he has produced for organizations including NASA and the BBC.

ABSTRACT

Baram-Tsabari, Ayelet

When & where: Parallel session 5-E, Thursday 13 April 09:45 – 11:00, *Hudig Room*
 Title: A freely available resource for our community: science communication MOOC on edX
 Format: Demonstration
 Author: **Ayelet Baram-Tsabari**, Technion, Israel
 Chair(s): Michelle Riedlinger
 Co-author(s): Bruce Lewenstein, Yael Barel Ben-David

In this workshop session, we introduce participants to a science communication course on edX, which is a freely available resource for our community (www.edx.org/course/science-communication), and engage participants in a discussion of the affordances and challenges of online teaching of science communication. We will cover research-based, practical ideas and inspiring stories from the field, based on conversations with over fifty expert interviewees worldwide, including best-selling popular science authors and leading science communication researchers. Our list of over 50 distinguished experts includes Prof. Neil Shubin, paleontologist, evolutionary biologist, and author of *Your Inner Fish*; Dr. Simon Singh, physicist, and author of *Fermat's Last Theorem*; Clare Matterson, Former Director of Engagement at the Natural History Museum, London; Prof. Baruch Fischhoff, a world-renowned authority on risk communication and member of the U.S. National Academy of Sciences, and many more. This workshop session will appeal to science communication educators, scientists, STEM professionals, and graduate students in STEM and science communication. We will present video, text, and tasks that participants can freely use as resources for their own science communication professional development, training and courses.

We will present the rationale and development, pedagogy, and assessment of the course, and invite participants to share their own experiences with online course development. This will be followed by a reflection and participant discussion with Prof. Bruce Lewenstein, both as an expert participating in the course and as a co-organizer with Profs. Luisa Massarani and Marina Joubert of one of the first distant learning science communication opportunities in 2005, which was reported in the PCST 2006 meeting as "Developing and Delivering a "Global Certificate" in PCST."!

ABSTRACT

Beattie, Lucy

When & where: Parallel session 3-J, Wednesday, 12 April 15:15 – 16:30, *Plate Room*
 Title: Shared music-making as ecosophy – Cultural mapping post-industrial areas of Scotland
 Format: Performance with storytelling and music
 Author: **Lucy Beattie**, University of the West of Scotland, United Kingdom
 Chair(s):
 Co-author(s): Luke Daniels

This performance piece will demonstrate how songwriting and music-making support social justice in third-tier cities, that is, cities that are in a period of post-industrial regeneration. Drawing on evidence gathered from my PhD thesis which looks at the perspectives of STEM academics in Scotland, together with autoethnographic dialogue the talk provides a discourse for ecosophy – that is ecological philosophy. This builds on Giuttari's and Næss' theories on ecosophy which problematises the duality of human and natural (non-human) systems and aims to synthesize them.

Using the example of the River Clyde in Scotland we will use music and stories to highlight post-industrial problems that affect this area and discuss how academics engage with this. The performance piece aims to find common ground to demonstrate how music-making and songwriting may be used to enable boundary-crossing to explore human subjectivity, the environment, and social relations in a post-industrial landscape.

This arguably has wider implications for the scholarship of teaching and learning. We will discuss the links, between research, teaching and public engagement with science, which Stevenson and McArthur define as the "triple nexus". By illustrating the findings from interviews with STEM lecturers in a recent Scottish study we will conclude the presentation with an original song developed as an autoethnographic output from interviews which took place between 2021 and 2022.

ABSTRACT

Beets, Becca

When & where: Parallel session 3-F, Wednesday, 12 April 15:15 – 16:30, *Schadee Room*
 Title: 3. Uncertainty across the sciences: Exploring how experts from different fields experience scientific uncertainty
 Format: Individual papers
 Author: **Becca Beets**, University of Wisconsin–Madison, United States
 Chair(s): Bruce Lewenstein
 Co-author(s): Dominique Brossard

Uncertainty is inherent to science. It can arise throughout all stages of science, from the development of research questions to the interpretation and communication of results. The multidimensionality of scientific uncertainty presents both a challenge and an opportunity for researchers. It has become an increasingly important topic in the context of the shifting science of a global pandemic and in the face of areas of emerging science such as artificial intelligence and brain organoid research.

The way scientific uncertainty is conceptualized can impact a variety of audiences including scientific experts, journalists, lay publics, and decision-makers. Of particular importance is understanding how experts perceive and respond to uncertainty, which can have downstream effects on science communication and decision-making. For example, scientists may negotiate uncertainty in a variety of ways, whether through their own behaviors or interactions with other researchers in the lab. Moreover, different fields of science may be subject to different types of uncertainty.

Addressing this need to better understand scientists' perspectives and experiences with uncertainty in their fields and science more generally, we conducted semi-structured interviews with science faculty at a large research university in the United States in the summer of 2022. Faculty were selected from the biological, physical, and social sciences to represent a range of views.

Combining deductive and inductive approaches, we conducted a qualitative analysis of the interview transcripts. Preliminary results show that experts have varied understandings of the meaning(s) of uncertainty in science broadly and across their specific fields of research. Furthermore, we explore experts' experiences with and attitudes towards communicating uncertainty with journalists and the public. The implications of the results for science communication in a divisive world are discussed.

ABSTRACT

Beets, Becca

When & where: Parallel session 10-C, Friday 14 April 11:30 – 12:45, *Van Weelde Room*
 Title: 9. Functional, experiential, and symbolic connections to science: A framework for exploring the brand of science
 Format: Insight talks
 Author: **Becca Beets**, University of Wisconsin-Madison, United States
 Chair(s): Brooke Smith
 Co-author(s): Todd Newman

With a growing number of scientists and other experts increasing their attention to public engagement and communication, there remains a lack of understanding about the collective meanings that different publics attach to science and why. Science may elicit different meanings to different publics, making it difficult to put science into a category of its own. Yet, previous studies based on focus groups and confirmed by nationally representative public opinion surveys in the United States find that when respondents are asked about what they feel when they hear the word science, hope is the answer that is brought up most frequently. Little is known, however, about how these feelings about science connect to the different ways that various publics think about science, and the needs and benefits that they associate with science.

Building on previous qualitative research, the purpose of the current study is to uncover these meanings of science among a representative sample of American respondents. The unique contribution of this research is to integrate the Brand Concept Management (BCM) framework with science communication theory and practice to aid in understanding the extent to which and in way functional, experiential, and symbolic aspects of science manifest across respondents. This includes our progress developing a reliable and consistent measure of brand concepts as they relate to the sciences, which will aid in comparative studies. This paper will facilitate discussion about the role of emotion in science communication, as well as allow for an open discussion about moving from thinking of science as monolithic, to thinking of the unique connections across the sciences.

ABSTRACT

Bennett, Nichole

When & where: Parallel session A-H – Tuesday 11 April 14:00-16:30 – *Belasting & Douanemuseum*
 Title: Theatre of the oppressed: Exploring our struggles with social justice in science communication
 Format: Professional development workshop
 Author: **Nichole Bennett**, The University of Texas at Austin, United States
 Chair(s): Nichole Bennett

Science communication is not currently a place of belonging for everyone, and overemphasis on objectivity and rationality may perpetuate this. That is, we might not be able to “science” our way out of oppressive systems. But art-based methods have the potential to disrupt and make visible injustice and cultivate a radical space for reclaiming, repairing, and reimagining science communication as an inclusive space. In this workshop, we will explore how Theatre of the Oppressed may offer healing potential for science communication spaces. Theatre of the Oppressed is a form of interactive theatre used in activism. It was developed by Augusto Boal and influenced by Paulo Freire’s Pedagogy of the Oppressed. This beginner-friendly workshop invites participants to collectively process our struggles with social justice emotionally, intellectually, and artistically through Image Theatre (a technique of Theatre of the Oppressed). Using the aesthetic, scholarly, and lived experience expertise of these participants, we will explore and make visible our current struggles in social justice in science communication spaces. By making and activating these images, we hope to create a platform for emergent insights into how to move from our current struggles to our collectively-imagined ideals.

ABSTRACT

Bennett, Nichole

When & where: Parallel session 8-F, Thursday 13 April 17:00 – 18:15, *Schadee Room*
 Title: 2. Science Communication Activities as Potential “Pockets of Belonging” for STEM Graduate Students
 Format: Individual papers
 Author: **Nichole Bennett**, The University of Texas at Austin, United States
 Chair(s): Toss Gascoigne
 Co-author(s): Anthony Dudo, John Besley

Science communication activities by scientists are not often rewarded by their academic institutions. And yet, many scientists enthusiastically engage with the public about their research. Furthermore, there is evidence that Science, Technology, Engineering, and Mathematics (STEM) graduate students approach social media channels and controversial topics with more eagerness than their Ph.D.-holding colleagues.

STEM academic spaces, as a whole, remain exclusionary spaces, especially for students with one or more marginalized identities. But past scholarship suggests that science communication activities, while devalued with respect to research activities, may be places where marginalized students form alternative identities and places of belonging.

However, not much is known about how STEM graduate students make sense of their science communication activities and their sense of belonging in these spaces. To investigate the potential for science communication activities to be “pockets of belongings” for STEM graduate students, we interviewed 24 STEM graduate students currently enrolled at U.S. or Canadian universities that have engaged in some form of public engagement. Many interviewees described how their science communication activities serve as an antidote to hostile academic cultures and as “pockets of belonging” by encouraging slowing down and reflecting (Mindfulness), cultivating relationships and validation (Belonging), and making space to zoom out and see the impact of their research (Meaning). We conclude with recommendations for how to more intentionally cultivate spaces of belonging in science communication.

ABSTRACT

Besley, John

When & where: Parallel session 5-B, Thursday 13 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: 2. Understanding Basic Scientists' Behavioural Goals for Science Communication
 Format: Individual papers
 Author: **John Besley**, Michigan State University, United States
 Chair(s): Massimiano Bucchi
 Co-author(s): Anthony Dudo

This presentation will provide an initial report on the degree to which scientists from six basic science-oriented fields see a range of behavioral goals as important ($N \sim 2400$, with $n \sim 400/\text{area}$). It will also test the degree to which variables from an extended version of the Strategic Communication as Planned Behavior (SCPB) model are useful for understanding scientists' goal prioritization.

Building on the Integrated Behavioral Model, the SCPB approach seeks to provide a way to study science communicators' perspectives on behavioral goals, cognitive and affective objectives, and communication tactics as a function of perceptions/beliefs about applicable risks and benefits, social norms, and behavioral control (i.e., self-efficacy). Past work has used the SCPB model to understand overall willingness to communicate, and choices about objectives and tactics. Limited work has looked at goals. Goals seem especially important to study in the context of basic science because basic-leaning scientists likely have a harder time than applied scientists in identifying real-world behavioral goals they want to achieve. Goals, from this perspective, are understood as behavior-like outcomes such as increasing the likelihood that a desired audience will adopt a behavior, or at least consider evidence related to the behavior. Trust, from this perspective, can be understood as behavior-like outcome since it involves making oneself vulnerable to a trustee. Further, consistent with the idea of two-way communication, communicators should often have goals involving changes to their own behavior (e.g., updating research methods or questions). Audience-specific goal identification is also understood as a necessary first step to strategy development.

Fields included are atmospheric science, neuroscience, nanoscience, chemistry, astronomy, and theoretical physics. Sampling is being conducted using North America-based corresponding authors from top field-specific journals. This work is being conducted during Fall 2022 with funding from the Kavli Foundation for its Science Public Engagement Partnership with the US Department of Energy.

ABSTRACT

Besley, John

When & where: Parallel session 6-A, Thursday 13 April 11:30 – 12:45, *Willem Burger Room*

Title: Starting the communication with audience interests or with scientists' strategic goals? A provocative roundtable

Format: Roundtable

Author: **John Besley**, Michigan State University, United States

Chair(s): **Ayelet Baram-Tsabari**

Co-author(s): Jon Chase, Bruce Lewenstein

Where should science communication start? One perspective is that the scientific community should prioritize communication that starts with understanding the needs of the people in particular communities and focusing on addressing their goals. In recent years, this perspective has often put emphasis on understanding and addressing the concerns of marginalized audiences. This perspective also often emphasizes creating opportunities for dialogue with the expectation that interaction will lead to stronger science-society relationships. This perspective appears increasingly common in academic discussions of engagement although it remains difficult to get science communication practitioners to engage in genuine dialogue.

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The shift from a dissemination or "deficit" model to one of public engagement is fundamentally about learning to take the perspectives of others. In his provocation for this roundtable, Bruce will provide a few key examples, both from practice and from theory, of why starting with audiences and their goals should be the science communicator's priority.

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Jon He has spent more than a decade doing science shows at venues across the British Isles to all audiences and has also co-authored a number of popular science books, including *The Science of Star Wars* and *The Science of Jurassic World*. In 2017 he was awarded the UK's Josh Award in Science Communication but he's perhaps best known for his science raps, which he has produced for organizations including NASA and the BBC.

ABSTRACT

Bevelander, Kirsten

When & where: Parallel session 7-F, Thursday 13 April 15:15 – 16:30, *Schadee Room*
 Title: 6. Science communication through citizen science by people with low literacy skills
 Format: Individual papers
 Author: **Kirsten Bevelander**, Radboud University Medical Center, Netherlands
 Chair(s): Mohamed Elsonbaty Ramadan
 Co-author(s):

Citizen science and science communication are often inaccessible for people with low literacy skills or (mild) intellectual disabilities. Their lives and experiences differ significantly from the general population, and they are often detached from scientific projects or feel left out. Nevertheless, they could provide a valuable contribution and insights to science. This presentation addresses how ‘inclusive health research’ - an ultimate form of citizen science for health - can contribute to a more positive perception of science and accessible science communication.

In this exploratory study, we conducted several interviews with each of the five citizen scientists with mild intellectual disabilities who worked on their own health research project. As a ‘co-researcher’ and in collaboration with a scientific researcher, they followed the steps of a typical research cycle: they chose their research topic, formulated research questions, set up methods and strategy of analysis, collected and analyzed the data and picked their own form of science communication. The project was funded by the KNAW pilot fund for science communication.

Qualitative analyses revealed bottlenecks and leverage points in conducting research by non-academic citizen scientists. All participants preferred visual and auditory forms of science communication. Self-efficacy, stigmatization and emotions play an important role in how (citizen) science and science communication is perceived.

When underserved audiences are actively involved in scientific activities with appropriate power dynamics, they feel and communicate an increased value and accessibility to science. Co-creation and inclusive research can serve as a point of leverage for citizen science and science communication.

ABSTRACT

Bienzeisler, Nils

When & where: Parallel session 10-D, Friday 14 April 11:30 – 12:45, *Zeelenberg Room*
 Title: 2. Scientists' Understanding of Expertise in Value Disputes: Measuring the Linear Model
 Format: Individual papers
 Author: **Nils Bienzeisler**, Karlsruher Institut für Technologie, Germany
 Chair(s): Melanie Smallman
 Co-author(s):

Creating common ground between science and society is challenging, because scientists notoriously overestimate the role of science in policymaking. Many hold the naive view that they can pacify public debates through expertise. However, science alone cannot solve societal problems such as climate change or the Covid-19 pandemic, which require trade-offs between competing interests and values. It is difficult for science to use its means to assess normative questions. Is it right to protect older people in a pandemic while younger people have to forego schooling, for example?

We add to past findings by operationalizing a concept stemming from well-established discussions by philosophers and sociologists of science: the linear and critical model of science and policy interactions. Both represent different systems of meaning at the interface between science and policy. The linear model of science and policy assumes that political action can and should be derived from scientific knowledge unambiguously. Based on exploration through qualitative interviews of scientists in environmental science and medicine (N=12) and a subsequent quantitative implementation (N=268), we identify three key elements that make up the linear model in contrast to a critical understanding of science: the 'evidence-first' credo, a devaluation of political disputes, and the belief in the superiority of scientific knowledge.

Our results indicate that the scientists surveyed firmly believed that political action can be derived unambiguously from scientific knowledge. Such an understanding of science and society by scientists is problematic from multiple perspectives. Our research indicates that many scientists' might want to overstretch the role that scientific evidence can play in political disputes. In our eyes, scientists and policymakers have misconceptions about the nature of each other's work. In practical science communication, it is therefore important to take these ideas into account.

ABSTRACT

Bilfinger, Laura

When & where: Parallel session 6-G, Thursday 13 April 11:30 – 12:45, *Van Beuningen Room*
 Title: 2. “Get Involved!”: How Science Communication Shapes Individuals’ Climate Change Perspectives
 Format: Individual papers
 Author: **Laura Bilfinger**, University of Münster, Germany
 Chair(s): Alice Fleerackers
 Co-author(s): Benjamin Brummernhenrich, Regina Jucks

Dealing with climate change is urgent. However, strong communicative appeals that also pose restrictions on individuals' freedom could be detrimental for environmentally friendly engagement. This study posits the hypothesis that the lack of individuals' engagement might be due to reactance, a motivational psychological state that occurs when one's perceived freedom to think or act is being threatened. In a 2x2 between-subjects experimental design (N = 623) we varied how mitigation recommendations for the transport sector were communicated in an online article by a climate scientist. Firstly, we manipulated whether the article addressed these appeals at a political or individual level. Secondly, by varying high vs. low controlling language, we manipulated how directly the article stressed the need to act (e.g., “must do” vs. “could do”). In all conditions, the recommendations were presented in light of the latest IPCC (Intergovernmental Panel on Climate Change) report. Outcome measures used to capture reactance were perceived threat to freedom, counterarguing, and support for the recommended mitigation efforts.

Results show that participants who read the article appealing to individual efforts to mitigate climate change reported higher perceived threat to freedom, higher levels of counterarguing and lower support for the recommendations, compared to those who read policy appeals aimed at mitigating climate change. In addition, when the language in the article was highly controlling, participants also perceived increased freedom threat, compared to when language was low controlling. Counterarguing and support were not influenced by language features. No significant interaction effects were found. Two open questions further shed light on individuals' perspectives on climate change. Results will be discussed regarding how individuals' engagement with climate change might be fostered. Furthermore, implications are drawn for strategic communication in the climate change context.

ABSTRACT

Binneman, Anton

When & where: Parallel session M-D – Tuesday 11 April 9:30-11:30 – *ErasmusMC SP-3401*
 Title: Identifying indigenous astronomy knowledge systems in ‘Westernized’ indigenous communities
 Format: Professional development workshop
 Author: **Anton Binneman**, NRF | SARA O University of Johannesburg, South Africa
 Chair(s): Anton Binneman

This workshop will be aimed at Communication professionals working in indigenous communities and communities comprised of indigenous descendants. Some indigenous communities like the San Bushmen decedents living in the towns surrounding the SKA observatory site in South Africa is no longer organised as a specific San group, and they don't associate with a specific indigenous group. although they are Xam decedents. The reasons for this disassociation varies. These San Decedents form part of a larger group referred to by the South African Government as “Coloured” people. The result is that indigenous knowledge gets masked and is not as prominent as in communities that have organised Indigenous links. This does not mean that IKS is absent or that these communities don't have Indigenous knowledge.

This workshop will focus on:

1. Being sensitive towards the fact that these communities have a specific understanding of the cosmos
2. Being respectful of this understanding
3. Providing examples of previous studies done with best practice
4. Identifying "IKS" in specific communities
5. Comparing "Western" and "Indigenous" Astronomy
6. Moving to a model where co creation is encouraged and all Knowledge is viewed as "Indigenous"

The outcome of this workshop is that participants would be sensitive to community based and indigenous knowledge. Using Indigenous knowledge in Science communication practice without making it a forced activity. It will also aim to not romanticise Indigenous knowledge making it something it was never meant to be. Finally the "Indigenous" source and background of Western science will be discussed.

ABSTRACT

Binneman, Anton

When & where: Parallel session 3-B, Wednesday, 12 April 15:15 – 16:30, *Van der Mandele (mezzanine)*
 Title: Engagement to counter misinformation and framing
 Format: Linked papers
 Author: **Anton Binneman**, South African Radio Astronomy Observatory, South Africa
 Chair(s): Marjolein Oorsprong
 Co-author(s):

For the South African Radio Astronomy Observatory (SARAO), the engagement of complex rural communities on astronomy science and infrastructure development, which are generally resistant to rapid change and with very specific religious views and socio-economic expectations, was a scientific discovery process in its own right. Adding to the complexity is uncertainty stimulated by conspiracy theorists and unofficial community leaders, as well as ever increasing information that is often fuelled by divergent and intemperate social scientific studies occurring unmonitored in these communities, among others. The aforementioned are all absolute considerations in communication with these communities. Globally, some scientific infrastructure projects have experienced delays and disruptions by the very communities in which they constructed or which they serve. However, this is not the case for all. For the communities in South Africa's Northern Cape Province surrounding the Square Kilometre Array site, the challenges by the project mirror global experience, yet the outcome is divergent. When one reflects on the differences, communication or lack thereof often emerge as a precursor that stimulate negative community responses.

This paper will focus on the field of Radio Astronomy and the community engagement process linked specifically to the MeerKAT construction and the preparation for construction of the Square Kilometre Array in South Africa's Northern Cape Province. This paper will share the broad framework that comprise the method in which it is consistently guided by an audience analysis process, the information evaluation process from a multitude of formal, informal, academic and non-academic sources, the dissemination of information and engagement, and the ultimate evaluation and establishment of effectiveness. The paper will then present possible best practices for science engagement and communication in rural communities that are predominantly guided by the collective beliefs of a social structure that tend to be resistant to scientific change and hard facts.

ABSTRACT

Binneman, Anton

When & where: Parallel session 4-G, Wednesday, 12 April 17:00 – 18:15, *Van Beuningen Room*
 Title: 5. Perceptions of the impact of the SKA in communities surrounding the SKA site in South Africa
 Format: Insight talks
 Author: **Anton Binneman**, NRF | SARAO University of Johannesburg, South Africa
 Chair(s): Marieke Baan
 Co-author(s):

NRF | SARAO have been working in communities surrounding the SKA site for the last 10 years. The activities included a broad range of communications activities, including, stakeholder engagement, community development and science engagement on different levels. The project is going into a new phase with the start of construction of the SKA and the completion of the MeerKAT extension program. Therefore current communications interventions needs to be evaluated and new strategies developed. This will be done through a socio economic and perceptions survey. This study is currently being conducted. A broad range of stakeholders will be consulted to ensure that the public perceptions report is as exhaustive as possible. Stakeholders will include local communities, SARAO staff and stakeholders, specifically identified community members, and other significant stakeholders identified by SARAO. Secondary data (such as newspaper articles and academic publications) will be included as part of the report to enable a comparison of the findings of the study with similar findings elsewhere. Primary data will be collected through the local and national surveys to be conducted. The main perceptions that will be investigated as part of the report include religious views relating to astronomy, general perceptions on Science, perceptions of how SKA affects communities, views on whether the project has an ethical obligation to assist communities, risks and benefits perceived, and other considerations relating to feelings, public morale, and ethics.

This paper will reflect on the methodology employed and preliminary findings of the study.

ABSTRACT

Biyela, Sibusiso

When & where: Parallel session 7-H, Thursday 13 April 15:15 – 16:30, *Ruys Room*
 Title: 3. African-language science podcast entertains through presenter chemistry
 Format: Insight talks
 Author: **Sibusiso Biyela**, ScienceLink, South Africa
 Chair(s): Marlit Hayslett
 Co-author(s): Ntokozo Nomasiko Msomi

Podcast hosts Ntokozo Nomasiko Msomi and Sibusiso Biyela will share how they make science more inclusive through entertaining dialogues between friends.

Biyela is a professional bilingual science communicator and Msomi is a professional language practitioner. Before starting their podcast, they would often debate one another in a mixture of English and isiZulu, as many South Africans do. Many of their conversations would boil down to how certain technical or scientific words, for instance, “dinosaur” or “planet”, just don’t exist in isiZulu.

Their “presenter chemistry” on these scientific topics was palpable to friends and colleagues, who encouraged them to share their often hilarious and gripping conversations with Zulu-speaking listeners from all walks of life.

Their “iLukuluku” podcast, a collaboration between POC Podcasts and local science communication non-profit SciBraai, gained media attention and began trending the moment it was published on platforms like Apple iTunes. It is one of the first science communication podcasts that specifically includes Zulu-speaking communities in scientific discourse in an entertaining way.

In this session, Msomi and Biyela will share how each episode is conceptualised and produced using very few resources. They will also demonstrate how they break down complex scientific topics by blending facts, linguistic quirks and humour to entertain, educate and include Zulu listeners of all ages.

ABSTRACT

Bock, Katharina

When & where: Parallel session 9-L, Friday 14 April 09:45 – 11:00, *Mees Room*
 Title: Creating common ground: How to come to terms with social sciences
 Format: Problem-solving workshop
 Author: **Katharina Bock**, Queen's University Belfast, United Kingdom
 Chair(s):
 Co-author(s): Andrea Geipel

Science communication is a field of work and research that brings together people from an eclectic range of disciplines: Scientists from STEM subjects, historians with different expertise, accomplished educators, and cultural ethnographers to only name a few. As you might have experienced yourself, transitioning between different sectors can be challenging, and often navigating a new field of research or novel work environment with experienced peers can be daunting. Collaborating in such interdisciplinary settings may come with its own obstacles, like different epistemological views or methodological approaches to a task or problem-solving strategies. In some cases, this might lead to misunderstandings or unintentionally talking past each other.

In this workshop, we aim to create a space to discuss issues within inter/multi/trans-disciplinary work within Science Communication with its diverse community members. We invite you to engage with short practical-oriented case studies - some based on real-life experiences. For example, how to ease the steep learning curve when moving into ethnographic visitor research with a natural science background or finding your voice as a science and technology expert in a museum. In doing so we want to jointly develop strategies to create common ground between natural and social sciences, and different subdisciplines. In particular, striving to establish possible solutions to exchange knowledge and develop strategies to create a work or research environment where everyone feels welcomed and appreciated for their skills.

ABSTRACT

Bock, Katharina

When & where: Parallel session 10-D, Friday 14 April 11:30 – 12:45, *Zeelenberg Room*
 Title: 3. Collaborative curation with the public within practice-based research methodology
 Format: Individual papers
 Author: **Katharina Bock**, Queen's University Belfast, United Kingdom
 Chair(s): Melanie Smallman
 Co-author(s):

Practice-based Research (PbR), practice-led, practice-as-research or arts-based research is a methodological approach to research within arts, humanities and social sciences. It is a common approach in filmmaking, photography, writing or design studies where the process of producing something creatively becomes the focus point of the research. This methodology started to develop in the 20th century, and has been established as a way of conducting (academic) research in Australia, the US and parts of Europe (UK, Scandinavia, Netherlands). As part of my PhD project, I am inviting the public, in the form of different focus groups, to collaboratively curate an online exhibition with archival material with me. It is a novel idea to choose curating as a practice, and arguing for this approach within my research is a challenging task. However, to understand negotiating and meaning-making processes among the public in connection to cultural or historical objects, as done within curating and exhibition making, renders important knowledge about the publics' relationship with digital cultural heritage and the practice of curating itself. Within this paper, I will describe the methodology of PbR and how it is applied within my research, as well as first-hand experiences gathered thus far. In doing so, I would like to spark a follow-up conversation about novel and experimental approaches to science communication with the public as active collaborators, but also highlight the interdisciplinary necessity for theoretical foundations. The aim of this paper is, therefore, to encourage participants to consider how science communication can become more collaborative, inclusive and accessible, through exploring new methods across subject areas.

ABSTRACT

Boerman, Sophie

When & where: Parallel session 1-C, Wednesday, 12 April 09:45 – 11:00, *Van Weelde Room*
 Title: The role of technology in shaping sustainable attitudes and behavior: A data-driven approach
 Format: Linked papers
 Author: **Sophie Boerman**, Wageningen University, Netherlands
 Chair(s): Sujatha Raman
 Co-author(s): Annelien van Remoortere, Sanne Kruikemeier, Rens Vliegenthart

Many of the changes toward a more sustainable society requires citizens' involvement with the issue, for example through dialogue, and ultimately different behaviour. Providing those citizens with information that is factually correct is of key importance. However, for messages to be convincing and to foster dialogue and desirable behavioral change they must resonate with individuals' personal situations and connect to their values and priorities.

Online (micro)targeting strategies might be useful here. Microtargeting – often taking place on social media – is a strategy to reach specific segments of a population with messages that are expected to specifically appeal to people that have certain shared characteristics. It has been applied in a range of different contexts, such as political campaigns and advertising, but less frequently in sustainability communication.

In this project, we investigate how different targeted messages can be effective in influencing citizens' attitudes, openness to dialogue about sustainability, as well as actual behavior. We propose an experimental design that examines the effects of different tailored arguments on people's involvement and behavioral intentions and establishes the most prevalent (demographic and attitudinal) moderators of those effects. Based on the findings of this experiment, we deploy a follow-up field experiment on Facebook. For this, we develop an information campaign that consists of different messages for different segments of Facebook users and test levels of involvement. The project provides key insights for both scientists and policymakers/activists on how to design an effective information campaign.

ABSTRACT

Bohlin, Gustav

When & where: Parallel session 9-F, Friday 14 April 09:45 – 11:00, *Schadee Room*
 Title: 4. Do we trust research for the reasons we think? Insights from studies on trust in humanities research
 Format: Individual papers
 Author: **Gustav Bohlin**, Public & Science, VA, Sweden
 Chair(s): Ana Claudia Nepote
 Co-author(s): Lina Rådmark, Martin Bergman

We have monitored Swedish citizens' trust in different research areas annually since 2002. The results consistently show lower trust in research in the humanities compared to natural sciences, medicine or technology. This is worrying given the instrumental role insights from the humanities have in solving societal challenges such as migration, security or climate change. However, although fewer people have high trust in the humanities, this difference is explained by people having "no opinion" rather than an explicit low trust. What looks like a trust-related problem therefore might rather be a communication problem.

To pursue this question in more depth, we conducted two independent studies with nationally representative samples in Sweden (n=1,024 and 2,016). In the first study, we explored why different groups lack an opinion about their confidence in humanities research and what factors are deemed important to form an opinion about trust. Identical questions about research in medicine were posed throughout the study to enable comparisons between the areas. This data was used to inform a controlled experimental setting where short descriptive texts about research in the humanities were manipulated in different ways to test whether the factors perceived to be decisive for one's level of trust affect the actual trustworthiness of the research descriptions. The somewhat surprising results imply, inter alia, that emphasising societal impact when communicating research only has a moderate, and in some cases negative, effect on trust, contrary to what people say is important for their trust formation. Other results show that values such as empathy and openness are deemed more important than scientific authority for determining trust in individual researchers within both medicine and the humanities.

Trust is a prerequisite for achieving a meaningful dialogue and to foster collaboration between researchers and other stakeholders. Implications for both research and practice will be discussed and sharing of perspectives and experiences from the audience actively encouraged.

ABSTRACT

Boissenin, Clara

When & where: Parallel session 1-E, Wednesday, 12 April 09:45 – 11:00, *Hudig Room*
 Title: Making values work for technological innovation
 Format: Roundtable
 Author: **Anna Aris**, VU Amsterdam, Netherlands
 Chair(s): **Clara Boissenin**
 Co-author(s): Willemine Willems, Wenzel Mehnert, Greta Alliaj

There is now a robust acceptance of the importance of values in the development of technological innovation. The EU-funded SockETs (www.sockets-cocreation.eu) and TechEthos (www.techethos.eu) projects both wish to contribute to aligning the development of technologies with societal values and needs, in a real-world context and in interaction with citizens, technology owners and developers, researchers, and policy makers.

The two projects have their own way to approach this shared objective, which call upon values to play different roles. SockETs aims to strengthen the maturity of societal engagement in technology innovation communities, through the SockETs Labs. An initial understanding of cultural values informed the choices, such as allowing for local adaptation of the delivery of public engagement. By adopting a reflexive evaluation method, values informing conceptions of technology and citizen engagement emerged along the way and were captured throughout the learning process. On the other hand, TechEthos seeks to bring societal values, attitudes and concerns into ethical guidelines for technologists and researchers. Value eliciting is an explicit goal in its methodology, which goes on to inform an ethics by design approach that puts values at its center.

Prompted by questions from the chair, speakers will explore the role of values: from their meaning for each project, to how they were approached in practice, and how they evolved throughout the process. Speakers will also turn inwards to reflect on the hurdles of projects that involve such a diverse set of partners, who at times had different understandings of what was initially considered shared values. How was this diversity accommodated and how were eventual clashes resolved?

We hope that an honest exchange on our choices and processes can help inform the reflections of other researchers and practitioners as they consider their own and their teams' values, and the variety of roles values can play.

Speaker perspectives:

Anna Aris is currently a PhD candidate at the Athena Institute (VU Amsterdam), where she is doing research on open science and public engagement. While she has previously covered a wide range of projects, ranging from healthcare to educational systems to digitization, a silver lining in her research interests concerns the interplay between science, technology and society. Having an academic background in Anthropology and professional experience in Design Thinking, Anna combines ethnographic research methods with more collaborative design and

storytelling methods with the aim to contribute to more democratic technological development. As part of her involvement in SockETs, she has used her background to conduct the reflexive evaluation process. Particularly, she has focused on facilitating a collective learning process together with the SockETs lab owners in order to unpack the diverse values driving societal engagement practices, as well as identifying key insights and opportunities for more democratic technological development.

As a postdoctoral researcher in Science Communication, Willemine Willems is interested in a broad range of questions concerned with democratising science and technology. As part of the SockETs project team, she was involved in mapping the sociotechnical imaginaries of the case study countries. On the basis of desk research and interviews with national societal engagement experts, insights were collected about how science and technology were being valued and their role in citizens', policy makers' and politicians' understanding of their national future. This helped the project understand the diversity of values that shapes public engagement opportunities, which informed the set up of the SockETs labs. Building on this, Willemine was involved in designing and conducting the reflexive evaluation process of the SockETs labs which helped lab owners to design activities tailor-made for their local contexts and encourage a reflexive attitude that allows for values to emerge.

As a Scientist in the Societal Futures team of the Center for Innovation Systems & Policy at AIT - Austrian Institute of Technology, Wenzel Mehnert has been active across all aspects of TechEthos's work with societal awareness and acceptance, including the development of the project's technology scenarios and that of public engagement methodologies. He also forms part of the team that analysed the results of value eliciting exercises, blending qualitative and quantitative data to form a cross-national picture of the attitudes, values and concerns of citizens towards new and emerging technologies, results that he will be able to draw upon in the roundtable discussion.

ABSTRACT

Bohlin, Gustav

When & where: Parallel session 10-D, Friday 14 April 11:30 – 12:45, *Zeelenberg Room*
 Title: 5. Involving me, involving you – Attitudes to and experiences of participation in research among Swedish citizens
 Format: Individual papers
 Author: **Gustav Bohlin**, Public & Science, VA, Sweden
 Chair(s): Melanie Smallman
 Co-author(s): Lina Rådmark, Martin Bergman

It is becoming increasingly common for the public and other groups in society to participate in the research process in different ways. The most common way to actively involve citizens is probably in the form of data collection, which allows large amounts of data to be gathered. But non-researchers may also be involved in other parts of the research process, such as formulating/discussing research questions or analysing results. Some common motives for researchers to involve other stakeholders in research are to get different perspectives and to improve research relevance.

Results from VA (Public & Science)'s annual survey of the Swedish public's attitudes to research and science (the VA Barometer) shows a strong support for the public to be involved in research. Nearly three quarters think it's fairly or very important, and nearly one third would consider participating in research themselves. Moreover, a large proportion of people would consider being involved in a breadth of ways, apart from helping with data collection, such as donate material, give opinions on what to investigate and what methods to use. Fifty percent could also consider being involved in research by contributing financially. According to the most recent survey wave, conducted 2022, one fifth of the Swedish citizens has been involved in research in different ways. People with higher education and (people) who know someone who works in research are more likely to participate in research than others.

With the increased focus on public involvement and citizen science within the research sector, we believe that our results will be of interest to a variety of conference delegates. Implications for both practitioners and researchers will be discussed and sharing of perspectives from other national contexts in the audience will be encouraged.

ABSTRACT

Boissenin, Clara

When & where: Parallel session 3-G, Wednesday, 12 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 9. Is technology taking over? The SockETs exhibition
 Format: Visual papers
 Author: **Clara Boissenin**, Ecsite, Belgium
 Chair(s): Melanie Smallman
 Co-author(s): Alix Thuillier

All over the world, people are rethinking the way innovations are developed and designed. They are testing new or different approaches to build trust in innovation, tackle social challenges relevant to local communities, and lend greater acceptance and use of new technologies. How did we get there? And what can be done differently? For which results? The EU-funded project SockETs experimented in 6 locations across Europe with a co-creation methodology to develop innovation based on emerging technologies with citizens in the fields of e-health, building, industrial automation and circular autonomy. The process and the results of this experimentation will be presented in an exhibition, displayed in science centres and museums but also online (opening in March 2023). This tiny exhibition explores the hate-love relationship societies have with technological innovations, with a specific focus on societal engagement. The exhibition will solicit further views and deliberations from the visitors on the challenges, both technical and socio-ethical, of innovation.

In this visual presentation, we will navigate the online version of the exhibition and explore how the story of an ended process can act as a testimonial of the value of working with citizens and as a source of motivation for citizens, researchers and technology owners encouraging them to adopt a different attitude and working habits towards the development of innovation.

ABSTRACT

Boissenin, Clara

When & where: Parallel session 5-I, Thursday 13 April 09:45 – 11:00, *Van Rijckenvorsel Room*
 Title: Can we tell stories about processes? Designing exhibitions on innovation processes
 Format: Workshop
 Author: **Clara Boissenin**, Ecsite, Belgium
 Chair(s):
 Co-author(s): Greta Alliaj, Nathalie Cimino

Everyone loves a good story and science communicators use different narrative techniques to get their message through. But what happens when it comes to telling the story of an ongoing process? How to tell a good story while not compromising the uncertainties brought by the process? How to tell a good story when what is important is not the results (which might be intangible, to begin with) but the process itself?

In the framework of two EU-funded projects, Ecsite is leading the creation of two exhibitions on technology innovation processes. SockETs wishes to tell the story of co-creation experimentations that happened in different locations in Europe to ensure that societal priorities, expectations, and concerns are considered by technology owners and developers. While in TechEthos we want to highlight an ‘ethics by design’ process of technological innovation, bringing in the perspectives of different stakeholders gathered throughout the project.

These exhibitions are co-created with a diverse group of partners: science centres and museums, technology and innovation actors, research centres and universities. They are a challenge to develop as they tell visitors stories of different processes that didn’t produce visual results, used conceptual tools that are hard to grasp when not used, and were more about exploring challenges than building concrete solutions. The co-development of relevant content and exhibits for a diverse landscape of cultures and languages, with the added challenge of using frugal production means, added to the complexity.

As research moves towards greater participation, the impetus behind communicating in highly visual ways the shared journeys between researchers and their partners and stakeholders is only getting stronger. In this demo, we will unpack the complexity and share the lessons learned from our two projects’ own experimentation. We will also challenge the audience to reflect on their own processes: where, when and how an exhibition about a process might make sense for them.

ABSTRACT

Borah, Nabanita

When & where: Parallel session 5-F, Thursday 13 April 09:45 – 11:00, *Schadee Room*
 Title: 4. Role of Traditional Beliefs on Maternal Mortality in Assam, India
 Format: Individual papers
 Author: **Nabanita Borah**, Independent Researcher, India
 Chair(s): Marjoleine van der Meij
 Co-author(s): Prachin Ghodajkar, Kaushik Saikia, Olag Pratim Bordoloi, Deepak Suryavanshi

Knowledge domains like medical science are essential for survival and required in our routine lives. But the rapid advancements in medical science always create a wide gap between expert knowledge and people's knowledge of different aspects of health. Especially in countries like India, where alternative health knowledge systems, healing traditions, and the vast network of healthcare institutions (Modern-medicine & Ayush) coexist, making health-related knowledge and information overly complex.

Assam is one of the 36 states in India that recorded the highest maternal mortality rate (MMR) [Central Bureau of Health Intelligence, Gov of India report, 2021], despite women's condition in Assam having culturally largely been considered better in the country.

Preliminary observation shows that the community follows different beliefs during pregnancy (e.g., restrictions on diets, rest, and activities), beliefs and practices on childbirth/delivery (like position; cord-cutting, etc.), beliefs and practices on managing post-pregnancy health and lactation. While some of these are helping, and some are harmless, some are harmful practices. Thus, this study aims to list the traditional and cultural beliefs related to pregnancies and childbirth in the Assamese community and investigate if there is any connection between the state's high Maternal Mortality Rate (MMR) and the prevailing beliefs.

We are a group of researchers with a background in public health, science communications, and community health to study people's knowledge and awareness about different health-related issues. This study is a collaborative citizen science project. Various stakeholders that are collaborating with us: medical practitioners, midwives, traditional birth attendants, folklorists, and NGOs, and are helping to identify and interact with pregnant women and lactating mothers and to understand the beliefs related to pregnancies, childbearing, and lactation and also to understand the extent to which those are affecting pregnancies and childbirth by developing consensus and finding common grounds around the available knowledge.

ABSTRACT

Yeo, Sara

When & where: Parallel session 3-C, Wednesday, 12 April 15:15 – 16:30, *Van Weelde Room*
 Title: Toward a unified research agenda for communicating basic science
 Format: Roundtable
 Author: **Sara Yeo**
 Chair(s): **Brooke Smith**
 Co-author(s): Marina Joubert, T.Y. Branch

Where would global society be without basic, curiosity-driven, discovery science? Basic research deepens our fundamental understanding of the natural and physical world from the origins of the universe to atmospheric chemistry of present-day earth. It underpins nearly every technological advancement. Yet, despite its critical importance to advancing human knowledge and capabilities, basic science (as opposed to applied sciences, medicine, and technology) is rarely the focus of communication scholarship, practice, or training.

Consequently, there are many unknowns about the needs, challenges, and approaches to communicating or engaging the public with basic science. What is the role of science communication for basic science specifically? What do different communities around the world think and feel about basic science? How do different communities globally practice and make sense of basic science communication? How well prepared are the world's basic scientists to engage the public around their work? Are there opportunities and challenges unique to basic research that should inform, and potentially change, public engagement strategies?

These questions and more led the Kavli Foundation and the U.S. Department of Energy Office of Science to form the Science Public Engagement Partnership (SciPEP) to explore what is known and what is unknown about basic science communication. In February 2022, the SciPEP partners developed a broad prospectus on critical questions that form the beginnings of a research roadmap to address the gap in scholarship. In addition, new research is emerging. This roundtable discussion will examine a proposed, preliminary research agenda and emerging evidence on basic science engagement. Speakers will give brief opening presentations to frame the conversation. A facilitated discussion with respondents and the audience will follow to address what we know, don't know, and what questions we should be asking, at both the institution level and globally.

Speaker perspectives:

Rick Borchelt (The U.S. Department of Energy, Office of Science)

Communicating about basic science is an essential part of the scientific process and is critical for engendering the public support necessary for our global innovation ecosystem and economy. However, there are few solid guidelines about how best to communicate about basic science. This talk will outline work of the Science Public Engagement Partnership (SciPEP) to catalyze a unified understanding of communicating basic science, including strategic directions for integrating social science research with science communications practice and training. For

continued scientific progress and innovation, it is important that policy makers, decision leaders, other scientists, and interested members of the public can access and engage with the whole story of scientific research, from basic research to breakthrough discoveries to technological advancement.

Sara Yeo (University of Utah, United States)

What are the strategic goals of scientists and research-supporting institutions for communicating about basic science? Are there any goals that are unique or better suited for communicating basic science than they are for applied science? This talk will highlight emerging evidence about the motivations, goals, and needs of basic scientists to communicate about their research. Dr. Yeo will give a brief overview of this new evidence, with an emphasis on whether and how basic scientists differ from applied scientists. The overview will include data from her research team's recently completed survey on U.S. scientists' use of and attitudes toward social media for public communication and its implications for science communication practice, training, and priorities for future research.

Marina Joubert (Stellenbosch University, South Africa)

Marina Joubert will reflect briefly on how and why field differences affect scientists' communication behaviours and willingness to engage with society. Scientists doing fundamental research typically perceive low public interest in their work, but high barriers to making their work publicly accessible in a meaningful way. Still, throughout history, some of the most notable science communicators have been working in fields such as chemistry, physics and astronomy. She will share some stories and examples of how and why basic science is communicated in South Africa where science policymakers prioritise research linked to the country's unique geographic position, such as its southern skies and unique fossil heritage, as well as terrestrial and marine biodiversity.

T.Y. Branch (University of Cologne, Germany)

Basic science, or research conducted without the explicit aim of creating social goods, is taken by default to be at the heart of discovery. Originating from the concept of 'pure' science, basic science has served as the foundation for how science relates to society in the Global North since the beginning of the Cold War. Dr. Branch will discuss her insights on how establishing and maintaining this privileged position for basic science requires the support of institutions that reinforce the distinction between basic from applied science. For example, emerging work on the broader implications of the value-free ideal for science is crucial to capturing how basic science has been communicated and perceived by publics. She will also share her expertise on why asking how best to communicate it, also requires, simultaneously, understanding what makes basic science different (if at all) from other sciences and examine the values that define it.

ABSTRACT

Bordalo, Joana

When & where: Parallel session 7-G, Thursday 13 April 15:15 – 16:30, *Van Beuningen Room*

Title: 1. Reaching underserved communities through circular education: a new science education and outreach programme

Format: Visual papers

Author: **Joana Bordalo**, Native Scientists, Portugal

Chair(s): Heather Doran

Co-author(s): Joana Moscoso, Matilde Gonçalves, Ricardo Marvão

This visual presentation aims to introduce the educational programme “Cientista Regressa à Escola” (translates to Scientists Return to School), which aims to humanize science and tackle education inequities in Portugal through a concept of Circular Education. Targeting 4th-grade students, the programme promotes the return of scientists to their own elementary schools to develop unique hands-on science workshops with the students.

Launched on September 8th, 2021, on International Literacy Day, the conceptualization, development and implementation of the programme included several key aspects: 50 + meetings with different stakeholders, including school teachers, scientists, municipalities, research centers, universities, sponsors, etc.; creation of a multidisciplinary and motivated team; conceptualization and creation of the website and registration forms; creation of a match mechanism that pairs scientists with their schools; development of specialized training in science communication for children for participating scientists; co-creation of supporting materials for teachers.

In its first year of implementation (2021/2022), the programme reached 500 students in Portugal (Islands included), by implementing 30 workshops in 15 schools (12 in rural and underserved areas). Feedback forms show that all of the school teachers and the scientists want to repeat the experience. Furthermore, 77% of the children met a scientist for the first time in their lives, 99% of the children admitted having “liked a lot to meet the scientist” and 95% said, “I have learnt a lot of things”.

With this new science enrichment and outreach programme we have been able to reach underserved communities, promote science literacy, break down stereotypes about scientists and promote positive attitudes towards science. Importantly, we have been able to tackle inequities in access to science in Portuguese society.

ABSTRACT

Borgström, David

When & where: Parallel session 2-C, Wednesday, 12 April 11:30 – 12:45, *Van Weelde Room*
 Title: 3. Using teabags to learn about the climate – insights from a Swedish co-creation project
 Format: Insight talks
 Author: **David Borgström**, VA Public & Science, Sweden
 Chair(s): Liesbeth de Bakker
 Co-author(s):

Which route around the city would be healthiest for your respiratory system right now? Anyone traveling around Stockholm will be able to learn that directly via their mobile phones and from interactive billboards at key city locations. In the CitizAir project, KTH Royal Institute of Technology, the City of Stockholm and VA Public & Science are collaborating to visualize air pollution data together with Stockholmers.

The levels of air pollution vary a lot in Stockholm, both in terms of geography and over time. Therefore, it can be interesting for citizens as well as politicians to have access to real time air quality data in an interactive manner. The project seeks to empower citizens' action for clean air and will create an interactive and immersive augmented reality experience that combines real time pollution data with an app on people's phones.

The visualizations are co-created together with the Stockholm citizens to ensure that their interests and needs are taken into account. During the co-creation workshops with the Stockholmers, experts on pollution data present and explain current research findings and future challenges. The main target groups are vulnerable people, families with young children, school children and cyclists commuting to or through the city.

In this way, citizens will gain knowledge on air pollution and be able to make informed decisions about which route around the city would be the healthiest. In the longer run, they will also be better prepared to discuss air quality and to affect environmental decisions and policies in their neighbourhoods.

Everything developed within CitizAir will be published openly and be accessible and usable worldwide. The project will contribute to the sustainable development of cities, and consequently to several of the UN Sustainable Development Goals. The CitizAir project is financed by Formas, the Swedish Research Council for Sustainable Development.

ABSTRACT

Borgström, David

When & where: Parallel session 6-E, Thursday 13 April 11:30 – 12:45, *Hudig Room*
 Title: 7. CitizAir - Empowering citizen action for clean air
 Format: Insight talks
 Author: **David Borgström**, VA Public & Science, Sweden
 Chair(s): Sikke Jansma
 Co-author(s):

Which route around the city would be healthiest for your respiratory system right now? Anyone traveling around Stockholm will be able to learn that directly via their mobile phones and from interactive billboards at key city locations. In the CitizAir project, KTH Royal Institute of Technology, the City of Stockholm and VA Public & Science are collaborating to visualize air pollution data together with Stockholmers.

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ABSTRACT

Borissova, Alexandra

When & where: Parallel session 9-A, Friday 14 April 09:45 – 11:00, *Willem Burger Room*
 Title: Finding common ground through journalism
 Format: Roundtable
 Author: **Alexandra Borissova**, ITMO University, Russia
 Chair(s): **Felicity Mellor**
 Co-author(s): Jane Gregory, Susan Swanberg, An Nguyen

Science communicators today face a number of challenges – from attracting audiences in a noisy environment, to judging whose opinions are worthy of attention, or maintaining independence when employed by an organisation that has vested interests. Journalists have been responding to such challenges for a century. Although journalism is often seen as a source of antagonism, science journalists are skilled practitioners in finding common ground. In identifying newsworthy stories and including voices from both within and outside science, science journalists deploy their expertise and professional values negotiating the relationship between science and public. For this reason, science communication training frequently includes journalism skills as a core part of the curriculum. This roundtable discussion will reflect on the place of journalism within science communication training, with particular emphasis on what aspiring science communicators can learn from journalists' expertise even if they do not intend to work as journalists themselves.

After short opening statements from the participants, comments and questions will be invited from the audience interwoven with prompts from the chair, with the discussion structured around the conference sub-themes of values, openness, inclusiveness, collaboration and expertise.

The panel brings together contributors from the US, Russia and the UK who between them have extensive experience running science communication courses and working as journalists, as academics in science communication studies and previously as researchers in chemistry, physics and biology. The discussion will draw on a current joint book project – *Insights on Science Journalism* – that synthesises current knowledge about the specialism.

Speaker perspectives:

Alexandra Borissova (ITMO University, Russia)

Throughout my career, I have been wearing different hats: researcher, science journalist, science communicator and, finally, science communication teacher. Hence, at different points, I used to be a source of information, a journalist seeking information from this source, and a communicator who facilitated this interaction. Sources are a crucial part of journalism, yet both being a source and working with sources are difficult. Notably, the norms and values of scientists and journalists differ considerably and understanding both worlds without judgement is crucial for effective science communication. I am particularly interested in the relationship between journalists and their sources and how scientists and science communicators can benefit from understanding how this works.

Jane Gregory (University of Cambridge, United Kingdom)

Having established a number of science communication courses over the years, I believe science communicators have much to learn from journalists, especially their experiences of adopting multiple identities and adapting to new challenges. In recent years, journalists have adjusted to new sites, new media and new publics, often enhancing inclusion. They have to weigh up many pressures coming from many directions – such as choosing innovative or established formats, pursuing commercial or democratic aims, and engaging niche publics or wider audiences – decisions that can come at some cost. We can learn from these balancing acts. In particular, the fluctuating fortune of the ‘science correspondent’ holds important lessons for the current debate about the professionalisation of other science communication roles.

Susan Swanberg (University of Arizona, United States)

As a former biologist turned journalist who now teaches science journalism, I’m interested in what the history of science journalism can teach us about the challenges faced by science communicators today. For instance, when science journalism first emerged in 1920s America, journalists and scientists attempted to find common ground by establishing a science news agency called Science Service. Science Service aimed at providing accessible and accurate journalism, yet it frequently slipped into advocacy. With science communicators today often working for scientific organisations, the distinction between objective reporting in the public interest and public relations on behalf of an interested party remains important. By looking at the history of science journalism, I believe we can better understand the evolving roles and relationships among those who mediate between science and public.

An Nguyen (Bournemouth University, United Kingdom)

Science has been taken for granted as an indispensable recipe for development, with the transfer of scientific knowledge from the developed North to the developing South having become an almost unquestioned pathway to socio-economic security, prosperity, growth and progress. Due to the shortage of direct science channels that are often taken for granted in the North – such as science museums, science festivals, or science fictions – the news media are the major, sometimes the sole, vehicle for Southern public engagement with global developments in science. Reflecting on my research into key issues and challenges to science journalism in the South and my previous experience as a Vietnamese science journalist, I will discuss what practitioners and scholars might do in working towards a more diverse, solid and effective science communication system for sustainable development in the South.

ABSTRACT

Boscolo, Marco

When & where: Parallel session 6-C, Thursday 13 April 11:30 – 12:45, *Van Weelde Room*
 Title: New formats of science journalism and the need for more engagement
 Format: Linked papers
 Author: **Marco Boscolo**, Formicablu, Italy
 Chair(s): Anne Dijkstra
 Co-author(s):

In the field of journalism, the digital transition has been a disruptive transformation, putting under pressure long-standing business models. This forced a general renovation and evolution of formats with the aim of connecting the news producers to new audiences through new journalistic formats and channels, such as: podcasts, data journalism, interactive digital tools and so on. But especially in science journalism, focusing only on the technological side did not necessarily address the quality of the communication and its effectiveness. Engagement is a key aspect of effective science communication and science journalism that aims at going beyond the basic dialogue model in favour of co-design and co-creation of content and tools aimed at diverse audiences. While so far, the effects of the digital transition on journalism have mostly been looked at from a generalist perspective, in this paper, we present findings and discuss how the last few years and the pandemic have highlighted the need for reflection from a science journalism perspective, especially in Southern Europe, where many newsrooms rely on freelance work to cover science. Effective science journalism needs to broaden the scope and involvement, pushing scientists and journalists as well as other players in the long-term towards a proactive, collaborative co-design and production effort, beyond the expert-non-expert dichotomy.

ABSTRACT

Boshoff, Nelius

When & where: Parallel session 5-B, Thursday 13 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: 6. Impacts contributions of PhD graduates: incorporating the voice of science communication
 Format: Individual papers
 Author: **Nelius Boshoff**, Stellenbosch University, South Africa
 Chair(s): Massimiano Bucchi
 Co-author(s): Similo Ngwenya

The paper outlines a conceptual framework for understanding how research impact can be created by doctoral graduates in an African context. Specifically, the paper draws on insights from an approach for understanding the process of impact creation, called the ‘productive interactions’ (PI) approach. According to the PI approach, if research is to have an impact, there must be some productive interaction between research and its stakeholders. Building on insights from the PI approach as well as from approaches to scientific career development, the paper argues that doctoral graduates are ‘travellers’ on three inter-related and evolving paths – organisational, knowledge and community. Each path is associated with elements that have potential to shape opportunities for research–stakeholder interactions (and hence opportunities for science communication and engagement). Such elements influence both the occurrence and nature of possible impact contributions by doctoral graduates. Since doctoral research is a crucial location on all three paths – and very often but not always the starting location in terms of an academic or scientific career – so-called ‘alignment efforts’ are needed to ensure that the doctoral (and post-doctoral) research is well aligned with desired change, to maximize the potential for impact contribution. In the literature, alignment efforts are seen as anticipatory efforts aimed at improving contributions to impact, reflecting reciprocal interactions. Science communication and engagement activities are part of the broad set of alignment efforts that can be incorporated in the process of impact creation of doctoral graduates.

ABSTRACT

Branquinho, Raquel

When & where: Parallel session 7-G, Thursday 13 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 3. Communication as an ingredient to foster student's empowerment in rural territories: GOMA an educational active ecosystem of active citizenship
 Format: Visual papers
 Author: **Raquel Branquinho**, University of Porto, Portugal
 Chair(s): Heather Doran
 Co-author(s): Cândida Sarabando, Susana Ambrósio, Cláudia Damião, Joaquim Duarte

Armamar is a delightful rural territory, located in interior Northern Portugal, south of Douro's valley. It is characterised by an ageing population and a reduced demographic density (5680 inhabitants and population density of 48/km², contrasting with its district capital of 197/km²). It holds a reduced institutional thickness, a weak network of local actors (school, civil society, local governments) in cooperation with Academia, and a peripheral economic and geographical positioning concerning urban centres. This dissonance entails considerably insufficient access to science and innovative educational offers, leading to low school performances and reduced involvement in active citizenship initiatives.

In response, in 2022, the public school (Agrupamento Escolas Gomes Teixeira) along with Armamar's Municipality and the University of Porto created GOMA (Gomes Teixeira Science Academy). Through its formal and non-formal approaches, GOMA is focused on developing and implementing an educational transdisciplinary strategy, centred on students' empowerment and their active- and centred-learning process. It is intended to position the school as an innovative ecosystem and active democratisation hub, allowing it to address challenges locally relevant. In 2021/2022, amongst the 14 science-based activities carried out, a two-day workshop was developed to bring communication into students' curriculum by improving oral, written and designing skills. There were involved 63 high-school students (from Natural Sciences and SSH) in collaboration with three teachers and one scientist.

Students' survey responses and informal evaluations indicated that the program had a very positive impact, boosting students' capability to integrate new communication skills in meaningfully core elements; enhancing their curiosity, critical and creative thinking, teamwork and time management; improving awareness of its individual role in contemporary societies; helping to strengthen their trust in science, approaching Academia and local agents.

GOMA's educational plan foresees to be an active agent to foster science, technology, innovation, seeking to be a strategic bridge, engaging Armamar's school community, its civil society and academia for active citizenship.

ABSTRACT

Bray, Heather

When & where: Parallel session 7-G, Thursday 13 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 8. Shooting the messenger: Who should talk about gene editing in meat production?
 Format: Visual papers
 Author: **Heather Bray**, University of Western Australia, Australia
 Chair(s): Heather Doran
 Co-author(s): Rebecca Paxton, Emily Buddie, Rachel Ankeny

Engaging communities in discussions about novel technologies is challenging when awareness of technologies is low. In practice, many communicators resort to providing educational materials about technology with the purpose of allowing community members to form their own opinions about applications, or prior to dialogue or discussion about these applications. Educational materials may be presented in research contexts, but information is never neutral, and empirical examinations of communication tools in research are rare. We explored responses to an informative video about the use of gene editing in meat production within a larger study exploring perceptions of the technology. Participants watched a video that explained the science of gene editing in meat production featuring either a 'scientist' or a 'farmer' talking about the technology. Responses to the messengers were different, and overall participants perceived the video as biased but also credible. Participant responses suggest that 'who' communicates is important, especially when talking about complex and controversial technologies. This work has implications for both research and practice related to communication about controversial technologies.

ABSTRACT

Bray Heather

When & where: Parallel session 1-J, Wednesday, 12 April 09:45 – 11:00, *Plate Room*
 Title: Third-order science communication: What is it, and where can I get some?
 Format: Problem-solving workshop
 Author: **Heather Bray** University of Western Australia, Australia
 Chair(s):
 Co-author(s): Lisa Bailey, Will Rifkin, Jennifer Manyweathers, Nick Badullovich, Nancy Longnecker

Societies are faced with complex, wicked problems where science communicators have a role – climate change, environmental injustices, inequitable healthcare. These issues involve a diverse array of stakeholders in communities, industry, and government. For such settings, Irwin (2021) argues for ‘third-order’ communication, but what is it, and how does one do it successfully?

We have interpreted third-order approaches as enabling a ‘space’ to emerge – at least temporarily - to handle the inherent messiness associated with the meeting points of different institutions, organisations and actors with their different knowledges, potentially conflicting values, and alternative understandings of what count as credible and relevant evidence and expertise.

In this short workshop, we will draw on the examples of the contributors and participants through appreciative enquiry to flesh out Irwin’s definition and stimulate broader, critical discussion of the three-fold conceptualization of science communication.

This session should be relevant to science communicators addressing complex societal problems through multi-party negotiations, attempting to co-produce resources with communities and communities of practice, and seeing varied outcomes for diverse stakeholders.

Irwin, A. (2021). Risk, science and public communication: Third-order thinking about scientific culture. Routledge Handbook of Public Communication of Science and Technology, 147–162. <https://doi.org/10.4324/9781003039242-9>

ABSTRACT

Brennan, Anne-Maria

When & where: Parallel session 7-A, Thursday 13 April 15:15 – 16:30, *Willem Burger Room*
 Title: Should we bury or vindicate the deficit model in times of crises?
 Format: Roundtable
 Author: **Anne-Maria Brennan**, University of Kent, United Kingdom
 Chair(s): **Petra Nieckchen**
 Co-author(s): Frederike Schmitz, António Gomes da Costa

Four seasoned science communicators share their perspectives and reflection on the deficit model. We ask: Did we condemn the model too hastily? Isn't there any communicator who doesn't tacitly assume a deficit in their audience? Therefore, isn't filling in the blanks an act of empowerment for informed decision-making, especially in times of crisis? How do we assess the extent of and build on existing science literacy?

The session starts with each speaker's thought-provoking statement. Will we identify Common Ground with the help of the audience? The following World Café invites the audience to shape and articulate their findings after a round of moderated discussion.

Values: Practitioner António Gomes da Costa (Portugal) warns that communicators and scientists wrongly assume that factual knowledge is enough to ensure general acceptance of a common course of action; however, for most issues, other considerations - economic, social or ethical - may intervene. Dismissing the legitimacy of these other considerations may encourage people to distort scientifically determined facts, or undermine confidence in science, to justify options that 'disagree' with scientifically-determined facts.

Openness: Senior science communication advisor Frederike Schmitz (Netherlands) wants to bring Open Science and science communication closer together. After all, Open Science has the potential to completely open up science to audiences who were previously not involved in science. But how open do scientists want science to be? And what is Open Science actually, and why do we care? When you ask scientists this question, you get a lot of different answers. We need a common understanding (fix this 'deficit') if we even want non-scientists to learn about, get engaged in and participate in Open Science.

Inclusiveness: Senior Lecturer Anne-Maria Brennan (UK) advocates hard-to-reach audiences. She urges the widening of science literacy to meet the Sustainable Development Goals focusing on culture, education, gender equity, and health. Similarly, there are multiple 'publics' whose intersectionality requires addressing, to meet these challenges. Anne-Maria reflects on how we address gender and ethnicity to meet these challenges.

Collaboration: Chair Petra Nieckchen (Austria) is optimistic that the pandemic has unleashed a sustainable re-evaluation of scientists actively involved in crisis communication: yet, mono-directional communication continues to prevail. She argues that accelerating reforms towards a dialogue-driven interaction with audiences requires external stakeholders.

ABSTRACT

Brouwer, Elise

When & where: Parallel session 3-B, Wednesday, 12 April 15:15 – 16:30, *Van der Mandele (mezzanine)*
 Title: Towards a community-led radio telescope
 Format: Linked papers
 Author: **Elise Brouwer**, ASTRON, Netherlands
 Chair(s): Marjolein Oorsprong
 Co-author(s):

LOFAR forms the world's largest and most sensitive radio telescope. By becoming a European Research Infrastructure Consortium (ERIC), LOFAR ERIC aims to bring together the European research community to maximise LOFAR's scientific output. However, even large, and established research infrastructures can have a high threshold for members from other (scientific) disciplines and/or for junior users. As a result, multi-disciplinary research opportunities are lost, the number of new users substantially decreases, resulting in the research infrastructure not reaching its full scientific potential and long-term presence.

Using LOFAR as a case study, the aim of this talk is to stress the fact that large research infrastructures greatly benefit from a networked and co-creating science community. Many people don't know the insight and data LOFAR can provide. It is demonstrated that collaborations featuring people from different scientific fields, levels and cultural backgrounds work better due to facilitated combinatoric innovations. This also applies to LOFAR: a multi-disciplinary, multi-level and networked community might provide different eyes into research questions and enhance the quality of the work.

Within a community, the chances of things happening that couldn't be done before become greater with co-creation. Therefore, Community Building towards a networked and co-creating community will be helpful as a tool to lower the threshold for new users to use LOFAR, independent of their background and physical location.

ABSTRACT

Bucchi, Massimiano

When & where: Parallel session 1-A, Wednesday, 12 April 09:45 – 11:00, *Willem Burger Room*
 Title: Science Communication of Academic Institutions: What are the Challenges?
 Format: Roundtable
 Author: **Massimiano Bucchi**, Università di Trento, Italy
 Chair(s): **Alessandra Fornetti**
 Co-author(s): Mike S. Schaefer, Anna Maria Fleetwood

Several studies and indicators point to increasing attention and resources devoted by academic institutions to public communication and public engagement of citizens with research results and activities. Such opening up is well documented at policy level, at the level of universities, or at the level of individual researchers building a public profile.

The roundtable will address questions like the following:

- Is this increasing commitment matched by a real change in the institutional culture with respect to public communication and public engagement?
- Is there a risk that activities and resources are mainly and generically aimed at promoting institutional visibility and organizational reputation across media, instead of fostering public dialogue and engagement around science?
- How can science communication scholars and practitioners collaborate in order to better understand this process and strengthen its quality?
- What are the implications for science communication training?

The discussion will also introduce the theme of the PCST symposium to be held in Venice, 2023.

Massimiano Bucchi (Università di Trento, Italy) has been the editor in chief of the journal *Public Understanding of Science* (2016-2019). He is Professor of Science and Technology in Society and Director of the international Master SCICOMM, Università di Trento. He has published several papers in journals such as *Nature*, *Science* and *PLOS*. His books in English include *Science and the Media* (Routledge, 1998), *Science in Society* (Routledge, 2004) and the *Handbook of Public Communication of Science* (Routledge, 3rd ed. 2021, co-edited with B. Trench). Bucchi will introduce the roundtable and provide an initial outline of the key themes, which will be then discussed more in depth by the other speakers.

Mike S. Schäfer is a professor of science communication and director of the Center of Higher Education and Science Studies (CHESS) at the University of Zurich, Switzerland. He heads a large project funded by the Swiss National Science Foundation that analyzes university communication across all types of higher education institutions and over time, and he has been involved in several international, nationally comparative projects on science communication during the past decade, leading to several publications in leading academic journals. During the roundtable, Mike S. Schäfer will speak in particular about recent meta-trends in university communication such as professionalization, diversification and strategic alignment.

Anna Maria Fleetwood is Senior Adviser External Relations for the Swedish Research Council. Anna Maria Fleetwood has almost two decades of experience in collaborating and advocating policy for science communication. She gives lectures on science communication and is the initiator of a number of successful projects and events. She has been leading Swedish Research Council's expert group for a framework for courses in science communication at third cycle higher education. During the roundtable she will discuss in particular: what are the implications of trends and challenges in science communication activities by academic institutions for the development of training and education activities in science communication?

ABSTRACT

Bucchi, Massimiano

When & where: Parallel session 2-E, Wednesday, 12 April 11:30 – 12:45, *Hudig Room*
 Title: A conversation about conversation in science communication
 Format: Roundtable
 Author: **Massimiano Bucchi**, University of Trento, Italy
 Chair(s): **Brian Trench**
 Co-author(s): Birte Fährnich, Noelle Aarts, Megan Halpern, Pedro Russo

There is much talk about conversation in relation to social issues. We hear about the 'national conversation' on healthcare, public transport, energy resources and the cost of living. Science communication has been discussed as "the social conversation(s) around science", a definition aimed to embrace the widest-possible range of activities and experiences.

This discussion on the uses and meanings of conversation in science communication will also draw on the uses and meanings of the term more widely. The participants will record a conversation before the event and pick up the threads of that conversation in PCST2023. As a conversation-starter each was asked to finish the phrase, When I think about conversation in science communication ...

Massimiano Bucchi, Italy: I think the concept allows us to see science communication as an open process; its rich diversity and resonance with different cultural contexts; circulation of ideas across different areas of social life and public discourse.

Birte Fährnich, Germany: I think of the concept critically. Conversation goes hand-in-hand with the idea of communicative equality. But do we have that in digital society as we would hope? And what distinguishes conversation from dialogue, exchange, discussion or discourse?

Megan Halpern, United States: I think about the ways conversations involve interpretation and meaning-making; about the ways contemporary ideas are in conversation with the past and the future; and about the ways conversations are often cumulative and formative, rather than transactional.

Pedro Russo (co-chair), Netherlands / Portugal: Frank, diverse, honest and respectful conversations are essential for democratic societies and how science communication has at times been avoiding difficult conversations. How can we expect to have meaningful and transformative conversations when we keep "screaming", not listening and not letting others be part of the conversation?

ABSTRACT

Burkard, Philipp

When & where: Parallel session 2-K, Wednesday, 12 April 11:30 – 12:45, *Van der Vorm Room*
 Title: Public engagement – let's share trends, challenges and top tips!
 Format: Problem-solving workshop
 Author: **Philipp Burkard**, Science-et-cité, Switzerland
 Chair(s): Annette Klinkert
 Co-author(s): Cissi Askwall

The pandemic and the war in Ukraine have put science in the limelight, more than ever before. The need to make research openly available and explain how research is done is evident, and a movement towards an Open Science system is well on its way. And open science is not only about open access and open data, but also includes communicating and engaging with society. In this session, Cissi Askwall, Secretary General VA (Public & Science), Sweden, and President EUSEA (the European Science Engagement Association), will briefly introduce the less well-known parts of the Open Science concept, focusing on public engagement.

All session participants will then discuss together in smaller groups.

Three questions will be discussed:

1. Which are the current trends and opportunities for public engagement in your country/region?
2. Which are the biggest obstacles and challenges for engaging people with science?
3. Which are your top tips to engage people with science?

ABSTRACT

Burrill, Julie

When & where: Parallel session 11-E, Friday 14 April 14:15 – 15:30, *Hudig Room*
 Title: 1. Objection, Your Honor! We don't understand the forensic science
 Format: Individual papers
 Author: **Julie Burrill**, University of Dundee, Stony Brook University, United States
 Chair(s): Alessandra Fornetti
 Co-author(s):

Communication of forensic science to juries made of members of the public is a unique challenge due to the courtroom environment in which it takes place. Effective science communication has been described by numerous models, but success almost always involves an ability to create connections between speaker and receiver, to obtain interaction or feedback including verbal and non-verbal clues on comprehension, and to embed scientific data in a single, clear narrative. The structure and formality of testimonial evidence given under adversarial direct- and cross-examination questioning can prevent all of these. This presentation will discuss the specific content and structural challenges to good science communication faced by forensic experts in courtrooms in the UK and the US, highlighting how these formats run contrary to popular pedagogical practice. Research-driven communication training for forensic scientists relying on improv theater methods has been developed in an international collaboration to overcome these obstacles and capitalize on opportunities for good science communication in the courtroom, which is essential to the fair administration of justice. Reflections will be offered on the early success and ongoing improvements of this method in developing forensic scientists' ability to:

- 1) engage emphatically with attorneys, judges and juries;
- 2) adapt flexibly to questioning; and
- 3) focus their open presentation of scientific evidence on the needs of multiple courtroom audiences.

Forensics is an incredibly interdisciplinary field, and yet adoption of communication research into its practice and training is fairly limited. This work seeks to bridge some of that knowledge gap and move the delivery of forensic science evidence onto a solid communication framework.

ABSTRACT

Buwalda, Joran

When & where: Parallel session A-E – Tuesday 11 April 15:00-17:00 – *ErasmusMC GK-012, GK-018, GK-022, GK-024*
 Title: Determining your unique role in a transdisciplinary collaboration
 Format: Professional development workshop
 Author: **Joran Buwalda**, Delft University of Technology, The Netherlands
 Chair(s): Joran Buwalda

Transdisciplinary collaboration is crucial to create common ground on complex issues. But as a researcher, how do you do that, transdisciplinary collaboration? Join us in this highly engaging workshop where you will face realistic transdisciplinary challenges and will practice to formulate a plan-of-attack with your team of researchers!

If you are not a researcher by profession, join nonetheless! Step into the shoes of a researcher and bring in your particularly useful outsider perspective.

Imagine you, as a researcher, managed to get policy-makers, citizens, and artists around the table who are interested in your research. The collaboration can start. But what precisely is your role in the process? Will you take the lead as expert, presenting research findings? Or follow the lead of your partners as knowledge broker, matching scientific knowledge to their questions? Or take the role of facilitator, moderating the debate without sharing your own insights? Or something else?

Your ideal role depends on the motivations of you and your collaboration partners. Making everyone's expectations explicit is crucial for a successful collaboration, especially with differences in cultural and professional background. In this workshop, you will learn to match motivations for transdisciplinary collaboration to hands-on roles that allow you to discuss your role with collaboration partners. The workshop is thus about finding procedural common ground.

We will play and discuss a reflection game that was developed for the transdisciplinary researchers at the Center for climate and energy transformation (CET) at the University of Bergen in Norway. In the game, you are faced with a concrete (hypothetical) transdisciplinary situation. Together, you have to formulate a clear objective and decide which roles you will adopt to achieve your objective. The game is based on a framework of researcher-roles in transdisciplinary settings (Whittmayer & Schapke, 2014) and has been tested at CET.

ABSTRACT

Cagnoli, Federica

When & where: Parallel session 7-F, Thursday 13 April 15:15 – 16:30, *Schadee Room*
 Title: 4. Citizen science and science communication: toward a more inclusive pattern
 Format: Individual papers
 Author: **Federica Cagnoli**, University of Genoa, Italy
 Chair(s): Mohamed Elsonbaty Ramadan
 Co-author(s):

Citizen Science (CS) is becoming applied widely in many countries, making effective science communication even more crucial for its impact and success. Although CS intends to engage the broad population, most participants in Western societies do not represent the actual demographics of their countries. Therefore, in this paper, the researcher intends to investigate if and to what extent scholars and practitioners are dealing with this lack of inclusivity. I plan to analyse the literature on science communication from an intersectional viewpoint, identifying determinants and barriers to inclusivity. Then, referring to this review, the researcher will evaluate whether CS projects implement relevant strategies to address inclusivity or keep reproducing patterns which hinder it. By looking at online platforms such as eu-citizen.science or scistarter, the researcher will detect completed CS projects in Europe and employ a content analysis of their websites and reports. In order to take into account also the geographical dimension, the researcher will look for CS projects at the EU and national levels. Thanks to the analysis of this information, we will evaluate if and how different contexts deal with this issue. As CS, by definition, can be one of the most efficient methods to create a common ground between science and society, this paper contributes to science communication in different ways. Theoretically, it adds a key component to the inclusion gap by linking CS and science communication, two interrelated fields rarely studied comprehensively and together from this angle, especially in Europe. Practically, the paper can pave the way toward more equitable practices in science and society thanks to studying how people participate in research activities in their daily lives. From this perspective, the practical aspect presented here will enable a more proactive engagement of the audience, which will be able to discuss ideas and suggestions.

ABSTRACT

Calice, Mikhaila

When & where: Parallel session 8-H, Thursday 13 April 17:00 – 18:15, *Ruys Room*
 Title: 1. Finding common ground to support the local energy transition: Perspectives on community energy management in Wisconsin, USA
 Format: Insight talks
 Author: **Mikhaila Calice**, University of Wisconsin-Madison, United States
 Chair(s): Sook-kyoung Cho
 Co-author(s): Dominique Brossard

The visibility of climate change has sparked greater public debate surrounding community resilience and adaptation, especially regarding local energy management. While international and federal level actions are highlighted most often in media, states and local communities are looking for solutions too. However, what communities need to address these challenges varies based on unique socio-political and cultural contexts that drive community-level decision-making about resilience and local energy management. But not all communities are equipped to navigate the ever-changing landscape of emerging science and technology related to the energy transition. Thus, it's imperative that experts and researchers meaningfully engage with communities to find common ground and create partnerships that enable communities to actively participate in the energy transition, as they see fit.

Our interdisciplinary team organized two inclusive workshops bringing together experts, community leaders, researchers, and students from throughout Wisconsin, USA to explore how collaboration and community engagement can build capacity to address local energy needs. The workshops provided a space for a variety of stakeholders and experts to discuss their perspectives and find common ground on several topics. Participants discussed how new energy technologies can meet community energy goals and the motivations and barriers to technology adoption. Although we saw support for clean energy technologies to build community resilience and enthusiasm towards developing collaborative clean energy projects that maximize community engagement, participants expressed concerns about resource availability and political barriers to local efforts. Discussions also highlighted challenges and opportunities to design and implement equity-centered projects that include historically excluded communities and perspectives.

These workshops revealed shared perspectives and opportunities for creating effective collaborative projects that meaningfully engage affected communities. And while challenges in recruitment and design were experienced, overall, our approach exemplifies workshops as an effective method for future efforts to engage various stakeholders and find common ground through collaborative ideation.

ABSTRACT

Campos, Rita

When & where: Parallel session 3-G, Wednesday, 12 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 1. Creating common language: science communication in between scientific disciplines and publics
 Format: Visual papers
 Author: **Rita Campos**, Centre for Social Studies (CES), University of Coimbra, Portugal
 Chair(s): Melanie Smallman
 Co-author(s):

As the planet and human societies face local and global challenges, practices that promote the development of scientific competencies that can help to understand, participate and/or find alternatives for some of those challenges are increasingly important. Given the complex and relational nature of those challenges, there is a growing need to create different interfaces between science and society to facilitate effective collaborations between all interested parties. This implies a continuous dialogue between and across scientific disciplines (inter and transdisciplinarity) and between scientists and different publics, which, in turn, highlights the communication difficulties due to the different meanings each scientific domain and populational group may give to a word or expression. Here I propose to explore these difficulties departing from three examples of recent science communication experiences between the natural sciences, the social sciences and the humanities, and with diverse target-publics that were also invited to engage in the research and/or the development of the communication tools and approaches. These examples cover past, present and future work, allowing to both debate lessons learnt and extend the presentation towards a collaborative dialogue through an invitation to sharing of similar experiences and learnings.

ABSTRACT

Carmichael, Stacey

When & where: Parallel session 2-J, Wednesday, 12 April 11:30 – 12:45, *Plate Room*
Title: When science engagement isn't about the science – Creating common ground with youth work and informal science learning
Format: Workshop
Author: **Stacey Carmichael**, BBC Children in Need, United Kingdom
Chair(s):
Co-author(s): Kath Edgar, Louisa Fox, Jackie Bell

The aim of this session is to share and discuss learning and experiences of conducting and supporting inclusive informal science activities in youth-led settings. We will consider the role of informal science engagement in youth development away from the STEM pipeline, and the importance of context in overcoming common challenges with science engagement. Whilst youth work settings often deliver sports and arts activities, it is rare to engage with STEM experiences.

The Curiosity programme funded 24 youth worker-led projects to deliver informal science activities over 3 years. It is a collaboration between BBC Children in Need and Wellcome, reflecting the projects' collaboration of science engagement with youth development expertise. The programme aims to enhance opportunities for children and young people affected by a range of issues and challenges to engage with and enjoy informal science activities to improve their personal and social development, working with those who are often excluded from or do not have access to informal science experiences. The evaluation, led by Substance and Graphic Science, seeks to understand the role informal science learning plays in youth outcomes, identify any distinctive outcomes, and how the context in which activities are delivered influences these outcomes.

Imperial College London have been developing their work with local youth leaders and youth groups, notably through their Youth Leader Science Champions programme. The programme aims to build collaborative partnerships, confidence, and skills to empower youth leaders to feel comfortable facilitating activities and conversations around science, and to build capacity in the local youth ecosystem longer-term.

The session will consider the experiences, outcomes and impacts of participating in STEM activities in youth-led spaces. The importance of a lack of (formal) educational expectation, and opening up views of what science is, will be discussed through reflections from participants and programme coordinators.

ABSTRACT

Carmichael, Stacey

When & where: Parallel session 7-H, Thursday 13 April 15:15 – 16:30, *Ruys Room*
 Title: 2. Embedding informal science learning in youth development work
 Format: Insight talks
 Author: **Stacey Carmichael**, BBC Children in Need, United Kingdom
 Chair(s): Marlit Hayslett
 Co-author(s): Kath Edgar, Louisa Fox

Curiosity, a £2.5 million partnership between BBC Children in Need and Wellcome focusses on improving the lives of children and young people experiencing issues and challenges including: poverty, behavioural difficulties, disability, family-related challenges, marginalised identities, mental or physical health through participation in and out of school science activities. With a significant shift in support from Wellcome in the last year, BBC Children in Need has taken on both the strategic and operational elements of the programme, and at the time of writing this proposal, we will have just finalised our Round 2 Interim Report with evaluation partners, Substance and Graphic Science, heading into the third and final year of funding for our 24 grantees and their informal science learning projects. One notable shift in evaluation methodology, is the inclusion of the youth voice through trained peer researchers. Significant improvement in children and young people's STEM outcomes, emotional well-being, confidence levels and more has been proven from year one to year two of the Curiosity Programme. This is a significant development in the world of youth development work - with science taking a place amongst other youth development tools. As a part of this talk, we will share these learnings and consider how organisations can support engagement with informal science for youth development outcomes in the belief that all children and young people should have equitable access to science, that that learning does not have to be in a formal setting and that children and young people should be a part of the research conversation. We will additionally touch on the common ground that has been established for young people to consider STEM pathways who would not have previously had access to such opportunities.

ABSTRACT

Carreño Márquez, Iván Jalil Antón

When & where: Parallel session 6-E, Thursday 13 April 11:30 – 12:45, *Hudig Room*
 Title: 5. SciComm my way or no way
 Format: Insight talks
 Author: **Iván Jalil Antón Carreño Márquez**, Research Center in Food and Development, Mexico
 Chair(s): Sikke Jansma
 Co-author(s):

Reflection on how the science communication actors interact is much needed. While Zoom meetings and remote work are great ways to overcome distance, the opportunity for in-person interaction is a condition we should appreciate. Performing science engagement activities is not the only requirement to have a healthy science communication ecosystem, but also it must be articulated among its different actors. In Chihuahua, a midsized Mexican city, we had this discussion some years ago in a public forum organized by our governmental science authority. One of the conclusions of this event was the necessity to get to know the persons that perform science engagement activities in the city and collaborate more to strengthen the local ecosystem. A couple of years later a study was conducted to characterize such actors, their activities, and their scope. This analysis was published in a journal dedicated to science communication and the conclusions were shared with everyone involved in the research. The next logical step was to create a professional network, unfortunately, the idea never happened due to a lack of commitment. Maybe our methodological approach was wrong, the timing was not correct for everyone, or maybe we just want to communicate science our way or no way. This is a case of the impossibility to articulate a local science communication network despite the rationality behind the idea. If this experience could lead us to better practices when building networks, it is well worth the reflection.

ABSTRACT

Carreño Márquez, Iván Jalil Antón

When & where: Parallel session 9-E, Friday 14 April 09:45 – 11:00, *Hudig Room*
 Title: 6. Experiencing science communication from a midsize city in a low-income country: Reflections of the volunteer ecosystem
 Format: Individual papers
 Author: **Iván Jalil Antón Carreño Márquez**, Research Center in Food and Development, Mexico
 Chair(s): Frank Kupper
 Co-author(s): Marie Astrid Cereceres Aguirre

The Program for International Student Assessment (PISA) ranks Mexico as one of the last in science performance. This issue has been faced by some major universities, museums, and civil organizations whose mission is to fill this disparity by performing science communication activities. Unfortunately, these actors are concentrated in large metropolitan areas, a fact that represents a concern for some local science communication groups (SCGs) in small and medium-sized cities in the country. The disparity in budgets, infrastructure, and professionalization represents the main challenge to finding common ground between the different science communication actors. To endure these circumstances volunteering has become a crucial tool as this allows small SCGs to function. Diverse SCGs were contacted via a survey to collect information about their dynamics and scope. A descriptive analysis enabled the identification of the logistics and coordination issues found among SCGs. Reflections of this evaluation are presented as this experience may help understand the precarious dynamics of SCGs in other small and middle-sized cities around the world.

ABSTRACT

Carruthers, Tom

When & where: Parallel session 5-K, Thursday 13 April 09:45 – 11:00, *Van der Vorm Room*
 Title: Two science communicators walked into a bar ...
 Format: Reflective workshop
 Author: **Tom Carruthers**, Australian Science Communicators, Australia
 Chair(s):
 Co-author(s): Jirana Boontanjai

Pint of Science is one of the world's largest science festivals, collectively reaching thousands, if not millions, of people across the globe. Established by a couple of UK-based neuroscientists who wanted to share their research with the public, it was a way to do engagement without the safety concerns or disruptions of a lab tour. Plus - they liked having a beer.

But when two Aussie science communicators were given the opportunity to lead the festival in Australia in 2017 ... well they approached the festival quite differently.

Faced with running the national festival, Tom Carruthers and Jirana Boontanjai established an approach to leadership that prioritised equipping others and sharing load. They've since applied this approach across several projects since Pint of Science, including now at the Australian Science Communicators, where they are the current co-presidents.

This informal workshop will critically dissect the three key themes:

1. A clearly articulated strategic direction - how to develop one, and how to bring people along with you
2. The staff/volunteer relationship - establishing value beyond a paycheck or goodwill
3. Equal and collaborative co-leadership - how to share, amplify others, and work in a system that wants one 'chairman' or leader

During this informal and reflective workshop, attendees will critically dissect the three key themes, and consider how they may apply to their own practice.

ABSTRACT

Carruthers, Tom

When & where: Parallel session 6-E, Thursday 13 April 11:30 – 12:45, *Hudig Room*
 Title: 1. The need for the science communication communicator
 Format: Insight talks
 Author: **Tom Carruthers**, Australian Science Communicators, Australia
 Chair(s): Sikke Jansma
 Co-author(s): Jirana Boontanjai

The immense value of science communication conferences is clear: they're a fantastic opportunity to engage with the community, learn from others' case studies, and get an update on the latest research findings.

These insights and networks are crucial to maintaining an awareness of the latest understanding of science communication theory and have the potential to significantly increase the value or effectiveness of the agile practitioner's practice.

But outside of the conference cycle, what options are there to maintain currency if you're a practitioner of science communication? Realistically, how often do you read the current literature? I know I don't keep up.

While there are valuable books and texts written by our peers, those resources are published infrequently or are targeted at students or scientists seeking to up-skill, rather than professionals wanting to maintain currency

Enter the need for the science communication communicator - a specific role we are trying to establish at the Australian Science Communicators. A role that facilitates access to the literature for others.

In this brief insight talk, I will share the difficulty I had, as a trained researcher, in accessing the updated literature to inform my practice in climate communications, before extrapolating to the impossibility someone, not research-trained would have.

I will then challenge attendees - is there a place for a regular review series in our journals? Should there be a scicomm 'news service'? Is it even a role of our science communication professional bodies? Or should it be serviced by someone else entirely?

ABSTRACT

Cate, Ashley

When & where: Parallel session 3-E, Wednesday, 12 April 15:15 – 16:30, *Hudig Room*
 Title: 3. The unique challenges and opportunities for communication and engagement on basic science
 Format: Individual papers
 Author: **Ashley Cate**, University of Wisconsin-Madison, United States
 Chair(s): Brian Trench
 Co-author(s): Todd Newman, Lindsey Middleton

The need for scientists to communicate their work with non-scientist audiences is more critical now than ever before. A majority of scientists see public engagement and communication as central to the work that they do, but not all scientists may be motivated to engage in the same way. Science is not monolithic, and many types of sciences address more basic research questions and/or more applied research questions. Basic science is science done for the sake of discovery or knowledge, whereas applied science has a more immediate application. As science becomes increasingly intertwined with society, basic and applied scientists might engage with the public in different ways and for different reasons. While many scientists believe their work falls somewhere in the middle, the task of “making your science relevant” may not be possible if a potential application is not known.

In Fall 2021, we surveyed scientists across disciplines from Association of American Universities (AAU) affiliated universities (n=783) and compared their goals and objectives for public engagement. Results indicate that scientists that address more basic science research questions compared to more applied research questions approach public engagement for different reasons and with different outcomes in mind. Implications for these results will be relevant to the broader science communication community on the best ways to support the communication and engagement efforts of scientists across scientific disciplines and see where opportunities for common ground may or may not be feasible. Moreover, this paper will help foster discussion among participants about their own experiences, and fruitful pathways to how to continue the research on this important yet overlooked topic.

ABSTRACT

Cham, Sheau Tsuey

When & where: Parallel session 7-G, Thursday 13 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 9. Creating an innovative and engaging web-based research journey
 Format: Visual papers
 Author: **Sheau Tsuey Cham**, Commonwealth Scientific and Industrial Research Organisation, Australia
 Chair(s): Heather Doran
 Co-author(s):

The idea started with a question: what's the 21st-century version of a coffee table book to spark a conversation? The answer was a digital interactive story; and one that took seven months to come to fruition.

This innovative and engaging online journey was borne from the desire to showcase a range of complex research assessing the social and environmental impacts of onshore gas development in Australia. To engage users in the science we partially gamified the online experience.

The primary aim of the communication product was to tell a story about the value of science in:

- guiding onshore gas industry with its practices,
- informing policy makers, and
- improving communities understanding of the potential impacts of gas.

The secondary aim was to for the product to be a resource for teachers and students.

In this visual paper, I'll share the challenges and learnings of producing a novel communication tool. These include finding an agency that had the technical capability, choosing and distilling the scientific content, and managing timeframes.

ABSTRACT

Chatterjee, Anusheela

When & where: Parallel session 10-C, Friday 14 April 11:30 – 12:45, *Van Weelde Room*
 Title: 5. Building narratives: Learnings from our initiatives conveying fundamental science to the public
 Format: Insight talks
 Author: **Anusheela Chatterjee**, Tata Institute of Fundamental Research, Hyderabad, India, India
 Chair(s): Brooke Smith
 Co-author(s):

Science news generally emphasize the results of a study, building up to its possible implications on society. While this practice informs the public of recent scientific advances, it may not convey the design of the study, trials, errors, and initial milestones. To provide a bird's eye view of the turns and twists in a scientific journey, we embarked on a science communication exercise of conveying four research stories from the Tata Institute of Fundamental Research, Hyderabad, (TIFRH), India.

Over a course of fifteen months, we collaborated with researchers and artists to develop a series of videos highlighting the process of conducting research. We began with explaining how two researchers take different approaches to investigate the collective movement of cells in our body - one approach probing the role of lysosome, the other focusing on the contribution of Golgi. We also covered how one could draw parallels between the movement of glass molecules and a monolayer of densely packed cells. While working on these stories, we identified the shortcomings in our initial plans, eventually modifying the storytelling format and presentation style. To convey the challenges behind the initial milestones in a study, we concentrated on how a researcher spent months establishing a protocol for extracting polyphosphates from *Drosophila*.

These stories are designed for multiple groups of viewers, with different levels of scientific training. Their response to the resources would give us an opportunity to identify the gaps in current science communication efforts, especially in the context of fundamental science. Feedback from the community, particularly regarding storytelling format, extent of detail and flow of ideas, would help strengthen future science communication efforts from the institute resulting in more effective outreach.

'Stories from the Life Sciences: A multifaceted approach in interactive science communication' (support from 1st IndiaBioscience Outreach Grant)
 Co-PI: Aprotim Mazumder (Faculty, TIFRH)

ABSTRACT

Chinsamy-Turan, Anusuya

When & where: Parallel session 6-K, Thursday 13 April 11:30 – 12:45, *Van der Vorm Room*
 Title: Popular science writing
 Format: Mini-workshop
 Author: **Anusuya Chinsamy-Turan**, University of Cape Town, South Africa
 Chair(s):
 Co-author(s): Jørn H. Hurum

Anusuya Chinsamy-Turan and Jørn Hurum are both accomplished scientists who have published widely in both the academic and popular press. As practicing scientists, we are aware of the challenges it takes to publish in both these realms, but here our focus will be on our hands-on experience of publishing popular-level books, articles and various online and electronic material for the wider public- for both children and adults. In this workshop, we will each give a brief overview of our particular experience in science communication, strategic thinking to get one's research out to the general public, and also about how popular science talks for children can be used for “focus group studies” for popular science books.

Thereafter we will hone in on particular aspects such as writing a “pitch” for a publisher, target audience, and choosing artists. We both have worked with several different publishers and editors and we will share pointers about what to look out for when trying to locate/choose a publisher. In addition, we have both worked with artists to help illustrate our work, and we will share our experiences in terms of how we work with the artists to ensure that we arrive at a final illustration that is both accurate and attractive. We will also talk about having an online presence and what to look out for in terms of copyright, royalties, reuse of material etc.

Depending on the number of people that attend the workshop we will assist people to develop a draft “pitch” proposal for a book that they would like to have published. The workshop will suit anyone interested in writing a book or producing media (articles, online courses, blogs etc.) for the public.

ABSTRACT

Chiu, Yu-Chan

When & where: Parallel session 11-G, Friday 14 April 14:15 – 15:30, *Van Beuningen Room*
 Title: 8. Competing media discourses: environment friendly, agriculture development, and suicide in Paraquat coverage
 Format: Visual papers
 Author: **Yu-Chan Chiu**, National Taiwan University, Taiwan
 Chair(s): Jenni Metcalfe
 Co-author(s):

The media is an important public arena for constructing social issues. Pesticides have been a controversial issue in Taiwan for many years, as agricultural products are often found to have pesticide residues or illegal substances. One particular herbicide, paraquat, has drawn social concern. Paraquat has been a common herbicide used by farmers for many years because it is effective, inexpensive, and ecologically friendly. However, paraquat is also highly lethal when ingested, used in suicide, with approximately 200 deaths annually in Taiwan. This study examined the shift in media discourse from 2010 to 2020 when paraquat was banned. A total of 577 news articles about paraquat in four daily newspapers, collected from their digital database, and two agricultural digital media sources from 2010 to 2020 were studied using quantitative and qualitative discourse analysis. Six discourse categories emerged from the news: social issues, policy, agricultural development, environment, health, and politics. The results show that newspapers focused more on social issues, especially suicide, crime, and accidental ingestion. At the same time, agricultural digital media emphasized policy conversations such as ban policies, alternative herbicides, subsidies, and pesticide management more. Daily newspapers also focused more on "soft" information related to paraquat, such as personal stories of suicides and depictions of individual physicians urging a paraquat ban. This study finds that paraquat issues were reported differently in daily newspapers and digital media. Newspapers provided more sensational or personal narratives related to paraquat. While these anecdotes may increase audience interest, they may also shape specific public perceptions of paraquat and may not help farmers and non-farmers reach a consensus on policy. However, agricultural digital media emphasize policy discussions, which may stimulate audiences to think about policy.

ABSTRACT

Chuah, Agnes (Soo Fei)

When & where: Parallel session 6-G, Thursday 13 April 11:30 – 12:45, *Van Beuningen Room*
 Title: 6. Mediated deliberation on social media: Understanding public sentiment of nuclear energy development in Singapore using mix-method analysis
 Format: Individual papers
 Author: **Agnes (Soo Fei) Chuah**, Nanyang Technological University, Singapore
 Chair(s): Alice Fleerackers
 Co-author(s): Xinyi Liu, Shirley Ho, Edson Tandoc Jr.

Singapore is an island-state in Southeast Asia that has very limited natural sources and largely relies on imported natural gas for energy generation. To alleviate the energy burden, the Singapore government has considered nuclear energy as an alternative energy source. However, pre-feasibility study conducted in 2012 revealed that nuclear energy is not feasible for Singapore as the risks outweighed the benefits. In March 2022, in contradictory to the previous study, a report released by the Energy Market Authority (EMA) of Singapore suggested that Singapore could start deploying nuclear energy to diversify the energy supply mix in 2050. This report was widely reported by the news media which triggered an intense online discussion on social media. This phenomenon has also indirectly created a common ground for the dialogue between policymakers, experts, communication practitioners, and the public to discuss the potential nuclear energy development in Singapore. Leveraging on the on-going discussion, this research seeks to analyze public opinion and sentiment toward nuclear energy development in Singapore. In particular, drawing on the mediated deliberation theory, this study aims to analyze Facebook comments on nuclear energy development in Singapore. We seek to understand the public opinion, the civil agreement and disagreement with the nuclear energy development plan, and the opinion leaders in the discussion. To date, we have collated approximately 900 Facebook comments, from 22 March to 4 April 2022, on nine nuclear energy deployments-related news articles. We used a novel mix-method analysis –human and machine coding – to analyze the Facebook comments. The results showed a relatively high civil disagreement with nuclear energy development in Singapore. Most of the online citizens are concern about if risks of nuclear incidents if Singapore were to development nuclear energy. The findings could inform the relevant stakeholders about public opinion of nuclear energy development in the country.

ABSTRACT

Clarke, Emma

When & where: Parallel session 4-L, Wednesday, 12 April 17:00 – 18:15, *Mees Room*
 Title: 3. We need to talk about AI: The Case for Citizens' Think-ins for citizen-researcher dialogue and deliberation
 Format: Individual papers
 Author: **Emma Clarke**, ADAPT Centre, Ireland
 Chair(s): Anne Land
 Co-author(s): Laura Grehan, Anne Kearns, Cara Greene

There is a growing need for public dialogue initiatives that create opportunities to think critically about the challenges facing society. ADAPT's "Citizens' Think-Ins" is a model of citizen-researcher dialogue in which stakeholders collaboratively explore the potential opportunities, challenges and benefits of emerging STEM innovations through a lens of ethics, trust and privacy.

To date, ADAPT's Think-Ins have engaged 526 citizens and 121 researchers in dialogue around Artificial Intelligence (AI). This paper will elaborate on insights from the "Citizens' Think-Ins" series, including the positive outcomes of the approach for researchers with 89% observing that a Think-In was an ideal format for engaging with stakeholders.

The Think-In approach opens up the research process by including stakeholders in discussions around AI innovation. Co-creation with stakeholders has been built into the Think-In process, from the identification and development of discussion themes, to the evaluation of outcomes for both citizens and researchers. Co-creation ensures that the discussion content is of value to the participants and the audience(s) they represent. Through co-created scenario discussions this approach encourages participants to reflect on the values that should underpin AI development and its use in society, and to weigh up the benefits and risks (e.g. security/privacy/bias).

Through collaboration with community-based organisations, participants are empowered to have their say on the development and application of AI. This paper will also address the challenge of ensuring that the conversation is inclusive.

Lastly, the paper will refer to evaluation findings on the impact the Think-Ins have on citizens' perceptions of researchers. Evaluation found that there is work to do in terms of building trust in AI research. However, a positive shift in perceptions of trust towards researchers after attending a Think-In demonstrates that this method of engagement can be effectively used as a way to increase trust.

ABSTRACT

Cornelius, Eleanor

When & where: Parallel session M-H – Tuesday 11 April 9:00-13:00 – *Belasting & Douanemuseum*
 Title: A plain language approach to science communication: Opening up science to non-scientific audiences
 Format: Professional development workshop
 Author: **Eleanor Cornelius**, University of Johannesburg, South Africa
 Chair(s): Eleanor Cornelius
 Co-author(s): Lali van Zuydam

It is becoming increasingly important for people who are not trained in the sciences to become active participants in international and local issues such as climate change, global health crises and the fight against misinformation. Ensuring that scientific information is communicated “effectively to the public is almost always challenging” (Abdool Karim, 2022:1). Science communicators play an important role in providing society with credible information from the scientific community and “helps overcome fear and uncertainty”: “Communication through appropriate communicators may help cut through the noise, share facts and boost confidence in science and governance” (Matta, 2020:1).

Communicating with non-scientific audiences often poses challenges as science texts are replete with technical terminology and conceptual complexity. The linguistic competence of the target audience, and their potential lack of access to science, scientists, and scientific publications, should be constantly in the focus to successfully communicate with non-scientific audiences. This hands-on workshop is intended to provide science communicators with the basic principles of plain language writing. Participants will get ample opportunities to practice their newly-acquired plain language writing skills in an authentic learning context.

We will be addressing the following sub-themes: Inclusiveness, openness.

ABSTRACT

Comunello, Francesca

When & where: Parallel session 11-H, Friday 14 April 14:15 – 15:30, *Ruys Room*
 Title: 6. Vaccination-related content on TikTok: beyond classic vaccine stances
 Format: Individual papers
 Author: **Francesca Comunello**, Sapienza University of Rome, Italy
 Chair(s): Anne Dijkstra
 Co-author(s): Francesco Gesualdo, Lorenza Parisi

Social media has drawn attention as an important source of information on vaccines, as well as a potential means for improving health literacy and vaccine uptake.

TikTok, a platform for creating and sharing short videos, has seen a surge in popularity during the pandemic, and an increase of scholarly attention, including research analyzing health and vaccine communication. Scholarship has argued for the potential of health professionals using TikTok to fight misinformation and reach young people.

We analyse the Italian vaccine conversation on TikTok. We downloaded a sample of videos (January 2020-March 2021) with a high play count through an unofficial API (in line with TikTok's Terms of Service), and collected public videos from the vaccine sceptic community through snowball sampling. The videos were analysed using qualitative and quantitative methods by a multidisciplinary group (with expertise in health, vaccines, and communication) in terms of vaccine stance, tone of voice, topic, adherence to TikTok style, etc.

The final datasets consisted of 754 top videos plus 179 vaccine sceptics' videos. In most of the top videos the stance was promotional (305, 40.5%), one third of videos had an indefinite-ironic stance (256), 85 (11.3%) were neutral, 73 were discouraging (9.7%). A high proportion of the promotional videos (131, 43%) were from health care professionals. The multiple correspondence analysis showed that creators of promotional videos were more frequently health care professionals and female, and the most frequent topic was herd immunity, while discouraging videos were associated with a polemical tone of voice and topics were more frequently conspiracy and freedom of choice.

Based on our analysis, we hypothesise that the vaccine conversation on TikTok is likely less polarised than on other social media, particularly due to the large representation of ironic videos that disrupt the common divergence between promotional and discouraging.

ABSTRACT

Corral, Soledad Machado

When & where: Session 2, Tuesday, 4 April 14:00-15:15, *Zoom*
 Title: Crash Course Química: Creating a blueprint for culturally responsive science learning videos
 Format: Online conference
 Author: **Soledad Machado Corral**, Facultad de Química - Universidad de la República, Uruguay
 Chair(s): Lars Guenther
 Co-author(s): Heather Lavigne, Alexia Raynal, Emily Braham, Kelsey Savage

Overview: In this session presenters will reflect on some specific science communication resources and review the techniques used in the communication process e.g. art, storytelling, cultural relevance, accessibility.

In 2018, the National Academies of Science, Engineering, and Medicine published a report that identified several promising and effective strategies for multilingual learners in the K–12 arena. The committee concluded that learners benefit when educational opportunities build on students’ native languages and draw on “the full range of meaning-making resources”. The report also documents that learning is a cultural process and emphasizes the importance of cultural competence in how information is communicated. Evidence from the field demonstrates how students’ lived experiences and funds of knowledge are critical for supporting and scaffolding learning. However, the evidence for how these strategies for K-12 learners translate to the informal STEM learning of adults is limited.

To advance the field’s knowledge in this area, our team set out to develop culturally relevant science learning content for Spanish-speaking adult learners. The objective was to support a more inclusive online community for teaching and learning science content. With support from the National Science Foundation, our project team, comprised of content creators, science educators, and researchers, set out to create Crash Course Química, a Chemistry miniseries dedicated to featuring the lived experiences and cultures of Spanish-speaking learners. During this paper session, the authors will present our strategies for using an existing English-language series to guide the development of a new Spanish language video series with similar science learning objectives. The authors will share the process used to develop an adaptation guide, summarize feedback received during formative research, share results from a pilot study of the new series, and share lessons learned.

The goal of this conference presentation is to support others in their work of creating science learning content for broader audiences and in their thinking about how culture and language play a pivotal role in knowledge development.

ABSTRACT

De Oliveira Coelho, Aline

When & where: Session 3, Tuesday, 4 April 17:00-18:15, *Zoom*
 Title: How to communicate science during polarized elections: The case of Inmetro in 2022 in Brazil
 Format: Online conference
 Author: **Aline de Oliveira Coelho**, Inmetro / Universidade de Coimbra, Brazil
 Chair(s): Marlit Hayslett
 Co-author(s): Livia Neto Machado

Overview: In this session we will consider roles and responsibilities, of audiences, science communication practitioners and science journalists.

In 2022, Brazil has gone through the most turbulent electoral period in recent years, in an environment of polarised opinions and accusations of fake news from both sides. In this environment, how can a government institution serve the interests of the public, while maintaining its partiality and impersonality?

The objective of this presentation is to follow the communication actions of the National Institute of Metrology of Brazil (Inmetro) in its digital channels during the so-called "electoral closure" period. During these four months - from July to November, government bodies were instructed to restrict their publications or to lock down some of their channels to content that is as neutral as possible, less advertising and more focused on essential and useful information for the public. The strategy was coordinated by the Federal Government's Special Secretariat for Social Communication (Secom), which establishes the guidelines.

Inmetro currently has active accounts on Twitter, Facebook, LinkedIn, YouTube and Instagram - during this period, the publications were restricted to the last one. Using the case study methodology, we analyzed Inmetro's publications on Instagram during the electoral period, comparing it with "normal times", and identified, among others: 1- limitation of the use of images of public actors responsible for the actions, which led to the reduction of the use of photos; 2- expansion of video content; 3- reduction of collaboration between government agencies in the digital environment; 4- expansion of the follower base, even with restriction of content and interactions.

ABSTRACT

David, Yael Barel-Ben

When & where: Parallel session 11-B, Friday 14 April 14:15 – 15:30, *Van der Mandele (mezzanine)*
 Title: 2. The Everyday Science Reasoning Scale - how do Non-Scientists Reason with Science?
 Format: Insight talks
 Author: **Yael Barel-Ben David**, Technion, Israel
 Chair(s): Luz Helena Oviedo
 Co-author(s): Keren Dalyot, Yaela Golombic, Melanie Keller

Scientific concepts and core ideas are fundamental for scientific inquiry and research. However, they are not always understood by non-scientists who encounter science in the media, conversations, and other daily contexts. Scientific reasoning is the ability to evaluate scientific research, rationalize between competing pieces of evidence and to aggregate content, procedural, and epistemic knowledge to draw reasonable inferences. While there is a clear need to measure the publics' ability to use or act upon their scientific knowledge and understanding, there is currently a gap in tangible tools to assess how non-scientists reason with science in daily life. Here we address this gap by extending the work described by Drummond and Fischhoff (2017) and developing an everyday scientific reasoning scale and demonstrating its ability to predict the use and application of daily scientific information.

The Everyday Scientific Reasoning Scale measures how non-scientists understand and use science in everyday life. It is based on the premise that most of the exposure to science for non-scientists occurs in daily encounters, and thus frames the questions in a daily context (rather than the lab-like focus of Drummond and Fischhoff). The scale measures scientific reasoning by presenting respondents with several scientific concepts (such as Causality, Reliability, etc.) framed within a daily dilemma in the context of choosing an effective, scientifically supported diet for weight loss.

Findings demonstrate an association between respondents' scores on the everyday science reasoning scale and their level of education and suggest that using daily scenarios for framing science facilitates the process of understanding scientific concepts. These results have important implications for communicating science in society and engaging diverse populations with science.

In our insight-talk we will introduce the everyday scientific reasoning scale, inspire participants to use it in their work and recruit collaborations for future research opportunities.

ABSTRACT

Davis, Lloyd

When & where: Parallel session 4-L, Wednesday, 12 April 17:00 – 18:15, *Mees Room*
 Title: 1. Citizen Science: is it good science?
 Format: Individual papers
 Author: **Lloyd Davis**, University of Otago, New Zealand
 Chair(s): Anne Land
 Co-author(s): Lei Zhu, Wiebke Finkler

Citizen science projects, which entail scientific work undertaken by members of the public, have increased substantially over the last three decades. However, the credibility of such science has been questioned, especially with respect to its prospects for producing peer-reviewed publications; the means by which science is communicated and validated. We conducted a meta-analysis of 895 citizen science projects launched between 1890 and 2018. Three-quarters of them (674) did not produce a single peer-reviewed paper. The remaining 221 projects produced 2075 publications, although just 5 projects produced nearly half the publications. The average time taken from project launch to first publication was 9.15 years. Projects available to participants worldwide were more likely to publish than were regional/local projects, as were projects that made their data freely available compared to those that did not. Projects in Health & Medicine and Astronomy, which tended to be worldwide in nature, were most likely to produce publications and did so faster than projects in other disciplines. By contrast, projects in Computer Science, Social Sciences and Biology were the least likely to publish their results. Nearly two-thirds of all citizen science projects concerned Biology, and these typically occurred outdoors at local or regional scales and were unlikely to publish irrespective of the taxa studied. In conclusion, the “science” element of most citizen science projects is largely irrelevant as it is never validated or communicated. Our analysis identifies two types of citizen science projects: (i) a small minority, characterized by many projects in Health & Medicine and Astronomy, where the focus is on science and participants function essentially as “sampling devices,” and (ii) a large majority, including most in Biology, where the value lies more in “citizen engagement” than it does in “citizen science,” enhancing participants’ attitudes and knowledge about science and potentially producing behavioural changes.

ABSTRACT

de Bakker, Liesbeth

When & where: Parallel session 3-D, Wednesday, 12 April 15:15 – 16:30, *Zeelenberg Room*

Title: Fact-finding mission: how to make scicomm practices with audiences more inclusive

Format: Problem-solving workshop

Author: **Liesbeth de Bakker**, Utrecht University, Netherlands

Chair(s): Siddharth Kankaria

Co-author(s): Kim Darley Waddilove, Barbara Streicher, Mohamed Daoud, Tessa Zonneveld

Equity, Diversity & Inclusion (EDI) has become a buzzword and focal area in science the world over. And this does not exclude science communication. In the past five years, publications focusing on EDI in scicomm have risen from about 10 to over 50 per year. Likewise, the interest of practitioners in EDI training has grown exponentially.

However, as we are gathering new knowledge and generating practical experience in scicomm EDI, the question is: how do we integrate theory and practice in such a way that we can all benefit from it, specifically emerging professionals in our field, also with an eye to how some of us train and teach EDI in scicomm?

As EDI is a very broad field spanning from accessibility to involving minority groups and inclusive language, as well as setting up more inclusive organisations, it's important to be clear about the focus of this workshop. Our workshop will be specifically aimed towards helping science communication professionals to be more inclusive in their practice with their audiences.

Ensuring the session is accessible to all kinds of people with a diversity of experience, expertise, background and level of EDI training and awareness, we invite all those interested to come, ponder and discuss EDI professionalisation issues in science communication practice with audiences (taking a global perspective).

ABSTRACT

de Haas, Hella

When & where: Parallel session 11-A, Friday 14 April 14:15 – 15:30, *Willem Burger Room*

Title: 2. Scientists during the Covid-19 pandemic: From running toward to running away from the public

Format: Individual papers

Author: **Hella de Haas**, Heinrich Heine University Düsseldorf, Germany

Chair(s): Katrien Kolenberg

Co-author(s): Sarah Kohler, Frank Marcinkowski

During the Covid-19 pandemic, scientists found themselves in a difficult position: Not only did media reports question scientists' integrity, but citizens also threatened and executed emotional and physical violence against them personally. This feeling of distrust and danger led scientists to be hesitant in talking publicly in the future, as they state (ibid.). If this fear and resulting behavior stabilize, this might lead to an end to the growth of scientists' public engagement in the past years. Previous studies did not include a line of argumentation based on theories rather than just describing phenomena. Therefore, a study that questions whether the withdrawal from the public can be fully explained by the negative experiences during the Covid-19 pandemic is needed. Derived from the Influence of Presumed Media Influence (IPMI), we argue that scientists are responding to their perceptions of how news coverage and online media affect the public. In this case, they assume the public's use of media has led and will lead to hostile opinions and even behavior toward scientists. This assumption and second-hand experiences through media reports on hostility against scientists (through "lurking" and "listening") could have driven scientists to avoid public exposure. To protect themselves they will withdraw from the public. Our presentation is based on an ongoing standardized online survey of German scientists from various disciplines lasting until autumn 2022 as part of a research project funded by the DFG [German Research Foundation]. We discuss our results against the background of the effort that German science policy has invested over decades to create a culture of public engagement: Covid-19 may have wiped out the progression in just two years.

ABSTRACT

de Jong, Anouk

When & where: Parallel session 6-C, Thursday 13 April 11:30 – 12:45, *Van Weelde Room*
 Title: Insights from scientist-journalist interactions during the COVID-19 pandemic in the Netherlands
 Format: Linked papers
 Author: **Anouk de Jong**, University of Twente, Netherlands
 Chair(s): Anne Dijkstra
 Co-author(s):

The COVID-19 pandemic has had a large impact on science communication. It has provided new challenges for scientists and journalists whilst highlighting the importance of high-quality science journalism for everyone. In-depth interviews with 11 scientists and 10 journalists who were involved in communication about COVID-19 in the Netherlands offered new insights into the science-media relationship. In line with previous research on this topic, scientists and journalists were generally satisfied with their relationship with each other. Nevertheless, several new and ongoing changes in the roles and responsibilities of scientists and journalists were accelerated during the pandemic. This includes the need to deal with uncertainty in scientific topics that have a large impact on society. Journalists also described changes in how they assess information, due to the quick increase in the use of pre-prints during the pandemic. Scientists emphasized the need to explain the process and limitations of science, as well as the current state of knowledge. These insights can be used to increase mutual understanding between scientists and journalists, and to create more common ground between them. Lessons learned from the COVID-19 pandemic can be applied in communication about other societal challenges, such as the climate crisis.

ABSTRACT

de Roo, Nina

When & where: Parallel session 1-C, Wednesday, 12 April 09:45 – 11:00, *Van Weelde Room*
 Title: Universities in dialogue with society: Trusted academic partners? Reflections of a life science university's efforts
 Format: Linked papers
 Author: **Nina de Roo**, Wageningen University, Netherlands
 Chair(s): Sujatha Raman
 Co-author(s): Tamara Metze, Cees Leeuwis

To gain trust and remain relevant, the scientific community has increased its efforts to engage in dialogue with society. These science-society interactions often take place in research projects; there is limited experience with and conceptualization of dialogues initiated by universities. In this study we aim to better understand the role universities can play in science-society interactions. Based on a qualitative study of two on-going and two past dialogue processes of Wageningen University and Research, we looked into (a) the quality of the dialogues, (b) the roles scientists perform, and (c) emerging governance challenges. We found that a university-society dialogue requires rethinking of dialogue principles, which emerged from the organisational change literature. Specific challenges emerge when universities engage in dialogue: including or letting societal actors determine the agenda of dialogue; acknowledging conflicting knowledge claims from different disciplines; and acknowledging the different roles scientists at the university can play in a dialogue.

ABSTRACT

de Schrijver, Jelle

When & where: Parallel session 2-I, Wednesday, 12 April 11:30 – 12:45, *Van Rijckenvorsel Room*
 Title: Can a scientist ever be certain of something? Science communication through dialogues about science
 Format: Workshop
 Author: **Jelle de Schrijver**, Antwerp University, Belgium
 Chair(s):
 Co-author(s): Lynda Dunlop

A widening gap between scientific consensus and public opinion on topics such as climate change, vaccine safety or evolution, makes discussing science ever so relevant (Scheufele & Krause, 2019). However, simply showcasing scientific ideas may not suffice to help people acquire a more accurate understanding of science. Rather, focusing on the discipline of science itself can be helpful (McComas & Clough, 2020). Focusing on ideas about (the nature of) science may help both youngsters and adults grasp what makes science science. This entails reflecting about e.g. the role uncertainty in the scientific process, the differences between science and religion or the relation of science and society.

To create this reflective attitude, a safe space where ideas about science can be discussed may help people to shift their ideas about science (Nguyen, 2020). An approach based on philosophical dialogues can provide such a space. It aims to stimulate a conversation among a group of participants who discuss philosophical questions (e.g. ‘Can a rabbit be a scientist?’ or ‘Can you measure everything?’). These open questions invite participants to explore different perspectives towards science. The science communicator guides the dialogue as a facilitator by asking questions that help participants formulate arguments (Lipman, 1991). Thus, philosophical dialogues may help participants to both find and create common ground with others, and allow them cordially to uncover disagreements.

In this workshop participants will

- take part in philosophical dialogues about science as they have been performed with both youngsters and adults at science festivals and in two science museums in Belgium.
- discover how to facilitate philosophical dialogues about science
- discover examples of how this approach can be linked to expositions and education workshops
- Reflect upon and discuss the pitfalls and opportunities of introducing philosophical dialogues about science in the context of science communication.

ABSTRACT

Dietermann, Bonnie

When & where: Session 1, Tuesday, 4 April 09:00-10:15, *Zoom*
 Title: Lessons learned from a science variety show
 Format: Online conference
 Author: **Bonnie Dietermann**, Museum für Naturkunde Berlin, Germany
 Chair(s): Toss Gascoigne
 Co-author(s): David Ziegler

Overview: This session will cover lessons learned from conferences, exhibitions and trans-disciplinary strategies to improve science engagement.

The science variety show "Glitzern & Denken" (literally translated to glittering and thinking) was hosted by the Museum für Naturkunde Berlin, the natural history museum in Germany's capital, from 2019-2022. Artists and scientists have jointly developed and performed ten events on the museum's themes, such as insects and species extinction. Through this creative dialogue, new ways of communicating scientific topics were tested to address the audience emotionally. Due to the COVID-19 pandemic, the events were shifted from in-person to digital and eventually hybrid events.

The impact of formats in which art meets science depends on various elements. The scientists' own communication skills leave an impression on the audience, but so does the interaction with the artists and the framing by the presenters on stage. Consideration should be given to how active the scientists are on stage and what impressions of them are conveyed by the artists. Even if the artists were seen as the real link to the audience, the science variety show "Glitzern & Denken" helped scientists be perceived as more approachable and communicative than before the show. In addition to these aspects, the suggestions from the evaluation on the content level, the relationship between the program elements and the technical implementation have also been incorporated into the further development of the show.

This talk reflects on practical experiences and lessons learned from the perspective of a scientific institution hosting an art-and-science project, and will be of particular interest to science communicators who wish to conduct similar projects themselves.

ABSTRACT

Dijkstra, Anne

When & where: Parallel session 6-C – 13 April, 11:30 – *Van Weelde Room*
 Title: The science-media relationship explored from a research and practice perspective
 Format: Linked papers
 Author:
 Chair(s): Anne Dijkstra
 Co-author(s):

Changes in the science-media relationship are evolving quickly. During the past few decades, for example, the internet and social media technologies have influenced media-landscapes and the work of both journalists and researchers. In addition, during the pandemic, science news became more salient and visible. Understanding these developments better in the science-media relationship in various contexts, in particular in Southern Europe which has been understudied, can help to find ways of dealing with the new challenges. In this session, both researchers as well as journalists will present new perspectives and findings about the science-media relationship and developments in science journalism from both a research and a practice perspective. We will highlight developments and challenges in the collaboration between scientists and researchers in various cultural contexts such as Southern Europe, Belgium and the Netherlands. These developments and challenges were, for example, salient during the COVID-19 pandemic. In addition, new developments in digital transformation, churnalism and engagement on the quality of science journalism and the meaning for the science-media relationship will be presented.

ABSTRACT

Dijkstra, Anne

When & where: Parallel session 8-C, Thursday 13 April 17:00 – 18:15, *Van Weelde Room*
 Title: Science communication for the common good
 Format: Roundtable
 Author: **Anne Dijkstra**, University of Twente, Netherlands
 Chair(s): **Sujatha Raman**
 Co-author(s): Mohamed Elsonbaty Ramadan, Fabien Medvecky

A landmark global history of science communication from 2020 shows that our field emerged from myriad motivations and science-society linkages. Science communication today encompasses efforts to enhance public accountability, as well as public understanding, of science. Our work spans diverse domains including science activism, responsible innovation, transdisciplinary responses to planetary crises, art/science collaborations, etc. In this context, recent calls for science communication to contribute to transformative ways of responding to planetary crises represent an opportunity and a challenge. The International Science Council has called for new forms of science for the common good to trigger deep transformations needed for Global Goals, arguing that science must link with aspirations for social justice and new economic thinking. Science communication is expected to play a key role.

This roundtable aims to explore if and how a focus on the common good might stimulate productive conversations to connect diverse ways of conceptualising and doing science communication in response to such concerns about planetary futures. The concept of common good tends to be voiced through Western languages of ‘public good’, but the idea has a long history across different cultures signifying a concern with how humans are bound together and with nature. Equally, appeals to the common good spark fears that vital differences in perspective will be suppressed.

Panellists will provide 5-minute reflections to prompt a facilitated conversation with each other and with the audience on the following questions. How can we conceive of the common good and connect different perspectives on science communication to it? How can science communication help link science with social and economic matters? What are the dangers in invoking ‘the’ common good and how might we work through them?

Sujatha Raman will draw on the program of work she is leading on Science Communication and the Public Good under the auspices of a UNESCO Chair at the Australian National University. She will briefly introduce the topic and co-facilitate discussion amongst the panellists and with the audience. Working with Anne Dijkstra, she will record insights from the roundtable conversation in a way that will allow creation of a shared artefact for future collaboration on further developing the proposed topic to make a distinct and useful contribution to science communication. The session will help develop our field's contribution to the UN 2030 Agenda. Anne Dijkstra will draw on her extensive experience with science communication research in the context of public participation around multiple emerging technology areas, contributing questions to help connect public engagement around emerging technologies in particular settings with broad global goals.

Mohamed Elsonbaty Ramadan's contribution to the roundtable will draw on his extensive experience as a freelance science journalist, science communication consultant and trainer in

Egypt, as well as his significant contributions to broader institutional work in capacity-building for science communication in the global South. This work is reflected most notably in his role as co-founder of the Arab Forum of Science Media and Communication. His expertise will be critical for achieving the aims of the roundtable to bring together diverse perspectives and experiences in science communication work in order to reflect on what we can learn about the creation of common good through everyday practice and institution-building. He will reflect on lessons from connecting matters to do with science with social and economic development aspirations in Egypt for how we imagine the contribution of science communication to the achievement of the UN Sustainable Development Goals.

ABSTRACT

Dobrovidova, Olga

When & where: Parallel session 2-B, Wednesday, 12 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: Truth in Science? Science journalism and the corporate sector
 Format: Roundtable
 Author: **Jane Gregory**, University of Cambridge Institute of Continuing Education, United Kingdom
 Chair(s): **Olga Dobrovidova**
 Co-author(s): Alexandra Borissova

Corporate involvement in journalism has always been a rightfully contentious issue. Businesses have been trying to exploit journalists for their own reputational goals since the moment the first press officer was hired, whereas the media can often be distrustful of anything a company says by default, regardless of how well-intentioned or grounded in evidence their actions might be.

In theory, science and science journalism should be less vulnerable to manipulation thanks to the subject matter itself, which operates in facts. In practice, the decades-long history of corporations interfering with policy-relevant science, from public health to climate change, is one of the richest beats in science writing. On the other hand, science journalists following the evidence in controversial issues such as vaccination or genetic engineering are increasingly accused of being captured by the corporate sector, simply on the grounds that their arguments align with corporate messaging.

Many research-driven corporations are aware of this and clearly trying to get ahead by sponsoring awards and grants for “evidence-based journalism”. Just this year, the Online News Association raised some eyebrows in the community by partnering with 3M for a “Truth in Science” award. That story prompted us at EFSJ to consider the fundamental question: are journalists and companies (even the least problematic ones) ever interested in telling the same story about science?

In this discussion panel, we will hear from researchers studying corporate communication and science journalism in sectors such as biotech, pharma, and energy, and try to figure out the answer to that question. Live audience polling on key questions throughout the discussion will be conducted via Mentimeter or Sli.do.

AP Jayaraman: I have been observing the behaviour of journalists in the Nuclear Energy Sector from 1965 to date. It was difficult to diffuse the message that no power is costlier than no power despite reasoned arguments proffered by the highest scientific voice. Anti-nuclear mindset and one-sided reporting across the nuclear fuel cycle and every year perfunctory frequency Hiroshima and Nagasaki will be covered. Minor incidents in the nuclear establishment are blown up. Public opinion is whipped up. Even Peaceful uses of radiation technology and isotopes are painted red. Today, when nuclear energy has emerged as an inevitable option for a low-carbon economy and a distinct nuclear renaissance is evident, in China and India. Journalists have not given legitimate space to nuclear energy. A root cause analysis of this phenomenon will be done.

Jane Gregory: the corporate style of communication - which prioritises reputation management

and commercial interests - is often contrasted with the 'purer' science communication, by academics, of enlightenment and empowerment. However, research has shown that these two categories are not always distinct. In particular, I and colleagues have argued that academic science communication is similarly as vested in its own interests as commercial communication. Corporations generate or are involved in, most of the science-related events in the world, yet we know very little about the science communication that they do. Public opinion about science-based corporations remains resolutely negative, despite our enthusiasm for their products. Corporations are also limited by regulation which, by prohibiting particular kinds of claims-making in the public domain, effectively stifles them, limiting their engagement with their publics to brand-work. As researchers and practitioners, we need to reassess the role of corporations and their communications.

Alexandra Borissova: as science communicators, we are used to thinking that the hi-tech, science-driven industry is on our side because at the end of the day, they depend on their consumers trusting the science behind their innovative products. This often leads us to automatically assume that the ethics of science communication as we see it in public institutions, be it universities or public research institutes, would also apply to corporate science communication. Instead, unfortunately, that is not true in many cases. Indeed, we don't know how often that happens because this information is difficult to access, since even when corporate comms professionals leave over ethical conflicts, they are bound by NDAs and cannot blow the whistle. Greenwashing or corporate bias in scientific results (when companies suppress findings they don't like) suggests these problems may in fact be widespread.

ABSTRACT

Dolan, James Andrew

When & where: Parallel session 3-A, Wednesday, 12 April 15:15 – 16:30, *Willem Burger Room*
 Title: 4. Science Communication and Epistemic Cultures
 Format: Individual papers
 Author: **James Andrew Dolan**, University of Cambridge, United Kingdom
 Chair(s): Emma Weitkamp
 Co-author(s):

Science is not a homogeneous or unified field of endeavour. Such disunity of science finds expression in the varied “epistemic cultures”, “ways of knowing”, and “styles of reasoning” identified by sociologists, historians, and philosophers of science, respectively. However, insofar as the “science” referred to in studies of science communication is recognised as highly varied and heterogeneous, the scale of analysis is often, and appropriately, fine-grained (e.g. case studies of particular topics, issues, and controversies). Scientific disciplines might appear to offer an alternative and potentially attractive basis for a coarser scale of analysis, but existing empirical research suggests that such an approach is not fruitful in practice. In this paper, a draft alternative framework is presented, one which may offer a more fruitful lens through which to explore meaningful structure in the rich and varied field of science communication studies. Developed in the context of UK science policy and the communication between scientists and policymakers, these proposed “dimensions of science” resolve science at a scale in between the detail of individual topics and the monolith of unified science.

ABSTRACT

Doran, Heather

When & where: Parallel session 1-L, Wednesday, 12 April 09:45 – 11:00, *Mees Room*
 Title: Emerging careers in science communication: Challenges and opportunities
 Format: Roundtable
 Author: **Heather Doran**, Leverhulme Research Centre for Forensic Science, University of Dundee, United Kingdom
 Chair(s): **Mohamed Elsonbaty Ramadan, Alice Fleerackers**
 Co-author(s): Siddharth Kankaria, Meghie Rodrigues, Samantha Vilkins

Professional precarity, unequal access to training and mentorship, a lack of clarity about roles and expectations—there is no shortage of barriers facing new entrants to science communication. This roundtable seeks to identify these challenges and develop strategies for addressing them. It will bring together perspectives from early-career practitioners and researchers of science communication from across the world. With a goal of supporting new entrants to the field, these diverse panellists will share lived experiences of becoming established in a career that is interdisciplinary, inter-sectoral, and continually evolving. They will discuss their professional journeys into the field—including the barriers they faced as well as the support systems that have helped them to succeed—and survey audience members about the same. Reflecting on these stories, panellists will consider how professional journeys differ across geographical, cultural, and professional contexts, as well as where there are areas of “common ground.” Finally, the roundtable will engage audience members in a problem-solving activity aimed at supporting early-career researchers and practitioners to overcome the most pressing challenges discussed during the session.

Speakers’ perspectives:

Although Heather Doran has always had an interest in science and communication, she would have never taken her career path if it wasn’t for serendipity: the university institution where she did her (biology-based) PhD was investing heavily in science communication and engagement at the time. During this roundtable, she will discuss why connecting people with opportunity and networks is incredibly important as a first step in establishing science communication careers. She will share experiences of supporting scientists in becoming communicators (from within a university), the challenges of job security and career pathways in science communication, and the difficulty of finding internship opportunities and job adverts. What can those who are more established within their careers do to support others?

Building a career in science communication can look very different based on where you live. During this roundtable, Siddharth Kankaria will reflect on inequities of science communication opportunities, resources, and mentorship across the world. Juggling his time across science communication practice, research, and teaching at NCBS Bangalore, he will describe his work centred on mentorship, capacity-building, and Diversity, Equity and Inclusion (DEI), as well as his efforts to build policy, infrastructure, and communities of practice around science engagement in India. He will also reflect on the need for a more holistic, multi-sectoral

approach to developing science communication as a field of research and practice in the Global South.

Although science journalism and science communication share many similarities, they differ in important ways. In this roundtable, freelance science journalist Meghie Rodrigues will draw on the academic literature and her experiences working in both science journalism and science communication to shed light on the overlaps and distinctions between these two fields. She will discuss the particularities of establishing oneself as either a professional science journalist or communicator in Brazil, and how this compares to other contexts, such as Europe and the United States. Finally, she will talk about how these fields can work in tandem inside a wider, more complex informational ecosystem to help fight disinformation, and the role of early-career professionals in supporting that fight.

With degrees in mathematics and science communication, and now working predominantly among media and communications researchers, Samantha Vilkins will share the insights and challenges that come from interdisciplinary research training and work. She will discuss the advantages that natural experience with new technologies can bring, and the struggle to speak up for your expertise against more traditional understandings of authority. She will share how, as science communication grows in formal recognition, the burden of prior knowledge prerequisites can become disproportionate for new entrants. These perspectives come from working within the highly monopolized Australian media and research landscape, which often looks far afield to the US and UK for inspiration, rather than to local talent and ideas. Finally, Vilkins will invite discussion on direct support for students and early-career researchers, given the rising costs of travel and living.

ABSTRACT

Doran, Heather

When & where: Parallel session 2-H, Wednesday, 12 April 11:30 – 12:45, *Ruys Room*
 Title: Raising the standards of science communication in Forensic Science
 Format: Roundtable
 Author: **Niamh Nic Daeid**, Leverhulme Research Centre for Forensic Science, University of Dundee, United Kingdom
 Chair(s): **Heather Doran**
 Co-author(s): Julie Burrill, Yahaya Sumara Sulley

We will discuss the global importance and challenge of science communication in the context of forensic science. The communication of forensic science takes place both in and outside of the courtroom. It needs to engage specialist and non-specialist audiences simultaneously while being inclusive, open and upholding the values of the science. It is placed on the stand and under scrutiny in a court of law.

How can the public be engaged with developments in this area when the technology applied to forensic science moves forward so quickly? How can training in forensic science communication be integrated into careers for forensic scientists – what needs to be addressed? This session includes panel members from around the world who will share their perspectives on the particular challenges forensic science communication faces and potential interventions, including citizen science approaches. The panel will invite attendees to new ideas and thoughts about how we address whether these interventions are successful.

Heather Doran will challenge the panel to discuss some of the particular challenges forensic science faces in the communication of science. Although many public audiences find the topic extremely fascinating in fiction in real life ensuring that the communication is both accurate and understandable is a challenge. Forensic science as a general field is guarded in its openness as the knowledge it holds could be used by those who intend to break the law. If a forensic scientist gets the communication wrong it could lead to immediate miscarriages of justice. There is also opportunity though as the public interest in this area can be harnessed in citizen science to improve outcomes for the field.

Professor Niamh Nic Daeid is Director of the award-winning Leverhulme Research Centre for Forensic Science (LRCFS) the 10-year mission is to provide a robust underpinning for the scientific evidence presented in court. The Centre works on a global scale. She is a Chartered Chemist, is authorised as a Forensic Chemist to provide expert evidence to the courts and is registered as a forensic expert with the National Crime Agency. She has provided expert evidence in many high-profile cases and is an expert witness for the Grenfell Tower public inquiry.

She undertakes forensic casework, primarily in fire scene investigation and has appeared as an expert witness for the Courts. She has chaired the European Network of Forensic Science Institutes (ENFSI) fire and explosion Investigation working group, the INTERPOL forensic science managers symposium and was deputy chair of the Scientific Advisory Board of the International Criminal Court.

Julie Burrill's work focuses on forensic science communication in the courtroom and she will speak about the challenges of embedding training for science communication. Dr Burrill

received her PhD in 2021 from King's College London where she worked on forensic DNA analysis. She was funded by a 2016 US-UK Fulbright grant. Prior to this she was a staff forensic scientist for the Public Defender Service for the District of Columbia from 2011-2016, where she developed and delivered forensic science training for attorneys and prepared expert witnesses for criminal trial testimony. She has worked in research and casework laboratories as well as medical examiners' offices. She received her MFS in Forensic Molecular Biology in 2011 from George Washington University and her BS in Biology in 2007 from Haverford College.

Yahaya Sumara Sulley is a Senior Research Assistant at the Forensic Science Department of the University for Development Studies. He will speak about the challenge of engaging public audiences in Ghana. Very passionate about forensic science policy and Forensic DNA sciences. Founder of Forensic Science Outreach Ghana (FSOGH) and the Deputy Secretary of the Ghana Academy of Forensic Sciences (GAFS) and has been a member of GHScientific as a writer. Yahaya is also an author at scientect.org where he has written a few articles concentrating on forensic science policy in Ghana and other relevant issues of national development. I am the Chairman of "THE CONFIDENT SCIENTIST", a young initiative established by young scientists to add a voice to the already existing science communication networks and also the content curator and assistant editor for The Bioscience Newsletter of the Faculty of Biosciences at the University for Development Studies.

ABSTRACT

Duca, Edward

When & where: Parallel session 7-I, Thursday 13 April 15:15 – 16:30, *Van Rijckenvorsel Room*
 Title: Co-creation card game to drive environmental justice
 Format: Problem-solving workshop
 Author: **Edward Duca**, University of Malta, Malta
 Chair(s):
 Co-author(s): Kurt Calleja

Climate change has shifted from an possibility predicted by a few scientists to a reality everyone can see and feel. Transitioning to a low-carbon economy in the next several decades will be necessary to avoid catastrophic climate change. In this regard, this interactive workshop will create a space using creative tools and processes for participants to explore their role as enablers of a just and sustainable future.

Co-design, co-creation, citizen science, open innovation have become buzzwords used in public engagement with research. These approaches can be used to achieve societal engagement in science & innovation policies or processes. Through a card game called CourseKit, based on design thinking processes. Participants will start with an open dialogue to generate multiple ideas, then critically converge through dialogue again on a particular set of ideas and reflect on their ethical values. Then participants will co-design ideas to bring policy makers, regional bodies, citizens and researchers together for impactful participatory science engagement activities to address Nature-based solutions (NbS) for the 'wicked problems' of climate change and biodiversity loss based on the principle of the right to ecological spaces. This workshop is inspired by the EU-funded projects, Varcities (H2020), JUSTNature (H2020) and SciCultured (ERasmus+).

ABSTRACT

Dufour, H  lo  se

When & where: Parallel session 5-B, Thursday 13 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: 7. SciComm4all: tools to inspire scientists to connect with a multifaceted society
 Format: Individual papers
 Author(s): **H  lo  se Dufour**, Le Cercle FSER / EuroScitizen, France
 Chair(s): Massimiano Bucchi
 Co-author(s): Lucia Martinelli, M  t   Varga, Susana Ambr  sio, Fanny Bilak, Raquel Branquinho, Miguel Ferreira and Rita Ponce

In the contemporaneous cultural landscape, the scientific community is a crucial actor in a challenging society. One of its main responsibilities is creating and fostering a scientific culture that engages with the values and needs of a multifaceted society. We created 'SciComm4all' to give scientists a guide of essential tips about entering into constructive dialogue with the various societal actors. This self-guided learning series of 15 short videos and related resources are specifically designed for scientists to inspire them to engage efficiently the society. SciComm4all was produced by an interdisciplinary international team of scientists and science communicators in natural and social sciences and formal and non-formal education. Besides getting familiarised with science communication theories, scientists will get concrete tips on how to boost dialogue and promote interaction with different actors. The videos were conceived keeping inclusivity in mind, hence, avoiding sexist language, graphics and sketch characters, and common stereotypes regarding scientists and science itself. Moreover, videos are available to all at no cost, in English, and subtitled in up to 14 other European languages. Topics include for example getting to know an audience, defining key messages, writing science for non-specialists, and many others. 'SciComm4all' was produced in the framework of the COST Action EuroScitizen ('Building on scientific literacy in evolution towards scientifically responsible Europeans') and also sponsored by prestigious European projects and institutions. The modules are available at www.scicomm4all.org

ABSTRACT

Dufour, Heloise

When & where: Parallel session 10-B, Friday 14 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: 8. Building large scale programs while keeping it inclusive: an elusive goal?
 Format: Insight talks
 Author: **Heloise Dufour**, Cercle FSER, France
 Chair(s): Erik van Sebille
 Co-author(s): Agathe Franck

Even in large metropolises in France, more than 2/3 of high-schoolers have never encountered scientists and 90% declare not knowing how new knowledge is produced. On the other end, it has been shown that only about 10% of researchers are highly active in science outreach. How can we make the connection between the education system and research labs the norm and not only the exception for a few lucky schools? SciSparks (in French, Declics) is a non-governmental program aiming at bridging this gap, by organising at a large scale the meeting of research scientists and high-schoolers in personalised, memorable settings with assessed positive results on students, participating researchers, and teachers.

It has already been tested on about 30000 students in France, with 6000 researchers participating. It is scalable to a whole country, at a moderate cost. This presentation will explain the reproducible methodology used, present results and reflect on the challenges, notably on i/ setting up an inclusive program at a large scale, ii/ involving a large amount of researchers iii/ aiming at a national scale while being a non-governmental structure.

ABSTRACT

Dunlop, Lynda

When & where: Parallel session 3-F, Wednesday, 12 April 15:15 – 16:30, *Schadee Room*
 Title: 4. DICEY Science communication in a climate of uncertainty (Lynda Dunlop)
 Format: Individual papers
 Author: **Lynda Dunlop**, University of York, United Kingdom
 Chair(s): Bruce Lewenstein
 Co-author(s): Jelle De Schrijver, Elizabeth Rushton

Large-scale intervention in the Earth's climate system is increasingly present in discussions about responses to climate change. Youth tend to be under-represented in these discussions despite the intergenerational consequences of policy. We report on two experiments in public dialogue (DICEY: Dialogues in Climate Engineering with Youth). The first, a novel approach to science communication through co-authorship of a youth guide and policy brief (concluded); and the second, an experimental approach to public dialogue on climate interventions, focusing on question creation with youth, scientists, policy-makers and artists (forthcoming). The dominant approach to communication on climate interventions has been to ask participants (typically, adults) to appraise different proposals, often involving researchers 'close to the science'. This is problematic for new technologies because public awareness tends to be low (Scheer & Renn, 2014), so there has been a move towards deliberative approaches. Challenges associated with these approaches include deferral to scientific authority, even on non-scientific questions, and problematic framings (Corner & Pidgeon, 2015) and recent developments have been to reduce the role of scientists and use more tentative language (Bellamy et al., 2014). DICEY involves scientists and policy-makers in a different capacity - as accountable to youth questions and concerns - through public switching. The 'public' in public engagement is flipped to make scientists and policy-makers the 'public' who engage with youth questions on climate interventions 'downstream' of youth dialogues. We will share learning from these experiments to argue that common ground can be created between youth, scientists and policy-makers through question-creation and public-switching. Dialogue produces questions rather than positions to encourage understanding and constructive disagreement (and reasons for it) rather than entrench existing perspectives. These models offer potential for use by science communicators at the early stages of technoscientific innovations.

ABSTRACT

Eklöf, Jenny

When & where: Parallel session 3-F, Wednesday, 12 April 15:15 – 16:30, *Schadee Room*
 Title: 5. Interrogating mediated medicine: Examples from the gene technology and dental amalgam controversies in Sweden
 Format: Individual papers
 Author: **Jenny Eklöf**, Umeå University, Sweden
 Chair(s): Bruce Lewenstein
 Co-author(s): Jonatan Samuelsson

paper takes as its point of departure the concept of “biocommunicability”, a term developed by media scholars Hallin and Briggs, to help better understand the ways in which medical and health news not only revolve around specific topics, but also often rest on ideals about how knowledge is and should be produced and properly circulated in society. These – often implicit – assumptions, include notions about the value of health communication as such, why it is needed, who should be included or excluded in the circulation of knowledge, what disrupts flows of knowledge, and judgements about who has the “right” type of expertise to authoritatively engage in public conversations on medical topics. Moreover, biocommunicability suggests that these “cartographies of knowledge” help define and produce the boundaries between medicine, politics, citizenship, and health, ultimately influencing the entities they are describing. The paper presents historical case studies of long-term shifts in the mediation of public controversies over gene technology and dental amalgam in Sweden, two debates concerning potential risks connected to the use of medical technology which overlaps both temporally and conceptually.

We demonstrate how a focus on biocommunicability can help us:

A) Bring to the surface the (often unacknowledged) assumptions and ideals that influence how scientific mediations are shaped, providing a more fruitful starting point for open and honest discussions among various stakeholders, while simultaneously moving away from simplified notions of science communication as merely a question of producing “accurate” representations of science.

B) Design comparative scholarly approaches – either focusing on commonalities and differences across sectors (e.g. academic PR departments, governmental public health campaigns, business marketing, advocacy organizations and NGOs) or on shifts and changes in communicational regimes over time.

We suggest that by focusing on biocommunicability – whether analytically or practically – we might bridge some divides that are often invoked between the communication of science “inside” and “outside” academic settings, as well as between theoretical approaches and practical considerations.

ABSTRACT

Ellis, Michael

When & where: Parallel session 2-F, Wednesday, 12 April 11:30 – 12:45, *Schadee Room*
 Title: 1. Mobilising the South African Youth in Science and Technology Journalism
 Format: Insight talks
 Author: **Michael Ellis**, National Research Foundation, South Africa
 Chair(s): Sarah Davies
 Co-author(s): Zamuxolo Matiwana

Indigenous languages create opportunities for unique and impactful communication of science and technology. The Science Journalism Community Service programme was established in South Africa to develop science journalism skills amongst the youth while promoting the communication of science and technology stories in indigenous languages. Since its inception in 2016, the programme has grown in terms of its enrolments and geographic coverage. An evaluation study was therefore conducted by the South Africa Agency for Science and Technology Advancement (SAASTA) for the National Research Foundation (NRF), an entity of the Department of Science and Innovation (DSI). A 'Results Chain' framework was used as a point of reference to undertake this study, as informed by the programme objectives. The subsequent methods of data collection included a desk review of documents, electronic surveys, telephonic interviews, and focus groups. To evaluate the results, the study applied the internationally recognised Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) Criteria, mainly focusing on Project Efficiency, Effectiveness, and Impact to assess implementation success of the programme. This study therefore serves as an informative assessment for the implementation of similar programmes at a national level.

ABSTRACT

Elmowitz, Andrew

When & where: Parallel session 2-F, Wednesday, 12 April 11:30 – 12:45, *Schadee Room*
 Title: 5. A Failure to Communicate: Curricular Analysis Reveals Major Deficits in Science Communication Coursework at R1 Universities in the United States
 Format: Insight talks
 Author: **Andrew Elmowitz**, University of Connecticut, United States
 Chair(s): Sarah Davies
 Co-author(s): John Redden

Effective communication of biomedical/health information to the public is an emergent challenge with far-reaching societal impacts, as highlighted by the climate crisis and the COVID-19 pandemic. Integrating discipline-based curriculum into plans of study is one of several strategies that may allow the next generation of science communicators to rise and meet this challenge. However, science communication is an interdisciplinary field spanning both the sciences and the humanities. As a result, it is often unclear where students should look to develop skills and pursue careers in this area, or where institutions should invest resources. In the present study, we present a systematic analysis of the science communication curriculum in life science and humanities departments at all 146 R1 universities in the United States. We investigated if, and where, coursework exists; if it is required or elective in the major plan of study; if the emphasis is on technical or public communication; and how offerings have evolved over a five-year period. Our findings reveal that only 89 Biology departments (approximately 61% of universities) offer formal science communication coursework at the undergraduate level. Availability has increased since 2017, when coursework was offered in 65 departments (approximately 45% of universities). Only 34 departments (approximately 23% of universities) offer courses focused on presenting information to a public audience. Where courses are available, they are often electives. Just 24 departments (approximately 16% of universities) require coursework for graduation. Findings are comparable in graduate-level training. Thus, while the value of science communication is rarely disputed among scientists, it does not appear to be a curricular priority for many of the leading universities in the U.S. This deficit reduces the number of students graduating with this skill set, confounds curricular/pedagogical innovation in this area, and may worsen the misinformation crisis of the modern era.

ABSTRACT

Elsdon-Baker, Fern

When & where: Parallel session 6-L – 13 April, 11:30 – *Mees Room*
 Title: Realising sustainable futures: Public communication and engagement to build a better world
 Format: Linked papers
 Author:
 Chair(s): Fern Elsdon-Baker
 Co-author(s):

Publics are central to the success of sustainable innovation. Current attitudes must be understood to assess the likelihood of the success of a range of imagined potential nascent sustainable futures. These futures receive varying degrees of support and investment within the innovation ecosystem, and without proper attendance to public attitudes, values, beliefs and affective responses to these futures, the instantiation of these sustainable futures is in jeopardy. Likewise, without public input and insight, there is the potential for sustainable futures to disempower and exclude sections of society and exacerbate social inequalities.

This series of linked papers from researchers based at the University of Birmingham's Institute for STEMM in Culture and Society (ISTEMMiCS) brings together speakers who have investigated closely, been embedded in, or been active members of communities involved in the development and/or communication of a range of sustainable futures including aviation technologies, plastics, the development of smart cities, and environmental movements and the nuclear industry.

Against deficit model style communications, the panel discuss novel methodologies and approaches for engaging publics in the instantiation of sustainable futures. The panel will discuss how engagement with publics is not just a normative ideal, but a practical precursor to the success of sustainable futures which require new socio-technological developments.

ABSTRACT

Elsonbaty Ramadan, Mohamed; Alice Fleerackers

When & where: Parallel session 1-L, Wednesday, 12 April 09:45 – 11:00, *Mees Room*
 Title: Emerging careers in science communication: Challenges and opportunities
 Format: Roundtable
 Author: **Heather Doran**, Leverhulme Research Centre for Forensic Science, University of Dundee, United Kingdom
 Chair(s): **Mohamed Elsonbaty Ramadan, Alice Fleerackers**
 Co-author(s): Siddharth Kankaria, Meghie Rodrigues, Samantha Vilkins

Professional precarity, unequal access to training and mentorship, a lack of clarity about roles and expectations—there is no shortage of barriers facing new entrants to science communication. This roundtable seeks to identify these challenges and develop strategies for addressing them. It will bring together perspectives from early-career practitioners and researchers of science communication from across the world. With a goal of supporting new entrants to the field, these diverse panellists will share lived experiences of becoming established in a career that is interdisciplinary, inter-sectoral, and continually evolving. They will discuss their professional journeys into the field—including the barriers they faced as well as the support systems that have helped them to succeed—and survey audience members about the same. Reflecting on these stories, panellists will consider how professional journeys differ across geographical, cultural, and professional contexts, as well as where there are areas of “common ground.” Finally, the roundtable will engage audience members in a problem-solving activity aimed at supporting early-career researchers and practitioners to overcome the most pressing challenges discussed during the session.

Speakers’ perspectives:

Although Heather Doran has always had an interest in science and communication, she would have never taken her career path if it wasn’t for serendipity: the university institution where she did her (biology-based) PhD was investing heavily in science communication and engagement at the time. During this roundtable, she will discuss why connecting people with opportunity and networks is incredibly important as a first step in establishing science communication careers. She will share experiences of supporting scientists in becoming communicators (from within a university), the challenges of job security and career pathways in science communication, and the difficulty of finding internship opportunities and job adverts. What can those who are more established within their careers do to support others?

Building a career in science communication can look very different based on where you live. During this roundtable, Siddharth Kankaria will reflect on inequities of science communication opportunities, resources, and mentorship across the world. Juggling his time across science communication practice, research, and teaching at NCBS Bangalore, he will describe his work centred on mentorship, capacity-building, and Diversity, Equity and Inclusion (DEI), as well as his efforts to build policy, infrastructure, and communities of practice around science engagement in India. He will also reflect on the need for a more holistic, multi-sectoral approach to developing science communication as a field of research and practice in the Global

South.

Although science journalism and science communication share many similarities, they differ in important ways. In this roundtable, freelance science journalist Meghie Rodrigues will draw on the academic literature and her experiences working in both science journalism and science communication to shed light on the overlaps and distinctions between these two fields. She will discuss the particularities of establishing oneself as either a professional science journalist or communicator in Brazil, and how this compares to other contexts, such as Europe and the United States. Finally, she will talk about how these fields can work in tandem inside a wider, more complex informational ecosystem to help fight disinformation, and the role of early-career professionals in supporting that fight.

With degrees in mathematics and science communication, and now working predominantly among media and communications researchers, Samantha Vilkins will share the insights and challenges that come from interdisciplinary research training and work. She will discuss the advantages that natural experience with new technologies can bring, and the struggle to speak up for your expertise against more traditional understandings of authority. She will share how, as science communication grows in formal recognition, the burden of prior knowledge prerequisites can become disproportionate for new entrants. These perspectives come from working within the highly monopolized Australian media and research landscape, which often looks far afield to the US and UK for inspiration, rather than to local talent and ideas. Finally, Vilkins will invite discussion on direct support for students and early-career researchers, given the rising costs of travel and living.

ABSTRACT

Entradas, Marta

When & where: Parallel session 10-L, Friday 14 April 11:30 – 12:45, *Mees Room*
 Title: The mobilisation of public communication activities at central communication offices compared across countries
 Format: Linked papers
 Author: **Marta Entradas**, Iscte-Instituto Universitário de Lisboa, Portugal
 Chair(s): Manuel Valenca
 Co-author(s):

This paper follows from the main research questions on the basis of the OPEN 'Organisational Public communication of Science' project (2019-2023): what public communication are research universities doing at central communication offices, what rationales drive this activity, and what resources are being allocated for the effort. We conducted national representative surveys of public communication activity in universities in four countries including Germany, Italy, Portugal, and the United Kingdom. In this talk, we will describe general characteristics of public communication activity carried out at the central communication level, and examine relationships with other levels of the organisation. We present the data in a comparative perspective across the four surveyed countries focusing both on differences and similarities, including the adoption of policies, professionalisation of the communication function, and distribution of resources. This data will lead into the discussion of the 'centralisation/decentralisation hypothesis' -- whether we are moving towards decentralised structures of communication within research organisations.

ABSTRACT

Enzingmüller, Carolin

When & where: Parallel session 2-C, Wednesday, 12 April 11:30 – 12:45, *Van Weelde Room*
 Title: 4. Collaborative design: A powerful force for creativity in science communication
 Format: Insight talks
 Author: **Carolin Enzingmüller**, IPN Kiel, Germany
 Chair(s): Liesbeth de Bakker
 Co-author(s):

Designing user-centered, innovative science communication is a challenging task. Institutions such as universities have a particularly high potential to meet this challenge if they invest in connecting different actors, contexts, and content in collaborative design processes. Collaborative design processes can enable scientists to communicate current science, designers to create innovative concepts, and evaluators to support evidence-based processes and products. To be successful, this process requires multiple stakeholders to come together and share ideas and knowledge. Design thinking is an iterative, creative approach to problem solving that has been used successfully in many fields to structure collaborative design processes. With its human-centered, real-world solutions, it is easy to see the value of design thinking for science communication; however, it can be difficult to translate the approach into practice. We aim to contribute to this issue by sharing the recent efforts of the Kiel Science Communication Network (KielSCN.com) to facilitate collaborative design in science communication at multiple institutional levels. Over the course of one semester, we had student teams work on design challenges to communicate current topics in health research (in this case, antibiotic resistance) and translated them into pop-up concepts. The process was structured through design thinking and brought together scientists, designers, and users. The final science communication concepts ranged from artistic media installations to creative workshops with schools, modular exhibitions, and shop-in-shop ideas. Informed by feedback and evaluation data from students, scientists, and other stakeholders, this talk will present the background and implementation of this collaborative design project. Based on these insights, I would like to discuss how to enable a collaborative design experience in science communication and uncover what is needed to establish a design thinking mindset in science communication.

ABSTRACT

Esrail, Ferdoos

When & where: Parallel session 11-B, Friday 14 April 14:15 – 15:30, *Van der Mandele (mezzanine)*
 Title: 9. It's OK to have doubts: Making sense of uncertainty when looking for 'common ground'
 Format: Insight talks
 Author: **Ferdoos Esrail**, TU Delft, Netherlands
 Chair(s): Luz Helena Oviedo
 Co-author(s):

In an interview with BBC Horizon in 1981, Richard Feynman said he “can live with doubt and uncertainty, and not knowing”. I would argue, indeed, that uncertainty and curiosity are at the heart of all scientific enterprises. Yet, in my research on interdisciplinary communication, I observed attempts to ‘tame’ uncertainty with rigid workflows. Pre-defined work arrangements seemed to hinder participatory sense-making of uncertainty. The latter is a paramount dynamic of ‘creating common ground’, and a pre-requisite for creativity and innovation in interdisciplinary science. Two salient questions arise from my ethnographic analysis: How do we deal with uncertainty when looking for common ground? And, how do we adapt to changing circumstances when maintaining common ground?

In this presentation, I would like to conceptualize common ground as an 'ambiguous communicative object'. Such objects may facilitate participatory sense-making of uncertainty in three ways. Firstly, the inherent ambiguity contained within the object creates room for multiple interpretative stances. This is crucial because actors’ interpretative relationships with common ground may change as their meaning-making evolves over time. Secondly, the object emanates imprecision, because its contours are fuzzy and in state of flux. As such, common ground reflects on-going ‘boundary negotiations’ between actors with different perspectives and backgrounds. Thirdly, the object conveys provisionality. Common ground is tentative in a sense, because actors’ degree of commitment varies with ambiguity and imprecision; the less ambiguity and imprecision, the less possibility for actors to connect their ambitions to the common ground.

If we conceive of science communication as ‘boundary work’, and we consider common ground an important driver of good practice, then ambiguous communicative objects may help us grasp the dynamic interplay between uncertainty and common ground. I think this is a discussion worth having. And with this ‘insight talk’ I hope to spark up the conversation.

ABSTRACT

Essex, Jane

When & where: Parallel session 3-G, Wednesday, 12 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 3. Diversity in Science for Social Inclusion: when the diversity wheel becomes a blur
 Format: Visual papers
 Author: **Jane Essex**, University of Strathclyde, United Kingdom
 Chair(s): Melanie Smallman
 Co-author(s): Ingeborg Birnie, Kirsty Ross

This presentation describes the work of five nations (Germany, Ireland, Slovakia, Slovenia and the UK) Erasmus Plus project aimed at enhancing diversity in science through informal and non-formal science education activities. We will recount how the project began by focusing each national team's efforts on one of the characteristics of people who are under-represented in science, as commonly set out on a diversity wheel. Although providing a useful auditing tool, such a taxonomy may unintentionally perpetuate an unfortunate deficit model. As the group considered strategies for the most effective teaching, shared features of inclusive learning activities emerged. From this revised understanding, the five national teams devised a framework to audit the variety of interventions conducted by each of the five nations. Based on this framework, the UK team devised two sets of activities relating to two culturally diverse groups in Scotland, people of south Asian heritage and those educated through the medium of Gaelic language. Both sets of activities were inter-disciplinary, involving science and technology along with art and storytelling. The activities were intentionally culturally responsive and focused on creative responses to diverse science stories. The activities were then evaluated using an open response tool (a 'before' and after' postcard) that was intentionally creative and inclusive.

ABSTRACT

Essex, Jane

When & where: Parallel session 11-K, Friday 14 April 14:15 – 15:30, *Van der Vorm Room*
 Title: Co-creating STEM communication and enhancing sustainability
 Format: Problem-solving workshop
 Author: **Jane Essex**, University of Strathclyde, United Kingdom
 Chair(s):
 Co-author(s):

This workshop will focus on the presenter's experience in facilitating a co-created inclusive STEM (science, technology, engineering and maths) project. She brought together STEM researchers who had no prior experience of inclusive science communication and young people with learning difficulties who had limited experience of STEM. Through a six-day series of STEM activities in a 'low tech' environment, the participants explored what sustainability meant to them in their daily lives and research. There were many 'false starts' and anxieties during the planning and execution of what was an ultimately successful project. These will be shared, along with the strategies that were adopted to mitigate them. During the series of sessions, the young people learnt more about STEM and what the researchers did, specifically they demonstrated, through a range of outputs, that they had developed a secure understanding of sustainability and how it can be enhanced by STEM research. At the same time, the researchers discovered more about inclusive communication and the lives of young people with disabilities. The presentation will consider what was learnt during the summer school by the diverse parties who participated and how these insights can be used to plan future similar activities.

ABSTRACT

Eysink, Tessa

When & where: Parallel session 4-G, Wednesday, 12 April 17:00 – 18:15, *Van Beuningen Room*
 Title: 3. Success criteria for informal STEM learning activities: views of practitioners, visitors and researchers
 Format: Insight talks
 Author: **Tessa Eysink**, University of Twente, Netherlands
 Chair(s): Marieke Baan
 Co-author(s): Hannie Gijlers, Natasha Dmoshinskaia

Science-engagement organisations do their best to bring science to public: they invite people to see their collections and exhibitions, they organise special events for visitors, and they develop media and technology products to reach different groups. With the design of their activities, science-engagement organisations hope to spur people's interest in science, to involve them in scientific reasoning, and maybe even get people develop a personal connection to science. In order to reach these goals, we need to know what the success criteria for informal STEM (iSTEM) learning activities are. In the Surrounded by Science project, experts in science education research, science centres and museum educators, providers of outreach and informal learning activities, and policymakers work together. The project members initiated a dialogue with different stakeholders, who all have their own ideas about what makes an iSTEM activity successful. In total, we reached out for more than 200 stakeholders (activity providers, school teachers, and visitors) in 20 countries. During the semi-structured interviews stakeholders were asked about goals and design features of iSTEM learning activities (activity providers), added value of iSTEM learning activities (teachers) and motivation to take part in such activities (visitors). The results of these different groups of stakeholders were compared and complemented with a literature review. This was done for three different contexts: outreach programmes, designed environments, and technology and media products, and led to the identification of 22 types of learning activities and the formulation of their key design features and success criteria. Having created the common ground on the success criteria, we can take the next step to design and develop a systematic assessment methodology that can analyse the impact of informal STEM activities. As such, results can be interesting for activity providers, science communicators, and researchers.

ABSTRACT

Fage-Butler, Antoinette Fage-Butler

When & where: Parallel session 11-B, Friday 14 April 14:15 – 15:30, *Van der Mandele (mezzanine)*
 Title: 6. Trust and mistrust of the MMR vaccine: Finding common ground for science communication?
 Format: Insight talks
 Author: **Antoinette Fage-Butler Fage-Butler**, Aarhus University, Denmark
 Chair(s): Luz Helena Oviedo
 Co-author(s):

In science communication broadly construed about socio-scientific topics such as vaccination, societal debates often polarise around attitudes of trust and mistrust. While public (mis)trust can be causally explained in various ways – from vaccine literacy to ideologies to demographics – a values-based approach can highlight the meanings associated with vaccines and thus their cultural significance, which is highly relevant from a science communication perspective.

Drawing on a values approach to science communication, this paper discusses how trust and mistrust of MMR vaccines are justified, focusing on the values that underpin the trust positions. A theoretical discussion of (mis)trust as it relates to values is supplemented by a discourse analysis of data from an article on a web media platform directed at younger women that juxtaposes the opposing trust perspectives on MMR vaccination of a doctor and an anonymised “anti-vaxxer”.

Analysis identifies many commonalities in the statements of trust and mistrust of MMR vaccination that legitimise both perspectives: emotion, experience, moral arguments, knowledge, and positionality. Both trust and mistrust of MMR vaccination are presented as moral, reasoned stances by their proponents, the main difference being their conclusions: the “anti-vaxxer” expresses concern about perceived dangers of the vaccine, while the doctor is concerned about the danger of measles to public health if vaccination is declined. Both the doctor and the “anti-vaxxer” express a preoccupation with safeguarding health and life, despite divergent conclusions.

An examination of legitimations of (mis)trust can help to identify sources of common ground that may lead to meaningful dialogue where people with opposing worldviews become better able to understand the other’s perspective. This suggests the importance of a values perspective to science communication and how we researchers may be able to contribute.

ABSTRACT

Fahy, Declan

When & where: Parallel session 10-E, Friday 14 April 11:30 – 12:45, *Hudig Room*
 Title: 1. Public Accountability: Explicating a Concept for Science Communication Research and Practice
 Format: Individual papers
 Author: **Declan Fahy**, Dublin City University, Ireland
 Chair(s): Bernard Schiele
 Co-author(s):

An important role for science communication in society, research has found, is to ensure the public accountability of science in order to facilitate public trust. But there has been little attempt to conceptualise this idea of accountability, or to demonstrate how it applies to science communication scholarship and practice. In response, this paper explicates the concept of public accountability in science. It synthesises ideas from the public understanding of science with ideas from the emergent field of accountability studies, which developed since the 1960s in response to the growing complexity of government and public policy. This conceptual paper analyses the meaning of public accountability, describes its essential qualities, and prescribes ways it can be applied as an analytic concept for research and as a categorisation for science communication practice.

The paper focuses, in particular, on two understandings of accountability that can be applied to science. The first is accountability as virtue, which is concerned with the prevention of undesirable behaviours within science, and is tied to norms of scientific research and conduct. The second is accountability as mechanism, in which scientists and their institutions can be held to account by other professionals or institutions in various public forums. To illustrate how the concept can be applied, the paper analyses the various mechanisms, forums, individuals, and organisations that are focused on public accountability in one part of science – communication around research integrity. The paper argues that, in order to foster public accountability in science, scholars and practitioners must take a detached and sometimes adversarial stance towards aspects of the scientific enterprise.

ABSTRACT

Farrugia, Danielle Martine

When & where: Parallel session 10-K, Friday 14 April 11:30 – 12:45, *Van der Vorm Room*
 Title: STEAM uptake and careers: Empowering researchers
 Format: Problem-solving workshop
 Author: **Danielle Martine Farrugia**, University of Malta, Malta
 Chair(s):
 Co-author(s): Edward Duca, Shruti Sundaresan, Amanda Mathieson, Jon Rea, Lucky Dlamini

You are an engaged researcher. You want to encourage the young people you meet and work with to pursue a career in science. But what is the best way to do this? This talk will explore some of the results from a survey conducted across several age groups across five countries (Malta, South Africa, UK, Ireland and India) about what encourages and/or hinders students to take up STEM courses/careers.

Students' negative perceptions about science may hinder their progression in a science related field. One of the main factors found in the literature is related to students' self-perceived competence of STEM subjects. Others include their science school experience and whether their envisioned future career is gender appropriate.

Researchers can act as role models for students but are often limited by time and lack of training. Are these obstacles the same across Europe and other countries? How can the humanities and the arts be used by science communication practitioners to empower researchers to engage students with STEM? We are conducting a survey across several age groups and five countries (Malta, South Africa, UK, Ireland and India) to find out how students across different age groups are inspired to further their STEM journey and we want your insights to help us explore these results further.

After the talk, audience members will be asked to share their experiences and ideas, to create a common understanding of what works and what can be improved based on the results presented going forward. A review paper of all the perspectives gathered through the talk will also be compiled.

ABSTRACT

Farrugia, Danielle Martine

When & where: Parallel session 11-E, Friday 14 April 14:15 – 15:30, *Hudig Room*
 Title: 5. Public engagement with science policies for small island states: A case study for Malta
 Format: Individual papers
 Author: **Danielle Martine Farrugia**, University of Malta, Malta
 Chair(s): Alessandra Fornetti
 Co-author(s): Edward Duca

Small states present significant amounts of educational policies. However, policies on engaging various publics with science are relatively lacking or non-existent. While the need for public engagement with science (PES) activities has increased in various countries such as Malta, and are potentially interesting to the 'converted' citizens, they tend to be sporadic. Often enough this leads to resources being wasted, a lot of repetition and lacunae in the areas being addressed.

By taking a pragmatic worldview as a theoretical framework, a mixed-method approach was taken to analyse the PES public sphere in Malta together with an investigation of the links between the organisers and the citizens attending science events and identifying the relationships (especially related to power) between them. Stakeholder theory (through BSRs 5-step approach stakeholder mapping), Actor-network theory and a mixture of top-down and bottom-up approaches guided this study's approach in identifying and understanding publics in the Maltese PES public sphere. Danielle Martine Farrugia (PhD student, Senior executive of science popularisation, University of Malta (UM)) supervised by Prof. Paul Pace and Dr Edward Duca (UM) and, Prof. Alexander Gerber (Rhine-Waal University) will present data gathered from a questionnaire (575 responses) about Maltese citizens' perceptions about science, and results from 19 interviews conducted with senior management employed in PES institutions, to discuss whether institutions are achieving their PES aims. The survey showed that Maltese people over the age of 18 use the Internet to learn about science, development and research, followed by science events, TV, blogs, newspapers, podcasts and Radio. The results from the questionnaire will be compared to other surveys conducted in other countries, such as the United States, Australia and European countries.

Through the concept of science capital this presentation will share initial indications that stem out of this PhD research as to how different stakeholders in organisations and institutions conducting PES in Malta can address these lacunae. The recommendations from this analysis will present trends, challenges and recommendations that could potentially be relevant within an international framework.

ABSTRACT

Feldman, Hannah R.

When & where: Parallel session 11-J, Friday 14 April 14:15 – 15:30, *Plate Room*
 Title: The kids are alright – Establishing best practice for inclusion of youth in adult-dominated science communication
 Format: Problem-solving workshop
 Author: **Hannah R. Feldman**, The Australian National University, Australia
 Chair(s):
 Co-author(s):

When exploring long-term impacts of scientific issues (such as climate change), action is often led by adults in long-fought positions of influence and power. At the same time, young people are engaging with communication, technology, climate and politics in starkly different ways to their adult predecessors. But despite many institutional attempts to be inclusive, research shows that young people are still viewed through a deficit lens, often shadowed by assumptions that they simply “don’t know enough to adequately contribute or participate” to complex societal problems.

Can our present-day trajectories, in environment, health, politics and beyond, be truly inclusive of our ‘end users’ if youth are not invited to co-create this pathway? How do we ensure these publics, as well as their shifting values and expertise, are meaningfully centred in discussions of their own futures?

To challenge these perspectives and explore how we can collectively improve our openness and inclusiveness with youth voices, this 50-minute world-café style discussion will:

- Uncover and interrogate some of the biases adults may have regarding young people’s science communication;
- Identify areas where youth inclusion can strengthen science communication work, research, and practice;
- Co-create actions (big and small) that all participants can take in their work for inclusion of youth perspectives and voice.

This problem-solving workshop will bring together attendees focused on the long-term impacts of their work, creating a community of practice to ensure young people of today can inherit an inclusive and collaborative planet, tomorrow. Young conference attendees are highly encouraged to come and co-create this vision, which will be collated and re-distributed to participants after the event.

ABSTRACT

Ferracioli, Laercio

When & where: Parallel session 8-E, Thursday 13 April 17:00 – 18:15, *Hudig Room*
 Title: 2. Scientific and artistic thought and creative behaviour: the communication of science, technology and art convergence
 Format: Individual papers
 Author: **Laercio Ferracioli**, National Institute of the Atlantic Forest - INMA, Brazil
 Chair(s): Luisa Massarani
 Co-author(s): Maria Clara Ferreira, Sofia Ferracioli, Angela Buaiz, Rick Rodrigues

On World Water Day 2022, the Atlantic Forest Waters Exhibition was opened at Biology Museum Mello Leitão, headquarters of the National Institute of the Atlantic Forest (INMA) aiming at promoting public communication on water shortage at Atlantic Forest through a Science.Technology.Art dialogue. Brazil has only 12.4% of the original Atlantic Forest and a water scarcity scenario in the short-medium term.

In this context, promoting the understanding of this scenario was a delicate position of how to build it properly in the pursuit of engagement in science, understood as the creation of a dialogue around science. The purpose of this dialogue, whether through activities, events or exhibitions, was to build a bridge between Science and Society and fill gaps in knowledge. The promotion of a dialogue between science and art, in the form of an exhibition, has been explored in different contexts around the world.

The exhibition followed the Polish-Brazilian artist Fayga Ostrower's conception, which considered a mistake the attribution of artistic value to science. Her approach was to reveal correspondences between artistic and scientific thought, making clear divergences regarding their objectives and methods. However, reaffirming convergences between art and science considering creative behaviour, which is strongly affective driven, and intrinsically intuitive. The proposal was to unite art, science and technology, considering the invited artist's poetics and researcher's practice. The Exhibition translated the dialogue between the artist and the scientist around the thematic water. Starting from their individual experiences, they explored convergences of creative behaviour anchored in the affective: the production of each one was intuitive, within their respective working areas.

In order to scrutinize the more than 7,500 visitors' experience throughout the exhibition, a sample of 10% was asked to write 5 or more words that expressed it and were interviewed. The approach of asking visitors for 5 words was to lead them to think deeper about their experience: usually the first words are generic and more related to aesthetic aspects, the latter demand further reflection beyond these aspects. A word clouds technique was used: a rich way to provide a preliminary data analysis with text visualisation in which more frequently cited words are given greater prominence. The outcome of the word cloud technique revealed quotes such as "preservation", "awareness", "future", "sadness", "life". The preliminary qualitative analysis of the interviews disclosed a reflective audience with statements such as "deforestation is the big problem", "we have to act", "preserve and restore", "despite shocking, it is beautiful", revealing that visitors were strongly sensitized.

ABSTRACT

Ferreira, Miguel

When & where: Parallel session 6-F, Thursday 13 April 11:30 – 12:45, *Schadee Room*
 Title: 5. From paper to screen: how to produce a video ?
 Format: Insight talks
 Author: **Miguel Ferreira**, Centre for Functional Ecology, University of Coimbra, Portugal, Portugal
 Chair(s): Laurens Landeweerd
 Co-author(s): António Granado, Betina Lopes, João Loureiro

Video ABSTRACT, i.e. audio-visual presentations of a scientific paper, are an exciting new trend in the world of online science videos. They allow researchers to tell their stories using diverse formats and resources, exploring new partnerships and reaching new audiences. Also, they offer a unique guarantee of rigour and accuracy, fighting misinformation and presenting themselves as reliable tools for education. Unfortunately, video ABSTRACT remain unexplored, used mainly for peer-to-peer communication, indexed in scientific journals or uploaded to video channels, and, in many cases, not promoted to the general public.

This paper intends to explore for the first time the most effective features to produce a compelling video . Also, it aims to understand how can a video be promoted in different contexts, with different objectives and for different audiences.

To this end, we applied a reception study divided into two moments: (i) thirty experts from different fields watched a selection of 21 video ABSTRACT from Ecology and Environmental Sciences and filled out a questionnaire, and (ii) six Biology and Geology teachers (and former course students) were interviewed after watching a video produced by our team. Content analysis was performed in both stages.

Results show that visual resources, production, topic and presentation are the essential categories of interest for a more transparent, concise, original and dynamic video . Disruptive and professional formats succeed more than amateur efforts to communicate scientific work, so investing and planning are required. Working in a multidisciplinary team and having a network strategy is crucial. In the classroom, the video should be short, with different styles, and implanted in a broader educational strategy. Lastly, the presence of researchers in the videos inspires students to pursue scientific careers and creates new bridges between academia and high schools.

ABSTRACT

Ferreira, Miguel

When & where: Parallel session 7-H, Thursday 13 April 15:15 – 16:30, *Ruys Room*
 Title: 1. Audio-visual tools to communicate Science: The various lives of the video
 Format: Insight talks
 Author: **Miguel Ferreira**, Centre for Functional Ecology, University of Coimbra, Portugal, Portugal
 Chair(s): Marlit Hayslett
 Co-author(s): António Granado, Betina Lopes, João Loureiro

Video ABSTRACT, i.e. audio-visual presentations of a scientific paper, are an exciting new trend in the world of online science videos. They allow researchers to tell their stories using diverse formats and resources, exploring new partnerships and reaching new audiences. Also, they offer a unique guarantee of rigour and accuracy, fighting misinformation and presenting themselves as reliable tools for education. Unfortunately, video ABSTRACT remain unexplored, used mainly for peer-to-peer communication, indexed in scientific journals or uploaded to video channels, and, in many cases, not promoted to the general public.

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ABSTRACT

Finkler, Wiebke

When & where: Session 1, Tuesday, 4 April 09:00-10:15, *Zoom*
 Title: Virtual nature for science marketing? A New Zealand pilot study on immersive 360° VR experiences for nature connectedness and wellbeing
 Format: Online conference
 Author: **Wiebke Finkler**, University of Otago, New Zealand
 Chair(s): Toss Gascoigne
 Co-author(s): Yolanda Van Heezik, Debra Waters, Lara Vlietstra, Lei Zhu, Steve Gallagher, Ryan Walker, Ryan Forlong

Overview: This session will cover lessons learned from conferences, exhibitions and trans-disciplinary strategies to improve science engagement.

Immersive 360° VR technologies provide exciting avenues for immersive science communication and marketing of nature experiences with potential health and wellbeing benefits. The aim of this pilot study was to create 360° virtual experiences of nature. Using a mixed method visual research approach we developed four proof-of concept 360° videos integrating spatial ambisonic sound. We investigated the extent to which participants felt the experience was real; preferences for different nature scenes; and the effect the experience had on positive and negative affect, as well as nature connection state. Study participants (n=63) considered the 360° nature experiences supportive, easy, efficient, clear, exciting, interesting, inventive and leading edge. It successfully evoked feelings of being there, spatial presence, involvement, and provided a relatively high realism simulation. Viewing 360° nature videos significantly increased participants nature connection state. Our findings have implications for the use of immersive 360VR for science communication of e-health initiatives and how we can address and support global health and wellbeing using new technologies for the communication of science. This research fosters collaborative networks by merging innovative technologies with applied science communication, digital health education and social marketing. Here, we offer new avenues for joining science communication and marketing communication to create common ground for co-construction of knowledge and real-world applications on the interface of science, technology and social good.

ABSTRACT

Fischer, Liliann

When & where: Parallel session 2-D, Wednesday, 12 April 11:30 – 12:45, *Zeelenberg Room*
 Title: Bridging the gap - research-practice collaborations in science communication
 Format: Problem-solving workshop
 Author: **Liliann Fischer**
 Chair(s):
 Co-author(s): Ricarda Ziegler, Andreas Scheu, Peter Hyldgård

Both, scientific evidence as well as practical experience, are needed to ensure science communication is effective and of good quality. Over the past years science communication research has established a vast body of scientific knowledge on science communication. However, these insights are not always relevant to science communication practice. Moreover, research insights are frequently hard to access and science communication practitioners do not always have the time and resources to keep up with current research on science communication.

This workshop aims to tackle the challenges of bridging the gap between science communication research and practice. Only jointly can the two communities ensure effective and impactful science communication that makes a significant contribution to confronting current societal challenges. However, ensuring closer research-practice collaborations and networks would not only benefit science communication as such but rather both communities alike. Science communication researchers might gain opportunities to pursue research questions with high practical relevance. Practitioners in turn would have easier access to research insights which might allow them to develop their science communication strategies. The workshop will build on some of the learnings from the RETHINK project. RETHINK has examined how science communication is practised in Europe and has - among other things - pinpointed some of the challenges in how to bridge between science communication research and practice.

During the workshop, workshop participants will interactively discuss measures for a constructive way forward. The discussion will pursue questions like: How can science communication research and practice work together and inspire each other? How can scientific insights become more relevant and available to science communication practice? How can practical experience become more available to science communication research?

ABSTRACT

Fischer, Liliann

When & where: Parallel session 10-C, Friday 14 April 11:30 – 12:45, *Van Weelde Room*
 Title: 1. Bringing research and practice together - Insights from the German project Transfer Unit Science Communication
 Format: Insight talks
 Author: **Liliann Fischer**, Wissenschaft im Dialog, Germany
 Chair(s): Brooke Smith
 Co-author(s): Ricarda Ziegler, Andreas Scheu

In this talk the new project “Transfer Unit Science Communication” presents its first insights and seeks the opportunity for an exchange with like-minded colleagues and initiatives in the PCST-community.

In April 2022 the German organisation for science communication, Wissenschaft im Dialog, and the Berlin-Brandenburg Academy for Science and Humanities jointly launched the project Transfer Unit Science Communication. The Transfer Unit aims to contribute to better quality science communication by promoting an exchange between science communication research and practice.

The first endeavour of the Transfer Unit is the deployment of a delphi-inspired survey to empirically identify needs of science communication practitioners in Germany. This forms the basis for the development of research questions geared towards practitioners’ needs. In the talk the results from the delphi-study will be presented so that light will be shed on the most pressing questions of practitioners in the German science communication community.

These questions will be addressed in the course of the project in a series of secondary analyses and literature reviews. To make the results available to practitioners, the Transfer Unit will develop materials that are directly applicable and useful in everyday science communication practice.

The Transfer Unit aspires to raise awareness about the importance of practical relevance of research among science communication researchers and pave the way for future research projects. All its activities aim to contribute to bringing research and practice of science communication closer together so we can all jointly advance science communication.

ABSTRACT

Fleerackers, Alice

When & where: Parallel session M-E – Tuesday 11 April 11:00-13:00 – *ErasmusMC GK-018, GK-022, GK-024*

Title: Exploring SciComm through SciArt: PCST 2023 graduate student preconference

Format: Professional development workshop

Author: **Alice Fleerackers**, Simon Fraser University, Canada

Chair(s): Alice Fleerackers

Co-author(s): Anouk de Jong, Kelly Rademakers, Björk Johannes

This interactive workshop will bring together graduate students from across the world for a hands-on science art activity. Following a series of icebreaker activities, participants will work in small groups to create their own “Science Art” collages on a topic of their choice. We will share our collages and discuss the benefits and challenges of communicating science using creative, visual approaches.

Open to all Master’s and PhD students attending the PCST 2023 conference. All art materials will be provided. No prior experience in SciArt is required.

ABSTRACT

Fleerackers, Alice

When & where: Parallel session 3-A, Wednesday, 12 April 15:15 – 16:30, *Willem Burger Room*
 Title: 2. Bridging open science and science communication: A theoretical perspective
 Format: Individual papers
 Author: **Alice Fleerackers**, Simon Fraser University, Canada
 Chair(s): Emma Weitkamp
 Co-author(s): Monique Oliveira Germana Barata

Open science and science communication share a common goal of enabling wide, public, free, transparent access to research; yet, they have historically been treated as separate concepts and studied by different scholarly communities. In this individual paper, we argue that it is necessary to bridge these two concepts in order to fully understand the multifaceted effects of the recent Covid-19 pandemic on science and society. We propose an initial theoretical framework for creating this “common ground” by considering open science and science communication as two interconnected points along a continuum of access. The framework draws on the concept of the spiral of scientific culture to understand the practice and communication of science as intertwined and uses an innovation diffusion model to conceptualize how the pandemic supported conditions that facilitate the broad uptake of both science communication and open science. We hope to validate, refine, and iterate on this framework based on empirical evidence from our in-progress research, as well as using feedback received from PCST 2023 attendees. While the individual components of the framework are well established, their combination is, to our knowledge, completely novel, offering new directions for scholars and practitioners of science communication.

ABSTRACT

Focke-Bakker Eileen

When & where: Parallel session 5-F, Thursday 13 April 09:45 – 11:00, *Schadee Room*
 Title: 3. High risk situations for vulnerable people
 Format: Individual papers
 Author: **Eileen Focke-Bakker** University of Humanistic Studies, Netherlands
 Chair(s): Marjoleine van der Meij
 Co-author(s): Pieter van Gelder

Vulnerable persons are exposed to multiple obstacles. The contribution of this study is awareness-raising and enhancing research inclusion of persons with a disability*.

Understanding the obstacles of disabled people contributes to an improvement of risk-response strategies.

The study's results show that national/local authority's risk-management research contributes to awareness of inclusiveness for disabled in society. The results also enrich methodological approaches on risk-management. The study concentrates on three diverse safety/security risks: flooding, traffic and theft and is investigated in five environments.

We designed and tested a risk-management framework-model for visual/hearing impaired researching their socio-economic background, risk-assessment and risk-handling. Also, the optimization of national/local authority risk-handling was investigated.

Some relationships were observed but could not firmly be established, due to the small sample. E.g. the relationship between family-structure and income in case of flood risk-assessment. Age and disability play an important role in the intended risk-handling. Respondents' risk-response strategies are reducing (for flooding); avoiding (traffic accidents) and escalating (for theft).

There is a mismatch between the authority's risk-management at national/local level and measures considered as optimal by the disabled. This is especially true for authority's risk-handling of traffic risks at local level. It was considered inefficient and ineffective. However, their risk-handling of flooding at national level was considered efficient and effective. During COVID-19, the disabled showed more resilience to the risks of the pandemic impacts than the non-disabled. The study generated ideas about re-testing the original framework-model and its concepts with a larger sample and created added-value by outlining follow-up studies. E.g. the (re)designing the authority's traffic measures with values of the disabled: "self-efficacy and respectfulness". Also by integrating the VSD/ID methodologies, performed in a responsible innovative way, conflicting values will be exposed and the best possible value compromise for the disabled will be reached.

ABSTRACT

Fogg-Rogers, Laura

When & where: Parallel session 6-B, Thursday 13 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: Citizen-led emission reductions: behaviour change intention is positively correlated to citizen enjoyment and learning in public engagement activities
 Format: Linked papers
 Author: **Laura Fogg-Rogers**, University of the West of England, Bristol, United Kingdom
 Chair(s): Andy Ridgeway
 Co-author(s):

Science communicators need to co-create engagement activities which are enjoyable, inclusive, and attractive to diverse citizens representing regional demographics. Over 8,300 people from six European countries took part in the ClairCity project, aiming to raise awareness of air pollution and carbon emissions. Public engagement activities crowd-sourced potential policy interventions and were tailored to diverse groups; ranging from surveys (approaching population representation), citizen videos, school activities, a mobile game, and community workshops. Policy results were ratified by stakeholder and expert workshops. Analysis of an evaluation sample, N=855 people (10.3%), highlighted that across all activities, a statistically significant positive correlation indicated the more participants enjoyed an activity, the more they reported their understanding of air quality had improved. Behaviour change intention was also significantly positively correlated to understanding, with 73% of participants indicating they would make a life change to improve air quality. While climate change and air pollution are serious issues, public engagement to raise awareness and improve participation in policymaking does not have to be. To fully realise the goal of citizen-led emissions reduction, policymakers need to co-create engagement activities which involve under-represented groups on policymaking such as women and young people. Ultimately, the more enjoyable the engagement activities, the more people gain understanding about the issues, and the more likely people are to make a change to their behaviour to reduce air pollution and carbon emissions and so improve public and environmental health.

ABSTRACT

Fogg-Rogers, Laura

When & where: Parallel session 10-E, Friday 14 April 11:30 – 12:45, *Hudig Room*
 Title: 5. Close to home or collective goals – socioeconomic status is correlated to engineering problem-finding and relevance
 Format: Individual papers
 Author: **Laura Fogg-Rogers**, University of the West of England, Bristol, United Kingdom
 Chair(s): Bernard Schiele
 Co-author(s):

Inspiring a future generation of engineers has never been more important, as we seek urgent solutions to the Climate and Ecological Emergency. Science communication needs to break stereotypes and challenge perceptions about careers in engineering, inspiring higher numbers and more diverse people into the engineering workforce to shape a shared inclusive future. This study focused on the aspects of engineering which children find appealing – using self-selected problem-finding in the national competition, the Leaders Award. Run by Primary Engineer, the competition asks children aged 3-18 years, ‘If you were an engineer, what would you do?’. A total of 892 entries from South West UK primary schools were analysed. The sex ratio was fairly even, with 53% of entries from males, and 47% from females. Entries were also spread across different socioeconomic areas and ages.

A content analysis was conducted on the types of problems chosen by the children. The most common theme was ‘everyday activities’ (28%). There were no statistically significant differences in the themes chosen by boys or girls, although there was a trend for girls to choose more ‘everyday activities’, ‘environment’ and ‘social’ problems.

There were statistically significant differences between school IMD status; children from schools in low socioeconomic areas were more likely to choose ‘everyday activities’ and ‘social’ themes compared to medium or high decile entries. ‘Pleasure’ was better represented in low IMD entries, ‘environment’ was better represented within medium IMD areas, and ‘infrastructure’ and ‘transportation’ were better represented within high IMD decile entries. This study provides new evidence about how children from different backgrounds perceive engineering, and what topics appeal to them. This paper therefore provides ideas for projects and framings to build connections between engineering and children from different social classes, thereby encouraging inclusivity. We argue that children will benefit most from science communication which focusses on issues and problems they can relate to, particularly in times of socioeconomic and environmental difficulties.

ABSTRACT

Fooshee, Julie Ann

When & where: Parallel session 6-F, Thursday 13 April 11:30 – 12:45, *Schadee Room*
 Title: 3. Experimentation in Accessibility at Science Festivals: Are digital technologies the next frontier?
 Format: Insight talks
 Author: **Julie Ann Fooshee**, University of Edinburgh, United Kingdom
 Chair(s): Laurens Landeweerd
 Co-author(s):

Science festivals offer a unique place to communicate science and they have made the claim that they are 'for everyone'. However, research conducted in the UK and US on science festival audiences alludes to the fact that they are preaching to the choir. Still, science festivals seek to reach beyond the already engaged, but the structure of the event can oftentimes keep different audiences from attending.

My PhD research is around the disabled festival experience. As someone who has participated in science festivals for almost a decade with a degenerative condition, my participation has decreased each year because of a lack of accessibility to science festival activities. Digital engagement and virtual activities are one way for science festivals to continue to communicate science beyond the already engaged; they offer a means for people with a disability to engage with festival content without a barrier to access. This was shown during the pandemic when it became necessary for all events to take place virtually and online.

Research has been conducted on how the pandemic affected disabled people and their access to services and in fact the increase in the ability of people with a disability to attend virtual activities because they were no longer being held in a physical space that required a person to attend.

The big questions going forward are: will festivals continue to contribute to this kind of content creation as the pandemic restrictions lift? Is going back to 'in-person only a positive strategic move when it is inherently exclusionary? How can virtual science festival programs meet the demands of an audience of people with a disability?

ABSTRACT

Fornetti, Alessandra

When & where: Parallel session 1-A, Wednesday, 12 April 09:45 – 11:00, *Willem Burger Room*
 Title: Science Communication of Academic Institutions: What are the Challenges?
 Format: Roundtable
 Author: **Massimiano Bucchi**, Università di Trento, Italy
 Chair(s): **Alessandra Fornetti**
 Co-author(s): Mike S. Schaefer, Anna Maria Fleetwood

Several studies and indicators point to increasing attention and resources devoted by academic institutions to public communication and public engagement of citizens with research results and activities. Such opening up is well documented at policy level, at the level of universities, or at the level of individual researchers building a public profile.

The roundtable will address questions like the following:

- Is this increasing commitment matched by a real change in the institutional culture with respect to public communication and public engagement?
- Is there a risk that activities and resources are mainly and generically aimed at promoting institutional visibility and organizational reputation across media, instead of fostering public dialogue and engagement around science?
- How can science communication scholars and practitioners collaborate in order to better understand this process and strengthen its quality?
- What are the implications for science communication training?

The discussion will also introduce the theme of the PCST symposium to be held in Venice, 2023.

Massimiano Bucchi (Università di Trento, Italy) has been the editor in chief of the journal *Public Understanding of Science* (2016-2019). He is Professor of Science and Technology in Society and Director of the international Master SCICOMM, Università di Trento. He has published several papers in journals such as *Nature*, *Science* and *PLOS*. His books in English include *Science and the Media* (Routledge, 1998), *Science in Society* (Routledge, 2004) and the *Handbook of Public Communication of Science* (Routledge, 3rd ed. 2021, co-edited with B. Trench). Bucchi will introduce the roundtable and provide an initial outline of the key themes, which will be then discussed more in depth by the other speakers.

Mike S. Schäfer is a professor of science communication and director of the Center of Higher Education and Science Studies (CHESS) at the University of Zurich, Switzerland. He heads a large project funded by the Swiss National Science Foundation that analyzes university communication across all types of higher education institutions and over time, and he has been involved in several international, nationally comparative projects on science communication during the past decade, leading to several publications in leading academic journals. During the roundtable, Mike S. Schäfer will speak in particular about recent meta-trends in university communication such as professionalization, diversification and strategic alignment.

Anna Maria Fleetwood is Senior Adviser External Relations for the Swedish Research Council. Anna Maria Fleetwood has almost two decades of experience in collaborating and advocating policy for science communication. She gives lectures on science communication and is the initiator of a number of successful projects and events. She has been leading Swedish Research Council's expert group for a framework for courses in science communication at third cycle higher education. During the roundtable she will discuss in particular: what are the implications of trends and challenges in science communication activities by academic institutions for the development of training and education activities in science communication?

ABSTRACT

Fornetti, Alessandra

When & where: Parallel session 5-L, Thursday 13 April 09:45 – 11:00, *Mees Room*
 Title: Toolkits for professionals and researchers: providing common ground for quality science communication
 Format: Mini-workshop
 Author: **Alessandra Fornetti**, Venice International University, Italy
 Chair(s):
 Co-author(s): Ilda Mannino, Joseph Roche, Enrico Costa

This workshop will present and share a series of Toolkits developed to support researchers, journalists, museum facilitators and other communication professionals in quality science communication. Conceived either as self-learning tools or educational material for trainers, the Toolkits offer common ground to enhance the quality of science communication thus providing benefits for science and society.

The workshop will be led by the developers of the Toolkits themselves who are experts in journalism, social media, museum studies and scientific research. They will engage the audience in discussing how to use and exploit the tools, what impacts they can bring in the different communities of users and publics, which challenges are still to be tackled, and how to keep up with new communication challenges.

The Toolkits were developed in the framework of the Horizon 2020 QUEST project – Quality and Effectiveness in Science and Technology Communication. Since the conclusion of the project in 2021, the Toolkits have been used by a number of individuals and institutions, far beyond the countries of the project including Portugal, Israel, Japan, South Africa and other African countries.

This PCST workshop represents a further step in the co-design process adopted to develop, test and validate the toolkits in which a number of communication experts, officers, journalists, scientists, scicomm scholars, and members of the general public have been participating.

ABSTRACT

Fuglsang, Simon

When & where: Parallel session 5-F, Thursday 13 April 09:45 – 11:00, *Schadee Room*
 Title: 6. What makes a skeptic? Exploring conceptualizations of science skepticism and its consequences
 Format: Individual papers
 Author: **Simon Fuglsang**, Aarhus University, Denmark
 Chair(s): Marjoleine van der Meij
 Co-author(s): Lucilla Losi

Recent years have seen rising public and academic concerns about science skepticism. However, science skepticism remains an ill-defined phenomenon as little conceptual work has been undertaken. What clearly emerges from the literature and policy debates, is that this form of popular dissent is generally seen as a negative disposition, in contrast to productive or organized skepticism. While we do not deny that science skepticism can have negative consequences for the attitude holders and society as such, we believe that we should be cautious how we approach a concept that we do not fully understand, especially given the high policy interest in this area.

This paper sets out to further our understanding of science skepticism. We depart in a literature review of conceptualizations and measurement of science skepticism. Building on this, we employ Eurobarometer 2021 data to explore the characteristics of people holding science skeptical attitudes on two central manifestations: climate change and evolution. First, we investigate the sociodemographic profiles linked to having science skeptic attitudes, largely replicating prior findings. We then turn to how science skepticism is related to general science enthusiasm and perceptions of scientists, and investigate the relationship between science skepticism and participation and interest in science.

Our analyses indicate that science skepticism is related to general science attitudes in a non-uniform manner, within and across issues, and that engagement, interest and science-policy preferences are very weakly related to science skepticism. Based on these findings, we argue that science skepticism might not be about science at all, and that we should be careful in understanding science skepticism in a uniform manner as a concept that can be “treated” with a single “cure”. Science skepticism seems to be highly issue dependent rather than a general disposition towards the role of science in society.

ABSTRACT

Fuglsang, Simon

When & where: Parallel session 9-F, Friday 14 April 09:45 – 11:00, *Schadee Room*
 Title: 6. Is science for the rich and powerful? Investigating the relation between income and trust in science across 145 countries
 Format: Individual papers
 Author: **Simon Fuglsang**, Aarhus University, Denmark
 Chair(s): Ana Claudia Nepote
 Co-author(s):

Recent years have seen a surge in interest in the sociodemographic determinants of public opinion of science. The relationship between income and public attitudes towards science, however, has received little attention. This is puzzling, as social and economic inequality is often highlighted as a barrier for access and engagement with science and technology. Moreover, income is broadly included as a control in studies of social and psychological determinants of public opinion of science. This indicates a consensus that income plays a role in how members of the public relate to science and technology, but to date no micro level studies investigate this prediction.

In response to this, I investigate the relationship between relative and subjective income in a large (n = 268,102) global (145 countries) sample, combining two rounds of the Wellcome Global Monitor from 2018 and 2020. Analyses show that subjective income (whether the respondents feel that they can get by on current income) has a moderate positive relation to trust in science, and that this relation is quite similar across settings and subgroups. Relative income (household income quartile) on the other hand has a weak, though positive, relation to trust in science, showing stronger correlations in industrialized democracies compared to developing countries. In general, it seems that contextual factors, especially institutional quality, matter for the relationship between income and trust in science. Individual level factors also moderate the relationship, especially science efficacy and institutional trust.

This paper provides evidence for previously largely implicit predictions regarding the relationship between income and attitudes towards science and technology. Furthermore, it points towards economic hardships rather than relative economic position as the main factor in how economic inequality influences public opinion of science, especially outside of oft studied European and North American populations.

ABSTRACT

Funk, Cary

When & where: Parallel session 3-E, Wednesday, 12 April 15:15 – 16:30, *Hudig Room*
 Title: 4. Lessons for Increasing Science Engagement Across Diverse Communities
 Format: Individual papers
 Author: **Cary Funk**, Pew Research Center, United States
 Chair(s): Brian Trench
 Co-author(s):

Public engagement with science is an important avenue for informal learning, enrichment, discovery of potential career paths as well as for increasing understanding of and support for scientific research activities. Too often, the core audience for formal and informal science activities draws disproportionately from university-educated and affluent communities. And in the U.S., Black and Hispanic Americans are underrepresented. While race and ethnicity have a unique context in the U.S, there are some parallels in the groups most and least engaged with science across other developed economies.

This paper shares insights from a national survey and a series of focus groups conducted by Pew Research Center providing an in-depth look at Black and Hispanic Americans' views of science. The analysis looks at levels of trust and engagement with science among these groups by education, gender, age and immigration status. The findings underscore ongoing barriers to science engagement among these communities and the importance of representation in how people see and experience science. Discussion will look at the implications of these findings for purposeful efforts to build deeper connections with diverse communities and for improving the diversity, equity and inclusion of science.

ABSTRACT

Gabay, Gillie; Sachikonye, Crispin; Cowen, Rachel; Ibrahim, Kira; Gwenci, Getrude

When & where: Session 2, Wednesday, 5 April 14:00-17:00, Zoom
 Title: Communicating the science and building common grounds with minorities
 Format: Workshop
 Author(s): Gillie Gabay (Acha Academic College), Crispin Sachikonye (Manchester University), Rachel Cowen (Manchester University), Kira Ibrahim (The Center for Cumulative Trauma Studies), Getrude Gwenci (University of Zimbabwe)

Communicating the science and building common grounds with minorities

Values of religious minorities clashed with guidelines of social distancing and with laws requiring the hospitalization of severely ill with COVID-19, in solitude. In Israel, Jewish spiritual leaders, followed by Muslim spiritual leaders, established underground home hospitals, illustrating an innovative patient-centered approach to COVID-19 care. An approach which could have been adopted to benefit the public, had authorities collaborated with minority leaders. Then a pinnacle of science, vaccinations, arrived.

Israel had a world record of 70% vaccination coverage in two months, but vaccine rejection among minorities was high. Within three months, infection rates rose, morbidity among minorities was high and discrimination and prejudice of the public towards them rose. Israel's world ranking of vaccine coverage plummeted.

The low scientific illiteracy underlying vaccine rejection across minorities around the world, supports the scientific literacy model. Echoing previous studies in religious minorities, the social forces shaping behavioral intentions towards vaccines, are their spiritual leaders. Although collaboration with minority spiritual leaders, who are responsible to sustain life, could have created common grounds to communicate the science, authorities across the world were not open to inclusiveness. Spiritual leaders of all minorities were left out of the decision-making circle.

Vaccination rates remained low among minorities with no culturally adaptive communication of the science. Furthermore, there was no attempt to create common grounds with minority leaders to utilize their expertise on alternate, agreed upon ways, to preserve traditional death rituals and avoid disenfranchised grief which inhibits effective functioning. The distrust of minorities in health authorities across the world blocks scientific knowledge, and the polarization between minorities and the public deepened. The Pandemic unravelled blind spots in communicating the science and missed opportunities for collaboration, setting lessons for health promotion in routine and in crisis.

Multi-perspectives on inequity towards minorities, across countries, and stakeholders' interests will be presented

Summary:

The Covid-19 pandemic exposed a lot of blind spots in the communication of science to minorities that led to missed opportunities for collaboration. Now we can hopefully learn from what we missed for future health communication. This workshop will present multiple perspectives on inequity towards minorities, across countries and stakeholders' interests, when it comes to health communications and interventions such as vaccinations. We will investigate how we can effectively communicate the science with openness and inclusiveness (campaigns, compliance guidelines, vaccinations) to build common grounds with minority populations and promote public health.

The aims of this workshop:

- Raise awareness about health inequities
- Engage participants in thinking about attitudes, values and status quo as barriers to inclusiveness and to building common grounds
- Enhance personal and professional responsibility to effectively communicate the science

ABSTRACT

Gagliardi, Lorenzo

When & where: Session 2, Monday, 3 April 10:45-12:00, *Zoom*
 Title: The role of cognitive biases in conspiracy beliefs
 Format: Online conference
 Author: **Lorenzo Gagliardi**, University of Insubria, Italy
 Chair(s): Ayelet Baram-Tsabari
 Co-author(s):

Overview: This session is about the places and platforms where we acquire science communication knowledge and how that 'knowledge' is presented and interpreted in turn.

A relatively new branch of studies in cognitive psychology has found that individuals who are more prone to cognitive biases (systematic errors that individuals make while forming judgements) are more likely to believe conspiracy theories. Given the broad and diverse nature of cognitive biases, in this paper I propose a conceptual distinction between the biases which contribute to the belief formation and those that contribute to the updating phase. Specifically, we argue that biases that fall into the first class are those related to the judgement of the likelihood of an event based on its resemblance with a priori stereotype (representativeness heuristic). Among these, researchers have found that proportionality bias (tendency to think that "big events" have "big causes"), causal conjunction bias (over-perception of causal connections between co-occurring independent events) and intentionality bias (the tendency to over-detect intentions and agency behind random events) all correlate with conspiracism. After being formed, these beliefs get updated in a biased way: confirmation bias lead conspiracy believers to seek only for consistent information, while neglecting or misinterpreting disconfirmatory evidence. Moreover, the excessive media coverage of false narratives might trigger availability bias, as these sources may make false pieces of information more salient, and as a result, the ease with which individuals can recall anecdotes might corroborate their erroneous beliefs. Finally, overconfidence induces individuals to over-estimate the explanatory power of their beliefs and to avoid experts' opinions on important topics, such as vaccination or climate change. The aim of this paper is two-fold: on the one hand, I will review the experimental evidence on the role of cognitive biases in conspiracy beliefs; on the other hand, I will discuss the role of biased cognition with respect to other determinants of epistemically suspect beliefs, framing cognitive biases as proximate mechanisms of conspiracism.

ABSTRACT

Garcia-Guerrero, Miguel

When & where: Parallel session 4-F, Wednesday, 12 April 17:00 – 18:15, *Schadee Room*
 Title: 3. Science communication training: from recreation to profession
 Format: Individual papers
 Author: **Miguel Garcia-Guerrero**, Autonomous University of Zacatecas, Mexico
 Chair(s): Pedro Russo
 Co-author(s): Ilse Magdalena Garcia-Nava, Bertha Michel-Sandoval, Edgar Arturo Ramos-Rambaud

Public communication of science (PCS) is an extremely demanding professional task: it requires passionate people, with skills to facilitate interaction with different sectors of the lay public, as well as an understanding of the scientific topics to be discussed along with their social issues. Several training initiatives focus on providing the essential theoretical elements to understand PCS and its practice, as explicit knowledge, but it is also necessary to complement this approach with a rich practical set of tools (tacit knowledge).

Preparing high-performance communicators is not a short process, it requires a broad base of people who collaborate in different science outreach initiatives so that the most committed develop their skills and learn at increasingly complex levels. In this sense, we consider it necessary to start with a lot of recreational collaborators to aspire to have some highly skilled professionals.

This paper addresses the experience of the Science Museum of the Autonomous University of Zacatecas in promoting various levels of training for the public communication of science. The first level includes training young volunteers who collaborate with the Quark Group; the second instance is in a university course for science majors; a third level involves short courses for researchers; and, finally, we will address an initiative towards the creation of a master's program of science communication in our university.

ABSTRACT

Garcia-Guerrero, Miguel

When & where: Parallel session 11-L, Friday 14 April 14:15 – 15:30, *Mees Room*
 Title: Action networks for Science Communication: building abilities for change
 Format: Roundtable
 Author: **Miguel Garcia-Guerrero**, Autonomous University of Zacatecas, Mexico
 Chair(s): **Diogo Lopes de Oliveira**
 Co-author(s): Rae Ostman, Jordi Diaz

The development of successful science communication programs lies at the intersection between scientific knowledge and practical skills, in different media, to engage the public in discussion of relevant issues. An essential route to achieving this convergence arises from the collaboration between science and communication experts. Still, it cannot be limited to a mere division of tasks: it implies integrating the people involved in the joint development of the actions necessary to achieve the goals of the project so that it is possible to build new capabilities that transcend the original specialties. In this way, new capacities are reached through the diversity of participants and the demands of the practice they develop together; which benefit the project in question and lays the foundation for new initiatives.

This round table addresses the experiences of national and international networks that promote the creation of networks of actors, scientists, and communicators, who collaborate to give life to large science communication projects. Said projects not only intend for the public to be informed, but to engage participants in such a way that transforms their relationship with science and technology, inspiring them to assume an active role in addressing the emerging science issues that will transform society.

Participants represent the National Informal STEM Education Network of the United States, the Mexican Network of Recreational Science, the Ibero-American Festival of Nanotechnologies 10alamos9, and the International Day of Scientific Culture celebration. The objective is to identify common factors for the achievements of these communities of practice and to establish possible bases for new collaborations on a global scale.

Speaker perspectives:

Miguel Garcia-Guerrero is coordinator of the North Node of the Latin American Network for Science Popularization (Red Pop), responsible for Science Outreach for the Mexican Society of Physics, and former President of the Mexican Network for Science Recreation (Recreacion en Cadena). He has extensive experience in the development of science communication networks that, on national and international levels, incorporate a wide variety of agents and institutions to develop science communication endeavors.

Miguel will address the challenge of reconciling the contrasting points of view of researchers and communicators, in order to achieve the goals of strategies they are involved in, and also help each other develop capabilities for better performance in their initiatives. On a second level, he will discuss how these enterprises, once they reach the public, try to help people incorporate science into their day-to-day decision-making.

Rae Ostman is a research professor in the School for the Future of Innovation in Society at Arizona State University, co-director of the Center for Innovation in Informal STEM Learning, and director of the National Informal STEM Education Network (NISE Net).

Rae will provide the experience from the creation of the NISE Net. She will also add the experience of the transition of the network to an ongoing, nationwide entity with multiple projects focusing on current STEM. In particular, she will focus on mutual learning that has occurred among professionals of diverse expertise and members of the public through this longstanding collaboration. She will draw on the many research and evaluation studies the Network has completed over the years, as well as the many science communication resources the Network has created. Finally, she will reflect on lessons learned and changes through time.

Jordi Diaz has a doctorate in Chemical Sciences from the University of Barcelona and a Materials Engineering degree from the Polytechnic University of Catalonia. Currently, he coordinates the NanoDivulga UB project. As a disseminator of nanotechnologies, he has participated in various events, talks, and workshops.

Jordi will present the experience of the '10alamos9' Festival, which develops outreach activities all over Spain, Portugal, and Latin America. Scientists, teachers, and communicators work together on this initiative. He will also address Nanoinventum: a pedagogical proposal intended to bring the world of nanotechnology closer to primary school students. This program asks kids to identify problems in their lives and design nanorobots to try and fix them.

Nanotechnology is already a reality, and it is important to help young people understand its basic concepts, implications, risks, opportunities, and applications, in order to assume critical opinions and be able to make informed decisions.

ABSTRACT

Gascoigne, Toss; Jenni Metcalfe

When & where: Parallel session 2-A, Wednesday, 12 April 11:30 – 12:45, *Willem Burger Room*
 Title: Is it time for an International Centre for Science Communication?
 Format: Roundtable
 Author: **Melanie Smallman**, University College London, United Kingdom
 Chair(s): **Toss Gascoigne, Jenni Metcalfe**
 Co-author(s): Marta Entradas, Brooke Smith, Siddarth Kankaria, Ionica Smeets

Over the past 30 or more we have made great strides in our knowledge, understanding and practice of science communication, as well as in sharing good practice and building pockets of expertise around the world.

For many, however, careers in science communication are precarious and activities typically rely on project-based funding that tends to be extra-curriculum activities for science-focused organisations. It is possible to imagine that if times get tough, science communication might be seen as an unaffordable luxury when we know it is fundamental to negotiating the relationships between science, technology and society in the 21st Century. Is there a risk that the lessons so far could be diluted, forgotten or even lost?

In this panel discussion, we reflect upon these issues and look at how science communication is being institutionalised before asking if it is time to do more to cement our knowledge and commitment by institutionalising science communication – both locally, but also globally in an International Centre for Science Communication.

Melanie Smallman is Associate Professor in Science and Technology Studies at UCL and Director of UCL's MSc and Centre for Science Communication. Previously, Melanie spent 20 years working in science communication and ran the science communication consultancy Think-Lab which she set up in 1999.

She currently advises the German Science Barometer survey and helped set up and is Jury Chair of the International Falling Walls Engage competition. She also serves on the steering group of the PCST Science Communication Teachers' Network.

Melanie will draw on her experience of working in science communication practice and research, of attracting funding to support these activities and as an institutional leader to reflect on where we are now in science communication. She will also propose some ideas for ways in which practice can be better shared, institutionalised and cemented for the future - in particular through an International Centre for Science Communication.

Marta Entradas is an Assistant Professor at the University of Lisbon.

Her research looks at the institutional structures in place for science communication. In particular, her MORE'PE project (2016-2020) has been a pioneer in contributing to our knowledge of how science communication is institutionalised, mapping communication at the level of research institutes (RIs) (meso-level) within academic institutions in 10 countries around the world. She is continuing this mapping at the central level of organisations in Portugal, the UK, Italy and Germany, through the 'OPEN - Organisational Public ENGagement' project (2018-2021), which will be the first empirical work of such type.

In her talk, Marta will draw on these projects and reflect on the lessons learned, to help us

understand current trends and lessons learned in institutionalising science communication.

Brooke Smith is the Director of Science and Society at The Kavli Foundation, where she works to strengthen science's relationship with society. Brooke is passionate about scientists engaging with various publics, and supporting those who enable scientists to communicate and engage effectively. At The Kavli Foundation, Brooke leads programs to build the field of public engagement with science, to support engagement efforts of Kavli's partners, and advance science policies that enable a thriving scientific enterprise.

In her talk, she will share insight from her experience of supporting projects that build the field of public engagement at the Kavli Foundation, highlighting what has worked well and what she sees as the key factors for the success of such projects and institution-building activities.

Siddharth Kankaria is a science communication practitioner and researcher, currently working at the National Centre for Biological Sciences, Bangalore and the Founder of the SciCommSci Club.

He spends his time exploring the research-practice continuum within science communication, contributing to mentorship, capacity-building & DEI efforts, and developing intersectional science engagement practices for the Global South.

In his talk, Siddharth will share insight from his experience of capacity building and reflect on what it means to institutionalise science communication in the Global South, what has been most effective, as well as what would be a priority from a future global initiative to institutionalise science communication.

ABSTRACT

Gascoigne, Toss

When & where: Parallel session 10-G, Friday 14 April 11:30 – 12:45, *Van Beuningen Room*
 Title: The ladder of power: Science communication and citizen science
 Format: Problem-solving workshop
 Author: **Toss Gascoigne**, CPAS, ANU, Australia
 Chair(s): Jenni Metcalfe
 Co-author(s): Anne Leitch, Christina Standerfer

What is the distinction between ‘participatory science communication’ and ‘citizen science’? Are they different points along a continuum stretching from ‘simple’ to ‘more involved’? Does ‘citizen science’ incorporate ‘participatory science communication’? And is all citizen science participatory?

A key consideration is the level of involvement by ‘citizens’ in these endeavours, and that consideration translates to questions of power. Who instigates the research? Who designs the experiments? Who conducts the analysis, and determines the way the results will be disseminated? Full participatory science communication has publics playing at least an equal role in all phases.

The workshop will consider these issues in the light of Sherry Arnstein's "Ladder of Participation" paper of 1969, described by one commentator as “penetrating, no-nonsense, even pugnacious”. Her ladder considered the level of real participation by local citizens when they were asked to take part in programs of urban renewal. She ranked degrees of involvement on an eight-point ladder. She claimed that too often it was fake participation, labelling the two lowest levels ‘manipulation’ and ‘therapy’. Only participation on the higher levels was genuine because of their power-sharing potential.

Can the same be said of ‘participatory science communication’? Participation may involve simple counting exercises (e.g. birds) but not at more meaningful levels such as experimental design, analysis and publicising of results. How is power shared between the people designing the experiment and the people carrying out the work?

Workshop participants will be invited to consider and debate the notion of ‘participation’, and then to construct their own individual ladders. The ladders will list participatory tasks from simple to more complex, and will then serve to trigger a discussion on power-sharing in citizen science projects.

ABSTRACT

Geipel, Andrea

When & where: Parallel session 6-H, Thursday 13 April 11:30 – 12:45, *Ruys Room*
 Title: 3. Extended Co-Creations – Virtual Technologies and Collaboration in Museums
 Format: Individual papers
 Author: **Andrea Geipel**, Deutsches Museum, Germany
 Chair(s): Liselotte Rambonnet
 Co-author(s):

Technologies such as the Metaverse or social VR (virtual reality) open up spaces of exchange and collaboration independent of location or time constraints. In museums, for example, visitors from different institutions can exchange information about objects or compare collection contents. At the same time, the challenges of rapidly evolving technologies are the catalyst for closer collaboration among different types of museums as well as with artists, businesses or universities.

With the Proxy at the Deutsches Museum, we have created an interactive space where visitors can experience museum objects in virtual reality environments. We are also experimenting with how collaborations with other institutions can be successfully implemented to integrate new experiences and open up the museum to the public. Within one case study together with the Germanisches Nationalmuseum Nürnberg, we use social VR technologies to let visitors interact with objects of both institutions to create common ground with objects attributed to the history of science and technology.

In my talk, I will present the overall concept of the Proxy as collaborative space. This report will be underpinned by a 4-year study of the predecessor project VRlab. Presenting mixed-method results from a visitor survey including participant observation, 10 in-depth interviews and a questionnaire analysis with 400 participants I will share insights into the process of creating this new multidisciplinary collaborative space and how this concept can foster the visitors' connection to the content presented.

ABSTRACT

Gillesipe, Melina

When & where: Parallel session 3-E, Wednesday, 12 April 15:15 – 16:30, *Hudig Room*
 Title: 1. A successful mixture: Using multiple communication methods across many audiences in a contentious space
 Format: Individual papers
 Author: **Melina Gillesipe**, Commonwealth Scientific and Industrial Research Organisation, Australia
 Chair(s): Brian Trench
 Co-author(s): Sheau Tsuey Cham

Communicating and engaging across the onshore gas development space, with multiple target audiences about complex science, is fraught with politics and emotions. There are conflicts in values and beliefs. There are diverse backgrounds and information needs, leading to differences in technical understanding and preferred ways of learning. And there are varying interest levels and agendas.

CSIRO's Gas Industry Environmental Research Alliance (GISERA) has been engaging in this space for more than ten years. Established in 2011, the Alliance set out to independently explore gaps in science that would address community concerns about the impacts of the onshore gas industry across Australia. Not only is the research itself vital – to inform decision-making at industry, government and community levels – but the communication of this science has needed to be nuanced to reach these target audiences effectively.

Our identified primary target audiences (impacted communities, state and territory governments, and the gas industry) show considerable variability, both between and within each group. To communicate and engage effectively, we use a variety of tools, techniques and platforms to adapt and tailor our research content. Government stakeholders need science-based information that can help them to regulate the industry. When engaging with the gas industry, clear communication of research needs, overall benefits and outcomes plays a significant role. Communities need relevant and relatable information that can help them understand the range of impacts on their country, and make decisions accordingly.

In this presentation, we will provide three case studies of science communication across our major audience groups, and reflect on how a mixture of content types, platforms and methods can lead to increased awareness, better understanding and improved decision-making across all of our stakeholder groups.

ABSTRACT

Giuffredi, Rita

When & where: Session 1, Tuesday, 4 April 09:00-10:15, *Zoom*
 Title: A vision on communication creating common grounds among disciplines, arts and society in scientific research
 Format: Online conference
 Author: **Rita Giuffredi**, CNR (National Research Council of Italy), Italy
 Chair(s): Toss Gascoigne
 Co-author(s): Valentina Grasso, Alba L'Astorina, Laura Colucci-Gray

Overview: This session will cover lessons learned from conferences, exhibitions and trans-disciplinary strategies to improve science engagement.

The complexity of the current ecological crisis dramatically exposes the limits of normal science to inform public debate and decision-making processes at the interface of ecological systems, society, and governance. To meet these challenges, the science community is bound to revisit its methods, aims and social role, forging new bonds not only with society, but also with ecological systems, to co-produce relevant and responsible knowledge practices. To this end, the Italian research project BRIDGES (Building Reflexivity and response-ability Involving Different narratives of knowledGE and Science) is experimenting transdisciplinary and reflexive modes of knowledge production applied to the socio-ecological topic of soil health.

Engaging natural-social scientists, artists, farmers and citizens, the project is experimenting methods for co-producing hybrid research fostering systemic and relational thinking through transdisciplinary, participatory processes. All actors are conceived by design as knowledge co-producers, including communication in the central role of creating the common grounds among all epistemic actors, inside and outside the project.

Moreover, since observation and sensorial exploration lay the grounds of science as well as of aesthetics and of experiential learning, arts-based experiences were also explored to allow researchers reimagining their relationship with soil – possibly leading to more systemic thinking and accounting for complexity. Early career researchers were involved in practices of aesthetic exploration and scientific measurement of the complex ecosystem of organisms populating the topsoil, and citizens were engaged in citizen science experiments on urban and rural soil health appraisal.

While the project is ongoing, in this paper we present an overview of the project and we evaluate the results and pitfalls of BRIGDES' innovative approach to transdisciplinary knowledge co-production, with communication at its heart, assessing the processual dimension of hybrid research as possibly able to build the common grounds necessary to tackle complex and controversial socio-ecological challenges.

ABSTRACT

Godinho, Ana

When & where: Parallel session 11-G, Friday 14 April 14:15 – 15:30, *Van Beuningen Room*
 Title: 9. The anniversary of the Higgs boson discovery - a case study in communicating fundamental research
 Format: Visual papers
 Author: **Ana Godinho**, CERN, Switzerland
 Chair(s): Jenni Metcalfe
 Co-author(s): Higgs@10 Core team

In 2022, particle physics celebrated three key milestones in fundamental research: 1) CERN's flagship accelerator, the Large Hadron Collider (LHC), restarted after a 3-year technical stop; 2) the discovery of the long sought-after Higgs boson turned 10; 3) the third "run" of data-taking for physics started at the LHC.

This presentation will describe the strategy, outputs and direct outcomes of a coordinated, multi-channel campaign centred around three themes: Celebration; 10 years on; Preparing the future. Developed by CERN in collaboration with partners in CERN Member States and laboratories worldwide, the campaign encompassed media relations, digital communications and in-person events.

Quantitative and qualitative measurements of direct outcomes reveal a strong reach to and engagement by media (8500 clippings across generalist and specialist media outlets, TV channels in 25 countries aired the satellite feed), on the CERN website (7x increase in traffic with 75% new visitors, 45% bounce rate) and social media audiences (18K mentions; 230K new followers; 75K concurrent viewers of the Run3 live broadcast, with over 27K comments and questions during the live).

This talk will discuss the factors underpinning the success of the campaign and draw learnings for communicating fundamental research in general. The data collected is a rich platform for in-depth evaluation of the level and type of engagement by audiences.

ABSTRACT

Gottschling, Markus

When & where: Parallel session A-C – Tuesday 11 April 14:00-16:00 – *ErasmusMC SP-3401*
 Title: Grounding AI communication: Myths, imaginations, and realities
 Format: Professional development workshop
 Author: **Markus Gottschling**, University of Tübingen, Germany
 Chair(s): Markus Gottschling
 Co-author(s): Kim Luther

Artificial intelligence (AI) is a thriving field, and its research is both complex and challenging. Dealing with this, in science communication about AI, two contrasting strategies have emerged: on the one hand, communication focuses on explaining complex structures and relationships as precisely as possible. The results often turn out to be rather drab. On the other hand, in order to reduce complexity and make the topic more vivid, communicators resort to science fiction narratives, religious motifs, and mythologies, fantasies or conspiracy theories. As science and technology are invariably embedded in social processes, invoking these ideas comes with its own communicative baggage: when we use myths and imaginaries to create common ground, we activate frameworks in the addressees that we no longer control. The richness of context of these allusions goes far beyond the specific domain of AI communication – which is precisely why we need thorough grounding for our messages: “we must do more than just send it off. We need to assure ourselves that it has been understood as we intended it to be” (Clark/Brennan 1993).

The workshop aims to address our understanding of these communicative structures. Together we want to discuss the fictional associations that thrive in AI communication. Based on examples from culture, we are interested in finding out where imaginaries and narratives originate – and how they influence communication (and even research). Then, through hands-on group work, we will use recontextualization techniques to produce well-grounded communication examples. Through this, we aim at clarifying how narratives can be used, what advantages myths and fictions offer, and how pitfalls can be avoided. We aim to empower participants to use narratives that influence research, communication, and reception of AI more effectively. Current insights from rhetoric, linguistics, and cultural studies will be incorporated.

ABSTRACT

Grand, Ann

When & where: Parallel session 3-H, Wednesday, 12 April 15:15 – 16:30, *Ruys Room*
 Title: 4. Leading together: exploring the impacts of collaborative academic leadership
 Format: Individual papers
 Author: **Ann Grand**, The Open University, United Kingdom
 Chair(s): Julia Cramer
 Co-author(s): Victoria Pearson

Finding common ground among people with different experiences and expertise is never simple, yet collaboration, with all its challenges and benefits, is vital for addressing complex issues that cannot be answered by researchers alone. Recognising this, research funders are increasingly focussing on tackling complex problems through engaged research involving multiple communities with manifold values and aims, which highlights the importance of understanding the qualities and implications of collaborative leadership.

AstrobiologyOU is a group of more than fifty colleagues – drawn from science, law, international development, commercialisation, education and engagement – who are working together to understand the scientific, governance and ethical challenges of addressing the fundamental question of ‘are we alone in the Universe?’ Evolving from a purely science-led endeavour at the institution, from its inception, AstrobiologyOU’s leadership team aspired to lead collaboratively to embed expertise from non-science disciplines and experiences.

This presentation will discuss the results of a project exploring the perceptions, practice and impacts of this collaborative academic leadership. Importantly, our results show that open, honest and considered communication is seen as a key factor for success, supporting creativity, experimentation and the freedom to make – and learn from – mistakes.

As more researchers, both professional and non-professional, seek to implement engaged research projects through collaborative engagement among communities, our results indicate that a commitment to – and visibility of – collaborative leadership sets the tone, encouraging members to think outside the ‘bubble’ of their own experience, value different ways of knowing and create new common grounds.

ABSTRACT

Grant, Will J

When & where: Parallel session 8-G, Thursday 13 April 17:00 – 18:15, *Van Beuningen Room*
 Title: 3. GM All Over Again? Reflecting on a Systematic Literature Review on Attitudes to the Use of New Breeding Techniques in Food
 Format: Individual papers
 Author: **Will J Grant**, Australian National University, Australia
 Chair(s): Germana Barata
 Co-author(s): Heather Bray, Rebekah Harms, Rachel A Ankeny, Joan Leach

We in the Science Communication, Science and Technology Studies and Food Ethics communities have long been aware of the history of the development—and contested reaction to that development—of genetically modified crops and foods. In short, while the early promise of a range of genetically modified plants and animals saw success in some agricultural products, following flawed processes of community engagement other products saw commercial failure and community rejection in many locations around the world.

Now, a range of so-called ‘New Breeding Techniques’ offer potential pathways to manipulate the genomes of food plants and animals for similarly enhanced food production benefits, while perhaps—thanks to greater precision, the use of ‘non-foreign’ genes, cheaper and easier production, and non-traceability—circumventing many of the problems associated with GM. Yet the question remains: will publics embrace these techniques and the food produced using them, or will we follow the path laid down in the GM era?

In 2021, we were commissioned by Food Standards Australia and New Zealand to conduct a review of what is known about attitudes to the use of NBTs in food production. Although we found many studies showing greater acceptance of food created with NBTs than foods produced with GM techniques, we also found a worrying trend of framing questions and methods that made such findings inevitable, and public engagement unlikely to find common ground with various publics. It would appear that given current research orientations, we seem highly likely not to mitigate, but to repeat the errors of the past.

In this presentation, we report on major findings of our review, and reflect on what broader trends in the literature mean for future conversations on the use of NBTs in the production of food.

ABSTRACT

Gregory, Jane

When & where: Parallel session 2-B, Wednesday, 12 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: Truth in Science? Science journalism and the corporate sector
 Format: Roundtable
 Author: **Jane Gregory**, University of Cambridge Institute of Continuing Education, United Kingdom
 Chair(s): **Olga Dobrovidova**
 Co-author(s): Alexandra Borissova

Corporate involvement in journalism has always been a rightfully contentious issue. Businesses have been trying to exploit journalists for their own reputational goals since the moment the first press officer was hired, whereas the media can often be distrustful of anything a company says by default, regardless of how well-intentioned or grounded in evidence their actions might be.

In theory, science and science journalism should be less vulnerable to manipulation thanks to the subject matter itself, which operates in facts. In practice, the decades-long history of corporations interfering with policy-relevant science, from public health to climate change, is one of the richest beats in science writing. On the other hand, science journalists following the evidence in controversial issues such as vaccination or genetic engineering are increasingly accused of being captured by the corporate sector, simply on the grounds that their arguments align with corporate messaging.

Many research-driven corporations are aware of this and clearly trying to get ahead by sponsoring awards and grants for “evidence-based journalism”. Just this year, the Online News Association raised some eyebrows in the community by partnering with 3M for a “Truth in Science” award. That story prompted us at EFSJ to consider the fundamental question: are journalists and companies (even the least problematic ones) ever interested in telling the same story about science?

In this discussion panel, we will hear from researchers studying corporate communication and science journalism in sectors such as biotech, pharma, and energy, and try to figure out the answer to that question. Live audience polling on key questions throughout the discussion will be conducted via Mentimeter or Sli.do.

AP Jayaraman: I have been observing the behaviour of journalists in the Nuclear Energy Sector from 1965 to date. It was difficult to diffuse the message that no power is costlier than no power despite reasoned arguments proffered by the highest scientific voice. Anti-nuclear mindset and one-sided reporting across the nuclear fuel cycle and every year perfunctory frequency Hiroshima and Nagasaki will be covered. Minor incidents in the nuclear establishment are blown up. Public opinion is whipped up. Even Peaceful uses of radiation technology and isotopes are painted red. Today, when nuclear energy has emerged as an inevitable option for a low-carbon economy and a distinct nuclear renaissance is evident, in China and India. Journalists have not given legitimate space to nuclear energy. A root cause analysis of this phenomenon will be done.

Jane Gregory: the corporate style of communication - which prioritises reputation management

and commercial interests - is often contrasted with the 'purer' science communication, by academics, of enlightenment and empowerment. However, research has shown that these two categories are not always distinct. In particular, I and colleagues have argued that academic science communication is similarly as vested in its own interests as commercial communication. Corporations generate or are involved in, most of the science-related events in the world, yet we know very little about the science communication that they do. Public opinion about science-based corporations remains resolutely negative, despite our enthusiasm for their products. Corporations are also limited by regulation which, by prohibiting particular kinds of claims-making in the public domain, effectively stifles them, limiting their engagement with their publics to brand-work. As researchers and practitioners, we need to reassess the role of corporations and their communications.

Alexandra Borissova: as science communicators, we are used to thinking that the hi-tech, science-driven industry is on our side because at the end of the day, they depend on their consumers trusting the science behind their innovative products. This often leads us to automatically assume that the ethics of science communication as we see it in public institutions, be it universities or public research institutes, would also apply to corporate science communication. Instead, unfortunately, that is not true in many cases. Indeed, we don't know how often that happens because this information is difficult to access, since even when corporate comms professionals leave over ethical conflicts, they are bound by NDAs and cannot blow the whistle. Greenwashing or corporate bias in scientific results (when companies suppress findings they don't like) suggests these problems may in fact be widespread.

ABSTRACT

Greussing, Esther

When & where: Session 2, Tuesday, 4 April 14:00-15:15, *Zoom*
 Title: Who uses voice assistants to learn about scientific issues? A segmentation analysis of German adults (VISUAL)
 Format: Online conference
 Author: **Esther Greussing**, Technische Universität Braunschweig, Germany
 Chair(s): Lars Guenther
 Co-author(s): Monika Taddicken

Overview: In this session presenters will reflect on some specific science communication resources and review the techniques used in the communication process e.g. art, storytelling, cultural relevance, accessibility.

The Internet has become a central source of information about science and technology. Today, however, people no longer obtain information only through browser-based search engines, social media platforms or news portals. Instead, they can also direct an informational query to a voice-activated speaker powered by an intelligent assistant like Amazon's Alexa or Google Assistant. Although voice assistants have experienced unprecedented growth in recent years, from a science communication perspective, we know surprisingly little about them. In particular, there is a lack of empirical research on the use of this emerging technology to learn about scientific issues such as climate change.

Hence, in this study, we reconstruct segments of regular users of voice assistants in Germany to understand how these segments use the assistants, how they perceive them, and what they expect from them when answering science-related questions. Based on survey data (n=801), we ran a cluster analysis and identified three distinct segments: first, the "non-users" (n=102), who rarely use the voice assistant for information needs; second, the "basic users" (n=256), who have a pronounced use of voice assistants for inquiries about weather, traffic or current events, but hardly use it for more complex issues; and, finally, the "advanced users" (n=443), who show a pronounced use of voice assistants for any kind of information, including scientific issues. This last segment accounts for 55% of respondents, tends to be younger and lives in a larger household. When turning to a voice assistant for information on issues such as climate change or the Corona pandemic, they want the voice assistant to be a neutral source of information, to point out possible solutions and to offer support for everyday life. Dialogue and conversation, by contrast, are only of minor importance.

These patterns provide first insights into voice assistants as new gateways to science communication.

ABSTRACT

Greussing, Esther

When & where: Session 3, Tuesday, 4 April 17:00-18:15, *Zoom*
 Title: Socio-scientific issues meet AI technology: Reflections on the cognitive order of society
 Format: Online conference
 Author: **Esther Greussing**, Technische Universität Braunschweig, Germany
 Chair(s): Marlit Hayslett
 Co-author(s): Monika Taddicken, Ayalet Baram-Tsabari

Overview: In this session we will consider roles and responsibilities, of audiences, science communication practitioners and science journalists.

Digitization has fundamentally changed the relationship between science and society, with epistemic roles and hierarchies becoming more flexible and new actors participating in the negotiation of socially consented knowledge. While prior research has concentrated primarily on lay audiences (citizens) in this respect, ongoing advancements in Artificial Intelligence (AI) bring technology itself into focus as an additional actor that generates and disseminates knowledge in society. This is possible, because AI expands the role of technology within communication beyond that of a channel or mediator to that of a communicator. That is, people increasingly exchange messages with AI-based voice assistants, social robots or similar applications, perceiving them as communicative subjects rather than mere interactive objects. As such, artificial actors come into view that remain largely neglected in science communication so far, but deserve consideration when exploring the creation of "common ground" in this field.

In 2019, IBM for example unveiled "Project Debater", the first-ever AI technology that is capable of engaging in a meaningful live debate with a human by condensing millions of search results and combining them into single coherent arguments. By doing so, it steps into roles that were originally reserved for professional (human) communicators, representing a kind of science-related counseling. Resonating with issues of expertise, the question arises whether AI technology might further weaken the epistemic authority of established actors such as science journalism and alter the perception and expectations of scientific knowledge and expertise and their adequate communication. Related, the opening and flexibilization of epistemic roles through technology can further increase uncertainty about which sources and claims can be considered valid, bringing notions of trust to the fore.

This theoretical paper thus reflects on how AI technology's function as a communicator might further transform the cognitive order of society by exerting power and influence over how science-related information is distributed, accessed, understood, and acted upon. Along this line, addressing issues of expertise and openness as cornerstones of common ground among very different types of actors, a case is made for an intersection and collaboration of science communication with the emerging field of human-machine communication as a timely and relevant endeavor.

ABSTRACT

Guenther, Lars

When & where: Parallel session 6-G, Thursday 13 April 11:30 – 12:45, *Van Beuningen Room*
 Title: 4. When is climate change happening? The framing of climate futures in journalistic reporting across four countries
 Format: Individual papers
 Author: **Lars Guenther**, Universität Hamburg, Germany
 Chair(s): Alice Fleerackers
 Co-author(s): Michael Brüggemann

In order to fight climate change (together), society would first need to establish a common ground: labeling climate change as an imminent threat and identifying shared imaginations of the future worth fighting for, so-called climate futures. Yet, for many policy-makers and citizens, climate protection is still not a top priority. Part of the reasons identified by researchers is that climate change is being perceived as spatially and temporarily distant, , and uncertain.

Journalistic media are (still) the main sources of information about climate change for most members of the public. Thus, the way our future with climate change is framed in the news affects audiences' understanding. For instance, representations of climate change as a distant threat and out of individual control can stir feelings of powerlessness and reduce motivations to act.

Hence, this submission assesses how climate futures are framed in the news and whether climate change is described as a distant threat or psychologically proximate. Our study explores news framing of important emitters of carbon dioxide from both the Global North and Global South, a country set from four continents: Germany, India, South Africa, and the United States (2017–2020; n = 1 010). Four frames were identified: “Solutions to climatic and social consequences”, “Distant threats to humanity”, “Mid-term economic opportunities”, and “Distant threats to ecosystems” — they describe diverse (but mainly psychologically distant) climate futures, with only a few differences across the countries.

Thus, this paper will discuss implications for climate change communication, with the aim to create common ground between the role-players involved.

ABSTRACT

Harcourt, Emma

When & where: Parallel session 8-H, Thursday 13 April 17:00 – 18:15, *Ruys Room*
 Title: 2. State-Mandated Disinformation on Contraception and Abortion: The Role of Government in Undermining Medical Consensus
 Format: Insight talks
 Author: **Emma Harcourt**, University of Otago, New Zealand
 Chair(s): Sook-kyoung Cho
 Co-author(s): Jesse Bering, Joanna Gullam

As science communicators, we need to do more than just provide accurate information: it is imperative that we also acknowledge and address mis- and disinformation. The global pandemic has provided a dramatic and deadly example of the harm posed by disinformation about healthcare – but how do we address disinformation that is authored and disseminated by the state?

Thirty-three US states require pre-abortion counselling. Twenty-three of these states require that patients be provided with medically inaccurate information about embryonic and foetal development; at last count, eighteen US states required that patients are provided with medically inaccurate information about the safety of abortion, including claims of causal links between abortion and breast cancer, infertility, and mental illness. Other countries – such as Azerbaijan, Georgia, Hungary, Macedonia, Romania, Russia, and Slovakia - have attempted to introduce similar legal requirements for pre-abortion counselling, with varying success.

In 2021, \$89 million of taxpayer funding was diverted from social welfare, educational, and public health programmes in order to fund anti-abortion and anti-contraception organisations in the US. These organisations, called Crisis Pregnancy Centers (CPCs), routinely provide inaccurate information about contraception, pregnancy, abortion, and sexually transmitted infections. Although these centres are often listed as health care providers in state medical service directories, the majority have no qualified medical professionals on staff. US-based CPCs in turn provide funding for affiliate centres in many countries around the world.

The speaker discusses how state-authored disinformation erodes trust and undermines scientific consensus. The speaker also reflects on how this particular kind of disinformation has influenced her own research efforts in the discipline of science communication.

ABSTRACT

Harcourt, Emma

When & where: Parallel session 11-B, Friday 14 April 14:15 – 15:30, *Van der Mandele (mezzanine)*
 Title: 5. Motivated Distrust of Abortion Science: Public Health Threat and Science Communication Challenge
 Format: Insight talks
 Author: **Emma Harcourt**, University of Otago, New Zealand
 Chair(s): Luz Helena Oviedo
 Co-author(s): Jesse Bering, Joanna Gullam

There is growing evidence that public endorsement of myths and misinformation is not due to a deficit of knowledge but rather to motivated reasoning. Studies showing the positive relationship between scientific literacy and polarised beliefs about science provide compelling evidence that the rejection of scientific consensus is more often the result of goal-oriented cognition than of true ignorance.

We conducted a study to explore the extent to which motivated reasoning biases the evaluation of peer-reviewed research on the safety of abortion and childbirth. Our hypothesis was that participants would perceive peer-reviewed research as less credible if the findings of that research challenged their personal beliefs about abortion and pregnancy.

Participants (n= 1,594) read the from a genuine study that compared the rates of mortality and morbidity associated with abortion and childbirth in the US. Participants were asked to answer four short reading comprehension questions about the that they read, followed by a Likert scale to rate the study's credibility.

However, two-thirds of the participants read versions of the that had been altered slightly: one third read a version in which the words "abortion" and "childbirth" had been swapped, reversing the findings of the original study and portraying abortion as significantly more dangerous. Another third (the control group) read a version of the about two fictitious medical conditions unrelated to abortion or pregnancy.

ABSTRACT

Harvey, Mark

When & where: Parallel session 4-A, Wednesday, 12 April 17:00 – 18:15, *Willem Burger Room*
 Title: Whose Common is it anyway? Rāhui and Māori perspectives around forest care
 Format: Linked papers
 Author: **Mark Harvey**, University of Auckland & Ngāti Toa iwi, New Zealand
 Chair(s): Jenni Metcalfe
 Co-author(s):

Notions of a ‘common ground’ across cultures can be seen as problematic when it comes to protecting ngahere (forests) and other natural areas for Māori iwi (tribes) and hapū (subtribes). This presentation will reflect on the rāhui or temporary controls and bans used as a device by Māori tribal authorities on natural habitats. From an allied Māori perspective, it will focus on the case study of the rāhui on the forests of Te Wao Nui a Tiriwa in the West of Tāmaki Makaurau/Auckland, set by Mana Whenua (the Māori tribe with jurisdiction) Te Kawerau ā Maki iwi (2020), with the aim of preventing the spread of kauri dieback (*Phytophthora Agathidicida*), a soil born plant pathogen (in the form of a mould) that is killing native kauri trees across the north of the North Island of Aotearoa/New Zealand. This presentation aims to reflect on the complexities of this rāhui by considering public responses to it, including settler politics and discourses of rights and freedoms and white supremacy. Consideration will be given to the perspectives of Māori iwi themselves. This will be reflected on through the Māori notion of mana motuhake (authority, self-determination and agency), alongside Te Tiriti o Waitangi (Māori perspectives of the Treaty of Waitangi) and mātauranga Māori (Māori knowledge).

ABSTRACT

Hayslett, Marlit

When & where: Parallel session M-C – Tuesday 11 April 9:00-11:30 – *ErasmusMC SP-3411*
 Title: The value of listening in science communication: The high-impact method for success
 Format: Professional development workshop
 Author: **Marlit Hayslett**, Hayslett Consulting, LLC, United States
 Chair(s): Marlit Hayslett
 Co-author(s): Amy Aines

When we communicate about science, we often focus on the content of what we are saying, writing, or presenting. This is not only normal, but necessary; we need to organize our thoughts carefully for our audiences. But how much more effective could we be if we balance what we say with how we listen?

In this workshop, we will introduce three principles of High-Impact Listening: Open-minded Inquiry, Attentive Silence, and Affirmed Understanding. Attendees will learn and apply these principles through skills-building exercises and discussion of common workplace scenarios. They will learn how to lean into their curiosity, read body language, and validate they have been understood, so they can have more fruitful scientific conversations. We will also invite discussion of different cultural attitudes and customs regarding listening, and how that can be applied when communicating science.

Learning the High-Impact Listening principles, strategies, and techniques has numerous benefits for workshop participants. For one, they will become more effective colleagues, educators, and mentors, elevating their careers and their professional impact. Additionally, participants will gain insight into what it takes to show empathy and how doing so helps people feel heard, valued and included. By listening to and valuing diverse viewpoints, science communicators can foster a spirit of collaboration and reap the benefits that advance science.

ABSTRACT

Hayslett, Marlit

When & where: Parallel session 3-I, Wednesday, 12 April 15:15 – 16:30, *Van Rijckenvorsel Room*
 Title: How to know when you are using jargon and how to modify it
 Format: Mini-workshop
 Author: **Marlit Hayslett**, Hayslett Consulting, United States
 Chair(s):
 Co-author(s):

As researchers, our disciplinary vocabulary is precious. We need it to communicate efficiently with our colleagues. Also known as jargon, the risk with this specialized terminology is that it may betray us with audiences other than our colleagues.

As scholars who care about science communication, we appreciate that it is important to avoid jargon for audiences outside our immediate domain. But how do we actually do it? First, you have to know you are using jargon. Second, you have to be able to modify it. There is good news for the first step: As a result of coaching hundreds of PhD students, I have developed a checklist that will provide a quick and easy way to identify your jargon.

The second step, modifying jargon, is a little less straightforward. One reason is that when you are used to your jargon, it is sometimes difficult to think of another way to express an idea. Another reason is that some scholars are reluctant to use a different term that may compromise the integrity of the concept. Both of these challenges can be addressed by participating in a collaborative exercise designed to brainstorm alternative phrasing for jargon. In this action-packed mini-workshop, we will discuss the impacts of jargon, practice identifying it, and collaborate to modify it. The session will be fast-paced with exercises and scenarios to apply what we are learning. Participants will also receive the jargon checklist to use in their future work.

ABSTRACT

Hayslett, Marlit

When & where: Parallel session 11-B, Friday 14 April 14:15 – 15:30, *Van der Mandele (mezzanine)*
 Title: 3. What if we could train our audiences?
 Format: Insight talks
 Author: **Marlit Hayslett**, Hayslett Consulting, LLC, United States
 Chair(s): Luz Helena Oviedo
 Co-author(s):

When communicating science, the speaker or writer takes on the responsibility to build the bridge to the listeners or readers. One result of this practice is that much of science communication training focuses on the communicator. But what if we invited the audience to help build the bridge? What if we trained our listeners and readers to be better audiences?

Interesting. What does this look like?

Imagine an audience that is not embarrassed to admit their lack of knowledge. An audience that knows how to ask useful questions. An audience that engages with the content because they have a responsibility to the outcome. Imagine you have a confident, inquisitive, invested audience. That is our ideal audience, right?

How do we get there? How do realize this ideal audience?

In this insight talk, I will draw on personal experience to explore this idea of a “trained” audience. About a year ago, I received a medical diagnosis that shone a bright light on my role as the audience. Confronted with unfamiliar and scary information, I felt ill-equipped to communicate much less make decisions. After the initial shock subsided, I figured out how to ask questions and partner with my doctors rather than let them make decisions for me. But it bothered me that I had the training to do that, and many people do not. In this brief talk, I hope to leverage this experience to stimulate a conversation about how we can better prepare audiences for their own complicated communications.

In conversations following the talk, my goal is to explore “what if” questions about how audience training would change beyond medical settings to research conferences, media interviews, public policy hearings, classrooms, etc. A possible collaborative outcome of this insight talk could be a conference workshop or journal article.

ABSTRACT

Hecker, Susanne

When & where: Parallel session 7-F, Thursday 13 April 15:15 – 16:30, *Schadee Room*
 Title: 5. Deconstructing citizen science – a framework on communication and interaction using the concept of roles
 Format: Individual papers
 Author: **Susanne Hecker**, Museum für Naturkunde Berlin, Germany
 Chair(s): Mohamed Elsonbaty Ramadan
 Co-author(s): Monika Taddicken

Citizen science opens the scientific knowledge production process to societal actors from different fields and areas of expertise. In this novel collaboration process, scientists and citizens alike face the challenge of new tasks and functions, eventually resulting in changing roles within the scientific endeavour. Creating mutual understanding is key to achieve project results and eventually success. But how can we provide a structured way to capture communication and interaction in and about CS?

Role theory provides a way of conceptualizing the roles that people take in communication and interaction. We use role theory to create a framework that identifies scientists' and citizens' tasks in citizen science projects, main aims of communication, spaces they interact in, and their roles — thus providing a structured way to capture communication and interaction in and about CS for further scientific reflection and practical application. We invite the audience to critically evaluate our theoretical approach and develop ideas how to apply the framework.

ABSTRACT

Hendricks, Lynn

When & where: Parallel session 4-D, Wednesday, 12 April 17:00 – 18:15, *Zeelenberg Room*
 Title: Producing film as a research output: More than the story
 Format: Mini-workshop
 Author: **Lynn Hendricks**, Stellenbosch University, South Africa
 Chair(s):
 Co-author(s): Karin Hannes, Taryn Young

Public health documentaries have been around since the beginning of the film industry, with the first silent anthropological film released in 1922. The genre of documentary film appeals to those who want to learn and discover through a medium which offers sound, images, and sensorial visual experience over reading text. Using a co-creative citizen led approach we explored the experiences of adherence to antiretroviral drugs of young women who contract HIV perinatally. In this qualitative project the research objectives, methods, analysis, reporting, and dissemination were (and still are) a shared responsibility in a research boundary we call the third sphere. The power of documentary film is evident in science communication and when used in partnership with citizen science and community dissemination practices can have phenomenal social impact on the public and open spaces for conversation between stakeholders. Many people are open to making video footage but when moving to the dissemination phase personal preferences emerge that one may not be aware of when thinking of where the video will be shown, what the content is and if there will be personal consequences.

In this workshop we aim to:

1. Demonstrate through a hands-on experience the data collection and production process when using film as a participatory research method.
2. Discuss and share guidelines for ethical film research and dissemination practices when working within the third sphere, particularly with vulnerable populations on a highly stigmatized topic.
3. Collaboratively reflect on the experience of being both behind and in front of the camera as participant-researcher.

Workshop participants will receive a publication (Hendricks et al., 2021) to read and research documentaries “More than a pill” and “More than environments” to watch via YouTube prior to the workshop. We envision workshop participants to leave the workshop with basic skills in creating a short clip and with the understanding of the ethical research and dissemination practices when using film as a participatory research tool.

References

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ABSTRACT

Henning, Erin

When & where: Parallel session 11-F, Friday 14 April 14:15 – 15:30, *Schadee Room*
 Title: Science Communication in Mathematics
 Format: Roundtable
 Author: **Ionica Smeets**, Universiteit Leiden, Netherlands
 Chair(s): **Erin Henning**
 Co-author(s): Anna Maria Hartkopf, Julia Cramer

We would like to invigorate the discourse and exchange about science communication in sciences such as mathematics, physics, and computer science. During the roundtable, we want to discuss the unique challenges of communicating sciences with a high degree of abstraction and how we can bring together science communication researchers and practitioners in these fields. What do practitioners want from researchers? How can researchers make their findings more available to practitioners? How can we use this collaboration to develop a theoretical framework of the science of science communication in the sciences? To answer these questions, we have three panellists to share their unique perspectives and experiences as both practitioners and researchers. After the opening remarks and initial discussion, we would like to engage the audience of the workshop by forming groups and tasking them with formulating a research question and a possible research methodology to tackle it. These questions will be presented and discussed in a closing session.

Speaker perspectives:

Ionica Smeets is a professor of science communication at the Universiteit Leiden with a PhD in mathematics. She will discuss her double life as a researcher and practitioner of science communication. Particularly she will talk about the award-winning Dutch children's book *Maths & life (Rekenen voor je leven)* she made together with writer Edward van de Vendel and illustrator Floor de Goede. How did they make concepts engaging and fun for children? Where did they use results from science communication research to make this book? And where was the practical experience from making previous books and doing mathematical science communication more relevant?

Anna Maria Hartkopf is currently the head of MIP.labor, a research project for science journalism in the subjects of mathematics, computer science, and physics at Freie Universität Berlin. The mathematician completed her doctorate on "Science Communication in Mathematics" in 2020. She has more than 10 years of experience specializing in the communication of mathematics, namely as a research assistant at the Mathematisches Forschungsinstitut Oberwolfach, as a mathematics teacher at a Berlin comprehensive school, and in the Collaborative Research Center "Discretization in Geometry and Dynamics". Together with Erin Henning, she is the editor of the recently published book "Handbook of Mathematical Science Communication". During the panel, she will discuss the work being done at the MIP.labor as well as how we can begin to build a theoretical framework for the science of science communication in mathematics.

ABSTRACT

Hernandez, Denise

When & where: Parallel session 1-F, Wednesday, 12 April 09:45 – 11:00, *Schadee Room*
 Title: Science Storytelling – Creating Connections Through a Science Communication Internship
 Format: Demonstration
 Author: **Denise Hernandez**, Chicago Council on Science and Technology, United States
 Chair(s):
 Co-author(s): Dr. Alexandra Prokuda, Dawnne LePretre

In 2021, C2ST launched the Science Communication Internship to provide effective science communication skills to students from Chicago-area universities. In alignment with the “Creating Common Ground” theme, this project explicitly provides space and support for marginalized IHE students to practice science communication skills to engage various stakeholders (public, government, industry, and research). With funding provided by the Brinson Foundation, selected interns learned how to communicate science through a series of workshops, training exercises, and assignments that taught them to hone writing skills, keep up to date with scientific progress, distil technical information, and craft pieces for different media. The internship created a cohort of students of varying ages, degree fields, and universities, ensuring diverse knowledge, thought, and professional experience.

Each intern creates 5 - 8 assignments every season, depending on length (spring and fall seasons are 12 weeks/summer seasons are 10 weeks). All assignments undergo a rigorous editing process, and most are published on C2ST’s website and promoted on social media. The two biggest lessons we learned through the inaugural year of the Science Communication Internship were 1) Dedicated funding to a project makes a big difference in program potential and 2) To grow this internship while keeping the same quality of experience, we need to increase C2ST bandwidth.

ABSTRACT

Herr, Anna-Zoë

When & where: Parallel session 11-D, Friday 14 April 14:15 – 15:30, *Zeelenberg Room*
 Title: Advancing Public Engagement in Research: An open discussion of beneficial conditions in various institutional settings
 Format: Problem-solving workshop
 Author: **Anna-Zoë Herr**, Berlin School of Public Engagement and Open Science, Germany
 Chair(s):
 Co-author(s): Sabrina Kirschke, Mhairi Stewart

Public Engagement (PE) formats have been increasingly advocated in scientific contexts, given their potential positive effects on all actors involved. However, such formats have hardly been implemented along with research projects, given multiple barriers for both scientists and practitioners in initiating and implementing such activities. Against this background, this workshop aims at understanding the prerequisites for the development of successful Public Engagement formats in different institutional contexts and from various international perspectives. We aim here at identifying conditions that already exist in institutions to support a development of a more engaged research practice across institutional settings. Our key question is: What are beneficial conditions for the development of Public Engagement in different institutional settings? We invite researchers and practitioners from multiple institutional settings such as universities, non-university research institutions, civil society organizations, etc., for an in-depth exchange of ideas.

Discussions may relate to the role and design of support units, detecting and learning from successful transformation processes, academic incentive structures, educational prerequisites and many others. Method-wise, we aim for creative discussion formats that align with the principles of Public Engagement and optimized facilitation, such as the “Dare to Ask” format to kick off and the use of different scenarios to excavate the creative power for solutions and possible paths. As one unique outcome, the pool of ideas will flow into an initial manifesto developed at the Berlin School of Public Engagement and Open Science, aiming to inform and advance PE practice in academia both in Germany and internationally. The manifesto will be brought forth through a process of different consultations with institutional representatives and decision makers in the field of science communication.

ABSTRACT

Herrera, Susana

When & where: Parallel session 10-A, Friday 14 April 11:30 – 12:45, *Willem Burger Room*
 Title: 2. The role of inclusive science communication in research/action transdisciplinary projects
 Format: Individual papers
 Author: **Susana Herrera**, ITESO, Mexico
 Chair(s): Bruce Lewenstein
 Co-author(s): Hernán Muñoz

The objective of this presentation is to show the role of science communication within the research of a big team composed of different kinds of social actors: researchers in several scientific disciplines (both natural and social), civil society organizations, people from vulnerable communities and communicators. The three-year research project was about severe and complex problems in environment, health and water, in a very vulnerable and poor social context in Jalisco, México. There were several kinds of knowledges involved for the understanding of the problems. Science communication was a key factor from the very beginning of the project and through all the development of the research. It was addressed through the inclusive social-problem driven model that the presenter has developed, with a hybrid transdisciplinary group of work. Science communicators participated through four specific roles along the whole research project: 1) gathering of diverse knowledges, from scientists from both natural and social sciences, community-members and activists; 2) mediation between different cultures of the social actors involved in the project; 3) proposing communication strategies for disseminating the partial and final results to the people of the communities and other audiences, like decisionmakers and citizens; and 4) developing specific communication products, like a documentary film, short videos, infographics, collaborative workshops, a collaborative mural, a magazine, articles in journals and an academic book. This is a relevant example of the implementation of the inclusive social-problem driven model for science communication.

ABSTRACT

Hetland, Per

When & where: Parallel session 8-H, Thursday 13 April 17:00 – 18:15, *Ruys Room*
 Title: 4. Communicating Climate Change in an Oil Economy
 Format: Insight talks
 Author: **Per Hetland**, University of Oslo, Norway
 Chair(s): Sook-kyoung Cho
 Co-author(s):

Norway is one of the most prominent oil and gas producers in Europe; at the same time, the green transition has been a crucial concern among both science communicators and the different publics. The following constitutes important background for understanding climate change communication in Norway:

- 1) Climate change and environmental issues were the most important concerns when people chose which party to vote for in the 2021 national election; 30% reported this as their top issue.
- 2) One in four Norwegians do not believe humans cause climate change.
- 3) Studies have found lower levels of trust in climate science, compared to medical science.
- 4) When the Norwegian Broadcasting Company asked 221 climate scientists in Norway about the prospects of limiting global warming to 1.5 °C above pre-industrial levels, 89% found it unlikely to occur.

Consequently, climate change communication is challenging, controversial, and prominent both among communicators and the different publics.

Approximately 100 news articles by scientists from the natural sciences, social sciences, and the humanities on climate change communication were collected between August 2021 and August 2022. Four books published the last three years by some of the most visible Norwegian scientists were also evaluated. I adopted the model by Gamson et al. (Gamson & Lasch, 1983; Gamson & Modigliani, 1987). The model has two principal components: frames and positions. Metaphors, exemplars, catchphrases, depictions, and visual images are framing devices, whereas roots, consequences, and appeals are reasoning devices for a more general position.

The data corpus was analyzed relative to two research questions:

How do scientists engage different publics in understanding climate change?

How do scientists engage different publics to stop climate change?

Results and recommendations will be provided in the presentation.

ABSTRACT

Hipólito de Oliveira, Bianca

When & where: Parallel session 5-F, Thursday 13 April 09:45 – 11:00, *Schadee Room*
 Title: 2. Family participation on science communication about Autism Spectrum Condition
 Format: Individual papers
 Author: **Bianca Hipólito de Oliveira**, Universidade de São Paulo, Brazil
 Chair(s): Marjoleine van der Meij
 Co-author(s): Mirelly de Oliveira Soares, Alessandra Fernandes Bizerra, Rodolfo Bezzon

Greater attention has been paid to research regarding searching and using information by relatives of autistic people, especially mothers, to improve their quality of life. However, we know little about modes of participation, shared knowledge, tools for information circulation, representations, or determinations arising from these processes. To understand the participation of family members of autistic people in science communication on Autism Spectrum Condition (ASC), we used the Circuit of Culture as a theoretical and methodological framework. We applied an online questionnaire targeting autistic people's family members, obtaining 294 responses. We used SPSS to perform descriptive statistical analyses of closed-ended and multiple-choice questions. The open-ended questions were analyzed by employing content analysis. The emerging categories were related to the Circuit of Culture's elements (production, consumption, regulation, representation, and identity). Social networks, YouTube, and messaging apps are the primary spaces through which parents learn about ASD. Concerning the actions carried out, sharing information is the most mentioned, in addition to participation in associations and social movements/campaigns, the production of content on social networks and, to a lesser extent, the production of scientific articles. We observed that science communication about ASC can be an essential tool for interaction between individuals and collectives involved with the theme. The search and production of information and supportive network formation between family members and specialists promote changes in perceptions, attitudes, and values in the family group and extra-family contexts. It is relevant to observe the importance of reports, chats and exchanges with other family members of autistic people about different dimensions of their realities. These connections were based on scientific but also experiential knowledge, resulting in changes in attitude, identity formation, greater understanding of oneself and the other, and reflection on alternatives of "doing family".

ABSTRACT

Ho, Shirley

When & where: Parallel session 6-H, Thursday 13 April 11:30 – 12:45, *Ruys Room*
 Title: 5. Virtual environment, real impacts: A VR game utilizing Self-Determination Theory to reduce plastic waste
 Format: Individual papers
 Author: **Shirley Ho**, Nanyang Technological University, Singapore
 Chair(s): Liselotte Rambonnet
 Co-author(s): Benjamin Li, Grzegorz Lisak, Shanti Divaharan, Wenqi Tan

Plastic waste is globally recognized as a serious environmental issue. Despite various governmental initiatives, plastic waste is accumulating beyond extant waste management capabilities. As top-down approaches find limited success, we need innovative solutions to mobilize the public to reduce their plastic consumption. Research suggests that while education is key for influencing pro-environmental behaviors, current strategies encompassing one-way information dissemination to raise awareness are insufficient for effecting widespread change in plastic consumption. Immersive technologies, like virtual reality (VR), are thus being explored for environmental communication.

Through the collaboration of a multi-disciplinary team, with experts from communication, education, and environmental engineering, we developed a VR game to communicate science knowledge about plastic waste to the public to encourage relevant pro-environmental behaviors. We leveraged our team's expertise to bridge the gap between the public and environmental scientists for communicating science information about plastic waste. Furthermore, we adopt Self-Determination Theory (SDT) to examine the effectiveness of our VR game in increasing individuals' intrinsic motivation and subsequently, intention to reduce plastic waste. We will conduct an experimental study among youths in Singapore to test the hypothesis that a non-competitive (versus competitive) VR environment is more conducive to promoting behavioral intention to reduce plastic waste, by fulfilling participants' psychological needs for autonomy, competence, and relatedness.

Theoretically, this study clarifies the link between competition and the psychological needs that SDT posits to be antecedents of intrinsic motivation. Practically, it offers practitioners an engaging tool to communicate complex science issues to the public and is an example of how multi-disciplinary collaboration advances science communication. By accentuating the role of new media technologies like VR as a common ground connecting scientists, the public, researchers, and practitioners, this presentation offers value to a wide spectrum of audiences.

ABSTRACT

Ho, Shirley

When & where: Parallel session 10-D, Friday 14 April 11:30 – 12:45, *Zeelenberg Room*
 Title: 1. When Does Reading Translate to Learning? Extended Cognitive Mediation Model in Public Knowledge of Solar Energy
 Format: Individual papers
 Author: **Shirley Ho**, Nanyang Technological University, Singapore
 Chair(s): Melanie Smallman
 Co-author(s): Agnes Chuah, Rui Xiong

Many countries are developing their capacities to harvest solar power, one of the cleanest energy sources, to mitigate climate change. Malaysia, a Southeast Asian country, also aims to have over 30% of its energy produced by solar power by 2025. Given the importance of solar energy in many countries' energy policies, knowledge about this energy is necessary to facilitate meaningful discussion and informed decision making among the public. However, the mere exposure to information does not necessarily lead to knowledge acquisition. Drawing on the Cognitive Mediation Model (CMM), this study seeks to understand the cognitive antecedents of knowledge acquisition in the context of solar energy in Malaysia. CMM posits that individuals must first be motivated to pay attention to news information. The media attention will then trigger relevant cognitive processing, which subsequently lead to knowledge acquisition. Using data collected from a large-scale online survey (N = 1500), this study investigates how two types of motivation — surveillance and environmental concern — indirectly affect the acquisition of knowledge about solar energy, mediated by media attention (i.e., information seeking and information scanning) and cognitive processing (i.e., news elaboration and interpersonal discussion). To date, we have completed data collection for the study and are currently analyzing the data. Theoretically, this study contributes to CMM by explicating media attention to information seeking and information scanning. We also seek to extend the model by explicating knowledge into four dimensions: general science knowledge, perceived familiarity, content knowledge, and contextual knowledge. Practically, findings from this study will illuminate effective information dissemination strategies to achieve their educational goals. This illustrates the role of science communication as a common ground connecting scientists, policymakers, communication practitioners, and citizens to enable well-informed discussion about important socio-environmental issues.

ABSTRACT

Holliman, Richard

When & where: Parallel session 10-A, Friday 14 April 11:30 – 12:45, *Willem Burger Room*
 Title: 5. Exploring perspectives of minoritized community walking group leaders to make access to nature more equitable, diverse and inclusive
 Format: Individual papers
 Author: **Richard Holliman**, The Open University, United Kingdom
 Chair(s): Bruce Lewenstein
 Co-author(s): Kelly Smith, Anjana Khatwa, Clare Warren, Yoseph Araya, Janice Ansine, Marcus Badger

The ‘Walking the Walk’ Project was funded by the UK’s Natural Environment Research Council to engage with minoritized grassroots community walking groups. We sought to support walk leaders to be confident about communicating the science of the environment, and to identify and remove barriers for minoritized people to study, work and/or volunteer in environmental science. We drew on previous science communication research and practice through engaged research design to lead eight walks. Our approach was responsive, engaging with walk leaders on an equitable basis to exchange scientific and ‘local’ knowledge. Some groups requested training in practical skills, such as map reading and walking route planning; others requested scientific information, e.g. covering processes of landscape formation and ecology of flora and fauna.

We produced a detailed map of relevant ‘publics’, from which we identified 12 walk leaders to interview about their lived experiences of walking in nature. The interviews were interpreted through reflexive thematic analysis. The map of relevant ‘publics’ is complex, involving ‘resource-rich’ and ‘resource-poor’ institutional actors. Key ‘publics’ include established and establishing community walking groups and Community Interest Companies (CIC) that organise walks with minoritized collectives. Walk leaders’ motivations to organise walks varied, but with a strong emphasis on improving inter-generational health and well-being, (re)claiming outdoor spaces for all, establishing or maintaining connections to recognise and celebrate cultural identity, and education for conservation and stewardship. Overall, we argue that combining ethically informed approaches to science communication research and practice can secure common ground where scientists and community groups can address long-standing structural inequalities.

ABSTRACT

Houben, Leon

When & where: Parallel session 7-H, Thursday 13 April 15:15 – 16:30, *Ruys Room*
 Title: 4. Beyond Horizon, breaking through communication barriers
 Format: Insight talks
 Author: **Leon Houben**, Studio Synergy, Netherlands
 Chair(s): Marlit Hayslett
 Co-author(s):

While most know what science is, many do not feel an(y) affinity with science. Possibly because they fail to grasp the complex topics covered by science or are not aware of how science influences their daily lives. A shame, since science has the power to inspire people to strive towards something greater than themselves: common knowledge. A search which can overcome differences in gender, ethnicity and class. Hence, our aspiration to make our audiences more diverse and inclusive

Beyond Horizon is an -under-construction- new effort to accomplish just that, making the complex science of black holes accessible to a large public. It does this not with written or spoken words, which might get misinterpreted, nor with (digital) visualisations, which require a strong imagination of participants. No, Beyond Horizon will break through these communication barriers with art, letting people physically experience a black hole by allowing them to jump into one.

Visitors will be taken on a journey through the different environments around a black hole and are emotionally challenged: do they dare to jump into the dark unknown? By evoking emotions, more memorable experiences are created. These will open the mindset of visitors, allowing them to explore the extreme physics involved. Participants can so learn by doing and find answers to questions like: what would you see, hear and feel when falling into a real black hole? Questions that are otherwise hard to answer with commonly used metaphors and examples within science.

Furthermore, we can not expect people with a low affinity for science to engage with science themselves. Hence, Beyond Horizon will become a mobile installation to actively reach out to them and show that science and art are there for all. This will hopefully contribute to an increased interest in these disciplines among a wider audience.

ABSTRACT

Houtman Diewertje

When & where: Parallel session 9-J, Friday 14 April 09:45 – 11:00, *Plate Room*
 Title: Who wants to talk about altering the DNA of embryos? Towards precision engagement in dialogic science communication
 Format: Problem-solving workshop
 Author: **Diewertje Houtman** Erasmus MC, Netherlands
 Chair(s):
 Co-author(s): Bertrand Burgers, Mirte de Wit, Sam Riedijk Boy Vijlbrief

As responsible researchers and communicators, we hope that everyone wants to be part of the conversation about new technologies and how to deal with them. That way, we can gather a wide diversity of perspectives to inform how we move forward. But how do you find common ground with the people we often fail to include in such dialogic science communication? In this workshop we will guide you through a process of design thinking, from empathizing to testing your prototype, and your end-products will serve as inspiration for the further development of precision engagement methods.

Within the DNA dialogues project, we aim to include underrepresented groups in the conversation about altering the DNA of embryos. These underrepresented groups include patient groups, who would be most directly impacted by medical applications of the technology, but also more broadly the missing voices of people who scientists often fail to include in dialogue about medical research, such as people from racial and ethnic minority groups, people with disabilities, people living in remote areas, or people in full time employment. Therefore, in this workshop, participants will be led through a design thinking process to develop new methods of engagement that target underrepresented groups in medical research.

The workshop leaders will use their experiences within the DNA dialogues and with developing a course called Art & Genomics to guide the formulation and answering of different versions of the question: “How might we...?”. The answers to these questions will be your newly designed methods of engagement. We aim for the results to inspire both the organizers and the participants of this workshop to increase inclusivity of dialogue practices. This workshop is organized in collaboration with NEMO Kennislink and the Erasmus MC Graduate School, and our lessons learned will be implemented in constructive journalism and impact-driven education.

ABSTRACT

Huang, Chun-Ju

When & where: Parallel session 11-G, Friday 14 April 14:15 – 15:30, *Van Beuningen Room*
 Title: 6. Upgrade disinformation to national level? A study of fake news typology in COVID-19
 Format: Visual papers
 Author: **Chun-Ju Huang**, National Chung Cheng University, Taiwan
 Chair(s): Jenni Metcalfe
 Co-author(s): Miao-Ju Jian

During the COVID-19 pandemic, fake news dissemination has been so severe as to affect people's attitudes and behaviors towards Covid-19's prevention, e.g. through vaccination, isolation, social distancing, etc. In particular, the fake news changed in quality and quantity with different stages of the epidemic, which has caused a huge impact on society.

In order to precisely describe what fake news has featured, this study developed a two-dimensional framework based on "facticity" and "effect". In terms of the "facticity", it is divided into five levels: completely fictitious, obvious mistake, plausible, incomplete message, and reflecting truth. The "effect" is divided into four levels: universal, national, local societal, and individual. The different levels of the two dimensions will be combined into 20 different types of fake news. We used nine governmental and non-governmental fact-check websites in Taiwan as the main source of information. The sampling period was from January 2020 to July 2022, and a total of 1,085 fake news reports were collected. Through the quantitative content analysis method, four coders were responsible for the coding. The relevant coding reliability and their validity were also confirmed.

The results showed that the "obvious mistake/national" type had the most errors (32.3%), followed by the "completely fictitious/individual" type (13.3%), and the "obvious mistake/local societal" type (13.3%). Compared with the distribution of fake news in normal times, fake news at the national level in COVID-19 has been significantly more. Besides, with the evolution of virus types, three main stages including the relaxing period, the emergency period, and the virus-coexistence period were identified. As the level of controversy increases, fake news at the national level also shows a positive correlation. The relationship between this trend and conspiracy theories along with disinformation prevention will be discussed.

ABSTRACT

Jafari, Saeed

When & where: Parallel session 10-D, Friday 14 April 11:30 – 12:45, *Zeelenberg Room*
 Title: 4. In Search of Dialogue: How the Discourse of Science Communication Community Shapes the Way They Behave
 Format: Individual papers
 Author: **Saeed Jafari**, University of Kurdistan, Department of Linguistics, Iran
 Chair(s): Melanie Smallman
 Co-author(s): Yahya Asaadi

Insularisation of SciComm ecosystem, by which we mean doing activities in isolation, fuels personalization and confrontations. But we are all members of the same society, breathe the same atmosphere, and have common interests and mistakes. SciComm conferences, workshops and virtual events significantly affect the ecosystem where we can come together and explore our past in terms of disagreement and discussion for our community. If our ecosystem does not share the same expectations and understanding about the outcome, there will be ample scope for heterogeneity and frustration.

This talk explores how divergent expectations and opinions about science communication actions focusing on public awareness and outreach/public engagement activities in the media and society can be elucidated with the help of discourse analysis. In this review, we interviewed more than 50 SciComm actors and observed community discourse on social media and at EPO hybrid events. On the one hand, some challenges have led the conversation between communicators and science journalists on social media to be inconsistent in outreach efforts. On the other hand, there have been criticisms from science communication and education researchers about educational methods and engagement models of science teachers and practitioners, resulting in a restricted bridge for dialogue exchange. Therefore, lack of constructive dialogue is causing misunderstandings and misconceptions among community members regarding the concepts of science and technology communication.

We examined creating common ground between multiple role players in science communication community and other actors, for example scientists and communicators/educators, or researchers and practitioners, based on tension they have on information provision, dialogue and perspective. This shows that the ecosystem requires acceptance of constructive criticism and reflective practice. In this talk, we review various examples and observations that will be given to illustrate controversial debates, pre-assumptions and biases across the community. The results revealed (i) the generation of trust and shared understanding and conversation, (ii) the facilitation of knowledge exchanges between actor groups across frontiers, (iii) the co-production of practical outcomes.

ABSTRACT

Jansma, Sikke

When & where: Parallel session 9-E, Friday 14 April 09:45 – 11:00, *Hudig Room*
 Title: 3. Living in the vicinity of wind turbines: residents' experiences and underlying considerations
 Format: Individual papers
 Author: **Sikke Jansma**, University of Twente, Netherlands
 Chair(s): Frank Kupper
 Co-author(s):

Although Dutch citizens are generally in favor of renewable energy, they are less supportive when wind turbines are being placed near their homes. Various scholars have generated knowledge in understanding these negative attitudes, but little is known about residents' actual experiences of living near wind turbines and whether this differs among communities. Insights in these experiences can help the implementation process of new wind turbines.

We conducted a mixed-method study consisting of a survey (N = 938) and interviews (N = 25) among citizens living in the vicinity of wind turbines (between 0 – 5 km) in 14 different sites across the Netherlands. With the survey we gathered insights in residents' perceptions of the wind turbines. The aim of the semi-structured interviews was to unravel the underlying considerations behind these perceptions.

The survey shows that respondents were generally concerned with the environment and in favor of renewable energy, but they were (slightly) negative about wind turbines and instead preferred energy from photovoltaic (PV) panels on rooftops, nuclear energy and natural gas. Environmental concern, procedural justice, perceived horizon pollution, noise, and impact on health influenced the attitude towards wind turbines. Living distance to the wind turbine, number and height of the wind turbines, distributive justice, and drop shadow did not have any effect. In the interviews, most participants indicated that they did not have direct nuisance of the wind turbines, but they were bothered by the visual impact, the untransparent and seemingly random policy-making process and the unsustainable aspects of wind turbines (e.g., non-circularity and impact on biodiversity).

Our study indicates that it is important to provide (scientific) information about the environmental impact of wind turbines, to engage residents in the implementation process, and to develop a clear vision behind the policymaking process, which goes beyond stressing the need for decreasing CO₂-emissions.

ABSTRACT

Janssen, Inse

When & where: Parallel session 3-F, Wednesday, 12 April 15:15 – 16:30, *Schadee Room*
 Title: 2. Don't skip Uncertainty! Insights from a Study on Communicating Scientific Uncertainty and Advocacy
 Format: Individual papers
 Author: **Inse Janssen**, University of Muenster, Germany
 Chair(s): Bruce Lewenstein
 Co-author(s): Regina Jucks

As exemplified during the Covid-19 pandemic, communicating scientific uncertainty poses a challenge for scientists who engage in public science communication: How do you convey information as given, with limited empirical evidence, and the need to engage the public to act appropriately? The disclosure of scientific uncertainty may then not only inform sound decision-making but might also signal honest, non-persuasive communicative intentions and scientists' perceived trustworthiness (expertise, integrity, benevolence).

In a 2x2 experimental study, we investigated how communicating scientific uncertainty affects a scientist's trustworthiness when she expresses either a motive to solely inform about the current scientific status or her motive to advocate for political recommendations. An online sample (N = 503) was asked to read a fictitious, but evidence-based interview with a scientist about the usefulness of further vaccinations against COVID-19. In the interview, the scientist either explicitly communicated scientific uncertainty or did not. Furthermore, the scientist expressed her motive to inform about the current scientific status, or her motive to advocate for political recommendations. Results show, that the scientist was perceived as less trustworthy (less competent, having less integrity, less benevolent) when she did not explicitly communicate uncertainty as compared to when she did.

However, independently of whether uncertainty was communicated or not, the disclosure of the scientist's motive to advocate (vs. to inform) did not have a significant effect on the scientist's ascribed expertise and integrity ratings, but it did lead to lower benevolence ratings. While the study shows that the lack of explicitly communicating uncertainty negatively affects the perceived trustworthiness of a communicator, the disclosure of uncertainty seems not to be a free pass to use persuasive communication.

ABSTRACT

Jasinski, Andrzej

When & where: Parallel session 4-E, Wednesday, 12 April 17:00 – 18:15, *Hudig Room*
 Title: 5. Do scientific institutes in Poland follow the model of public participation in science?
 Format: Individual papers
 Author: **Andrzej Jasinski**, University of Warsaw, Poland
 Chair(s): Michelle Riedlinger
 Co-author(s):

The main objective of this paper is to answer the question of how public research organizations (PROs) in Poland communicate with society. For this purpose, a questionnaire research was conducted among such organizations in Poland in June 2022. The questionnaire was sent to 123 PROs that have the status of scientific institutes, not R&D centers. Among them, there are all 69 institutes of the Polish Academy of Sciences (PAS) and 54 other institutes. Thirty-eight completed questionnaires (31%) came back: 25 answers from organizations belonging to PAS and 13 from other institutes. In addition, an interview was conducted with a person responsible for the supervision of all the PAS institutes.

In principle, all analysed organizations deal with communication with society. However, only in 25 institutes (2/3) there exists a separate organizational unit dealing with science communication. In seven institutes (18%) there is no person responsible for these activities. Regarding barriers to science communication, a clear majority of respondents (27 = 71%) mentioned the lack of financial resources for such actions. Thirteen institutes (34%) pointed to the lack of specialists, competencies, and experience in this field.

The general picture of the communication actions conducted by the PROs analysed is ambiguous. A list of positive angles of their science communication activities is quite long but a list of negative angles is longer. The table of those facets was constructed and analysed. Science communication is treated by institute employees as an additional activity, not always organizationally separated, not based on plans and poorly financed. Most institutes use the old Public Understanding of Science model. It seems that the Participatory Model of Science Communication is rather non-existent.

Finally, recommendations are formulated towards institutes' communication with society. First of all, the science-society communication should be a planned activity, organizationally isolated and properly financed in PROs.

ABSTRACT

Ji, Jiaojiao

When & where: Parallel session 11-A, Friday 14 April 14:15 – 15:30, *Willem Burger Room*

Title: 3. Effects of communication strategies on user engagement and audience's reactions toward COVID-19 vaccine on Weibo

Format: Individual papers

Author: **Jiaojiao Ji**, University of Science and Technology of China, China

Chair(s): Katrien Kolenberg

Co-author(s): Meng Chen, Ting Hu

Social media is an important source of health information and significantly affects users' adoption of health practices, for instance, vaccination. A few studies have examined the persuasion techniques of the Covid-19 vaccine on social media, mainly in the Western context. However, they seldom explore what effects the persuasion techniques would bring, especially on Chinese social media. Consequently, in this study, we aim to investigate how the persuasion techniques or tactics are employed in communicating the Covid-19 vaccine on Weibo and how the communication tactics impact user engagement (number of likes, reposts, and comments) and reactions (sentiment polarity and sentiment divergence).

We used Covid-19 vaccine (新冠病毒疫苗) as the searching terms to collect posts surrounding three big events, which include the announcement of free vaccination in China, the declaration that two billion doses have been administered within China, and the outbreak of Omicron in Shanghai, totaling 124164, 97713, 78241 posts. Then, two communication master students manually labeled the 500 most commented posts for each period. Reactions were classified by supervised machine learning. Finally, multiple linear regression was employed to analyze the data.

The results show that tactics were significantly different at different times. Different tactics would have an impact on user engagement levels and reactions. For instance, an appeal to joy was adopted more often at the early stage of vaccine promotion, while appeals to fear and hope were frequently used during the serious outbreak. And posts using narrative persuasion were more likely to be reposted, commented, and liked.

This study provides insights for governments and health organizations about how to persuade the public to get vaccinated, which will help prevent and control epidemics worldwide in the future.

ABSTRACT

Jia, Hepeng

When & where: Parallel session 11-G, Friday 14 April 14:15 – 15:30, *Van Beuningen Room*
 Title: 2. Allies competing for dominance: Exploring Chinese scientists and journalists' different perception of science journalism
 Format: Visual papers
 Author: **Hepeng Jia**, School of Communication, Soochow University, China
 Chair(s): Jenni Metcalfe
 Co-author(s): Yeheng Pan, Dapeng Wang

The relationship between scientists and journalists is a central issue in science communication scholarship. However, previous research has failed to probe into the social context of science journalism, which may subtly shape the difference between scientists and journalists in their views about media and communication.

To clarify this theoretical gap, we separately surveyed 430 Chinese scientists and 76 science journalists with four types of questions – the role of general media, the role of science journalism, scientists' role in science reporting and journalists' role in reporting science – in 2016. Like previous findings, our surveys also found journalists tend to stress the importance of media and their reliability in producing science news. At the same time, scientists generally have a lower rating of journalists' capacity in communicating science and a higher degree of rejection to the media's privilege over the science community in judging the importance of scientific knowledge. The most significant difference between the two revealed by other studies – whether journalists should consult with scientists they interviewed before publishing their stories – is replicated in our research, statistically significant but with less difference. In our study, there is also a higher similarity between the views of Chinese scientists and science journalists, notably in the role of the media in exposing scientific misconducts. However, while welcoming media to report scientific misconducts and controversies, scientists reject journalists to give a conclusive judgment.

The divergent pattern of the scientists/journalists' view that our study reveals may be a result of the fact that science journalism as a social institution is shaped by a propaganda-oriented science media system in China. At the same time, the rampant scientific misconducts and the government's limited punishments push scientists to seek media's assistance. But in the end, scientists want to maintain their epistemic authority in judging scientific significance.

ABSTRACT

Jin, Xinyi

When & where: Parallel session 5-H, Thursday 13 April 09:45 – 11:00, *Ruys Room*
 Title: 6. Assessing perceived credibility of deepfakes: The impact of system-generated cues and video characteristics
 Format: Individual papers
 Author: **Xinyi Jin**, Soochow University, China
 Chair(s): Toss Gascoigne
 Co-author(s):

With advances in information and communication technology, a relatively new form of disinformation based on deep-faking technology has emerged, which potentially constitutes a great threat to science communication in digital environments. Deepfakes – i.e., hyper-realistic fake videos using face swaps – are becoming more and more widespread and easier to create, challenging the old notion of “seeing is believing”. Considering the manipulation potential of deepfakes, it is essential to understand what affects people’s cognitive processes with respect to information assimilation and credibility judgment for online videos. This article explores the influence of heuristic cues generated by the system or embedded within the video on users’ perception of deepfake credibility.

In the first randomized controlled experiment, we created a YouTube deepfake in 8 versions with different peripheral cues generated by the system ($2 \times 2 \times 2$ for the video’s source, popularity and description). Each participant was randomly assigned to one version and was asked to rate the credibility of the video. Another 2 (clarity: high vs. low) $\times 2$ (duration: long vs. short) $\times 2$ (editing: edited vs. unedited) experiment was designed to examine the effects of video characteristics.

The results suggested that the influence of the source and the popularity of the video are both positively associated with perceived credibility. Deepfakes with high quality are more efficient at deceiving the viewers. In addition, there was an interaction effect between the other two video characteristics, which indicates that it is not easy for users to detect clipping traces in long videos. According to the Elaboration Likelihood Model, cognitive overload inhibits the systematical processing of video messages, leading users to rely on heuristic cues to assess the credibility of information. Given the increasingly visual and digital orientation of our culture, the enhancement of visual literacy is more important than ever.

ABSTRACT

Johannes, Björk

When & where: Parallel session 7-G, Thursday 13 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 2. “If you talk too loud, they will stare at you” - A study on social inclusion in science communication through museums
 Format: Visual papers
 Author: **Björk Johannes**, Radboud University Nijmegen, Netherlands
 Chair(s): Heather Doran
 Co-author(s):

In 2021, I performed a study with the Valkhof museum Nijmegen (NL) around an upcoming exhibition on black holes. They want to attract visitors from social groups who don't make regular visits to museums. I aimed to understand if and why people with a low socioeconomic status (SES) make fewer visits to museums and investigate what museums could do to stimulate social inclusivity.

I interviewed people from low SES neighborhoods about their experiences with museums and science. With the help of Bourdieu's theory of practice and its concepts of habitus, capital, reproduction and social justice, I have tried to understand respondents' reasons for (not) going to museums. This research has been inspired by Emily Dawson's work, except that the exhibition it revolves around has strong relations to art and visualizing science. Additionally, this work was done in the Netherlands, the country where the PCST will be held, which might give some more local insights.

It has become clear that a majority of my respondents do not feel welcome in museums: it's not part of their habitus. They believe, among other things, that the 'others', the regular visitor, will stare at them if they behave like they usually would. This means that respondents feel othered, but are also othering the 'regular' visitors. Additionally, I found that the museum, as an institution, does too little to reach out to specific groups of people and cater to their interests and cultural capital:

“It does not interest me because it is not about my culture”

Based on this research I have written recommendations for the Valkhof museum, and museums in general, to improve social inclusion. These recommendations include inclusive programming, inviting people in, and bringing the museum closer to the people.

ABSTRACT

Jorge, Andreia

When & where: Parallel session 7-G, Thursday 13 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 6. Botanic gardens as hubs of science communication: roles and perspectives of communicators from U.K. and Portugal
 Format: Visual papers
 Author: **Andreia Jorge**, Science communication unit, University of the West of England, United Kingdom
 Chair(s): Heather Doran
 Co-author(s): Emma Weitkamp, Antonio Gouveia, Teresa Girao, Hannah Little

Science communication is increasingly a feature of Botanic Gardens, supporting them to achieve one of their main missions: to connect people with plants.

This ongoing study aims to analyse the perspectives and roles of science communicators working in British and Portuguese Botanic Gardens. The communication goals and roles adopted by communicators were explored through semi-structured interviews with 26 communicators, 11 from Portugal and 15 from the UK. The research investigated interviewees' aims when they develop and/or realise a science communication activity and how they understand their roles, among others. The presentation will explore the views.

In both countries, the interviews suggest that achieving a positive emotional outcome (e.g., curiosity, excitement, or amazement) in the audience was the most important goal of their science communication activities. A secondary goal was to provide the audience with information about the subject. The main difference between UK and Portugal was related to the communication of the missions of the botanic gardens and the perceived importance of their work, which was only reported as a goal in the UK.

Drawing on Milani et al., the most common role assumed by practitioners in both countries was that of educator. All interviewees mentioned how communicators should deliver knowledge and enable audiences to understand it. In both countries, some interviewees took additional roles as a listener (which allowed them to integrate into their communication information that is useful and important to audience), or as a broker (creating activities to connect the audience with scientists). The entertainer role (communication through arts and performances) and includer (underserved audiences) were the less common. The enabler was not identified. Overall, science communicators in both countries appear to be aligned in their perspectives and roles. The slight differences observed may derive from their educational background and workplace features.

ABSTRACT

Joubert, Marina

When & where: Parallel session 9-C, Friday 14 April 09:45 – 11:00, *Van Weelde Room*
 Title: Visible Scientists in the age of Covid-19: Characteristics, Changes, Challenges
 Format: Roundtable
 Author: **Simone Rödder**, University of Hamburg, Germany
 Chair(s): **Marina Joubert**
 Co-author(s): Declan Fahy, Germana Barata, T.Y. Branch

The Covid-19 pandemic created an unusual global situation characterised by high demand for scientists' expertise. Consequently, in many countries, individual scientists became highly visible in the public domain. This roundtable will reflect on the characteristics of visible scientists and the associated rewards and risks associated with a high public profile.

Contributions by speakers:

1. Celebrity scientists revisited: rewards and risks of becoming visible: Simone Rödder will reflect on insights from a sociology of visible scientists. Based on the proposition that science is not a visible occupation per se, a concept of visible scientists is proposed that situates visibility in the role-set of scientists. It is argued that visibility – to this day – comes with tensions attached that need to be dealt with by forms of ambivalence management. Some of these forms are discussed based on studies of visible scientists in different fields.
2. The visible scientists of Covid-19: A new type of public scientist? Declan Fahy argues that the high-profile scientists of the Covid-19 years have come to constitute a new category of public scientist. These emblematic figures, he argues, have combined characteristics of science policy advisors, public experts, visible scientists, and celebrity scientists. The combination of these roles have both helped and hindered their efforts at public communication. These scientists have illustrated, in their media representations and their public communication, the fundamental and ongoing tension between expertise and democracy in modern societies around science-related social problems.
3. 'Pandem-Icons' – Exploring the characteristics of highly visible scientists during the Covid-19 pandemic: Germana Barata will present highlights from a recent 16-country study that explored scientists who became highly visible in public life during the pandemic, including how these scientists compare with visible or celebrity scientists in history. She will share insights about their characteristics, scientific reputation and credibility, role, communication styles that made them sought after as frequent media sources, while also comparing and contrasting their national contexts and how this shaped their status as public experts.

The opening statements will be followed by reflections from the chairs. Marina Joubert will moderate the discussion, while Ty Branch will act as a critical challenger to the 'celebrity scientist birthed of the pandemic' narrative. We will invite the audience to join the discussion on how we can use insights from this session to inform science communication challenges in future.

ABSTRACT

Jurack, Elisabeth

When & where: Parallel session 4-G, Wednesday, 12 April 17:00 – 18:15, *Van Beuningen Room*
 Title: 7. The influence of podcasting on students' interest in healthy eating - a study on students (14 – 15 years)
 Format: Insight talks
 Author: **Elisabeth Jurack**, Medical Faculty, University of Bonn, Germany
 Chair(s): Marieke Baan
 Co-author(s): Annette Christ, Alexandra Helena Manuel, Annette Scheersoi, Theresa Vonderheit

Students (14-15 years) worked on activities such as podcasting and current research on healthy eating with the help of researchers and a communicator. The topics were part of the school curriculum and the researcher could present their own research findings. With this, they were asked to design, conduct, and create their own podcast on a topic of their own choosing within a given project time. The topics were all about healthy nutrition in a broader sense, such as veganism, nutrition and competitive sports, or even super-food for example. After project conclusion six episodes could be published. Due to corona-restrictions, in-person meetings were highly limited and needed to be replaced by hybrid meetings, which led to less on-site time with the researcher. An accompanying study examined the influences on the interest development of the students during the project. The data show that creating a podcast in class has a positive effect on the students' situational interest in the topics covered. It was also shown that interviews with experts in the context of podcast creation have a positive influence on the interest development and that the topics discussed gained personal significance for the students. The project also investigated whether collaboration with the female scientists and the expert in the field of science communication resulted in increased interest. This could not be answered satisfactorily due to corona restrictions. Above all, the free and open working atmosphere in the groups made it possible to experience the "basic needs" and promoted creativity. Altogether podcast projects with scientists in the school context represent a possibility to increase the students' situational interest in relevant science topics. It is also a chance for a researcher to promote their findings to a younger audience and gain insights in the development of situational interest of students.

ABSTRACT

Jürgens Anna-Sophie

When & where: Parallel session 2-C, Wednesday, 12 April 11:30 – 12:45, *Van Weelde Room*
 Title: 1. Introducing the POPSICULE – The Science in Popular Culture and Entertainment Hub of the Australian National Centre for the Public Awareness of Science
 Format: Insight talks
 Author: **Anna-Sophie Jürgens**, Australian National Centre for the Public Awareness of Science of the Australian National University, Australia
 Chair(s): Liesbeth de Bakker
 Co-author(s):

This insight talk introduces the POPSICULE (<https://popsicule.weblogs.anu.edu.au/>), the new Science in Popular Culture and Entertainment Hub of the Australian National University (ANU), which is part of the Australian National Centre for the Public Awareness of Science. The POPSICULE is an open, community-based interdisciplinary platform that explores the cultural meanings of science with the aim to better understand how pop cultural narratives about science have affected the public discourse and understanding of science, and thus our science-society relationship. Together with students, colleagues, artists and international collaborators, POPSICULE projects, research and teaching explore an array of exciting themes including science and humour, science in popular performance and (animated) film, science in street art, environmental circus, Joker Science, comic space narratives, and circus and science. The POPSICULE runs a public film series with interdisciplinary panel discussions, offers lectures, symposia, courses, public events, spectacles, field trips, publications, films and more. This presentation will give insights into these projects, why the hub was created, by and for whom, who is involved and where it wants to go in the future. The aim is to connect with potential collaborators, partners and future Popsiculists!

ABSTRACT

Jürgens, Anna-Sophie

When & where: Parallel session 11-E, Friday 14 April 14:15 – 15:30, *Hudig Room*
 Title: 3. Funny Infection: Humour and the Cultural Meanings of Contagion in Popular Entertainment
 Format: Individual papers
 Author: **Anna-Sophie Jürgens**, Australian National Centre for the Public Awareness of Science of the Australian National University, Australia
 Chair(s): Alessandra Fornetti
 Co-author(s): Anastasiya Fiadotava

Contagion can be not only a biological but also a cultural phenomenon. From the shows of turn-of-the-century magnetisers and hypnotists (considered the 'scientists' of show business) and early films featuring 'Happy Microbes' (Émile Cohl, 1909), to zombie films exploring mesmerism (such as Halperin's 'White Zombie'), comic viruses in contemporary animated films, and Joker comics – cultural ideas of contagion are related to both medical notions of hypnotism and popular beliefs in extrasensory abilities. Within these contexts, humour and laughter often serve as vehicles of contagion. So, what can we learn from comic infections, funny contagion and infectious laughter about our cultural ideas and meanings of science? How can humorous cultural narratives of contagion help us cope with the current pandemic?

Bringing together science communication, humour studies and popular entertainment studies, this presentation builds on and extends David Kirby's approach to the "cultural meanings of science" by examining a particular set of intangible cultural aspects of science that are underrepresented in science communication: the humorous fictional science narratives that we have been exploring and telling ourselves for more than a century on various popular stages and in a range of pop cultural formats. Building a bridge between humanities research and science communication, this presentation will point out why it is important to examine these cultural narratives in science communication.

ABSTRACT

Kano, Kei

When & where: Parallel session 11-A, Friday 14 April 14:15 – 15:30, *Willem Burger Room*
 Title: 4. Development of a Culturally Relevant Inclusive Online STEM Workshop for Families in the Time of COVID-19
 Format: Individual papers
 Author: **Kei Kano**, Shiga University, Japan
 Chair(s): Katrien Kolenberg
 Co-author(s): Hajime Azai, Kimi Hagihara, Yuzuna Tsushi

In recent years, the number of papers on equity, diversity, and inclusion in the field of science communication has increased. There are also a growing number of practitioners who are driving inclusive approaches that have not yet been published in papers. While various research practices have been attempted, some recommendations for inclusion have been proposed. In this paper, we will illustrate the development process of a culturally relevant inclusive online STEM workshop for families (parents and their children) that consider these recommendations. It is unique in that it aims to achieve inclusiveness in three respects: target audience, culturally relevant content, and disabilities. First, we included the groups of potential / low interest in science and technology. It was found that the group with low interest in science and technology in Japan is more likely to be female or from a lower socio-economic status (SES). In terms of women entering the STEM fields in university, Japan has the lowest ranking among OECD countries (OECD, 2021), which remains an issue of concern. We tried to include these socially excluded people. Second, we developed content on culturally relevant topics such as “bouncy ball scooping,” which is popular activity in “Matsuri,” Japanese summer festivals and Indigenous knowledge of Japan, fermented persimmon juice namely the Kaki-Shibu, which is waterproof, antiseptic, antibacterial, and a burn remedy. It was found that culturally relevant education can benefit both underrepresented and majority groups. Finally, using automatic transcription, pictograms, etc., we made the workshop accessible and easy to understand even for deaf students in cooperation with a non-profit organization. We have conducted 12 workshops for about 200 pairs of parents and their children. We found that we succeeded in including about 75 % of female parents and about 40 % of parents of the groups of potential / low interest in science and technology.

ABSTRACT

Ketelaars, Lieke

When & where: Parallel session A-G – Tuesday 11 April 14:00-17:00 – *Maritiem museum Verolme zaal*
 Title: From purpose to practice – Setting up an inclusive creative action plan
 Format: Professional development workshop
 Author: **Lieke Ketelaars**, Kossmanndejong, The Netherlands
 Chair(s): Lieke Ketelaars
 Co-author(s): Amparo Leyman, Barbara Streicher, Lewis Hou, Alehandra Calderon

This is a fast-paced, creative workshop where participants formulate their purpose and first ideas for putting it into practice. This workshop is targeted at practitioners and researchers who are interested in advocating and implementing strategies to make their science communication efforts more diverse and inclusive. A selection of institutions will be invited to provide their insights and learnings, to model how to move forward on the often bumpy journey towards and with an equality, diversity and inclusion plan. The format of the workshop will be highly interactive and support trustful peer learning for participants from any professional level. This workshop is in line with PCST's ambition to make science communication more inclusive, and with the overall theme 'Creating Common Ground'. This session is complementary to the 'An introduction to DEAI' workshop. It is not a continuation, nonetheless they complement each other. Ideally, 'An introduction to DEAI' is in the morning and this session in the afternoon.

ABSTRACT

Khatwani, Harsh Kumar & Katyal, Sonal

When & where: Parallel session 1-D, Wednesday, 12 April 09:45 – 11:00, *Zeelenberg Room*
Title: A story, the camera, some sound, oodles of science and too many cooks with diverse expertise – how to save the broth!
Format: Mini-workshop
Author: **Harsh Kumar Khatwani**, International Centre for Theoretical Sciences (ICTS), India
Sonal Katyal, National Centre for Biological Sciences and Infosys fellow
Chair(s):
Co-author(s):

The communicator asks for the science, the cameraman needs a different angle, the scientist is bound with time, and the production house has resource limitations. Working on audio-visual science stories means working with people with diverse expertise. Everyone sees the film from their vision. Also, the definition of science storytelling differs. If you are the science communicator in that lot, how do you ensure all the skills brought to the table are utilised well? That the science shines bright, and the story is engaging? What are some practices to maintain long-term sustainable relations with the stakeholders?

We, a duo of a science filmmaker and a public engagement practitioner, will present a mini workshop where we share our experiences in creating common grounds in science audio-visual narratives, followed by a dialogue that puts forth challenges and leaves you with solutions to take back home. We invite people for a fun activity-based workshop. We will ensure that you learn, laugh, and feel engaged!

Harsh Kumar Khatwani has 8 years of combined experience in theatre, creative media, and research communication. He has a master's in physics and a filmmaking degree. He studied sound documentaries at ENS Louis Lumiere, Paris. He has been managing teams for different platforms, be it small screen or social media. His work has been selected at international film festivals, including Vaasa Wildlife, Finland and DMZ Documentary, South Korea. He currently works as a science communicator at the International Centre for Theoretical Sciences India.

In her 6 years of experience with science communication and public engagement, Sonal Katyal has worked with diverse stakeholders, including production houses, bureaucrats, researchers, and artists. She has a Master's in Science Communication from the University of Edinburgh. Apart from creating audio-visual content, she has developed and evaluated low-resourced workshops, organised science festivals, and worked at science centres. Presently, she is the communications officer at the National Centre for Biological Sciences, India.

Sonal and Harsh collaborated on projects while developing and managing content at India's public-funded science TV and OTT channel (India Science).

ABSTRACT

Khumalo, Linda

When & where: Parallel session 10-B, Friday 14 April 11:30 – 12:45, *Van der Mandele (mezzanine)*

Title: 2. Progression from deficit to dialogue models of science communication: Lessons and opportunities from Biotechnology science innovation

Format: Insight talks

Author: **Linda Khumalo**, Rhodes University Biotechnology Innovation Centre, South Africa

Chair(s): Erik van Seville

Co-author(s): Janice Limson

Science communication has grown significantly in the last decade, with researchers, development organisations, and other vital stakeholders increasingly recognising the importance of engaging communities in research and innovation. Scholars have proposed models aligned with the European Union's Responsible Research and Innovation (RRI) paradigm to bridge the gap between scientists and communities. Four critical dimensions of RR that offer a valuable guide to science communication are that research should be anticipatory, reflective, deliberative, and responsive to cater to society's challenges.

Although the discourse on science communication is on the rise and more attention is being paid to community-based participatory research, challenges persist in transforming from deficit models of science communication to more engaged or dialogic models in which communities are co-creators of research and innovation. The deficit models consist of one-way communication from experts providing knowledge to the public. In contrast, the dialogue model involves engaging the public in two-way dialogues whereby communities' information and experiences are valued.

The insight talk will present lessons from practice and contribute to a nuanced understanding of communicating science across different settings, issues, and audiences and the challenges thereof. The presentation will explicate some critical lessons in science communication based on the experiences emerging from the Biotechnology innovation at Rhodes university. It will discuss the pertinence of more dialogic models and detail opportunities for developing more engaged science communication. Drawing from 10 case studies of engaged research from the National Research Foundation (NRF), South Africa, the presentation will further expound on the different understandings and applications of engaged research and suggest collaborative approaches that scientists can draw on from the humanities to advance science communication.

ABSTRACT

Kienhues, Dorothe

When & where: Parallel session 2-F, Wednesday, 12 April 11:30 – 12:45, *Schadee Room*
 Title: 2. Teaching to Enhance Students' Scientific Attitude: Insights from a Higher Education Course
 Format: Insight talks
 Author: **Dorothe Kienhues**, University of Münster, Germany
 Chair(s): Sarah Davies
 Co-author(s): Regina Jucks

Understanding and evaluating scientific information is a relevant part of individuals' everyday life. In consequence, it is also an educational challenge to support individuals' scientific attitude, both in school and in higher education settings. For example, university students should to be able to critically advocate for science. In this contribution we outline a course concept we invented for academic staff at our university to enhance students' scientific attitude. In our view, academics staff at universities plays a pivotal role in the (ongoing) development of scientific attitude and therefore needs to be enabled to effectively communicate about science. The aim of our course for academic staff is to introduce and reflect several concepts and perspectives on students' (limited) knowledge, such as academic integrity, the nature and limits of scientific knowledge, or trust in science and scientists. Academic staff thereby gets ideas on how to incorporate these concepts in their daily teaching and also on their potential contributions towards their students' science-oriented mindset and reflexive science understanding. The short contribution thereby touches the role of higher education institutions to stimulate a scientific and science-friendly attitude in students. Implications for teacher education might be one focus to apply in the discussion.

ABSTRACT

Kienhues, Dorothe

When & where: Parallel session 10-C, Friday 14 April 11:30 – 12:45, *Van Weelde Room*
 Title: 3. Complex but manageable: Effects of communicating complexity and concrete actions in the context of the future energy strategy on individuals dealing with this socio-scientific issue
 Format: Insight talks
 Author: **Dorothe Kienhues**, University of Münster, Germany
 Chair(s): Brooke Smith
 Co-author(s): Nina Vaupotic, Regina Jucks

Transitioning to renewable energy is one of the most prominent challenges we currently face. Public support and understanding of the role of science in tackling such socio-scientific issues are needed but in the context of science communication, the complexity of scientific knowledge is often reduced. Simplifying the scientific state of knowledge might lead to overconfidence; however, if complexity is put at the front of the debate this might hinder relevant and grounded action. Our study uses a 2x2 experimental design to address both the effects of communicating complexity alongside providing suggestions for concrete actions to be taken. Dependent measures mainly focus on (psychological) variables explaining how people engage with socio-scientific topics: intellectual humility (individual's understanding that their knowledge is limited), source's trustworthiness judgments, and willingness to act.

478 German participants aged between 18 and 69 ($M = 30.4$, $SD = 9.3$) read an online journalistic text about future energy strategy. We manipulated the degree of communicated topic complexity (reduced vs. not reduced) regarding the scientific modelling procedure employed to make predictions about future energy strategy, and we varied whether concrete actions regarding how individuals can practically support the transition to sustainable energy were suggested (suggested vs. not suggested).

Results show that communication of complexity in comparison to reduction of complexity led to higher topic-specific intellectual humility and more trust in the communicator. When a concrete action was communicated, participants reported more feelings of hope and lower topic-specific intellectual humility than when it was not. Participants' willingness to act did not show group differences. Implications for how complexity – as a part of the nature of science – might be communicated are drawn. Moreover, we highlight the importance of intellectual humility as a way of engaging with inherently complex and uncertain science.

ABSTRACT

Kiprijanov, Konstantin S.

When & where: Parallel session 4-F, Wednesday, 12 April 17:00 – 18:15, *Schadee Room*
 Title: 1. Teaching and Training Participation and Engagement in a Changing World: Current and Future Trends in Science Communication Didactics from a Transnational Perspective
 Format: Individual papers
 Author: **Konstantin S. Kiprijanov**, Natural History Museum Berlin, Germany
 Chair(s): Pedro Russo
 Co-author(s): Marina Joubert

Higher education and research institutions (HERIs) around the globe are undergoing a transformation toward addressing fundamental challenges such as environmental issues or the current COVID-19 pandemic, and fostering positive societal impact beyond economic goals. This transformation, reflected by concepts such as ‘Third Mission’ and ‘Quadruple Helix’, is accompanied by the shift toward a mode of knowledge production that surpasses the boundaries of established academic disciplines. Science communication plays a key role in this process, as dialogue-focused and participation-oriented activities hold the potential to engage a wide range of stakeholders from outside the academic domain. In reaction to these changes, many HERIs worldwide, as well as other training providers, have developed a wide range of didactic approaches directed at fostering knowledge and skills necessary for designing and carrying out participatory science communication and public engagement activities.

This paper develops a focused overview of the current trends in teaching and training participatory science communication from an international perspective. It does that by discussing the potentials and key challenges of a sample of novel didactic approaches to teaching and training participatory science communication, such as: identifying relevant skills for engaging and collaborating with a wide range of diverse stakeholders from politics, business, and other fields of society; providing evidence-based curricula while balancing practical and theoretical content; and fostering self-awareness around students’ own social roles, values, and resulting science communication objectives. The paper concludes with a showcase of three prototypes and best-practice examples of successful participatory science communication teaching and training from México, South Africa, and the United Kingdom. In so doing, the paper offers a much-needed review of current developments in science communication didactics; informs the ongoing debate concerning the transformation of higher education; and opens up scholarly discussion to trainers and educators beyond the reach of academic research.

ABSTRACT

Kirschke, Sabrina

When & where: Parallel session 6-E, Thursday 13 April 11:30 – 12:45, *Hudig Room*
 Title: 6. Mapping participatory science. Insights on formats, barriers, and solution strategies from Germany
 Format: Insight talks
 Author: **Sabrina Kirschke**, Museum für Naturkunde Berlin, Germany
 Chair(s): Sikke Jansma
 Co-author(s): Silke Voigt-Heucke, Susanne Hecker

Research suggests a broad range of dialogic forms of science communication aiming at creating common ground between different types of actors in wicked problem settings. Such dialogic forms of science communication may all come along with their specific implementation barriers and solution strategies, calling upon a deliberate choice of science communication formats in practice. However, it is widely unclear which science communication formats are actually implemented in practice and how these formats are accompanied by specific implementation barriers and solution strategies, as systematic comparative research is lacking. Taking the German science year 2022 ‘Participate’ as an example, we map 20 science communication projects along a multi-dimensional framework including types of actors involved, the degree of involvement, and the respective methodology. We further analyse the barriers to the project’s implementation as well as mechanisms for addressing them. The actual data collection takes place until January 2023 and builds on an analysis of project documents, qualitative interviews with project coordinators, and accompanying structured surveys amongst these project coordinators. The data are analysed until March 2023 based on a multi-step qualitative research process as well as basic and advanced statistics. As an expected result, this study will show to which degree the 20 selected participatory science projects differ in terms of formats, implementation barriers, and solution strategies, as a starting point for a systematic understanding and selection of dialogic forms of science communication in wicked problem contexts. These results shall add to both ongoing scientific debates and practical applications of dialogic forms of science communication in Germany and internationally.

ABSTRACT

Kirsten, Marnell

When & where: Parallel session 8-H, Thursday 13 April 17:00 – 18:15, *Ruys Room*
 Title: 5. Off the charts: A comparative analysis of the use of data visualisations in news media science stories in South Africa and the U.S.
 Format: Insight talks
 Author: **Marnell Kirsten**, Stellenbosch University, South Africa
 Chair(s): Sook-kyoung Cho
 Co-author(s): Ionica Smeets, Winnifred Wijnker, Marina Joubert

Although ‘big data,’ ‘data science,’ and ‘data visualisation’ have recently become buzz terms, Tufte (1977) and Wainer (1984) set out parameters for what makes a visual data display less effective and how it could be improved on, years ago. In recent years, authors like Wilke (2019) and Knaflitz (2015) have extended more practical approaches to ideal data visualisation, while others explore the social and cultural effects and implications of data visualisations. Furthermore, Cunha shows that “large news corporations have established complete and autonomous data analysis and visualization teams”. These moves contribute to what has now been called data journalism, in which the boundaries between data science, journalism, design, and science communication, in the case of science stories, have become blurred.

An ongoing study by Leiden University highlights the need to understand and critically examine the format and function of data visualisation in the context of news media. The presentation proposed here is based on a project that builds on this Leiden University study, and analyses the similarities and differences in the use of data visualisation in science stories on South African (News24, Daily Maverick) and United States' (CNN Digital, The New York Times) online news media platforms. Based on literature on ideal visualisation practices, both the visual and textual aspects (design elements) of these data visualisations are examined to understand how these may contribute to or detract from the content of science news stories. Furthermore, this project and paper reports on the relationship between the content of the science news stories and the function of the data visualisations in relation to this content. This project is still in its initial stages, but in April 2023 the content analysis and preliminary comparisons will be ready for critical reflection.

ABSTRACT

Kirsten, Marnell

When & where: Parallel session 10-C, Friday 14 April 11:30 – 12:45, *Van Weelde Room*
 Title: 4. Lessons from Haraway and data feminism for the use of data visualisation in science communication
 Format: Insight talks
 Author: **Marnell Kirsten**, Stellenbosch University, South Africa
 Chair(s): Brooke Smith
 Co-author(s): Marina Joubert

Haraway explores science knowledge as a “disembodied vision” to subvert the ‘Truth claims’ and ‘objectivity’ that pervade western science discourse. Science knowledge has since seen many developments that Haraway’s work could be applied to – twenty-first century data science arguably implies comparable ‘Truth claims’ and ‘objectivity’, and can be similarly critiqued. Data visualisation, a subset of data science, is becoming a prominent focus in science communication. Scholars argue that visual elements in science communication may convey information in more unambiguous ways than words can, may help to make sense of the large amount of data collected in science, and may help to increase a public understanding of science.

Data feminist scholars build on Haraway's work, and that of other STS authors of the twentieth century, who “challenge the idea that science and/or technology is objective and neutral by demonstrating how scientific thought is situated in particular cultural, historical, economic, and social systems” (D’Ignazio & Klein, 2016). Gitelman and Jackson (2013) highlight the ways that ‘objectivity’ in data science may be questioned, while the work of feminist data visualisation aims to expose the assumptions involved in data collection, the treatment of data and data visualisation. A combination of feminism and Haraway (1988) leads to a deeper understanding of power relations and inequalities that may pervade this science knowledge.

This talk aims to understand the lessons that data feminism, feminist data visualisation, and Haraway’s ‘Situated knowledges’ (1988) may have for the use of data visualisation in science communication, especially as science communication becomes more visual. The talk will focus on aspects such as data collection, communicator/audience relationships and the design process that goes into data visualisation for science communication. Visual examples will be included to add context and clarity.

ABSTRACT

Klinkert, Annette

When & where: Parallel session 5-D Thursday 13 April 09:45 – 11:00, *Zeelenberg Room*
 Title: Maker Workshop with LEGO: Create a 3D print of your thoughts and prototype the engaged university of the future!
 Format: Maker Workshop
 Author: **Annette Klinkert**, city2science GmbH, Germany
 Chair(s):
 Co-author(s): Esther Rüßler

In times of rapid transformation, science communicators need to do more than merely “translate” research results to “the public”. In times of challenges, complexity and disruption, science communicators across the globe need to discover new pathways and foster new partnerships inside and outside academia. They need to define new missions and apply innovative methodologies to involve citizens and stakeholders, researchers and policy makers in active co-creation processes.

Are we ready to face this challenge as a global community? Do our existing universities offer creative spaces for this engagement? What should an engaged university look like to invite and enable communication, co-creation and participatory research processes?

The workshop invites all participants to create a scenario for a truly engaged university, which is responsive, inviting, participatory and inclusive. Via a creative and maker-based exercise you will gain a new perspective by “thinking with your hands”! Let’s reflect and prototype: What does an engaged university of the future look like? Where would this university be located? In the physical, digital or hybrid sphere? How would the buildings and outdoor areas be designed? Which actors would populate this space and how would they work together?

After some “food for thought” on engaged research you will be split into different groups, in which you will be invited to use all kinds of gamestorming materials (wood, paper, legoLEGO, Playmobil, etc.). After you have built your individual thoughts, you will co-create and present a shared vision of an engaged university of the future. We will end our session with a reflection phase: What can we learn from such a maker-based exercise? Would this also be helpful in a university- setting, bringing together diverse stakeholders?

The engaged university of the future: Let’s dream it, make it and share it

ABSTRACT

Klinkert, Annette

When & where: Parallel session 6-E, Thursday 13 April 11:30 – 12:45, *Hudig Room*
 Title: 9. Co-creating the Future – The Power of Social Makerthons in Urban Innovation Ecosystems
 Format: Insight talks
 Author: **Annette Klinkert**, city2science GmbH, Germany
 Chair(s): Sikke Jansma
 Co-author(s):

The COVID-19 pandemic has shown that technological innovation is not enough when it comes to addressing complex societal challenges. Key qualifications in times of transformation are social innovation, creativity, and participatory open innovation processes. Social Makerthons can be applied to test co-creative methodologies, aiming to install more open and inclusive innovation ecosystems in cities and regions. Online or hybrid, Social Makerthons experiment with digital and physical spaces. In Social Makerthons, notions of experts and non-experts are broken up. Researchers, citizens, policy makers and other stakeholders are seen as partners, even allies, in the need to respond to local and regional challenges.

The insight talk will present and reflect the Social Makerthon "OPEN.PUBLIC.PLACES" conducted as a hybrid event during the COVID-19 pandemic. The Makerthon invited 60 stakeholders from different ages, genders and backgrounds, including scientists, innovators, start-ups, citizens, artists, students, designers and policy makers, to reflect on their urban and regional environments. For three days, these stakeholders developed new ideas on how to open up public places in times of social distancing. Creative minds from different backgrounds designed and prototyped innovative ideas for streets and squares, churches and museums, parks and playgrounds in times of Corona and beyond. The insight talk will also reflect the methodology and outcomes of a ZUKON (Future Conference) in which the city of Detmold invited citizens to help shape the digitalisation process in the city. And within the Social Makerthon #CreateYourope young people from Germany and Poland aged 16–22 years developed ideas for a greener, more sustainable and more inclusive Europe.

Based on these experiences the talk will reflect whether the Social Makerthon methodology is a useful tool for digital or physical participation and co-creation for a wide range of actors in local innovation ecosystems.

ABSTRACT

Kohler, Sarah

When & where: Parallel session 10-L, Friday 14 April 11:30 – 12:45, *Mees Room*
 Title: Deinstitutionalization of universities' public communication during the COVID-19 pandemic
 Format: Linked papers
 Author: **Sarah Kohler**, Dusseldorf University, Germany
 Chair(s): Manuel Valenca
 Co-author(s):

This paper discusses the effects of the Covid-19 pandemic on public communication of research universities. Institutions had to adapt very quickly to the new situation which challenged their communication system and functionality. Working from home, teaching online, and building up infrastructures for the new situation are just a few examples the scientific and administrative staff had to tackle. Based on the concept of deinstitutionalization, this paper aims to examine the impact of Covid-19 on the communication function of universities. We conducted interviews during the pandemic with professional science communicators working at central communication offices in universities in four countries (Portugal, Italy, Germany, UK). Using qualitative content analysis with 39 semi-structured interviews with these professionals, we focus among other questions on the changes derived from the Covid-19 pandemic. We discuss the meaning of these results for science communication and the role of universities in communicating with external audiences in future emergency crises.

ABSTRACT

Koivumäki, Kaisu

When & where: Parallel session 8-F, Thursday 13 April 17:00 – 18:15, *Schadee Room*
 Title: 4. “One might tweet just for money”: Organisational and institutional incentives for researchers’ science communication and engagement practices
 Format: Individual papers
 Author: **Kaisu Koivumäki**, University of Oulu, Finland
 Chair(s): Toss Gascoigne
 Co-author(s): Clare Wilkinson

The proliferation of social media where researchers, policymakers and journalists interact, potentially increases agency amongst researchers to communicate individually. This also points to a need for studying science communication at an organisational level to understand how to strengthen common ground between the professional roles, and how science communication activities can be collectively organised to have a substantial impact and voice in the digital sphere. Despite these changes in the media landscape, there are ongoing questions regarding the perceived value of science communication and the ways in which it can receive institutional support in credit-driven academic cultures. Therefore, a new study was conducted to explore how incentives relate to researchers’ communication activity and how these can be influenced by digital communication contexts. This presentation focuses on a qualitative analysis of semi-structured interviews with 17 researchers and 15 communication professionals in Finland where media consumption is high and increasing, particularly online. Results indicate that it is the academic leaders who are in the key position to support organisational science communication culture, and their conceptualisation and acknowledgement of science communication can be more effective than encouragement from in-house communication staff or financial incentives. This suggests that there may be a key gap vis-à-vis training in science communication and engagement which is targeted towards scientific and organisational leaders.

ABSTRACT

Kramer, Olaf

When & where: Parallel session 4-H, Wednesday, 12 April 17:00 – 18:15, *Ruys Room*
 Title: Between Fact and Fiction. The Difficult quest for common ground in scicomm on AI
 Format: Roundtable
 Author: **Olaf Kramer**, University of Tübingen, Germany
 Chair(s): **Annette Leßmöllmann**
 Co-author(s): Beatrice Bonami, Tilman Gocht, Julia Merlot, Markus Gottschling

“None of my colleagues think that machines will ever gain consciousness. That’s just nothing we focus our research on.” With these words, Machine Learning professor Robert Bamler recently tried to adjust a lively discussion about Artificial Intelligence (AI) at a Public Engagement event in Tübingen. Whereas machine learning research sees AI primarily as a useful tool, perceptions in public discourse are more strongly shaped by desires, fears and fanciful imaginations driven by narratives and myths.

Reaching an understanding between these perspectives is a complex task: already within research on AI difficulties of establishing common ground become apparent. After all, various disciplines are involved, from computer science and mathematics to media and cultural studies. Such differing backgrounds necessarily result in different assessments of whether AI should be explainable or not, whether AI is a black box or not, or even on how to define artificial intelligence. Finding common ground for a public discussion about AI therefore must incorporate the recontextualization of highly complex research, building mutual understanding within the disciplines and subsequently aiming at enabling an informed public discourse about AI.

In short opening statements, our speakers will discuss the possibilities and ramifications of communication about AI research from their perspectives. Then, we will try to create common ground live at PCST, involving the audience by addressing them in different roles: as non-experts, they are invited to share their own conceptions of AI via surveys and short Q&A sessions; and as researchers and practitioners of science communication, their expertise is needed in designing solution strategies. Together we will engage with both the question of how researchers from different disciplines can find common ground and the question of what role practitioners play in facilitating the establishment of such common ground between researchers as well as between science and the public.

Speaker perspectives

Olaf Kramer:

At the RHET AI Center, we discuss artificial intelligence from an interdisciplinary perspective – and enable the conversations between diverse fields of research. As successful communication about AI requires a precise analysis of narratives and topoi that shape the collective understanding of AI. To adapt communication to the addressees is not just a matter of providing the necessary factual information or transmitting knowledge, but of addressing the

individual interests, motives, and emotions that people associate with AI. Accordingly, adapting knowledge generated in the field of AI research to people's societal expectations, hopes, and fears is a major challenge that requires careful perspective-taking, a hermeneutic understanding of the other, and, as a consequence, complex recontextualization of science. AI research should not shy away from this effort, however, because the societal implications of AI are already enormous and we need an informed public discourse on AI.

Beatrice Bonami

Artificial Intelligence is a topic that contains a wealth of expertise and mysteries, with future scenarios ranging from utopic to catastrophic for humanity's future. Part of the difficulty to imagine the future of AI, but also the fascination emanating from AI is due to the fact that many AI systems, and more generally, machine learning systems, are and invisible to the human eye. At the same time, these ideas are primarily shaped by a western or northern perspective. Since the tech industry is supported by power imbalances between the Global North and South, it is important to harvest what are the conceptions about technology, the future, and AI in the Southern hemisphere. In my short talk, I want to highlight how to foster global encounters and dynamics to give relevance to the Southern perspectives on AI.

Tilman Gocht:

Scientific developments in digitization and machine learning methods are penetrating into our everyday lives, e.g. when we receive recommendations based on previous purchasing decisions or let navigation assistants guide us to our destination. The big social question is, however, how we want to live in the future. Science can inform and provide expert knowledge for this question, albeit only in narrowly defined areas, in which the respective scientist is an expert. Meeting point between science and society is regulation, which plays a key role in narrowing down the space of possibilities (offered by science) to the size of what is wanted by society. In order to identify what is wanted by society, dialogic exchange formats are needed. We are trying to develop these with our communication strategy in the Cluster of Excellence "Machine Learning: New Perspectives for Science" that I will briefly introduce.

Julia Merlot:

Artificial Intelligence (AI) is used as a catchphrase and people often do not really know what it means. Sometimes the term even serves to cover gaps in knowledge as one does not have to explain precisely what the actual subject of discussion is and what role AI plays in that setup. That ubiquity comes with a risk as discussions about AI often remain vague, while at the same time there are very specific applications – from face recognition on mobile phones to systems that find new drugs, send people to jail or decide on credit applications. Too rarely, we discuss those real-life applications and their chances and risks. To enable the broader public to constructively take part in discussing and building case-specific reasonable AI, journalists (and scientists) need to break down the topic. With my talk, I will consider AI research in the context of its applications.

ABSTRACT

Laggan, Sophie

When & where: Parallel session 6-B, Thursday 13 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: Inner development for sustainability: co-creation and public participation training as tools for transforming the power relations of experts
 Format: Linked papers
 Author: **Sophie Laggan**, University of the West of England, Bristol, United Kingdom
 Chair(s): Andy Ridgeway
 Co-author(s):

Decision-making that includes local and Indigenous knowledge has been proven to maintain and enhance the environmental resource base upon which we depend over the long-term and increase the sense of ownership, responsibility, accountability, and agency of participants. In recent years there has been a participatory turn regarding the involvement of “non-experts” in research and policy. However, in order to listen to diverse worldviews, experts also need to shift their perspectives towards third-order engagement, which values and develops co-development with citizens.

This paper draws upon the evaluation of two European research projects and interviews with multidisciplinary researchers involved in WeCount and ClairCity. The interview data highlights the importance of experts’ social and material contexts in enabling or constraining their potential for inner development, and thus being able to move towards involvement and co-development with non-experts and diverse citizens. The paper will present recommendations for training and the application of participatory tools which science communicators can use to support experts in shifting their perceived agency, mindset, and actions towards reciprocity.

ABSTRACT

Land, Anne

When & where: Parallel session M-F – Tuesday 11 April 9:00-13:00 – *Natuurhistorisch museum*
 Title: How to evaluate science communication and its impact
 Format: Professional development workshop
 Author: **Anne Land**, Leiden University, The Netherlands
 Chair(s): Anne Land
 Co-author(s): Imke Hedder, Julia Panzer, Madelijn Strick, Ricarda Ziegler

Whether it is political and societal debates or personal decisions in our everyday lives: science plays a ubiquitous and central role in offering orientation and insight. Comprehensible, credible and effective science communication has, therefore, become increasingly relevant to improve and sustain our understanding of the world around us. Evaluating and assessing the impact of science communication practices, in tandem, have become prominent topics. But evaluating science communication –especially its impact– comes with its own challenges. It requires time, a budget and methodological skills, just to name a few, that even professional science communicators sometimes lack. The central question thus becomes: How do we overcome these challenges to create meaningful evaluations which improve the theory and practice of science communication?

Looking at the status quo of evaluating science communication, we rarely use the variety of methods and tools that the field has to offer. Considering approaches beyond standardised questionnaires that fit the wants, needs and circumstances of a given project might allow us to generate new, insights into how and why science communication activities work and make an impact.

In this workshop, we will demonstrate the steps of planning a meaningful evaluation and introduce different methods, tools and designs. We will discuss the theory and practical application of an evaluation plan as well as pros and cons of specific data collection methods. Experts from the IMPACTLAB (The Netherlands) and the Impact Unit (Germany) will share tools to evaluate science communication. We will end the day with a round-table discussion on the sense and nonsense of (impact) evaluation in science communication and recap the lessons learnt as a group.

This 4 hour workshop is suited for practitioners of science communication within institutional contexts with a maximum of 30 participants. We encourage participants to bring their own questions and past experiences to discuss.

ABSTRACT

Landeweerd, Laurens

When & where: Parallel session 11-B, Friday 14 April 14:15 – 15:30, *Van der Mandele (mezzanine)*
 Title: 8. Opaque Transparency: open science and the crisis of trust
 Format: Insight talks
 Author: **Laurens Landeweerd Landeweerd**, Radboud University, Netherlands
 Chair(s): Luz Helena Oviedo
 Co-author(s): Amalia Kallergi

In recent years, transparency over the workings of science has emerged as a tenet of good scientific practice. Parallel developments in the domain of governance, where transparency is understood as key to good governance and to healthy relationships with citizens, have undoubtedly motivated interest in transparency, especially as a means to enhance trust in the scientific enterprise. Furthermore, the emergence of open science, a framework advocating transparent and accessible dissemination of all scientific research, has largely institutionalized a demand for transparency. Transparency is one of the obligations and core values of practicing scientists. Various mechanisms support scientists in fulfilling this obligation, from open data practices to open access publication policies and open peer review processes. Nevertheless, science communication has a central role to play when it comes to being transparent towards stakeholders who are external to the institution of science. Transparency however is not free from conceptual complications.

In this contribution, we critically examine the underlying motivations, expected outcomes and implications of such calls to transparency. What are the underlying motivations of the scientific community for communicating transparently about science? Is transparency a means to an end (e.g. increased public trust) or a duty of practicing scientists? Are there limits to and even dangers from a transparent communication to the public? Is transparency always desirable in the light of security and safety? If 'transparency' is merely a repair mechanism how can one avoid that it takes the shape of 'PR for science'? And if it is a moral obligation, why? People are often not interested in complex science. During this session we will take the position of the Devil's advocate to create an analysis of the interrelation between trust, transparency and legitimacy.

ABSTRACT

Langtry, Mark

When & where: Parallel session 6-E, Thursday 13 April 11:30 – 12:45, *Hudig Room*
 Title: 4. Identify Crises: The Role of a Science Show Performer as an Educator and/or Entertainer
 Format: Insight talks
 Author: **Mark Langtry**, Trinity College Dublin, Ireland
 Chair(s): Sikke Jansma
 Co-author(s): Joseph Roche

This insight talk will focus on establishing common ground for critiquing the role of science show performers. Depending on the objectives and formats of science shows, they are often considered forms of education or entertainment that can span a number of science communication styles. While this ensures science shows have the potential to be innovative and boundary-crossing forms of engagement, it can also lead to tension around how science shows are labelled or perceived. This issue of labelling (or mislabelling) extends to the performers themselves who may be more comfortable identifying as educators or entertainers or something else entirely, but who regularly find themselves misrepresented by programme organisers, funders, or audiences. The authors will share practice insights from science shows performed across a number of formats, countries, and age groups. They will describe and evaluate their own specific experiences of being considered researchers, practitioners, performers, facilitators, educators, and the imposter syndrome that can be all too familiar to anyone straddling several of those roles. The authors hope that this insight talk will encourage follow-up conversations with interested participants to discuss the lessons that can be learned from how science show performers identify their roles and how they are presented in the field of science communication.

ABSTRACT

Leach, Joan

When & where: Parallel session 5-C, Thursday 13 April 09:45 – 11:00, *Van Weelde Room*
 Title: Knowing and Acting in Common: Science Communication, Public Good and Global Environmental Change
 Format: Linked papers
 Author: **Joan Leach**, Australian National University, Australia
 Chair(s): Katharine Legun
 Co-author(s):

The relationship between science and public good is widely talked about in economic terms. In these accounts, science is considered to be a form of information which is non-rivalrous and non-excludable, at least under the right institutional arrangements, and hence 'a' public good (as opposed to private goods). In addition, the significance of science is closely associated with the provision of other sorts of goods of public importance such as biomedical technologies or alternatives to fossil fuels. But such ways of framing the public value of science run the risk of hewing too closely to an economic framing which ignores the long political history of public good as a concept rooted in solidarity, community and the conditions of human flourishing. In this paper, we unpack the notion of public good as emerging through knowing and acting in common, and its implications for how we imagine and talk about the role of science. If public good is not pre-given but is rather constructed through conversation, practices and institutions, science communication has a key role to play in enabling this process. Drawing from our work under the auspices of a UNESCO Chair in Science Communication for the Public Good, we explore this argument with reference to global environmental change, and in particular, to efforts aimed at integrating knowledge of biophysical matters with societal imperatives of equity and justice.

ABSTRACT

Leach, Joan

When & where: Parallel session 9-B, Friday 14 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: Ethical Principles for Common Ground in Science Communication Theory and Practice
 Format: Roundtable
 Author: **Joan Leach**, Australian National University, Australia
 Chair(s): **Fabien Medvecky**
 Co-author(s): Michiel Van Oudheusden, Laura Lindenfeld, Hua Tian

Calls have repeatedly circulated for a ‘code of ethics’ for science communicators—perhaps in solidarity with other professions like journalism and public relations. This Round-Table considers an alternative approach to ‘codes and rules’ through principlism – more in line with bioethics practitioners – which uses principles (instead of codes) to guide ethical reasoning. The roundtable will consider four principles as a starting point for common ground in ethical reasoning about cases of science communication practice—accuracy, timeliness, generosity, and utility. Roundtable speakers will challenge, test, and explore these principles with cases of ethical reasoning in science communication. While Covid-19 brought multiple examples of ethically fraught communication, the climate crisis, new norms in scientific research, and new forms of science engagement provide ample cases for the roundtable to productively discuss and forge common ground. Audience members are invited to bring their own cases as well other potential principles into the conversation. The chair and speakers are drawn from Australia and New Zealand, Europe, China, and the US and research across science communication theory and practice. This roundtable promises a rich and lively discussion. It will begin with a 15-minute introduction to the principles and some cases to kick off the discussion. The roundtable members will provide some challenging cases and further principles for consideration and discussion and audience members will be encouraged to join with their own cases and principles.

Speaker perspectives:

Joan Leach (Australian National University)

With Fabien Medvecky, Joan has published a volume, *An Ethics of Science Communication* (Routledge, 2019), which provides at least a starting point for the work of this roundtable. She has also been active in cosmopolitan approaches to science communication, embracing new concepts in science communication emerging from scholars around the world. She is sceptical that ethics codes would be effective for science communication, thus her advocacy for a principlist approach. She is also aware from her work that practitioners like ethics codes for their clarity, precision, and ease of use. She wants to persuade colleagues that like these codes that a principlist approach will suit them even better!

Michiel Van Oudheusden (Vrije Universiteit, Amsterdam, Netherlands)

In science communication, sharing information with the public is taken as a moral value. Yet, not all knowledge can be made publicly available. Some information remains classified, and

often with good reason. High-risk organizations can be reluctant to share information at all, at the risk of being accused of ‘holding back’ evidence from the public in the event of an accident. This is what happened in the aftermath of the 2011 Fukushima accident, when the Japanese government failed to communicate reliable radiation data to the public in a timely manner, pushing ordinary citizens to collect and analyze their own radiation pollution data. Drawing on this example and his experiences as an embedded sociologist at a nuclear research facility, Michiel considers how formal institutions can make themselves a more trusted / less unreliable information source for citizens by developing new communication and ethical principles and forging alliances with citizen groups.

Laura Lindenfeld (Stony Brook University, United States)

Dr. Laura Lindenfeld is Executive Director of the Alda Center and Dean of the School of Communication & Journalism at Stony Brook University. She holds a Ph.D. in cultural studies from the University of California, Davis. As a communication researcher, her work draws inspiration from the idea that we can make better, more informed decisions about how we shape our collective future. Ethical reasoning in science communication is critical to this work. She is passionate about supporting scientists to communicate their work in more direct, engaging ways and advancing meaningful interactions with communities, stakeholders, and decision-makers by strengthening linkages between knowledge and action.

Hua Tian

Science communication involves two aspects, science and communication. Few publics know science without communication technologies. In other words, the public can often see the world of science shaped by science communicators. In this panel discussion, Hua will talk about the ethics of science communication from the communication platform perspective. He will take PaperClip, once one of the most popular uploaders of science short videos in Bilibili Station, as an example, to show how the four ethical principles – accuracy, timeliness, generosity, and utility were practiced by the PaperClip Office in producing the short videos and what (partial information, sensational perspective, etc.) led to its account being banned from social media in China.

ABSTRACT

Leeuwis, Cees

When & where: Parallel session 1-C, Wednesday, 12 April 09:45 – 11:00, *Van Weelde Room*
 Title: Science communication and the conundrum of articulating societal knowledge and technology demand
 Format: Linked papers
 Author: **Cees Leeuwis**, Wageningen University, Netherlands
 Chair(s): Sujatha Raman
 Co-author(s):

The idea of science communication has been broadened to include interactions between scientists and citizens oriented to enhancing the relevance of science and technology for societal problem solving and innovation. This broadening responds to critiques that the insights and solutions developed by research establishments often do not match with the needs, demands and realities of large segments in society. In response to this, we witness calls for greater involvement of users and citizens in the development of science and technology, as well as greater attention for democracy, dialogue and public engagement in the formulation of research agendas.

Using five mini case-studies derived from earlier published works this paper makes clear that demand-articulation is not an easy and straightforward process, and that it is too simplistic to assume that identification of knowledge demands in society seamlessly results in more relevant knowledge production and greater utilization. The cases suggest that societal demands for knowledge and technology are interactional; that is, they arise and emerge in a specific context where people engage and communicate with others (including allies, adversaries, and knowledge providers) to negotiate and realize specific ambitions. Thus, demands are not neutral and are part and parcel of politically-laden views and strategies regarding desired futures. The small case-studies also suggest that demands are dynamic and that the discovery, specification and verification of demands can benefit greatly from more intensive interaction with potential knowledge and technology providers over a period of time. In other words: the articulation of societal demand for knowledge and technology requires a high-quality process of dialogical exchange between the 'demand' and 'supply' side that is preferably embedded in collaborative change initiatives in society.

ABSTRACT

Legun, Katharine

When & where: Parallel session 5-C – 13 April, 09:45 – *Van Weelde Room*
 Title: Science, trust and the public good
 Format: Linked papers
 Author:
 Chair(s): Katharine Legun
 Co-author(s):

Within research operating at the science-society-policy nexus, dialogue has become an important term denoting the meaningful inclusion of relevant populations in science co-creation and democratic decision-making processes. Technology plays a complex but important role in such dialogues. New communication technologies provide a platform for communication, shaping the environment in which meaningful inclusion is pursued and performed. In addition, new technologies shape the world in which we live in multiple ways. As a consequence, they have become important as they can bring people together and enhance meaningful interaction, but also divide people and foster (affective) polarization.

Understanding how technology affects dialogue, and dialogue affects technology, is necessary to ensure that its development and use are socially beneficial. Our session will explore how technological change interacts with efforts to enhance meaningful dialogue for a vibrant and just society. In this session, we look at the role of technology in sustainable behaviour campaigns, challenges to the inclusion of citizen demand in the development of research agendas, challenges to collaboration in responsible innovation for synthetic cells, and frictions associated with the co-design of autonomous robotics for agriculture.

ABSTRACT

Legun, Katharine

When & where: Parallel session 1-C, Wednesday, 12 April 09:45 – 11:00, *Van Weelde Room*
 Title: Ontological matters: materiality, expertise, and participation in technology co-design
 Format: Linked papers
 Author: **Katharine Legun**, Wageningen University, Netherlands
 Chair(s): Sujatha Raman
 Co-author(s):

Robotics with AI capacities are currently being developed to automate complex tasks in agriculture that occur in outdoor environments. To develop new autonomous robotics, sensors and algorithms must be constructed to read, interpret, and engage with agricultural landscapes and production systems, in ways that are informed by practical knowledge and expertise. Co-design, where industry stakeholders like farmer managers and marketers are involved in the process of technology design with an interdisciplinary research team through dialogue, is one way that practical knowledge is incorporated into the technology development process.

The meaningful inclusion of diverse perspectives in dialogue processes are difficult to achieve within projects where autonomous robotics are the desired output—experience with hardware, software, landscapes, and plants all shape practical embodied knowledge, what is imagined as possible, and what is seen to be desirable in a technology. Drawing on interviews with technology developers and farmers on a large collaborative design project in Aotearoa New Zealand, this talk will draw from feminist STS studies to analyze how material infrastructures become mobilized to underpin expertise in robotic development. In doing so, we consider how material technical conditions and embodied knowledge becomes negotiated or re-inscribed in tech design in ways that relate to the power of those involved in co-design processes.

ABSTRACT

Leitch, Anne

When & where: Parallel session 11-E, Friday 14 April 14:15 – 15:30, *Hudig Room*
 Title: 2. Campground or battleground: how does neoliberalisation of the coastal influence community engagement
 Format: Individual papers
 Author: **Anne Leitch**, Biolines, Australia
 Chair(s): Alessandra Fornetti
 Co-author(s):

“Beautiful location. With the Simpson's River and the surf beach at your side there are limitless possibilities...Very tranquil setting.” Google review

Vans and tents line the caravan park, flanked by surfboards and bicycles and shaded by tall century-old pine trees. This campground in New South Wales, Australia, is similar to many coastal campgrounds in the state: it sits adjacent to a vulnerable coastline on public land in a small regional town and is now managed by a state-run enterprise. Like many coastal areas around the world, it is facing the dual threats of increasing development and gentrification alongside risks of projected rising sea levels.

This case study describes a coastal community undergoing change. It is relevant to science communication because:

1. It uses a textual analysis—of local media articles and documents over 15 years and focuses on key discourse moments—to analyse the perceptions, values and aspirations of the community about issues relating to changes in the community and the coastal environment. One lesson is to ‘never waste a good conflict’ in terms of finding out what the community thinks and values.
2. It illustrates how changes in campground management are influencing community interaction with this coastal environment. The campground management has squeezed out families and groups that have camped there for generations in favour of a new clientele. This breaks the long-term bond with place/ landscape that influences environmental attitudes but also monitoring undertaken by the ‘accidental citizen scientist’ of the generational camper.

This paper argues that, unlike the google review, the setting of the van park is not one of tranquillity, but of contention. While this case study considers a specific coastal land use — caravan parks located on Crown Land in one state of Australia — it has global relevance in what supports community resilience.

ABSTRACT

Léniz, Bárbara

When & where: Parallel session 8-L, Thursday 13 April 17:00 – 18:15, *Mees Room*
 Title: 360° Communication in Science: Transmedia strategy regarding the journey to the hadal zone of the Atacama Trench
 Format: Demonstration
 Author: **Bárbara Léniz**, Instituto Milenio de Oceanografía, Chile
 Chair(s):
 Co-author(s): Julián Rosenblatt

We present a practical and successful case of scientific dissemination linked to the exploration of the deep ocean in the Southeast Pacific, specifically the Atacama Trench, the most unexplored area of the planet. Through the participation of a multidisciplinary team, it has been possible to implement a transmedia strategy composed of different products (documentaries, clips, an exhibition, seminars, workshops, a videogame and a book), which have allowed multiple audiences to be reached both nationally and internationally.

Furthermore, this project is an example of how to communicate, disseminate and provide visibility to a scientific milestone through different artistic media that can connect with and have a transversal impact on different audiences throughout the territory.

In order to convey our 360° communication experience to the audience, we propose an interactive mini-workshop to show the most outstanding aspects of the products that make up the transmedia strategy. To this end, fragments of the documentaries (“Atacamex: Exploring the Unknown” and “Atacama Hadal”) will be shown; parts of the book will be read, highlighting its illustrations (Travesía al Inframundo); and the videogame (Audacia: Hadal challenge) will be shown; all with the aim of highlighting the techniques that make these products valuable tools for scientific communication. In addition, a part of the sensory experience of the exhibition (Atacamex: Science of the Deep Ocean), which has a significant impact and is a memorable experience for the attendees, will also be presented.

Finally, results will be presented on the impact and scope of this strategy, which has been implemented from 2019 to date, including the period of pandemic confinement.

ABSTRACT

Leßmöllmann, Annette

When & where: Parallel session 4-H, Wednesday, 12 April 17:00 – 18:15, *Ruys Room*
 Title: Between Fact and Fiction. The Difficult quest for common ground in scicomm on AI
 Format: Roundtable
 Author: **Olaf Kramer**, University of Tübingen, Germany
 Chair(s): **Annette Leßmöllmann**
 Co-author(s): Beatrice Bonami, Tilman Gocht, Julia Merlot, Markus Gottschling

“None of my colleagues think that machines will ever gain consciousness. That’s just nothing we focus our research on.” With these words, Machine Learning professor Robert Bamler recently tried to adjust a lively discussion about Artificial Intelligence (AI) at a Public Engagement event in Tübingen. Whereas machine learning research sees AI primarily as a useful tool, perceptions in public discourse are more strongly shaped by desires, fears and fanciful imaginations driven by narratives and myths.

Reaching an understanding between these perspectives is a complex task: already within research on AI difficulties of establishing common ground become apparent. After all, various disciplines are involved, from computer science and mathematics to media and cultural studies. Such differing backgrounds necessarily result in different assessments of whether AI should be explainable or not, whether AI is a black box or not, or even on how to define artificial intelligence. Finding common ground for a public discussion about AI therefore must incorporate the recontextualization of highly complex research, building mutual understanding within the disciplines and subsequently aiming at enabling an informed public discourse about AI.

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Speaker perspectives

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individual interests, motives, and emotions that people associate with AI. Accordingly, adapting knowledge generated in the field of AI research to people's societal expectations, hopes, and fears is a major challenge that requires careful perspective-taking, a hermeneutic understanding of the other, and, as a consequence, complex recontextualization of science. AI research should not shy away from this effort, however, because the societal implications of AI are already enormous and we need an informed public discourse on AI.

Beatrice Bonami

Artificial Intelligence is a topic that contains a wealth of expertise and mysteries, with future scenarios ranging from utopic to catastrophic for humanity's future. Part of the difficulty to imagine the future of AI, but also the fascination emanating from AI is due to the fact that many AI systems, and more generally, machine learning systems, are and invisible to the human eye. At the same time, these ideas are primarily shaped by a western or northern perspective. Since the tech industry is supported by power imbalances between the Global North and South, it is important to harvest what are the conceptions about technology, the future, and AI in the Southern hemisphere. In my short talk, I want to highlight how to foster global encounters and dynamics to give relevance to the Southern perspectives on AI.

Tilman Gocht:

Scientific developments in digitization and machine learning methods are penetrating into our everyday lives, e.g. when we receive recommendations based on previous purchasing decisions or let navigation assistants guide us to our destination. The big social question is, however, how we want to live in the future. Science can inform and provide expert knowledge for this question, albeit only in narrowly defined areas, in which the respective scientist is an expert. Meeting point between science and society is regulation, which plays a key role in narrowing down the space of possibilities (offered by science) to the size of what is wanted by society. In order to identify what is wanted by society, dialogic exchange formats are needed. We are trying to develop these with our communication strategy in the Cluster of Excellence "Machine Learning: New Perspectives for Science" that I will briefly introduce.

Julia Merlot:

Artificial Intelligence (AI) is used as a catchphrase and people often do not really know what it means. Sometimes the term even serves to cover gaps in knowledge as one does not have to explain precisely what the actual subject of discussion is and what role AI plays in that setup. That ubiquity comes with a risk as discussions about AI often remain vague, while at the same time there are very specific applications – from face recognition on mobile phones to systems that find new drugs, send people to jail or decide on credit applications. Too rarely, we discuss those real-life applications and their chances and risks. To enable the broader public to constructively take part in discussing and building case-specific reasonable AI, journalists (and scientists) need to break down the topic. With my talk, I will consider AI research in the context of its applications.

ABSTRACT

Li, Yuh-Yuh

When & where: Parallel session 11-B, Friday 14 April 14:15 – 15:30, *Van der Mandele (mezzanine)*
 Title: 1. Public understanding of climate change in Taiwan and India: From the perspective of gender and culture
 Format: Insight talks
 Author: **Yuh-Yuh Li**, National Sun Yat-sen University, Taiwan
 Chair(s): Luz Helena Oviedo
 Co-author(s): Sapna Goyal

The paper aims to investigate public understanding of climate change through the perspective of gender. We examine the relationship between gender, climate concern and climate cognition. Survey data was collected in Taiwan and India. The respondents are university students. A total of 554 valid cases were collected. Regression analysis is employed as the statistical analysis method. It is found that there is a gender difference in university students' climate concern. There were more concerns about climate change in women than men. It is also found that risk perception, knowledge of climate change, cognition of human cause are factors related to climate concern. Risk perception and human cause are related to the climate concern of women in Taiwan. Risk perception and knowledge of climate change are related to climate concern of women in India. The social representation perspective is employed in the discussion of the findings.

ABSTRACT

Lima, Luiz

When & where: Parallel session 10-A, Friday 14 April 11:30 – 12:45, *Willem Burger Room*
 Title: 3. How science outreach with children can promote equity and diversity
 Format: Individual papers
 Author: **Luiz Lima**, University of Tuebingen, Germany
 Chair(s): Bruce Lewenstein
 Co-author(s): Joana Bordalo, Joana Moscoso, Ana Catarino

Science outreach is key to closing the gap between science and society. However, it often fails to reach those who feel excluded from science or are dismissive of it. Native Scientist is tackling the educational disadvantage of migrant pupils (5.4 million in Europe) by promoting scientific and language literacy with a novel concept of interaction-centred STEM+LANG workshops: we connect migrant pupils with international STEM professionals who share a common heritage and speak the same native language (LANG). These workshops complement the school curriculum in the usage and teaching of the heritage language as well as of scientific concepts in an innovative format that provides pupils the interaction with role models and that makes language classes unique and attractive for pupils. Our novel educational methodology is making a difference and driving social change by promoting science and mother-tongue literacy. By sharing our experience at Native Scientist, we demonstrate how outreach activities can help improve equity, diversity, and inclusion (EDI).

ABSTRACT

Limson, Janice

When & where: Parallel session 5-A, Thursday 13 April 09:45 – 11:00, *Willem Burger Room*
 Title: Involving journalists in science engagement between communities and scientists
 Format: Roundtable
 Author: **Janice Limson**
 Chair(s): **Janice Limson, Merryn McKinnon**
 Co-author(s): Merryn McKinnon, Alette Schoon, Lutz Peschke

This panel explores how journalists can enhance science engagement between scientists and stakeholder communities.

Globally, there is a large school of thought advocating for scientists and communities to engage around scientific research, ideally at all stages of the research and innovation process. This approach, encapsulated in several national and international frameworks emphasizes and recognises the perspectives and knowledge that the public can bring to scientific research through direct engagement. There are multiple benefits for both the public and scientists as well as for the outcomes and impact of research. These approaches can help map concerns and identify research needs in specific communities, shape the production of more relevant and purposed scientific technologies and products, and bring scientists and communities into deeper discussion that supports greater understanding of the ethics of the research and how it relates to the democratic accountability of research.

Science engagement between scientists and the general public may be complex, as are the tools to do so. Multiple challenges exist for scientists within this space, especially when managing complex conversations that go beyond the science. This multidisciplinary panel includes the perspectives of scientists, journalists and science communication researchers and explores the beneficial role that journalists, with their training in engaging publics and commitment to the public interest, can play in this engagement. Drawing on empirical and theoretical research, we explore the degree to which direct interaction between scientists and communities can be mediated by journalists, such that it serves to create a deeper and more meaningful interaction between communities and scientists. The panel includes perspectives from Australia, Europe and South Africa. Guest speakers in the panel will present their accounts of engaged research, describe case studies and offer perspectives of journalism within the field of science engagement.

Janice Limson: biotechnology has often been represented as the public face of scientific research in the biological sciences, seeking as it does to develop products and processes which serve multiple fields including health, agriculture, water treatment and energy. Given that it is an applied field of study that holds direct impacts for society, several opportunities exist for direct engagement with communities, within a Responsible Research and Innovation framework.

Following on from the study of several different models of direct engagement between scientists and communities, I will reflect on how the success of each of these engagements is driven by the level and nature of the engagement and its purpose. I will explore, from the

perspective of a scientist and as a researcher in science communication, the challenges within this space, identifying the need for collaboration with journalists and science communicators to support enduring, sustainable and beneficial outcomes in engaged research models.

Merryn McKinnon: journalists, scientists and science communicators do more than just share scientific news and information with publics. How these professions enact their role perceptions, and the various contextual influences on their practice, contribute to a broader societal narrative of what science 'is' and 'should do', as well as who 'does' it. This presentation draws upon two Australian case studies. The first explores the relationships between scientists, science communicators and journalists and identifies some interesting cultural similarities and differences. The second shows the Australian media coverage of science over a period of three years, examining who writes about science and who is presented as a scientist. The implications of these relationships on public perceptions of, and engagement with, science are discussed. This presentation will not provide answers so much as areas worthy of future exploration as the relationships between journalists, scientists and publics continue to evolve.

Alette Schoon: as part of the process of launching a new genetically modified sugarcane in South Africa, the South African Sugar Research Institute has sought to develop a communication strategy for sugarcane growers while they conduct various trials over the next ten years. As part of this research, we proposed a science engagement strategy that would allow engagement between sugarcane growers and scientists in an engaged research framework. This paper documents our unique process of science engagement, where we included two journalists in the process of engaging growers and scientists on the topic of GM sugarcane products. The journalists produced media in print, documentary film and animation to clarify the science while at the same time asking "difficult" questions and broadening the conversation beyond the science. Our approach was inspired by action research and involved several cycles of media production, engagement and reflection.

Lutz Peschke: according to the quintuple helix approach of Carayannis, Barth, and Campbell, innovation can only be developed in a sustainable way within collaborative knowledge exchange between the five systems of academia, economy, politics, media- and culture-based society as well as the natural environment of the society. This concept breaks with the traditional understanding that citizens are only recipients of knowledge produced by the professional triple helix of academia, economy and politics. This paper presents a study on citizen engagement in health communication processes aided by media platforms. It will set a special focus on the role of science journalists in reviewing processes of media content. Within the scope of a Horizon 2020 project a study revealed that review processes of (citizen) journalistic content through scientists, citizens, and science journalists not only increased the trustworthiness of the journalistic media content but supports the collaborative knowledge exchange between citizens and science.

ABSTRACT

Lin, Chi-I

When & where: Parallel session 2-F, Wednesday, 12 April 11:30 – 12:45, *Schadee Room*
 Title: 4. A study of teach-in in communicating climate action to the younger generation
 Format: Insight talks
 Author: **Chi-I Lin**, National Sun Yat-sen University, Taiwan
 Chair(s): Sarah Davies
 Co-author(s):

This study investigates the ways in which climate teach-in events raise awareness, initiate dialog, and engage undergraduate students in taking climate actions. Teach-ins is an activist method rooted in college campus to engage students in the issues of the day, from the 60s' anti-war movement to today's climate action. As a form of collective reflection and appeal to social justice, teach-ins have been used by educators to encourage students to respond to urgent current world problems and recognize what knowledge is required to initiate change and solutions. This study reports findings from an effective evaluation of Climate Teach-Ins at National Sun Yat-sen University campus from the 2021 fall to 2022 spring semesters, which was designed to: (1) raise cross-humanity-scientific disciplinary conversations on climate solutions; and (2) engage students to assess the current policy-making's impact, technological innovation, and social attitudes from different perspectives.

Twenty university professors and 185 students participated in these Climate Teach-In interviews and panels. Both quantitative and qualitative data were collected following the teach-in panels using a questionnaire survey and open-ended questions to assess the impact of engaging students in climate teach-ins. The initial results show that the students had an increased interest in becoming involved with climate issues, recognized the transformative methods, and identified the importance of acquiring and sharing scientific knowledge.

ABSTRACT

Linna, Riina

When & where: Parallel session 4-F, Wednesday, 12 April 17:00 – 18:15, *Schadee Room*
 Title: 4. Professional transformation of a science engagement practitioner
 Format: Individual papers
 Author: **Riina Linna**, Museum of Technology, Finland
 Chair(s): Pedro Russo
 Co-author(s):

The Finnish Museum of Technology created a dedicated community exhibition space two years ago. We chose co-creation as the method. The goal of the community curated exhibitions is to create long-term relationships and sharing of expertise. These rather dull sounding wordings from official documents don't reveal the change that has happened – partly because at the time of writing the words full impact of co-creation on the organisation and for me was not obvious.

Reading something from a book is not same as doing it. As Nina Simon points out in her much talked about 2010 book *Participatory Museum* that co-creative projects -- often require institutional goals to take a backseat to community goals. She also writes that “Co-creative projects progress very similarly to collaborative projects, but they confer more power to the participants.” (Nina Simon 2010, 264). I had read these lines many years ago but doing it shows how different it is to the normal setting of working in collaborative setting with other professional.

I will share in this short talk on personal transformation how my disdain for DIY has changed, how I used to think that museums should have the final say on what is being said. I have also become aware how my attitudes towards people with hobbies or special interest have changed from eyerolling to appreciation. Typological displays of collections - as was the practise at the birth of modern museum has been deemed outdated. I thought so too. But I have seen what John Simmons writes in his article about the history of museums that that way of displaying collections was popular because it ordered the world around them (John Simmons 2010, *History of Museums*, *Encyclopedia of Library and information sciences*). It can't be that bad even if it is outdated.

ABSTRACT

Linna, Riina

When & where: Parallel session 8-B, Thursday 13 April 17:00 – 18:15, *Van der Mandele (mezzanine)*
 Title: Co-creation: What's in a buzzword?
 Format: Roundtable
 Author: **Riina Linna**, Museum of Technology, Finland
 Chair(s): **Konosoang Sobane, Marjoleine van der Meij**
 Co-author(s): Andrea Geipel, Ines Montalvao, D.A. Eva Durall

Co-creation has been a buzzword for a few years in many creative fields from museums to product design and marketing. In this roundtable session we want to discuss our varied experiences in co-creation and how co-creation can shape our practice of science communication.

Co-creation has its origin in commercial business but has become popular in the public sector. It can mean a variety of similar practices, such as collaborative governance, community involvement, participation and civic engagement.

This roundtable session will offer diverse perspectives on the topic. Speakers' opening statements will reflect their experience on co-creation. We will offer insights and experience on topic such as prototyping in exhibition design, how co-created exhibitions with hobbyists are creating new understandings, how to ensure co-creation actions strive towards fostering inclusion and diversity and how to co-create an online exhibition online.

In addition to the short contributions from the speakers, the panelists and chairs will prepare further in-depth topics on which the audience can take part in sharing their unique knowledge and asking questions. We will engage audience with the help of audience engagement tools such as the AR app *VotAR* or *Mentimeter*. In this way, we can focus the discussion to the things that arouse the most interest in the audience - and thus co-create our own discussion. Some topics for discussion may include why co-creation seems to be so relevant? What are the limits of co-creation? Is co-creation the best way of constructing common understanding?

Speaker perspectives:

Riina Linna

The Finnish Museum of Technology has dedicated a permanent space at the museum for community exhibitions. For the past two years we have been doing exhibitions (five and counting) in that space in co-creation with collectors, societies and hobbyists. Working together with non-professionals to create an exhibition is a chance for both parties to learn from each other and truly share expertise.

But as a museum/exhibition professional this new practice of co-creation has also changed me as a professional. Sharing a common bond, interest, taking part in other people's learning and also exposing my own learning to my co-creation teammates has made the process very

personal and meaningful. I have also started questioning some practices in the field and wondering whether I am a proper professional anymore.

Andrea Geipel

It was not only the pandemic that showed us that museums can also be experienced online. But how do you integrate the expanded circle of visitors into everyday museum life? Is it possible to offer co-creation services online, e.g. for the design of an (online) exhibition? How do you moderate international and heterogeneous groups and which tools help with the implementation?

This opening statement presents the online course programme Meaning Making, which tested with international participants how to co-create an online exhibition online. In addition to presenting the concept, the evaluation with the participants is presented and the resulting recipe for online co-creation is explained.

Ines Montalvao

Why is prototyping so valuable to a co-creation approach in the exhibition design process, allowing for a more accessible and welcoming outcome for diverse audiences? Prototyping is also more than a buzz word - understanding its value impacts and reflects upon the exhibition development and implementation.

A “shared experience” can be present in all stages of exhibition design if done in a sustained co-creation approach, as several examples from different contexts, people and themes will demonstrate. Topics of inclusion and emotions will be explored in the context of why “doing together” is important, and how to do it with/for your audiences, also having such topics as ultimate goals to create a meaningful, memorable and transformative experience.

D.A. Eva Durall

How to ensure co-creation actions strive towards fostering inclusion and diversity? Should we set a common ground when designing for co-creation?

Design principles are general guidelines to facilitate design activities. They are a starting point to aid and inspire practice. In the context of science education outside the classroom, design principles can help design science learning activities, triggering awareness on aspects related to inclusion and equity. But how to design such principles in a way that acknowledges the diversity of contexts in which science learning takes place?

In my talk I share insights on the participatory approach to a design principles toolkit produced with various stakeholders to co-create science learning activities outside the classroom.

ABSTRACT

Little, Hannah

When & where: Parallel session 10-C, Friday 14 April 11:30 – 12:45, *Van Weelde Room*
 Title: 8. Cognitive biases in storytelling for science communication
 Format: Insight talks
 Author: **Hannah Little**, University of Liverpool, United Kingdom
 Chair(s): Brooke Smith
 Co-author(s):

Storytelling lies at the heart of effective science communication and is one of the oldest, most universal tools that humans use to understand the world around us, but why do some stories endure while others are forgotten? Findings from the field of cultural evolution have demonstrated that, with stories, information is transmitted more faithfully when it contains social and survival information, negative emotional information, or counterintuitive information. In this insight talk, I will introduce ongoing research funded by the British Academy that explores how storytelling is affected by the cognitive biases above in the context of science communication. The work uses iterated learning experiments where chains of participants transmit science-related stories. The first participant is told a story before recalling it from memory for a new participant who, in turn, recalls the story for someone else, and so on. These transmission chains imitate the process of cultural evolution so we can measure what types of information survive. I will also consider potential issues that may come about when implementing knowledge of cognitive biases within science communication contexts, and invite the audience to offer relevant considerations from their own experience and expertise.

ABSTRACT

Little, Hannah

When & where: Parallel session 11-H, Friday 14 April 14:15 – 15:30, *Ruys Room*
 Title: 4. How do you argue with a meme?
 Format: Individual papers
 Author: **Hannah Little**, University of Liverpool, United Kingdom
 Chair(s): Anne Dijkstra
 Co-author(s): Justin Sulik

Science denial “memes” are a viral form of communication that attempt to undermine complex scientific ideas using memorable soundbites. Examples of these rhetorical pseudo-arguments include: “If humans evolved from monkeys, why are there still monkeys?” and “If global warming is real, why is it snowing?” Importantly, these memes misrepresent the science, which makes responding to these memes challenging: how do you argue with a meme?

To identify common strategies, we first built a database of Twitter responses to the “why are there still monkeys?” meme. Response strategies included factual explanations about why the reasoning behind the meme is flawed, and analogies using rhetorical common ground to respond in kind. Analogies could be “close” (appealing to concepts relevant to evolution such as descent: “If you are descended from your grandparents, why do you still have cousins?”), or “distant” (appealing to concepts from other domains: “If MacOS is a fork of Unix, why are there still other Unix systems?”).

To evaluate different response strategies, we designed an experiment and recruited an equal number of participants who endorsed vs denied evolution (n=447). Participants rated their understanding of the original meme and of different response strategies (e.g. factual vs analogy), and rated how effective and persuasive they found these. Analogical responses came from three domains (ancestry, technology and religion).

Across participants, factual explanations were rated more positively than analogical responses. Ratings varied according to participants' scientific literacy, religious beliefs and trust in science. Participants who were sceptical of science rated the original meme similar to the factual responses, though pro-science participants strongly preferred the latter. The results may inform good strategies for responding to science denial memes in maximally effective ways when the intuitions of those responding to the memes don't necessarily align with the intuitions of those sceptical of science.

ABSTRACT

Llorente, Carolina

When & where: Parallel session 6-E, Thursday 13 April 11:30 – 12:45, *Hudig Room*
 Title: 8. Communication in participatory science
 Format: Insight talks
 Author: **Carolina Llorente**, Studies Center on Science, Communication and Society – Universitat Pompeu Fabra, Spain
 Chair(s): Sikke Jansma
 Co-author(s): Gema Revuelta

In the last decade, we have seen the emergence of various philosophical-political movements of science governance such as responsible research and innovation (RRI), the quadruple helix or open science. Those movements coin a new conceptualization of scientific knowledge production where citizens have a central and active role. It seems that there is a general trend towards a more open, inclusive and participatory science. In this new scenario science communication is even more important than ever.

In this insight talk, we are going to share our experiences and reflections about scientists-citizen communication in participatory processes. Concretely, we are going to focus on the lessons learned through the analysis of three participatory methodologies in the framework of the European project ISEED (Inclusive Science and European Democracies). This assessment is done by a mixture of qualitative and quantitative approaches: semi-structured interviews and surveys. For each methodology, we will present key communication aspects identified (e.g. level of previous knowledge necessary to participate, the different actors involved, roles of different actors, technical language used, dynamics used to favor conversation etc.

ABSTRACT

Llorente, Carolina

When & where: Parallel session 7-L, Thursday 13 April 15:15 – 16:30, *Mees Room*
 Title: Communicating science to young people. Can we do better?
 Format: Roundtable
 Author: **Gema Revuelta**, Studies Center on Science, Communication and Society – Universitat Pompeu Fabra, Spain
 Chair(s): **Carolina Llorente**
 Co-author(s): Julia Lorke, Christian Humm, Hannah R. Feldman

Reaching teenagers and young adults is one of the great challenges of current science communication. It is a group that has traditionally been difficult to engage. For example, in science museums, engagement with children, families and adults is very well achieved, but the youth are under-reached.

Something similar happens with the media. It is a channel that works well to reach the adult audience, but younger people do not have the habit of consuming information in that way so it is more difficult to reach them massively. During the COVID-19 pandemic, this need has become even more evident since mitigating measures, vaccination, etc. had to be specifically communicated to this group. And we can also find the same problem in other entities such as the administration, research centers or universities where many times there is no specific communication of scientific knowledge for young people.

This situation has led science communication professionals to reflect on communication with young people. What lessons have we learned from the COVID-19 pandemic? What strategies are being followed? Which ones have been shown to be the most effective? What recommendations can we extract to communicate science to young people? In short, in this space we want to share ideas, suggestions, proposals, concerns and reflections to improve science communication towards this group. Gema Revuelta: the COVID-19 pandemic has abruptly broken into societies, with health, psychological, economic, political and communicative implications. In this context, more than ever, science communication has played a key role in many countries. This situation has led science communication professionals to reflect on communication with young people. What lessons have we learned from the COVID-19 pandemic? What strategies are being followed? Which ones have been shown to be the most effective? What recommendations can we extract to communicate science to young people?

Gema Revuelta will share recommendations from the youth, gathered through a participatory process, to improve communication on health and science.

Julia Lorke will discuss youth-focused citizen science and how it is rapidly expanding; in this roundtable discussion we are going to talk about it as a way to open up science to the young group. We are also going to reflect on the need of shifting our focus from motivation, interest and knowledge to ownership, identity and agency. And, finally we will discuss the better way to design features that foster or hinder youth participation.

Christian Humm: in a world decisively influenced by scientific developments, science communication grows ever more important to enable informed decision-making and participation of citizens in society and political discourse. However, science communication, be

it public talks, or participatory projects often reaches only certain parts of society. Christian Humm will present and discuss the different strategies we can use for tackling these exclusion factors.

Hannah R. Feldman: political expression, the environment, and the way we communicate about these two topics is changing dramatically with the warming planet, particularly among teenage citizens. No event in history captures this better than the global School Strike for Climate, a protest movement for environmental action that has seen millions of school-aged youth mobilizing across events in over 150 countries since 2018.

Hannah Feldman will reflect on the concept of young people as science communicators themselves and the factors that influence youth participation, and the concept of youth as part of a broader societal system which includes the use of technology and networks.

ABSTRACT

Lo, Yin-Yueh

When & where: Parallel session 4-E, Wednesday, 12 April 17:00 – 18:15, *Hudig Room*
 Title: 3. Image-building by Taiwanese science organizations: a comparison of public universities, private universities and non-university research institutes
 Format: Individual papers
 Author: **Yin-Yueh Lo**, Shih Hsin University, Taiwan
 Chair(s): Michelle Riedlinger
 Co-author(s):

Public relations of science organization have a dual function: First, they aim at creating a positive public image to gain legitimacy in the public eye, attract students, and secure funding. Secondly, they play a role in the public communication of research, serve as mediator between scientists and the public, interact with journalists, and use websites and social media to connect with their publics. My study analyzed how PR officers' perceptions of their organizations' public image, their principal goals and target groups, and the relation with scientists and management differs between types of organizations. Such differences may result from the specific challenges and available means of image-building. For example, universities can point to their educational function while non-university research institutes have to emphasize their research achievements. Private universities are in greater need to attract students since they depend on their tuition fees, while public universities are mainly funded by the taxpayer. To answer the research question, I conducted a survey of PR officers at Taiwanese public universities, private universities, and research institutes. The survey took place in 2021 and yielded 67 valid answers (a response rate of 35%). PR officers of all three organization types perceived the public image to be generally positive, but officers from non-university research institutions assumed the most positive image of their organization while those of private universities assumed the least positive. This is particularly evident in the perceptions of the organizations' contribution to the public good. Furthermore, in non-university research institutions the PR department is significantly stronger connected with both the management and the scientists, probably leading to increased self-efficacy of PR officers, and to a more positive - or more optimistic perception - of the organizations' public image. To be more efficient, university PR departments have to seek recognition and support by the organization.

ABSTRACT

Lopes de Oliveira, Diogo

When & where: Parallel session 11-L, Friday 14 April 14:15 – 15:30, *Mees Room*
 Title: Action networks for Science Communication: building abilities for change
 Format: Roundtable
 Author: **Miguel Garcia-Guerrero**, Autonomous University of Zacatecas, Mexico
 Chair(s): **Diogo Lopes de Oliveira**
 Co-author(s): Rae Ostman, Jordi Diaz

The development of successful science communication programs lies at the intersection between scientific knowledge and practical skills, in different media, to engage the public in discussion of relevant issues. An essential route to achieving this convergence arises from the collaboration between science and communication experts. Still, it cannot be limited to a mere division of tasks: it implies integrating the people involved in the joint development of the actions necessary to achieve the goals of the project so that it is possible to build new capabilities that transcend the original specialties. In this way, new capacities are reached through the diversity of participants and the demands of the practice they develop together; which benefit the project in question and lays the foundation for new initiatives.

This round table addresses the experiences of national and international networks that promote the creation of networks of actors, scientists, and communicators, who collaborate to give life to large science communication projects. Said projects not only intend for the public to be informed, but to engage participants in such a way that transforms their relationship with science and technology, inspiring them to assume an active role in addressing the emerging science issues that will transform society.

Participants represent the National Informal STEM Education Network of the United States, the Mexican Network of Recreational Science, the Ibero-American Festival of Nanotechnologies 10alamos9, and the International Day of Scientific Culture celebration. The objective is to identify common factors for the achievements of these communities of practice and to establish possible bases for new collaborations on a global scale.

Speaker perspectives:

Miguel Garcia-Guerrero is coordinator of the North Node of the Latin American Network for Science Popularization (Red Pop), responsible for Science Outreach for the Mexican Society of Physics, and former President of the Mexican Network for Science Recreation (Recreacion en Cadena). He has extensive experience in the development of science communication networks that, on national and international levels, incorporate a wide variety of agents and institutions to develop science communication endeavors.

Miguel will address the challenge of reconciling the contrasting points of view of researchers and communicators, in order to achieve the goals of strategies they are involved in, and also help each other develop capabilities for better performance in their initiatives. On a second level, he will discuss how these enterprises, once they reach the public, try to help people incorporate science into their day-to-day decision-making.

Rae Ostman is a research professor in the School for the Future of Innovation in Society at Arizona State University, co-director of the Center for Innovation in Informal STEM Learning, and director of the National Informal STEM Education Network (NISE Net).

Rae will provide the experience from the creation of the NISE Net. She will also add the experience of the transition of the network to an ongoing, nationwide entity with multiple projects focusing on current STEM. In particular, she will focus on mutual learning that has occurred among professionals of diverse expertise and members of the public through this longstanding collaboration. She will draw on the many research and evaluation studies the Network has completed over the years, as well as the many science communication resources the Network has created. Finally, she will reflect on lessons learned and changes through time.

Jordi Diaz has a doctorate in Chemical Sciences from the University of Barcelona and a Materials Engineering degree from the Polytechnic University of Catalonia. Currently, he coordinates the NanoDivulga UB project. As a disseminator of nanotechnologies, he has participated in various events, talks, and workshops.

Jordi will present the experience of the '10alamos9' Festival, which develops outreach activities all over Spain, Portugal, and Latin America. Scientists, teachers, and communicators work together on this initiative. He will also address Nanoinventum: a pedagogical proposal intended to bring the world of nanotechnology closer to primary school students. This program asks kids to identify problems in their lives and design nanorobots to try and fix them.

Nanotechnology is already a reality, and it is important to help young people understand its basic concepts, implications, risks, opportunities, and applications, in order to assume critical opinions and be able to make informed decisions.

ABSTRACT

Longnecker, Nancy

When & where: Parallel session 8-K, Thursday 13 April 17:00 – 18:15, *Van der Vorm Room*
 Title: When Indigenous and Western ideologies come together: A kōrero/discussion around learnings on co-creating resources to support kaumātua/ elder Māori and whānau/ family
 Format: Problem-solving workshop
 Author: **Nancy Longnecker**, University of Otago, New Zealand
 Chair(s):
 Co-author(s): Katrina Bryant

This workshop takes the style of a kōrero, or discussion, between a Western and an Indigenous researcher on the learnings gained while working together on a project aiming to co-create an Ageing Well display for Māori in Aotearoa New Zealand. The project aimed to create Māori-focussed activities to be added to an existing exhibit, which had been used nationally. A hui/ focus group was held with Māori participants (P1-7), facilitated by the authors, one Māori and one Pākehā/Western. A frank and robust discussion ensued, with indigenous participants challenging the intentions of the project. This led to a profound rethink of the co-creation process.

"I guess the consensus around the table is probably more... to stop, pause and reevaluate, and really consult Māori on what a good Māori initiative could look like. Because doing it with just two new add-ons, it seems really tokenistic. And it probably isn't. It will add value to what you've got, but wouldn't add value to us as Māori to have started as a Pākehā project. And we just hang a bit of Māori on it, but we would just look at it and go, 'Oh yeah; that's a Pākehā project with some Māori on it.'" (Participant 3)

"For me, personally, this reminds me of, 'Well, we need to put something Māori into this...' And that takes me back, that takes you back to a lot of pain. A lot of hurt." (Participant 4)

This workshop will start with a kōrero/ discussion between the authors to highlight the lessons learnt from this process and recommendations about the co-creation process for those with a keen interest in meaningful indigenous and multicultural research and dissemination. We will then draw the audience into the kōrero to share experiences and perspectives and provide insights for other contexts.

ABSTRACT

Longnecker, Nancy

When & where: Parallel session 10-B, Friday 14 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: 1. The Koru Model illustrates influences on an individual's engagement with and use of information
 Format: Insight talks
 Author: **Nancy Longnecker**, University of Otago, New Zealand
 Chair(s): Erik van Sebille
 Co-author(s):

The Koru Model uses the metaphor of developing fern fronds to represent individuals in a vast communication ecosystem. It is a visual, holistic model, especially valuable for budding science communicators. It can be used when producing or evaluating communication strategies and dissemination resources in a wide range of contexts, including health, environment and science outreach.

The Koru Model expands on familiar deficit, dialogic and participatory science communication models by providing a relatively simple illustration of complex internal and external factors that affect individuals' engagement with information. Vital factors include identity, social norms, control, support and cultural environment. These factors influence whether an individual engages with information and uses it in some way – e.g. changed attitude, creation of new knowledge, or changed behaviour.

Above ground in the Koru Model are individuals (represented as fern fronds) with unique identities who are part of their cultural environment, are influenced by it and interact with it. Each individual's identity – comprised of their values, beliefs, attitudes, awareness, interest, understanding, skills, and behaviours – influences their engagement with communicated information.

Underground in the Koru Model (root system) is an immense, interrelated, life-long learning ecosystem where facts are crafted into packages of information and messages, disseminated via innumerable communication avenues. This illustration highlights the challenge of attracting attention in an environment with abundant information and various sources.

Choosing a communication channel, mode and style that resonates with the intended audience increases the likelihood of attracting and retaining attention. Effective communication must then stimulate engagement with information and encourage its use. An individual may use new information to confirm existing schema, construct new knowledge, and potentially develop wisdom. This can influence the individual's behaviour and interaction with their cultural environment.

Awareness and consideration of factors in the Koru Model increase the likelihood of achieving science communication goals.

ABSTRACT

Lopes de Oliveira, Diogo

When & where: Parallel session 11-L, Friday 14 April 14:15 – 15:30, *Mees Room*
 Title: Action networks for Science Communication: building abilities for change
 Format: Roundtable
 Author: **Miguel Garcia-Guerrero**, Autonomous University of Zacatecas, Mexico
 Chair(s): **Diogo Lopes de Oliveira**
 Co-author(s): Rae Ostman, Jordi Diaz

The development of successful science communication programs lies at the intersection between scientific knowledge and practical skills, in different media, to engage the public in discussion of relevant issues. An essential route to achieving this convergence arises from the collaboration between science and communication experts. Still, it cannot be limited to a mere division of tasks: it implies integrating the people involved in the joint development of the actions necessary to achieve the goals of the project so that it is possible to build new capabilities that transcend the original specialties. In this way, new capacities are reached through the diversity of participants and the demands of the practice they develop together; which benefit the project in question and lays the foundation for new initiatives.

This round table addresses the experiences of national and international networks that promote the creation of networks of actors, scientists, and communicators, who collaborate to give life to large science communication projects. Said projects not only intend for the public to be informed, but to engage participants in such a way that transforms their relationship with science and technology, inspiring them to assume an active role in addressing the emerging science issues that will transform society.

Participants represent the National Informal STEM Education Network of the United States, the Mexican Network of Recreational Science, the Ibero-American Festival of Nanotechnologies 10alamos9, and the International Day of Scientific Culture celebration. The objective is to identify common factors for the achievements of these communities of practice and to establish possible bases for new collaborations on a global scale.

Speaker perspectives:

Miguel Garcia-Guerrero is coordinator of the North Node of the Latin American Network for Science Popularization (Red Pop), responsible for Science Outreach for the Mexican Society of Physics, and former President of the Mexican Network for Science Recreation (Recreacion en Cadena). He has extensive experience in the development of science communication networks that, on national and international levels, incorporate a wide variety of agents and institutions to develop science communication endeavors.

Miguel will address the challenge of reconciling the contrasting points of view of researchers and communicators, in order to achieve the goals of strategies they are involved in, and also help each other develop capabilities for better performance in their initiatives. On a second level, he will discuss how these enterprises, once they reach the public, try to help people incorporate science into their day-to-day decision-making.

Rae Ostman is a research professor in the School for the Future of Innovation in Society at Arizona State University, co-director of the Center for Innovation in Informal STEM Learning, and director of the National Informal STEM Education Network (NISE Net).

Rae will provide the experience from the creation of the NISE Net. She will also add the experience of the transition of the network to an ongoing, nationwide entity with multiple projects focusing on current STEM. In particular, she will focus on mutual learning that has occurred among professionals of diverse expertise and members of the public through this longstanding collaboration. She will draw on the many research and evaluation studies the Network has completed over the years, as well as the many science communication resources the Network has created. Finally, she will reflect on lessons learned and changes through time.

Jordi Diaz has a doctorate in Chemical Sciences from the University of Barcelona and a Materials Engineering degree from the Polytechnic University of Catalonia. Currently, he coordinates the NanoDivulga UB project. As a disseminator of nanotechnologies, he has participated in various events, talks, and workshops.

Jordi will present the experience of the '10alamos9' Festival, which develops outreach activities all over Spain, Portugal, and Latin America. Scientists, teachers, and communicators work together on this initiative. He will also address Nanoinventum: a pedagogical proposal intended to bring the world of nanotechnology closer to primary school students. This program asks kids to identify problems in their lives and design nanorobots to try and fix them.

Nanotechnology is already a reality, and it is important to help young people understand its basic concepts, implications, risks, opportunities, and applications, in order to assume critical opinions and be able to make informed decisions.

ABSTRACT

Lopes de Oliveira, Diogo

When & where: Parallel session 5-H, Thursday 13 April 09:45 – 11:00, *Ruys Room*
 Title: 2. Recreational resources to combat the misinformation and disinformation around Covid-19 in Mexico
 Format: Individual papers
 Author: **Diogo Lopes de Oliveira**, Departamento de Arte e Mídia, Universidade Federal de Campina Grande and Programa de Pós-Graduação em Comunicação, Universidade Federal da Paraíba, Brazil
 Chair(s): Toss Gascoigne
 Co-author(s): Nereida Martínez-Báez, Amelia Rodríguez-Pinedo, Elizabeth Ruiz-García, Miguel García-Guerrero

Due to the COVID-19 pandemic, between March 2020 and August 2022, around 590 million people became infected, and 6.4 million people lost their lives. Many of these deaths could have been avoided if reliable data and trust in science had been spread worldwide. Instead, misinformation and disinformation led people to believe in conspiracy theories and to engage in misleading practices.

This proposal addresses the creation and implementation of six interactive activities (science recreation workshops) based on easily accessible materials so that the population can experience scientific principles that contradict some fake ideas about the disease published on social media. The main subjects addressed in these activities are: how a virus spreads, the workings of the immune system, the science behind prevention measures, and how vaccines work. This presentation will include a couple of workshops as an example.

Our research team developed these workshops for 200 students between 8 and 12 years old in an elementary school in Zacatecas, Mexico. In addition, questionnaires were sent to all participants, obtaining responses out of 117. The results point to a greater understanding and interest in the scientific concepts or practices related to the new coronavirus, such as prevention, contamination, and vaccines.

ABSTRACT

Losi, Lucilla

When & where: Parallel session 10-E, Friday 14 April 11:30 – 12:45, *Hudig Room*
 Title: 4. Deferring to experts or disliking participation? Understanding the socioeconomic determinants of science (dis)engagement
 Format: Individual papers
 Author: **Lucilla Losi**, Aarhus University, Denmark
 Chair(s): Bernard Schiele
 Co-author(s):

To further unpack the relationship between socioeconomic background and science engagement, this presentation focuses on the mediating role of public attitudes towards science governance. Public engagement with science has a key role in improving science access, promoting acceptance, as well as diversifying and expanding science itself. To meet similar goals of inclusion and innovation, an intersectional diverse audience is crucial. Studies have shown that this is still far from being achieved, as participation is more likely among middle aged, middle class, educated, white males. In an attempt to go beyond elaborations on barriers of engagement I employ data from the Special Eurobarometer 2021 to examine the relationship between science engagement and the public governance of science. Drawing from social psychology theories of status legitimation and deference towards authority, I argue that who individuals think is most appropriate to intervene in deliberation about science and technology varies according to their socioeconomic background and matters for how they engage with science. Results show that higher Socio-Economic Status (SES) is associated with more science engagement, but at the same time it is positively associated with reliance on experts' deliberation rather than public participation, which, however, weakly mediates SES's relationship with engagement. The mediating role of other science attitudes, as interest, is explored. This presentation aims at starting a debate in the room on the drivers of science (dis)engagement among low SES publics, but also on the participation opportunities that people actually encounter in their daily lives and the methodological challenges of measuring them.

ABSTRACT

Luong, Vy

When & where: Session 3, Tuesday, 4 April 17:00-18:15, *Zoom*
 Title: It might not be my place to....: How journalists perceive their roles in environmental communication
 Format: Online conference
 Author: **Vy Luong**, University of Missouri, United States
 Chair(s): Marlit Hayslett
 Co-author(s): Kathleen Rose

Overview: In this session we will consider roles and responsibilities, of audiences, science communication practitioners and science journalists.

As large-scale scientific and environmental issues impact the global society, journalists play a critical role in communicating information to the public. Yet, traditional journalistic norms can often conflict with best practices suggested by science communication research. Scholars have identified concerns with past coverage of issues such as climate change due to false balance, lack of training in communicating scientific information, a heavy focus on problems over solutions, and failing to connect local and global issues. Further, the line between environmental journalism and advocacy can be unclear, exposing journalists to critiques over perceived lack of objectivity, a core value in journalism.

For environmental and science issues, journalists are vital to the communication flow between scientists and the public, acting variously as disseminators, interpreters, adversarialists, and mobilizers. Journalists play an important role as a go-between for stakeholders negotiating values and helping the public make sense of key scientific information and expertise.

To explore how U.S.-based journalists perceive their roles in environmental communication, we conducted a mixed-method study. We used a convenience sample of 17 environmental journalists, divided into two sub-groups based on their level of experience: 1) 10 early-career journalists beginning a training program reporting on agriculture and water issues in local newsrooms and 2) 7 expert journalists serving as mentors. The participants completed a survey and a semi-structured interview.

Initial data analysis shows that almost all early-career journalists perceive their main role as disseminator or interpretive. Early-career journalists are cautious about the journalistic practices they adapt to avoid being labelled as advocates, where experienced journalists are more open to re-evaluating traditional practices, such as equal coverage for all sides of an issue. We discuss what factors influence their perceptions and what challenges they face in their roles such as complex language in journal articles or lack of access to science sources.

ABSTRACT

Lupetti, Karina

When & where: Parallel session 2-L, Wednesday, 12 April 11:30 – 12:45, *Mees Room*
 Title: Science is life
 Format: Performance
 Author: **Karina Lupetti**, Federal University of São Carlos, Brazil
 Chair(s):
 Co-author(s):

The inclusion of people with visual impairment and reduced mobility is the main focus of the Nucleus Ouroboros of Science Communication. The Ouroboros' and Looks' groups work together along more than 13 years putting together volunteers from Sao Carlos' community, undergraduate students and professionals from Federal University of São Carlos to communicate science to the general public. The "science is life" performing was developed along 2 years and shows a dialog between two clowns, a scientist and a country man and inspires people to know more about science of glass and other materials, its applications, and environmental issues. During the performance, the scientist clown presents to her cousin the sound of glass, the incredible unbreakable Rupert's drop, the glass that change colors with sun light, the conduction of light by the optical fiber and other glass properties that are related to the Sustainable Development Goals from UN. It is fascinating to discover in a funny way how science is near our lives and see the differences between daily and special glass materials. In addition, the songs played by glass experimental orchestra "Vitreous Sounds" during the conversation complete the information about nature and water shortage, human health cares and history and science discoveries, giving to the public hopefulness to a better world.

ABSTRACT

MacBride-Stewart, Sara

When & where: Parallel session 4-A, Wednesday, 12 April 17:00 – 18:15, *Willem Burger Room*
 Title: Biosecurity as fragmentation
 Format: Linked papers
 Author: **Sara MacBride-Stewart**, Cardiff University, United Kingdom
 Chair(s): Jenni Metcalfe
 Co-author(s):

Environmental solutions to address the spread of pathogens include appeals to common good and shared responsibilities. It assumes that a system of biosecurity can safeguard the values that communities have for forests now, and in the future. Yet if biosecurity does not address the relations between environmental responsibilities and ideas about how or who best to govern resources, biosecurity policies and protocols that exist as part of this system may inadequately inform about the sources and fate of pathogens and effects of biosecurity measures.

Interviews with biosecurity scientists and policy makers in Wales showed the extent to which the biosecurity system is specific to its context and is obligated to long-standing human-plant relationships. Analysis of discourses and knowledge addressing ecosystem neglect and care of forests show how it is not possible to see biosecurity as implying one thing. For example, the biosecurity advice and policy is distinct from the UK wide Plant and Tree Health strategy. Moreover, evidence of the fragmentation of biosecurity in Wales, highlighted that as biosecurity does not have a settled relationship or form its potential impacts on vulnerable communities and areas most at risk from efforts to contain pathogen exposure and spread are uncertain.

Our focus on values and biosecurity surface many tensions (between stakeholders, between personal and professional, science and emotion). By creating common ground this allows the uncertainties and tensions to be surfaced and deliberated to highlight these complex relations, to better inform policy and action.

ABSTRACT

MacCalman, Caroline

When & where: Parallel session 6-L, Thursday 13 April 11:30 – 12:45, *Mees Room*
 Title: Nuclear power: Sensible? Maybe, but not “sustainable”
 Format: Linked papers
 Author: **Caroline MacCalman**, University of Birmingham, United Kingdom
 Chair(s): Fern Elsdon-Baker
 Co-author(s):

After a long hiatus, in the early 2000s, several national governments decided to invest once more in their aging civil nuclear plants – resulting in excited discussion of a possible ‘nuclear renaissance’. The technology on offer was much the same as it had always been, but the insertion of ‘sustainability’ rhetoric indicated that the industry had taken note of a shifting environmental consciousness among wider publics during the preceding 20 years. Building on the discursive focus on ‘carbon’, ‘carbon emissions’, ‘fossil fuels’, and the need to ‘decarbonise’ our energy infrastructures, proponents made much of the non-carbon-based fuel cycle at the heart of civil nuclear power.

This paper presents the findings of an investigation into how environmentally conscious people in the UK responded to the notion of nuclear power being rebranded as a ‘sustainable’ energy option. It will show that on the periphery of the environmental movement, there certainly exists enough ‘fuzziness’ to allow for the seemingly self-contradictory identity position of a ‘pro-nuclear environmentalist’. However, despite nominal acceptance of the ‘need’ for nuclear, sustainability rhetoric was routinely rejected as ‘greenwashing’ – an obvious and insincere attempt to capitalise on the good intentions of a growing social movement. This indicates that while the climate crisis has forced some to re-evaluate what environmental evils are tolerable (at least in the short term), such superficial recourse to sustainability rhetoric in communications from industry and politicians can engender resentment and scepticism, not support.

ABSTRACT

Mack, Pauline

When & where: Parallel session 3-G, Wednesday, 12 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 5. Pasta & Haggis Project – A recipe for success
 Format: Visual papers
 Author: **Pauline Mack**, Leverhulme Research Centre for Forensic Science
 University of Dundee, United Kingdom
 Chair(s): Melanie Smallman
 Co-author(s): Giorgia De Paoli

When a Scottish Learning Technologist and an Italian Scientist met for the first time their common goal was to set up and deliver a hybrid academic module in Forensic Science for future Law Practitioners. The 'Pasta & Haggis Project' is the journey of two professionals with very different educational and socio-cultural backgrounds, who must learn how to interact with each other to develop a way of communicating scientific concepts through technology. Accessible and inclusive applications such as interactive classes (that can be taken at the students' most suitable time) and a safe platform to share (anonymously if desired) thoughts were adopted. The ability to raise questions, share information and leave feedback will be paired with virtual or in-person meetings where instructors empower students. We want to develop critical thinking skills that will allow the students to interpret, recognise and separate 'good science' from 'junk science', challenge the scientific evidence brought to court and promote collaborative change where scientific concepts can be shared and discussed among a multidisciplinary community. The 'Pasta & Haggis Project' encompasses the values of openness, inclusivity and collaboration to achieve a common goal by working together, in turn passing this ethos onto others.

ABSTRACT

Mafuleka, Lindiwe

When & where: Parallel session 6-F, Thursday 13 April 11:30 – 12:45, *Schadee Room*
 Title: 8. Turning Scientists into Radio Hosts every week for 6 years
 Format: Insight talks
 Author: **Lindiwe Mafuleka**, Malawi Liverpool Wellcome, Malawi
 Chair(s): Laurens Landeweerd
 Co-author(s): Pauline Mlogeni

As one way of bringing scientists closer to the public, the Malawi Liverpool Wellcome Programme launched a radio programme entitled "Umoyo Nkukambirana". "Umoyo Nkukambirana", translated into English means 'let's talk about health'. The aim of the programme is to allow researchers to present insights from their research to the lay public in order to inform them of emerging information on relevant health topics. The programme is recorded live and runs for 60 minutes and also includes a component where listeners can phone in and talk directly with the researcher.

The programme is aired on a national radio station and is re-broadcast on four community radio stations in order to have maximum reach. The communications and public engagement department produces this programme, which is now its 6th year.

We would like to share our experiences of what it takes to run this programme successfully i.e. what are the success factors, what are the challenges, and what are the lessons learnt. These insights can inform other science communicators who are interested in using radio as a science communication medium.

The production of the radio programme also involves interaction with listeners and we would like to share our experience in keeping the public engaged in our programme.

ABSTRACT

Magalhaes Joana

When & where: Parallel session 7-F, Thursday 13 April 15:15 – 16:30, *Schadee Room*
 Title: 1. A methodological approach to co-design citizen science communication strategies directed to quadruple-helix stakeholders
 Format: Individual papers
 Author: **Joana Magalhaes**, Science for Change, Spain
 Chair(s): Mohamed Elsonbaty Ramadan
 Co-author(s): Rosa Arias, Cristina Luís

Citizen Science (CS) is the new paradigm of science communication. This is the motto of the European funded H2020 project NEWSERA. To put this into practice, NEWSERA team selected 38 ongoing CS projects, from Spain, Portugal and Italy, to act as pilots in the development of communication strategies, specifically addressed to each of the quadruple helix (4H) stakeholders (citizens, academics, policy makers and industry), as target audiences. The pilots then enrolled a series of sequential workshops, entitled the #CitSciComm Labs to test their innovative strategies. The Labs were delivered in three different rounds, where co-design methodologies, participatory and mutual learning activities, were explored, within a continuous iterative process of co-creating, implementing and validating communication strategies, considering their effectiveness and social perception. Here, we focus on the methodology implemented in the first round of Labs, aimed at co-designing communication strategies and ad hoc impact indicators, for each of the 38 CS projects, alongside with 4H stakeholders representatives, science communication and journalism professionals, facilitated by NEWSERA team members. This group of people constitute the NEWSERA community of practice that is "creating a common ground" to the role of CS as a powerful tool for science communication to enable collaboration and co-creation of knowledge, but also dialogue and critical thinking and to tackle the spread of misinformation, disinformation and fake news. A set of recommendations to overcome specific identified barriers, as well as lessons learned, will be shared to inspire the wider science communication and citizen science communities.

ABSTRACT

Manyweathers, Jennifer

When & where: Parallel session 8-F, Thursday 13 April 17:00 – 18:15, *Schadee Room*
 Title: 5. Only what can be counted, counts: The perils of ignoring Third Order thinking in the generation of veterinary professionals
 Format: Individual papers
 Author: **Jennifer Manyweathers**, Charles Sturt University, Australia
 Chair(s): Toss Gascoigne
 Co-author(s):

Australian horse owners are encouraged to vaccinate their horses against Hendra virus to reduce the risk to horses and humans. Despite four human and over 100 horse fatalities, uptake of the vaccine has been slow. Discourse around the vaccine has been characterised by polarisation and dissenting voices across stakeholders, including horse owners, veterinarians and their associated professional bodies, the vaccine manufacturer and government agents. This has resulted in animal welfare issues for horse owners unable to access veterinary care and has contributed to professional and personal stress for veterinarians.

In this study, we interviewed Australian horse owners who had elected not to vaccinate their animals (N=15) and equine veterinarians (N=10), all located in areas of previous Hendra virus cases. Our results revealed how disqualification by institutional and industry experts of lay knowledge and experience played a major role in creating barriers to progressive and inclusive discussions around vaccine and virus risk mitigation. The process and underlying assumptions through which knowledge was identified and valued as expert also contributed to the divisive discourses. Inadequate handling of uncertainty, including the opacity of the vaccine development and registration process, and the handling of vaccine injury reports contributed to the polarisation of communications around Hendra virus and the vaccine.

We assert that examination of how experts are trained must be undertaken to make clear the assumptions that underpin the theory of knowledge acquisition. By including explicit training in inclusive and reflective risk communication practices, experts will be better prepared for their role as science communicators. This will contribute to the acknowledgement of legitimacy of diverse knowledge sources and the inevitability of uncertainty, which will enhance future communications around management of infectious diseases.

ABSTRACT

Manyweathers, Jennifer

When & where: Parallel session 9-E, Friday 14 April 09:45 – 11:00, *Hudig Room*
 Title: 4. Expertise and communicating about infectious disease: The negative impact on veterinarian/horse owners' relationship through living with Hendra virus
 Format: Individual papers
 Author: **Jennifer Manyweathers**, Charles Sturt University, Australia
 Chair(s): Frank Kupper
 Co-author(s): Nancy Longnecker, Mel Taylor

Australian horse owners are encouraged to vaccinate their horses against Hendra virus to reduce the risk to horses and humans. Despite four human and over 100 horse fatalities, uptake of the vaccine has been slow. Discourse around the vaccine has been characterised by polarisation and dissenting voices across stakeholders, including horse owners, veterinarians and their associated professional bodies, the vaccine manufacturer and government agents. This has resulted in animal welfare issues for horse owners unable to access veterinary care and has contributed to professional and personal stress for veterinarians.

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ABSTRACT

Marín González, Esther

When & where: Parallel session 6-C, Thursday 13 April 11:30 – 12:45, *Van Weelde Room*
 Title: Science journalism in pandemic times: perspectives from COVID-19 researchers and health workers in Southern Europe
 Format: Linked papers
 Author: **Esther Marín González**, Faculdade de Ciências, Universidade de Lisboa, Portugal
 Chair(s): Anne Dijkstra
 Co-author(s):

Several studies have investigated the science-media relationship. However, there is a knowledge gap in Southern European countries, which have traditionally been less studied when it comes to understanding the nature and effectiveness of collaborations between researchers and journalists. Using a mixed-method approach that combined quantitative survey research with qualitative semi-structured interviews, we explored the beliefs, opinions, and experiences of researchers and health workers involved in COVID-19 research about their interactions with journalists during the pandemic in Italy, Portugal, and Spain. This talk will present some of the motivations, concerns and benefits associated with communicating COVID-19 research, that framed how researchers and practitioners interacted with the media during the pandemic. It will also provide insights into ways to promote and maintain fruitful cooperation between these actors, especially in a context of uncertainty, spreading of fake news, high demand for information and great expectations in science and technology. These findings aim to support current and future communicative challenges such as health, environmental and social crises that require joint efforts from multiple societal actors.

ABSTRACT

Marín González, Esther

When & where: Parallel session 8-H, Thursday 13 April 17:00 – 18:15, *Ruys Room*
 Title: 6. Building stories about climate change in Southern European media
 Format: Insight talks
 Author: **Esther Marín González**, Faculdade de Ciências, Universidade de Lisboa, Portugal
 Chair(s): Sook-kyoung Cho
 Co-author(s): Cristina Luís, Inês Navalhas, Elisabetta Tola

Climate change communication has evolved from presenting climate change impacts in distant regions, with images of starving polar bears walking on melting ice, to showing its anthropogenic origin and local effects on humans, non-humans, and the environment. In the current context of climate emergency, understanding how stories about climate futures are constructed could help to design effective narratives that promote social engagement in climate change mitigation and adaptation.

Research on the use of narratives and storytelling has shown the potential of these tools in acquiring knowledge, public understanding, and engagement with science, as well as their capacity to elicit fear, inspire hope, motivate, or guide action on environmental issues. The way stories are created also provides insights into cultural aspects, such as meanings and values, and through stories, science-related information can be placed in familiar contexts, making science meaningful for the public.

This talk will present the preliminary results of a study exploring climate change narratives in traditional and social media channels in Spain, Portugal, and Italy. By identifying narratives, storytelling features, and advocated solutions to mitigate and adapt to present and future impacts, we aim to characterize how content producers, journalists, and science communicators engage audiences with climate change issues. At the end of this presentation, we would like to open a discussion with the participants to exchange views on the effectiveness of the identified elements in the construction of persuasive stories that not only inform but also shape audiences' perception of the urgency to act, outcomes that, we believe, will benefit both researchers and practitioners.

ABSTRACT

Marschalek, Ilse

When & where: Parallel session 8-G, Thursday 13 April 17:00 – 18:15, *Van Beuningen Room*
 Title: 2. Food Safety Operational labs – a collaborative approach for science communication of societal relevant and complex food safety topics
 Format: Individual papers
 Author: **Ilse Marschalek**, The Centre for Social Innovation, Austria
 Chair(s): Germana Barata
 Co-author(s): Maria Schrammel, Line Lindner

We present experiences from the FOODSAFETY4EU project. This project is applying a participatory process, which sustains a responsive and adaptive community of Food Safety System actors. Among many activities, four so-called Food Safety Operational labs were set up to build a long-term science-policy-society interface. These labs range from a co-creation of food safety roadmaps, collecting crucial research topics and integrating food safety in the funding programmes up to developing innovative science communication and awareness-raising materials.

This paper deals with the practical implementation of the lab as an innovative forum for discussing complex challenges in the food safety sector. Related to the concept of social labs, stakeholders from different fields, including food safety experts, science communicators and artists team up for developing awareness-raising actions. These are implemented and evaluated collaboratively.

We will provide information about outcomes and outputs from one lab example implemented in the Czech Republic and Tunisia, showing communication materials for different target groups and providing evidence from the collaborative implementation process. Additionally, communication among the heterogeneous group within the lab, challenges of defining a common understanding and collaborative evaluation processes will be reflected in the session.

ABSTRACT

Mason-Wilkes, Will

When & where: Parallel session 6-L, Thursday 13 April 11:30 – 12:45, *Mees Room*
 Title: Future Flight in the UK: Public Attitudes towards and Engagement with Emerging Aviation Technologies
 Format: Linked papers
 Author: **Will Mason-Wilkes**, University of Birmingham, United Kingdom
 Chair(s): Fern Elsdon-Baker
 Co-author(s):

The “Future Flight Challenge” is a £300m UK government and industry-funded project to deliver the third aviation revolution. It focuses in the first instance on the development of sustainable flight technologies (payload-carrying drones, eVTOLs, and electric and hydrogen-fuelled regional aircraft) that will operate regionally within the UK, are envisaged as complementing existing inter-and intra-regional and local transport modes whilst helping to align the UK with environmental targets e.g. JetZero.

Social science is central to the challenge, with social scientists embedded within it since Summer 2022. An important early aspect of the social science work is understanding publics’ levels of awareness of these technologies, and their perceptions of the acceptability of their different potential uses. Given these technologies are in the early stages of their development, the future flight challenge provides a unique opportunity to engage with publics much further upstream than is often the case.

This paper reports on an initial nationally representative survey of UK adults’ awareness, perceptions of and attitudes towards Future Flight technology, including mapping the influence of some of the limited extant media messaging around these technologies on publics. The implications of these findings for a future programme of work engaging communities and publics within the innovation ecosystem are considered.

ABSTRACT

Massarani, Luisa

When & where: Parallel session M-A – Tuesday 11 April 9:00-12:30 – *ErasmusMC AE-406*
 Title: Connecting good practices in curriculum development for graduate programmes in science communication
 Format: Professional development workshop
 Author: **Luisa Massarani**, Brazil's Institute of PCST and Oswaldo Cruz Foundation, Brazil
 Chair(s): Frans van Dam
 Co-author(s): Bruce Lewenstein, Joseph Roche, Susana Herrera, Merryn McKinnon, Andy Ridgway, Gema Revuelta

In the last 30 years, programmes in science communication have been created in universities around the globe. In 2021, as part of the PCST Network, the PCST Teaching Forum, an international network of science communication lecturers at undergraduate, graduate and PhD level was created, aiming to provide a network of support for people involved in teaching science communication. In this workshop, we will start by presenting a map of science communication programmes around the globe; the results of a study undertaken in partnership with the PCST Teaching Forum and GlobalSCAPE*, by Fiona Smyth (Trinity College Dublin, Ireland) and Luisa Massarani (Oswald Cruz Foundation, Brazil). After the presentation, stakeholders in teaching science communication in different parts of world will stir a conversation, to be joined by all workshop participants, about issues such as the challenges, vulnerabilities and strengths of teaching science communication, how to make global science communication relevant to local needs, how to connect research and practice in science communication, among others. The stakeholders (or provocateurs) of the conversation, to be led by Frans van Dam (Utrecht University, The Netherlands), are Merryn McKinnon (Australian National University), Andy Ridgway (UWE Bristol, England), Gema Revuelta (Pompeu Fabra University, Spain), Bruce Lewenstein (Cornell University, US) and Susana Herrera (Iteso, Mexico). Representatives of other programmes around the globe will be welcomed to actively participate in the conversation.

Proponents: Luisa Massarani (Oswaldo Cruz Foundation, Brazil), Frans van Dam (Utrecht University, The Netherlands), Heather Bray (The University of Western Australia), Merryn McKinnon (Australian National University, Australia), Rupesh Gaikwad (Maharshi Dayanand College, India), Andy Ridgway (UWE Bristol, England), Michelle Riedlinger (QUT, Australia), Joseph Roche (Trinity College Dublin), on behalf of the PCST Teaching Forum.

*GlobalSCAPE received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 101006436

ABSTRACT

Massarani, Luisa

When & where: Parallel session 9-G, Friday 14 April 09:45 – 11:00, *Van Beuningen Room*

Title: 5. Digital public sphere and social actors that guided the discussions about vaccines on Instagram and Facebook in Brazil during the COVID-19 pandemic (2020-2021)

Format: Individual papers

Author: **Luisa Massarani**, Brazil's Institute of PCST and Oswaldo Cruz Foundation, Brazil

Chair(s): Carolina Llorente

Co-author(s):

In this study, we aimed to identify and categorize the voices that guided the debate on vaccines in the Brazilian digital public sphere in the first two years of the COVID-19 pandemic, a context in which vaccination gained relevance, as it consolidated as the main alternative for control of the global health crisis. To this end, (i) a total of 3,878,408 valid posts related to the theme of vaccines made in Portuguese were collected at open profiles on Instagram and public pages on Facebook, between 1 January 2020 and 31 December 2021; (ii) the 500 social actors from each network who obtained the highest number of comments on their posts were distributed into macro-categories, with the results pointing to a debate predominantly guided by non-expert voices, in which agents linked to journalistic activity, politics and public administration stood out.

The Media Category corresponded to 131 profiles on Instagram and 200 pages on Facebook, with a predominance of journalistic vehicles linked to media conglomerates, especially on Facebook. We identified 116 profiles on Instagram and 156 pages on Facebook belonging to politicians, with a predominance of right-wing ideological profiles (63% of the Political Category on Instagram and 58.9% on Facebook) over those of the left-wing (respectively 30.2%, and 34.6). Among the social actors related to public administration (85 profiles on Instagram and 53 pages on Facebook), those who correspond to city hall channels stood out (65.9% and 67.9% of the related Category in each network, respectively). These entities have proved to be fundamental to guiding the fight against COVID-19 in Brazil and often worked out of step with the Ministry of Health and with the guidelines (or lack of these) provided by the Presidency of the Republic. Celebrities and entertainment vehicles also stood out (109 on Instagram and 51 on Facebook, in sum), helping to amplify the debate on immunizations.

We found a heterogeneous set of agents who were notable for supporting vaccines, among them television artists, digital influencers, and athletes - which helps to amplify the discussion about immunizations beyond strictly scientific niches, although still restricted to fragmented audience groups, which may vary according to the celebrity profile. It called our attention to the fact that research institutions and science communicators had little presence as mediators of the debate about vaccines in the scope of our study. In this sense, we emphasize a conjuncture of epistemic crisis, in which scientific institutions are also involved, experiencing a series of questioning, and being discredited and delegitimized by society. The restrictions

imposed by the COVID-19 pandemic redirected a large part of public life online, highlighting the increasingly strong presence of these networks of virtual connections as mediators of interpersonal relationships while these platforms gather a plurality of voices that integrate discussions on health.

In the Science and Health Category, we identified commentators mediating the debate about vaccines on social networks alongside science communicators and research institutes in the health area. The official channels of the Butantan Institute and Oswaldo Cruz Foundation, research institutions that produced vaccines and were directly linked to the control of the pandemic in Brazil, made up the list of the research institutions on Instagram. The identification, only on Instagram, of denialist profiles within the Science and Health Category (all profiles belonging to medical doctors), signals the need to look at the platform as a locus for the circulation of scientific content in coexistence with disinformation - and that this takes place, to a certain extent, from voices socially accepted as experts. It was also observed that these profiles linked to the circulation of disinformation had the highest average number of comments on Instagram (681.3 comments/post) when compared to the other profiles in the Science and Health Category. In this same niche, science communicators stood in second place in terms of average comments (298.7 comments/post). The study was carried out together with other researchers (Eleonora Magalhães, Thaiane Oliveira, Marcelo Alves dos Santos Júnior and Vanessa Fagundes).

ABSTRACT

Matamua, Neihana

When & where: Parallel session 4-A, Wednesday, 12 April 17:00 – 18:15, *Willem Burger Room*
 Title: Power, privilege, language. Are we blind to our own?
 Format: Linked papers
 Author: **Neihana Matamua**, Massey University, New Zealand
 Chair(s): Jenni Metcalfe
 Co-author(s): Natasha Tassell-Matamua

Much can be gained when one system of knowledge encounters another. New understandings arise, problems that once seemed immutable verge on the edge of solution, and thinking progresses in ways not previously considered possible. Yet, there is also an inherent risk to such encounters, best encapsulated by the terms power and privilege. Privilege refers to advantages and benefits individuals receive on account of the social groups or culture they are perceived to be a part of. Power and privilege are intimately intertwined. Privilege enables power. Power enables privilege. Power and privilege are also connected to language. Those with power get to decide what language is privileged, what language matters. They then become the arbiters of that language, defining its parameters, and demarcating how it is used, often in ways that ensure their power and privilege are maintained. Using the Indigenous Māori term 'kaitiakitanga' as an example, the Māori presenters will discuss how the adoption of Māori words into biosecurity in the country is considered desirable by non-Māori. But, without understanding the ontology that informs such words, those who use them may implicitly reinforce certain types of privilege and power that do not favour Māori or their knowledges.

ABSTRACT

Mateos-Espejel, Lourdes

When & where: Parallel session 9-E, Friday 14 April 09:45 – 11:00, *Hudig Room*
 Title: 1. A crusade to prevent soil erosion: collaborative work among scientists and farmers to enhance adoption of biotechnological innovations in Mexican Agriculture
 Format: Individual papers
 Author: **Lourdes Mateos-Espejel**, Universidad Popular Autónoma del Estado de Puebla, Mexico
 Chair(s): Frank Kupper
 Co-author(s): Anahí Hernández-Zamora, José Luis Estrada-Rodríguez, Luis Daniel Ortega-Martínez

Unsustainable agricultural practices are triggering soil erosion at an alarming rate. The United Nations has declared soil a non-renewable natural resource because soil degradation is faster than the rate of soil formation. If the world loses soil, production water, food supply, and biodiversity are also in danger. Even though decades of research have resulted in innovative ways of soil management, farmers do not adopt enough of these research outcomes, especially in developing countries. Relatively little work has been done to generate interaction processes with land users and scientists in a joint-learning mode, recognizing that different forms of knowledge can contribute to the adoption of land-use innovations.

This paper attempts to describe a collaborative work among scientists and farmers from San José Azumiatla, México. Five biotech scientists from Universidad Autónoma del Estado de Puebla and 10 corn farmers worked together during six months to improve the adoption of biofertilizers, microorganisms that add to the nutrient quality of the soil. The Action Research approach was selected as the working method and two cycles were conducted. The first cycle was an exploratory research to understand farmers' experiences with biofertilizers. Results suggested that farmers' experiences with biofertilizers were negative. Lack of information about how and why to use the innovation and loyalty to chemical fertilizers influenced farmers' perceptions of biofertilizers. The second cycle consisted of defining the Diffusion of Innovations and Dialogue Model of Science Communication as theoretical perspectives. An action plan was implemented to reunite corn farmers and scientists. Small talks at farmers' homes and demonstrations of biofertilizers application at crops were the most successful tactics during evaluation. Findings suggest farmers' meanings about biofertilizers changed after implementation. Relative advantage and compatibility were the most perceived characteristics of biofertilizers.

ABSTRACT

Matoliro, Zuze

When & where: Parallel session 6-E, Thursday 13 April 11:30 – 12:45, *Hudig Room*
 Title: 2. Putting Journalists in the shoes of researchers
 Format: Insight talks
 Author: **Zuze Matoliro**, Malawi Liverpool Wellcome, Malawi
 Chair(s): Sikke Jansma
 Co-author(s): Pauline Mlogeni, Lindiwe Mafuleka

Working at Malawi Liverpool Wellcome research programme, I initiated Journalists in Residence (JIR). JIR is an initiative that provides a platform for journalists to interact with researchers who are addressing various clinical challenges. The aim is to create a common understanding between journalism and science/health research.

Compared with developed countries, most journalists reporting on health research in Malawi do not have background knowledge of medicine or related disciplines, thus making their science reporting chaotic.

Through Journalists in Residence initiative, different news reporters are attached to various research studies at Malawi Liverpool Wellcome programme. This helps journalists to deeply appreciate the health research world and have a clear grasp of clinical research projects. Since its inception in 2016, JIR has sharply reduced misinformation and disinformation in journalistic articles on health research.

Apart from attaching reporters to various research groups, there are tailored training sessions offered to practising journalists in line with health research reporting ethics. These training sessions are boosting reporting skills and grounding journalists in research ethics.

Media trainers from both the academic world and the field are given a group of 20 journalists per cohort. The trainers drill the trainees in responsible and effective health research reporting through a blend of classroom and industrial experiences.

In efforts to iron out challenges that continue surfacing, we have also introduced editors' day. This is a viable option as reporters we deal with submit their work to editors for the articles to be published. In the interest of effective health research reporting there is a need to enhance interaction between news editors and researchers for them to learn and understand each other. This will ensure that editors, journalists and researchers are on the same page.

ABSTRACT

Matozinhos, Karinna

When & where: Parallel session 6-C, Thursday 13 April 11:30 – 12:45, *Van Weelde Room*
 Title: Excellence in science journalism in Spanish: a database, a community, and citizen-validated criteria
 Format: Linked papers
 Author: **Karinna Matozinhos**, Science for Change, Spain
 Chair(s): Anne Dijkstra
 Co-author(s):

There is an ongoing complaint about the poor - and declining - quality of science journalism in Spain and Latin America. The job certainly faces many challenges in Spanish-speaking countries. However, we focus on the flip side of the coin: the wealth of outstanding science journalism in the region. That is the core of PerCientEx (“Periodismo Científico de Excelencia”), a project supported by associations and foundations in Barcelona, that has been running for the last six years. The project stands on four legs. The first one is a unique public database, in which we collect, every year, tens of examples of excellent science journalism in Spanish, selected according to objective prescriptors. The second is a live event, carried out yearly in Barcelona, in which some of the authors discuss their work in public with analysts. The third is an online, participatory process, in which tens of volunteers from all over the world read samples of the database, in order to validate and refine a set of criteria aimed at defining what makes a piece of science journalism excellent. The fourth is a recently launched award that focuses specifically on the subset of selected works that approach health topics. Since 2016, we have showcased the best-practices, celebrated the work of their authors, inspired and educated new generations of science journalists, and created (by means of participatory processes and events) a community of readers and journalists committed to quality. By keeping this community engaged and continuously updating the database and criteria, we can share new insights, signal trends and create a common ground for quality science journalism in Spain and Latin America.

ABSTRACT

Matozinhos, Karinna

When & where: Parallel session 10-F, Friday 14 April 11:30 – 12:45, *Schadee Room*
 Title: A manifesto for high-quality open science communication
 Format: Discussion
 Author: **Karinna Matozinhos**, Science for Change, Spain
 Chair(s):
 Co-author(s): Francesca Conti, Giulia Bonelli, Marzia Mazzoneto, Cristina Luís

Our aim is to host a participatory workshop to discuss good practices in science communication. Participants will be invited to contribute actively to problem-solving and strategies for Outstanding Open Science Communication (OOSC), a framework that promotes high quality and transparency in science communicators and science journalists' everyday work. It will be an opportunity to improve scientific communication and journalism through a participatory process that will enable mutual learning and help us to build a greater knowledge of the profession.

ENJOI (ENGagement and JOurnalism Innovation for Outstanding Open Science Communication) is a project that explores and tests engagement as a key asset of innovation in science communication distributed via media platforms, with a strong focus on journalism. ENJOI is co-creating and selecting a set of standards, principles, and indicators (SPIs) to define outstanding open science communication. One of the products of the project is a Manifesto, a guiding and inspiring document that communicates the vision, values and statements for advocating and practicing an engaged and high-quality way of communicating science. During the workshop, the participants will work on dynamics to test and improve the first draft of the Manifesto. Science communication is a key factor in facilitating democratic deliberation and fighting misinformation. The Manifesto makes it easier and more effective for media organizations, startups, research centers and individuals to take up and use the SPIs provided by ENJOI.

The workshop is a strategy to include experiences, skills and knowledge distributed in different groups in the process of innovating science communication in an open manner. The workshop is a great opportunity to define in a participatory way a practical tool targeted to people who are producing, consuming and sharing scientific information. The goal is to improve science communication and journalism by making them more consistent, reliable, truthful, open, engaging and useful.

The session's outcomes will directly contribute to the Observatory of ENJOI, a European network to foster engagement, openness and innovation in science communication and journalism. The participants will be part of this network being connected with science communicators from across Europe and in touch with the latest research results on science communication. The results can also influence the creation of recommendations for better science communication on a European level making sure that the outputs are practical and applicable for those who work with science communication.

ABSTRACT

McEntee, Marie

When & where: Parallel session 4-A, Wednesday, 12 April 17:00 – 18:15, *Willem Burger Room*
 Title: Mobilising for Action: Creating common ground through reflexive mindsets
 Format: Linked papers
 Author: **Marie McEntee**, University of Auckland, New Zealand
 Chair(s): Jenni Metcalfe
 Co-author(s):

Addressing the complexity of today's socio-environmental issues requires multiple and often divergent actors to come together from the social and natural sciences, local and/or indigenous communities, policy, NGOs, and government agencies. This talk draws evidence and examples from a large programme of social research in New Zealand called "Mobilising for Action" which has sought to engage and empower a diverse range of people to bring about positive change to New Zealand's biosecurity by enhancing the health of the forest. The author examines the transdisciplinary collaborations, innovative methodologies and communication tools the Mobilising for Action (MFA) research teams are employing to understand, engage with, and enable a diverse range of knowledges and voices to be heard in biosecurity, particularly those who have historically been marginalised. However, transdisciplinary collaborations challenge institutional cultures, practices, routines and arrangements that favour deficit models of communication and top-down approaches that maintain dominant power regimes. The author argues that creating common ground in complex socio-environmental issues requires reflexive mindsets that question the underlying assumptions and beliefs that drive current practices which limit transdisciplinary collaborations.

ABSTRACT

McKinnon, Merryn

When & where: Parallel session 8-D, Thursday 13 April 17:00 – 18:15, *Zeelenberg Room*
 Title: Walking in the shoes of others: Understanding intersectionality
 Format: Demonstration
 Author: **Merryn McKinnon**, Australian National University, Australia
 Chair(s):
 Co-author(s):

The Intersectionality Walk (IW) is a unique workshop which illustrates how an individual's identities can overlap and compound privilege or disadvantage. Developed by a small group of Australian scientists and researchers, the IW has been used to help drive organisational awareness of barriers to full participation in the STEM workforce, and discussions of practical solutions to overcome them. In this workshop, participants will experience the IW within the context of science communication and engagement activities. Adopting a provided persona, participants will respond to scenarios and experience what accessing science engagement venues and events is like for publics, providing insight into barriers and how some groups can be excluded, despite best intentions. Through guided discussions with the group, potential mechanisms to overcome the identified barriers will be suggested and then tested. Participants will leave with a better understanding of how intersectionality influences their audiences, and insight into how better to engage the unengaged.

ABSTRACT

McRae, Olivia

When & where: Parallel session 1-K, Wednesday, 12 April 09:45 – 11:00, *Van der Vorm Room*
 Title: Facilitating public engagement with science through live comedy performances
 Format: Roundtable
 Author: **Olivia McRae**, The University of Sydney, Australia
 Chair(s): **Alice Motion**
 Co-author(s): James Dolan, Hauke Riesch

In this roundtable discussion, we will explore the use of live comedy performances that focus on or otherwise incorporate science, considering their value, potential, and possible pitfalls from a science communication and public engagement perspective. This panel will feature James Dolan, King's College, Cambridge, and Olivia McRae, University of Sydney who actively perform and research science-themed improvised comedy, and Hauke Riesch, Brunel University, who research the intersection of science communication and humour in different cultural contexts. Together, the panellists will contribute, compare, and contrast their perspectives, as researchers and practitioners, on how comedy performances centred on science fit into the differing science communication landscapes in the UK, Ghana, and Australia.

To facilitate audience interaction during the session, we will create an online poll that the audience can complete at the start of the session to gauge the audience's familiarity and perceptions of science comedy. After the opening statements, we will display the results of the poll and address these during a guided discussion that explores the value of live comedy performances about science and the strengths and challenges of these formats for public engagement. We will also provide opportunities for audience discussion and questions, and address these points within the context of our own research and practice in this area.

Speaker perspectives:

Olivia McRae is a PhD Candidate in the SCOPE Group at the University of Sydney, studying creative science communication and live science events. Her research centres on science-themed improv theatre, focusing on the motivations and perspectives of science improv practitioners from around the world to better understand the value and implications of this understudied form of science communication. From a practice-based perspective, Olivia is the founder and producer of 'Lines of Best Fit', a science-themed improv comedy show with regular performances in Sydney. As part of her PhD, Olivia has also been evaluating these performances, collecting data from both audiences and performers to gain insight into the impact of science improv performances.

James Dolan is an Assistant Teaching Professor in the Department of Physics, University of Cambridge, and a Research Fellow in Science Communication at King's College, Cambridge. As a postdoctoral nanotechnologist at the University of Chicago, he co-created the science-themed improvised comedy (improv) show, The Excited State, and as a research fellow at King's he now

studies the intersection between science and improv, both as a medium for science communication and public engagement and as a form of communication and collaboration training. James' research highlights the central tension between the medium and the message in the context of science improv and how different scientist-improvisers have attempted to resolve this tension.

Hauke Riesch is a senior lecturer in sociology at Brunel University London. His research interests include popular science writing, the public understanding of health and environmental risks, citizen science, and science comedy. As a member of the Brunel Centre for Comedy Studies Research, he has taken an interest in the use of humour and comedy in science communication and its impact. He argues that taking a critical sociological look that is informed by critical comedy and humour studies is essential in understanding how humour can be used within science communication and public engagement and understanding its strengths and potential pitfalls.

ABSTRACT

Medvecky, Fabien

When & where: Parallel session 4-A, Wednesday, 12 April 17:00 – 18:15, *Willem Burger Room*
 Title: Who cares about the forest? .. and how
 Format: Linked papers
 Author: **Fabien Medvecky**, University of Otago, New Zealand
 Chair(s): Jenni Metcalfe
 Co-author(s):

While science provides some foundational knowledge required for forest management, everyday use of the forest is where the application and appropriateness of those management efforts come into contact with reality (successfully or otherwise). In this paper, I draw on findings from walk-along interviews with what we might term 'high-risk' forest users about their use of the forest, its wellbeing, and spaces where bio-security measure can be co-created. The interviews reveal that there are various notions and experiences of care about the forest at play, and that this notion is both central to how users relate to the forest and is an opportunity to create common ground. All users care about the forest in some way or another; indeed, their experiences are shaped by that sense of care. But they care in various ways, and sometimes conflicting ways, from how their care is manifested through various practices, to what is the object of their care. What emerges is both an opportunity and a challenge. An opportunity through sharing a connection of care, but a challenge in bringing these various forms of care into a coherent picture for engaging an active public in forest management.

ABSTRACT

Medvecky, Fabien

When & where: Parallel session 9-B, Friday 14 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: Ethical Principles for Common Ground in Science Communication Theory and Practice
 Format: Roundtable
 Author: **Joan Leach**, Australian National University, Australia
 Chair(s): **Fabien Medvecky**
 Co-author(s): Michiel Van Oudheusden, Laura Lindenfeld, Hua Tian

Calls have repeatedly circulated for a ‘code of ethics’ for science communicators—perhaps in solidarity with other professions like journalism and public relations. This Round-Table considers an alternative approach to ‘codes and rules’ through principlism – more in line with bioethics practitioners – which uses principles (instead of codes) to guide ethical reasoning. The roundtable will consider four principles as a starting point for common ground in ethical reasoning about cases of science communication practice—accuracy, timeliness, generosity, and utility. Roundtable speakers will challenge, test, and explore these principles with cases of ethical reasoning in science communication. While Covid-19 brought multiple examples of ethically fraught communication, the climate crisis, new norms in scientific research, and new forms of science engagement provide ample cases for the roundtable to productively discuss and forge common ground. Audience members are invited to bring their own cases as well other potential principles into the conversation. The chair and speakers are drawn from Australia and New Zealand, Europe, China, and the US and research across science communication theory and practice. This roundtable promises a rich and lively discussion. It will begin with a 15-minute introduction to the principles and some cases to kick off the discussion. The roundtable members will provide some challenging cases and further principles for consideration and discussion and audience members will be encouraged to join with their own cases and principles.

Speaker perspectives:

Joan Leach (Australian National University)

With Fabien Medvecky, Joan has published a volume, *An Ethics of Science Communication* (Routledge, 2019), which provides at least a starting point for the work of this roundtable. She has also been active in cosmopolitan approaches to science communication, embracing new concepts in science communication emerging from scholars around the world. She is sceptical that ethics codes would be effective for science communication, thus her advocacy for a principlist approach. She is also aware from her work that practitioners like ethics codes for their clarity, precision, and ease of use. She wants to persuade colleagues that like these codes that a principlist approach will suit them even better!

Michiel Van Oudheusden (Vrije Universiteit, Amsterdam, Netherlands)

In science communication, sharing information with the public is taken as a moral value. Yet, not all knowledge can be made publicly available. Some information remains classified, and

often with good reason. High-risk organizations can be reluctant to share information at all, at the risk of being accused of ‘holding back’ evidence from the public in the event of an accident. This is what happened in the aftermath of the 2011 Fukushima accident, when the Japanese government failed to communicate reliable radiation data to the public in a timely manner, pushing ordinary citizens to collect and analyze their own radiation pollution data. Drawing on this example and his experiences as an embedded sociologist at a nuclear research facility, Michiel considers how formal institutions can make themselves a more trusted / less unreliable information source for citizens by developing new communication and ethical principles and forging alliances with citizen groups.

Laura Lindenfeld (Stony Brook University, United States)

Dr. Laura Lindenfeld is Executive Director of the Alda Center and Dean of the School of Communication & Journalism at Stony Brook University. She holds a Ph.D. in cultural studies from the University of California, Davis. As a communication researcher, her work draws inspiration from the idea that we can make better, more informed decisions about how we shape our collective future. Ethical reasoning in science communication is critical to this work. She is passionate about supporting scientists to communicate their work in more direct, engaging ways and advancing meaningful interactions with communities, stakeholders, and decision-makers by strengthening linkages between knowledge and action.

Hua Tian

Science communication involves two aspects, science and communication. Few publics know science without communication technologies. In other words, the public can often see the world of science shaped by science communicators. In this panel discussion, Hua will talk about the ethics of science communication from the communication platform perspective. He will take PaperClip, once one of the most popular uploaders of science short videos in Bilibili Station, as an example, to show how the four ethical principles – accuracy, timeliness, generosity, and utility were practiced by the PaperClip Office in producing the short videos and what (partial information, sensational perspective, etc.) led to its account being banned from social media in China.

ABSTRACT

Mellor, Felicity

When & where: Parallel session 9-A, Friday 14 April 09:45 – 11:00, *Willem Burger Room*
 Title: Finding common ground through journalism
 Format: Roundtable
 Author: **Alexandra Borissova**, ITMO University, Russia
 Chair(s): **Felicity Mellor**
 Co-author(s): Jane Gregory, Susan Swanberg, An Nguyen

Science communicators today face a number of challenges – from attracting audiences in a noisy environment, to judging whose opinions are worthy of attention, or maintaining independence when employed by an organisation that has vested interests. Journalists have been responding to such challenges for a century. Although journalism is often seen as a source of antagonism, science journalists are skilled practitioners in finding common ground. In identifying newsworthy stories and including voices from both within and outside science, science journalists deploy their expertise and professional values negotiating the relationship between science and public. For this reason, science communication training frequently includes journalism skills as a core part of the curriculum. This roundtable discussion will reflect on the place of journalism within science communication training, with particular emphasis on what aspiring science communicators can learn from journalists' expertise even if they do not intend to work as journalists themselves.

After short opening statements from the participants, comments and questions will be invited from the audience interwoven with prompts from the chair, with the discussion structured around the conference sub-themes of values, openness, inclusiveness, collaboration and expertise.

The panel brings together contributors from the US, Russia and the UK who between them have extensive experience running science communication courses and working as journalists, as academics in science communication studies and previously as researchers in chemistry, physics and biology. The discussion will draw on a current joint book project – *Insights on Science Journalism* – that synthesises current knowledge about the specialism.

Speaker perspectives:

Alexandra Borissova (ITMO University, Russia)

Throughout my career, I have been wearing different hats: researcher, science journalist, science communicator and, finally, science communication teacher. Hence, at different points, I used to be a source of information, a journalist seeking information from this source, and a communicator who facilitated this interaction. Sources are a crucial part of journalism, yet both being a source and working with sources are difficult. Notably, the norms and values of scientists and journalists differ considerably and understanding both worlds without judgement is crucial for effective science communication. I am particularly interested in the relationship between journalists and their sources and how scientists and science communicators can benefit from understanding how this works.

Jane Gregory (University of Cambridge, United Kingdom)

Having established a number of science communication courses over the years, I believe science communicators have much to learn from journalists, especially their experiences of adopting multiple identities and adapting to new challenges. In recent years, journalists have adjusted to new sites, new media and new publics, often enhancing inclusion. They have to weigh up many pressures coming from many directions – such as choosing innovative or established formats, pursuing commercial or democratic aims, and engaging niche publics or wider audiences – decisions that can come at some cost. We can learn from these balancing acts. In particular, the fluctuating fortune of the ‘science correspondent’ holds important lessons for the current debate about the professionalisation of other science communication roles.

Susan Swanberg (University of Arizona, United States)

As a former biologist turned journalist who now teaches science journalism, I’m interested in what the history of science journalism can teach us about the challenges faced by science communicators today. For instance, when science journalism first emerged in 1920s America, journalists and scientists attempted to find common ground by establishing a science news agency called Science Service. Science Service aimed at providing accessible and accurate journalism, yet it frequently slipped into advocacy. With science communicators today often working for scientific organisations, the distinction between objective reporting in the public interest and public relations on behalf of an interested party remains important. By looking at the history of science journalism, I believe we can better understand the evolving roles and relationships among those who mediate between science and public.

An Nguyen (Bournemouth University, United Kingdom)

Science has been taken for granted as an indispensable recipe for development, with the transfer of scientific knowledge from the developed North to the developing South having become an almost unquestioned pathway to socio-economic security, prosperity, growth and progress. Due to the shortage of direct science channels that are often taken for granted in the North – such as science museums, science festivals, or science fictions – the news media are the major, sometimes the sole, vehicle for Southern public engagement with global developments in science. Reflecting on my research into key issues and challenges to science journalism in the South and my previous experience as a Vietnamese science journalist, I will discuss what practitioners and scholars might do in working towards a more diverse, solid and effective science communication system for sustainable development in the South.

ABSTRACT

Mendes Ana Barbosa

When & where: Parallel session 7-F, Thursday 13 April 15:15 – 16:30, *Schadee Room*
 Title: 2. Epistemologies of the crowd: considering situated knowledge in citizen science
 Format: Individual papers
 Author: **Ana Barbosa Mendes**, Erasmus School of Philosophy, Netherlands
 Chair(s): Mohamed Elsonbaty Ramadan
 Co-author(s):

One of the major advantages of virtually enabled citizen science (including crowdsourcing) is its scale. Web 2.0 technologies allow for access to thousands of people and provide opportunities for collaboration that are not geographically bound, increasing the potential for diverse groups of people coming together to potentially tackle societal issues. Citizen science recognizes that citizens are experts in their own way and have important knowledge to contribute to the research process. However, it often fails to appreciate that the knowledge that is brought to the table by citizen scientists is highly contextual, anchored in who these contributors are, their socioeconomic, personal, and professional background as well as their geographical location. The situatedness of such knowledge is overlooked, meaning that the different perspectives these citizen scientists bring are synthesized and simplified through consensus. Yet considering such different perspectives is essential for citizen science to tackle the questions that it aims to address, which are often complex and require robust knowledge that is adaptable to multiple contexts. Therefore, this paper will affirm the importance of situated knowledge in citizen science, explore and theorize its role in citizen science. By using theJoinUs4Health project — a project that aims to establish an online platform for crowdsourcing knowledge in cohort research — as background, it will explore how we can honor the experiential knowledge that these contributors bring to citizen science without homogenizing these different perspectives through consensus within the crowd.

ABSTRACT

Mendoza-Poudereux, Isabel

When & where: Parallel session 11-G, Friday 14 April 14:15 – 15:30, *Van Beuningen Room*
 Title: 3. Exploratory study of diets in the Spanish newspapers' headlines
 Format: Visual papers
 Author: **Isabel Mendoza-Poudereux**, University of Valencia, Spain
 Chair(s): Jenni Metcalfe
 Co-author(s): Ana Serra-Perales, Paula von-Polheim, Carolina Moreno-Castro

The increased social concern for following an optimal diet has fostered media coverage of food-related topics. For this study, we collected headlines using the database MyNews. The search included the news about diets appearing in three Spanish national newspapers (El País, El Mundo, ABC), two regional newspapers (El Heraldo de Aragón, La Vanguardia), both in printed and digital versions, and eldiario.es, a digital newspaper. The period of study was set from 1996 until 2021. We selected stories published in January, May and September each year following the sociological technical of the built year. This "built year" included food stories from every quarter and key periods for dieting: New Years' resolutions, beach-body plans' and after summer. The count of the selections of stories collected was over 5000.

Twelve types of dietary regimes were included in the search (palaeolithic, Mediterranean, gluten-free, low- calories, vegetarian, vegan, detox, carnivorous, ketogenic, DASH, Dukan and Atkins), all with variable levels of scientific consensus. The study was carried out focused on the analysis of the headlines, following these categories: a) type of diet; b) date of publication; c) the section (Society, Economy, Special supplement; d) The newspaper of the food story publication; e) Did the headline promote the diet or warn about its dangers? f) Is the food story based on scientific evidence (research, paper, international conference) or recommendations from celebrities (influencers, leaders' opinion).

The preliminary results showed that since 2011 the relevance of information about dietary regimes had increased significantly for all types of diets. The results will be analysed using R software, applying an MCA and other statistical approaches.

*This work is part of the project's results: ESMODA-ECO (Study of Food Trends Through the Communicative Ecosystem). Grant RTI2018-099663-B-I00, funded by MCIN/AEI/10.13039/501100011033 and by the European Union NextGenerationEU/PRTR.

ABSTRACT

Metcalfe, Jenni

When & where: Parallel session 7-B, Thursday 13 April 15:15 – 16:30, *Van der Mandele (mezzanine)*

Title: Scientists writing news: Emergent science news websites as boundary spanners

Format: Roundtable

Author: **Michelle Riedlinger**, Digital Media Research Centre, Queensland University of Technology, Australia

Chair(s): **Jenni Metcalfe**

Co-author(s): Lars Guenther, Alice Fleerackers, Ayelet Baram-Tsabari

Research amplifier platforms and emergent science news websites, such as The Conversation and The Davidson Institute media collaborations in Israel have emerged as new forms of web-based science communication aimed at non-experts that blur the boundaries between science communication and science journalism. The Conversation was launched in Australia in 2011, and now has outlets in 10 countries and regions including Africa, Spain, France, the United States, Canada, Indonesia, and a global edition that is edited by regional and national editorial teams. Researchers who write columns for The Conversation work with trained news editors to provide “Academic rigour [and] journalistic flair”. Similarly, the Davidson Institute employs graduate students in science edited by professional news editors and get the products of these collaborations published with general news sites in Israel. In return, these news sites receive accurate, innovative, and high-quality science content, but may be less motivated to pay a science journalist. The panellists and attendees in the Roundtable will consider the agenda for science communication research associated with these emergent science news websites. Who are the scientific researchers writing for these sites? What motivates them? What image of science do they represent? Are these emergent science new websites science writing or are they journalism? How does content circulate and what is the impact? What opportunities and challenges do these models of peripheral science journalism pose from a science communication perspective? The answers have important implications for science communication theory and practice, touching on issues of public (dis)trust in science, digital media innovation, and the changing roles for scientists as communicators.

Michelle Riedlinger: this contribution focuses on how audiences use The Conversation stories to prepare for health and environment-related emergencies. It brings together findings from two case study investigations: one focused on the Covid-19 crisis, the other on climate-related emergencies (fires and flooding). Drawing on issue mapping approaches, we investigate how online audiences engaged with The Conversation stories about these issues when the media “pull” for relevant research information was high. Given that The Conversation authors are in relatively unique positions of being able to provide direct, timely and publicly accessible information during uncertain times, we also consider their motivations and the roles that they occupy when public reliance on individual expertise and experience becomes a substitute for scientific consensus. This research was conducted in collaboration with Kim Osman (Australia) and Alice Fleerackers (Canada).

Lars Guenther: with a focus on Africa, this contribution will address the raised questions by drawing on findings of a content analysis of author information and articles published over a

five-year span on The Conversation Africa as well as assessments of their impact (in journalistic as well as social media), and interviews with scientists who either often published articles on the platform or only did so infrequently. The insights gathered help us understand the role The Conversation Africa has as inter-media agenda setter, who the authors are (mostly social scientists), the different foci journalistic and social media have when selecting/sharing articles of The Conversation Africa (e.g., hard vs soft news), the factors that motivate or deter scientists from writing for the platform, as well as the comparisons they see to interactions with traditional journalistic media. This research was conducted in collaboration with Marina Joubert (South Africa).

Alice Fleelackers: because people trust communicators from their social ingroup, science news stories are more likely to resonate if the authors who write these stories represent the diversity of citizens. This contribution will describe the imbalances in the representation of different genders, academic specialisations, career stages, and Indigenous identities among experts contributing to The Conversation Canada. It will also discuss the amplifying role of digital media outlets that republish these stories and social media users who engage with these outlets, raising questions about how other actors in the changing digital media landscape can contribute to—and perhaps help rectify—existing imbalances in science communication.

Ayelet Baram-Tsabari: what are the objectives of science news websites in communicating science to the public, and how are these objectives manifested through the website articles? Are these objectives reflecting journalistic logic or traditional science communication aims? We investigated two Israeli news websites that rely on scientists writing for the public with professional journalists as editors. Their objectives and practices were studied based on interviews with the websites' operators, content analysis of their publications as well as the discussion threads that stem from them. Findings indicate aims that were aligned with deficit and dialogic models for science communication, rather than journalistic objectives. The implications for quality science coverage, but also professional science journalism will be discussed. This research has been conducted with Ifat Zimmerman (Israel).

ABSTRACT

Pereira, Marcelo

When & where: Session 4, Monday, 3 April 17:00-18:15, *Zoom*
 Title: Scientists' view about science communication: A classification proposal
 Format: Online conference
 Author: **Pereira Marcelo**, Universidade Federal de Minas Gerais, Brazil
 Chair(s): Marina Joubert
 Co-author(s): Yuriy Castelfranchi, Luísa Massarani

Overview: How do science communication and the dissemination of science communication play out in different contexts? What can we learn from different strategies and viewpoints?

In the last decades, the scholarly community has advanced a big deal in the public perception of science and technology. There are fewer studies, however, on the view of scientists about their relationship with the public. In order to map scientists' views and activities on public communication of science, we are conducting a nationwide survey of Brazilian scientists awarded as "Productivity Fellows" by the Nation Council for Science and Technology (CNPq). This award is granted to researchers selected by peer-review process who have prominence among their peers, highlighting their scientific production following normative criteria established by the CNPq. The present study is being carried out within the scope of the "Instituto Nacional de Comunicação Pública da Ciência e Tecnologia" (National Institute of Public Communication of Science and Technology, INCT-CPCT) and CNPq. The questionnaire will address topics such as 1) opinions on science, technology, and society; 2) opinions on science communication; 3) attitudes and practices of public communication of science; 4) motivations and obstacles; 5) science and technology's news consumption habits. The results will be used to perform a classification model which will allow us to better understand the proportion of scientists who still act and think based on conceptions of the "deficit model", as well as those who are open to more dialogic and interactional communication models. This classification can offer important interpretations of the scientists' attitudes towards the public, which can guide science and technology policies as well as contribute to our research field.

ABSTRACT

Metcalf, Jennifer

When & where: Parallel session 9-H, Friday 14 April 09:45 – 11:00, *Ruys Room*
 Title: Science communication models: a practical workshop exploring the nexus between theory and practice
 Format: Mini-workshop
 Author: **Jennifer Metcalfe**, Econnect Communication, Australia
 Chair(s):
 Co-author(s): Susanna Herrera

We will explore past, current and emerging science communication models. We will collectively workshop how practice can inform the development, interpretation and application of these models. We will also look at how theoretical science communication models can be applied in practice, for example when there are specific social problems to be addressed.

PCST has now had 30 years of science communication models, which have tended to focus on three main frames: deficit, dialogue and participatory. Some believe such modelling is an evolutionary process with participatory models being the most advanced. But is this the case? Much of the more recent research into science communication models, especially as they are applied in practice, show there is a churn between models. Furthermore, for science communication to be effective the science communication activities of some models appear to depend on activities from other models.

This interactive mini-workshop will present some examples of new science communication models for discussion and will invite participants to create and explain their own models.

ABSTRACT

Meyer, Kathrin

When & where: Parallel session 2-C, Wednesday, 12 April 11:30 – 12:45, *Van Weelde Room*

Title: 5. Communicating Artificial Intelligence (and the public myths about it) in an interactive exhibition

Format: Insight talks

Author: **Kathrin Meyer**, Johannes Kepler University Linz, Austria

Chair(s): Liesbeth de Bakker

Co-author(s): Martina Mara

AI literacy, a basic understanding of what Artificial Intelligence is and the role it plays in our lives among the general population, is considered an important competency for the future. Media coverage of AI, while extensive, is overall not very helpful in conveying an accurate picture of the current state of technological development to non-experts. Where some typical public AI narratives fuel diffuse fears, others raise unrealistic expectations and hopes. Alongside its empirical research on human-centered technology, the Robopsychology Lab at Johannes Kepler University Linz places great emphasis on science communication in order to provide people with the necessary knowledge to increase technological self-efficacy and actively participate in the discourse about our technological future.

In recent years, the campus of Johannes Kepler University Linz has been the venue for the Ars Electronica Festival, a world-renowned festival for art, technology and society. This gave us the opportunity to approach a large and diverse audience ranging from local families to international entrepreneurs or artists. Under the title “Demystify AI!”, we realized an interactive exhibition consisting of multiple participatory installations, including a drawing board to capture visual ideas of AI, digital games on human-AI collaboration and a "Wall of AI Myths". With this, we invited visitors to reflect on their opinions and leave their thoughts as text or drawing. We discussed questions about AI with hundreds of people from different socio-demographic groups and backgrounds of experience, calling attention to myths and misconceptions.

The great diversity of visitors challenged us as science communicators to address the different levels of interest and knowledge. However, it also led to interesting insights into the status quo of AI literacy and encouraged us to intensify our exchange with society in further projects.

ABSTRACT

Meyer, John

When & where: Parallel session 10-B, Friday 14 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: 4. You're right – science communication IS advocacy!
 Format: Insight talks
 Author: **John Meyer**, Universit of Washington College of the Environment, United States
 Chair(s): Erik van Sebille
 Co-author(s):

Scientists are comfortable communicating about their work through traditional channels, like publishing in the scientific literature or presenting at a professional conference. Yet they are often less comfortable sharing their work in other ways, such as via social media, or with journalists or policy makers. There are many reasons for this, including lack of formal training or relationships needed outside of academic circles, but one that is often cited is that science communication essentially amounts to advocacy. Truth be told, that's right; science communication is advocacy...but not in the traditional sense.

In its simplest form, science communication is advocacy for science itself and its value to people and places. Communicating science underscores the critical role it plays broadly in our society, and can build trust and credibility between scientists and publics, lead to authentic and meaningful collaborations to solve problems, and shine a light on the process of science, making it inclusive and accessible. Science informs how we relate to, interact with, and place values in our world. Once scientists choose to engage, it is incumbent on them to clearly think through the goal of their communications, who they are trying to reach and what their message should be. Goals may include traditional advocacy on a particular issue, or goals could simply be to build broad enthusiasm and support for science generally. It is up to scientists to decide how they wish to engage – but we should all be vocal advocates for science itself.

ABSTRACTS

Metcalfe, Jenni

When & where: Parallel session 4-A – 12 April, 17:00 – *Willem Burger Room*
 Title: Contested ground, fertile ground, not common ground
 Format: Linked papers
 Author:
 Chair(s): Jenni Metcalfe
 Co-author(s):

Complex science-laden problems, like managing biosecurity, include actors that engage with knowledge from a variety of epistemic positions, with a variety of experiences and expectations, and already embedded in a variety of relationships.

In this linked-papers session, we start from the premise that communication can do much more than simply create common grounds (though it can contribute to that too). Communication can help us navigate contested grounds and be, itself, a fertile ground for moving forward on complex science-laden problems.

Indeed, taking the case of collaborating on biosecurity measures against Kauri Dieback, a pathogen that devastates some of New Zealand's most beautiful and ecologically important forests as a starting point, we find contestations: of epistemologies—from indigenous Māori knowledge to western science knowledge; of experiences and expectations with the biosecuring—from recreational users to locals; and of relationships—from colonised-coloniser to expert-user relationships.

We draw on these to see where communication plays into clashes, contestations, whether by highlighting, abating or reinforcing these, but also where communication forms grounds for collaboration and provides fertile grounds for looking better after the natural world and better forest management. To help think through this and the role of communication in these complex, collaborative spaces, we also bring in a UK perspective on forest biosecurity.

ABSTRACT

Mignan, Vanessa

When & where: Parallel session M-G – Tuesday 11 April 9:00-13:00 – *Maritiem museum Verolme Zaal*
 Title: From goodwill to inclusive and equitable practices – an introduction to inclusive science engagement
 Format: Professional development workshop
 Author: **Vanessa Mignan**, Freelance, Croatia
 Chair(s): Vanessa Mignan
 Co-author(s): Siddharth Kankaria, Lewis Hou, Jon Chase

This session is an introduction to the basics of equity, diversity & inclusion topics applied to science engagement.

Led by the Diversci Collective*, the session will be rhythmmed by a mix of workshops and small talks, engaging participants actively to share and discuss.

Through activities and sharing several examples of practices from the Diversci community, participants will gain tools and guidance to take home and put into practice in their own science engagement work or research activities. And maybe even more important: with a new, inspiring network of people advocating for DEAI.

Session outline:

1. Welcome & Icebreaker (10 min)
2. Presentation Key Principles (10 min)
3. Awareness raising activity (45 or 60 min)
4. Keynote (45 min including Q&A)
5. Introduction to the Diversci framework
6. Inspirational talks from practitioners (20 min)
7. Time to reflect

*The Diversci Collective is a group of science engagement professionals advocating to push inclusion, equity, diversity and social justice to the top of the strategic agendas of science engagement organisations. More on Diversci: www.diversci.eu

The session will be fuelled with the outcomes of baseline research led by Merryn McKinnon (AUS) using data collected from the PCST network about DEAI in their context to inform what issues we need to address during the session(s)

If you want to dive in deeper, we suggest that you register for the session 'From Purpose to Practice - setting up an inclusive process' in the afternoon. You can use that session as a follow-up session and do both, or choose to do one.

This proposal was composed in cooperation with: Liesbeth de Bakker (NL), Vanessa Mignan (HR), Amparo Leyman Pino (US), Lewis Hou (UK), Barbara Streicher (AT), Riina Linna (FI), Lieke Ketelaars (NL), Siddharth Kankaria (IN), Sanne den Adel (NL), Kim Darley Waddilove (SA), Emily Dawson (UK), Merryn McKinnon (AU)

ABSTRACT

Minors, Deborah

When & where: Parallel session 3-L, Wednesday, 12 April 15:15 – 16:30, *Mees Room*
 Title: CURIOS.TY: Giving V.O.I.C.E creatively to research from the Global South
 Format: Storytelling presentation
 Author: **Deborah Minors**, University of the Witwatersrand, Johannesburg, South Africa
 Chair(s):
 Co-author(s): Schalk Mouton

In 2017, the Wits Communications team launched a vehicle to communicate the University's research to various publics, including those who do not have access to academia traditionally. The new research magazine, Curios.ty, with the tagline Research. Rethink. Relearn, aims to make Wits' research accessible to multiple publics and particularly to those previously disadvantaged by limited exposure and literacy to science communication. In this way, Curios.ty connects African researchers to African communities to address global challenges from the unique perspective of the Global South. Each of the 14 issues of Curios.ty published to date are thematic – eg, cities; gender; climate, etc. – common issues for which common ground is sought through communication, collaboration and expertise.

At a time when traditional media consumption is declining and opportunities for academics to connect with the public through the media are shrinking, Wits took a bold step to launch a print magazine. As each edition is thematic, taking a deep dive into issues such as food security, governance or health, keeps the content fresh and relevant and increases the shelf life of the magazine. Each edition is supported by a digital campaign in which every individual story is amplified online, thus making the content accessible to other scientists, high school learners, a government official, or a bank CEO.

The Curios.ty editorial team proposes a storytelling presentation of 25 minutes during which the duo will share their experiences of establishing a magazine to leverage University research expertise, with a view to generating collaborations that are responsive and inclusive. Using specific editions of Curios.ty as case studies, Deborah Minors and Schalk Mouton will share insights about producing a University research magazine and practical tips on finding stories in research and translating research into stories.

ABSTRACT

Miquel, Duran

When & where: Parallel session 7-H, Thursday 13 April 15:15 – 16:30, *Ruys Room*
 Title: 5. When researchers collaborate with out-of-academia volunteers: the case of Wikipedia editors
 Format: Insight talks
 Author: **Duran Miquel**, University of Girona, Spain
 Chair(s): Marlit Hayslett
 Co-author(s): Alsina Núria, Simon Sílvia

Our group has been involved lately in assessing the gender biases existing in public spaces (honyms and eponyms). Analysis of those open knowledge areas is not only interesting for its openness, but because collaboration must be made with people outside academia, not necessarily science communicators.

Unfortunately science communication by scientists in our regional environment is not very recognized, so are kind of "scientific communication volunteers" using our spare time, similarly to Wikipedia editors who spend their free time volunteering in page editing.

Of course, we have benefited from the procedures and skills of Wikipedia (and sister projects) editors. For instance, it is rather complex for a researcher to understand the intrinsics of "notability", i.e., when a person (researcher) deserves a page in Wikipedia (either in English as a global language, or in the local language, in our case, Catalan).

Our activities in science communication (workshops, talks, entertaining, science fairs, ...) now focus on delivering knowledge to the public. However, they also address gender issues and promote the use of open knowledge. This communication tries to stress the key aspects of collaboration between (non-science) Wikipedians and scientists: the concept of notability (a recent female Noble Prize had no Wikipedia page!), about Wikidata as an open, linked (federated) data base, about gender issues in Wikipedia pages (e.g. inclusive language), or interoperability with other open databases like ORCID.

Open data provided by governmental agencies in our area are not used enough yet. However, Wikipedians have shown us how to benefit from those data, by promoting visibility of women and notability of male and female scientists.

We have used such concepts of open databases, open knowledge, notability, gender issued in science to improve our science communication reach: we now have a stronger collection of tools to grab attention and deliver our message.

ABSTRACT

Misra, Kinkini Dasgupta

When & where: Session 1, Tuesday, 4 April 09:00-10:15, Zoom
 Title: Portal bridging gaps in science communication, and connecting researchers, scientists and policymakers
 Format: Online conference
 Author: **Kinkini Dasgupta Misra**, VIGYAN PRASAR (DST), India
 Chair(s): Toss Gascoigne
 Co-author(s):

Overview: This session will cover lessons learned from conferences, exhibitions and trans-disciplinary strategies to improve science engagement.

The India Science Technology and Innovation (ISTI) Portal collate and maintain a huge data bank and spectrum of information on research and related aspects in a scientific manner so that it can be utilized for the benefit of researchers and scientists alike and help them in informed decision making. Further, it also helps in having a comprehensive picture of the Science, Technology, and Innovation (STI) ecosystem in the country and helps in framing the policies centered around science.

With the vision of providing a single-window source of information about science in India by aggregating information on scientific inputs and outputs and disseminating related contents, ISTI Portal addresses the gaps in the scientific field and computes the impact of funding for effectiveness.

It helps students, researchers, scholars, and scientists from India and abroad to help them choose fellowships, scholarships, funding, and startup opportunities in India. Besides, the portal help connects all the nodes of the STI ecosystem where young researchers and students can connect with scientists, scientists can interact with policymakers and all stakeholders of STI can have an effective platform that not only adds to their information base but also provides them an opportunity to connect among themselves. The innovative idea of the ISTI Portal is to have a centralized, first-of-its-kind, one-stop repository of the content generated in and by the Indian STI ecosystem, broadly related to research and funding.

The portal contains diverse types of content for a very rich and divergent group of audiences, like students, researchers, scientists, S&T organisations, entrepreneurs, policymakers & decision-makers. The Portal reaches out to around 200,000 visitors per month, including 70% audience in the 18-35-year-old age group who are the most captive audience and future custodians of the Indian STI ecosystem.

The research repository includes theme-based profiling of ongoing and recently completed projects to reduce duplicity in research funding.

Special mention is made of two of the outreach program of the ISTI Portal— “Science Society Setu” and “TechNeev@75” –which helped connect people with the scientists and organizations so that both can invariably benefit. The former by inculcating a scientific culture and later by

helping develop an idea of how best the scientific interventions can be made to maximize public welfare.

It has been developed as an open-access portal, with the objective of knowledge dissemination. It presents the respective repositories of ongoing research projects, technologies, innovations, funding opportunities, programmes & schemes, scholarships & fellowships, etc. The portal communicates, popularises, and extends scientific knowledge and information.

ABSTRACT

Miyamae, Chisako

When & where: Parallel session 6-F, Thursday 13 April 11:30 – 12:45, *Schadee Room*
 Title: 1. The challenge of splitting a science museum exhibition into physical and virtual spaces
 Format: Insight talks
 Author: **Chisako Miyamae**, National Museum of Ethnology, Japan
 Chair(s): Laurens Landeweerd
 Co-author(s): Taisuke Yamazaki

Tokyo Institute of Technology Museum was constructed in 1987. The building itself is one of the biggest pieces of the museum's collection. However, the small size of the exhibition area posed a challenge: The exhibition didn't effectively show our collections if the area was filled with explanation panels.

An even bigger problem was that information panels could not sufficiently accommodate all visiting demographics. In other science museums, recruiting science explainers is a standard solution to this problem. However, the Tokyo Tech Museum did not have the resources. The museum, therefore, decided to remove almost all explanations from the building. This choice seemed to conflict with the idea of how to improve science museums; there are no explanations or explainers on site.

Instead, the museum moved all explanation panels online. We provided a museum map with several QR codes. Visitors can scan the codes with their mobile. Depending on visitors' interest or knowledge level, they can choose different types of articles.

If the visitor brings the map back home, they can trace their experiences at the museum. If someone finds our digital explanation panels via online search, they can visit our museum after studying the artefacts.

The museum took the challenge to split the exhibition in two: The physical display of the artefacts was on the museum grounds, while the explanations were in a virtual space.

We monitor and analyze traffic and how visitors react to our online content. We also asked visiting students to fill out questionnaires, but due to covid restrictions, we could not interact with other types of visitors. We will assess the effectiveness of our approach by reviewing questionnaires from a wider selection of visitor groups.

ABSTRACT

Mlogeni, Pauline Helen

When & where: Parallel session 6-F, Thursday 13 April 11:30 – 12:45, *Schadee Room*
 Title: 6. Using Social Media as a Novel Platform for Health Research in Malawi
 Format: Insight talks
 Author: **Pauline Helen Mlogeni**, Malawi Liverpool Wellcome Trust, Malawi
 Chair(s): Laurens Landeweerd
 Co-author(s): Lindiwe Mafuleka

The use of social media is relatively new in Malawi with less than half the population on social media due to socio-economic challenges that most Malawians face. However, there is an increase in the use of social media platforms by young Malawians under the Millennial and Generation Z age group, especially Facebook, Tik Tok and Twitter.

The rise in the use of social media brings about an age group that is often under-researched and under-informed in issues of research and health because most research in Malawi currently focuses on children and general diseases that concern only women and sometimes, the elderly. Due to the average research, most platforms for communicating research are traditional media including radio and television which are not usually used by the youth.

This leaves a gap, albeit, an opportunity for researchers to explore, understand and research the youth of Malawi. In this proposal, I would like to explore the response of research by the youth if social media is creatively used to share health and research content including reels (short videos of less than 30 seconds), drama and art.

I would like to observe and document the response of the youth to health and research on social media, the extent of engagement and knowledge of health research shared through social media and to learn more from the youth on how to reach them even further.

ABSTRACT

Mlogeni, Pauline Helen

When & where: Parallel session 7-H, Thursday 13 April 15:15 – 16:30, *Ruys Room*
 Title: 9. Seeing is believing – using film to encourage students to become scientists
 Format: Insight talks
 Author: **Pauline Helen Mlogeni**, Malawi Liverpool Wellcome Trust, Malawi
 Chair(s): Marlit Hayslett
 Co-author(s): Zuze Matoliro, Lindiwe Mafuleka

In 2018, Malawi Liverpool Wellcome Programme Trust through its initiative entitled Science for All (Sci4O) began a project of showcasing films of its scientists to students in primary and secondary schools. This was followed by career talks by the scientists in the films. The aim of the project Science for All was to increase the uptake of science subjects in schools and to increase the uptake of science careers within Malawi. The project Science for All partnered with the Ministry of Education to reach out to government schools in urban and rural areas.

The Sci4O project showcased a series of films in a total of 22 schools within 6 districts. To date, the project has grown from a film project to a mentorship programme. It has about 2000 students who have enrolled in science clubs in secondary schools and colleges. Some of the students from the 2018 film project are now in colleges learning a range of subjects in science including biomedical sciences.

Through Science for All, we have learned that the use of film is a captivating tool to communicate to young school-goers about science and how to become a scientist. MLW has a wide range of tools for community science including radio and community meetings but the use of film in science for all is a unique tool for young people.

One of the students who benefitted from the initiative Ruth Khofi said "The initiative re-shaped my career path. I wanted to become a journalist but after watching short films featuring MLW's scientists that were showcased at our school I was inspired by their thrilling stories and decided to be like them."

Ruth Khofi is currently a third-year Immunology student at the Malawi University of Science and Technology (MUST) and intern at MLW.

ABSTRACT

Monasor, Angela

When & where: Parallel session 4-G, Wednesday, 12 April 17:00 – 18:15, *Van Beuningen Room*
 Title: 8. Myth busters – practice insight
 Format: Insight talks
 Author: **Angela Monasor**, Spanish Foundation for Science and Technology, Spain
 Chair(s): Marieke Baan
 Co-author(s): Cintia Refojo

“Myth Busters” is a project of the Spanish Foundation for Science and Technology. One of its actions consisted of an evidence-based educational workshop designed by the Experimental Psychology Laboratory of the University of Deusto (Labpsico Deusto) to reduce causal illusions and foster critical thinking and knowledge about the scientific method. Causal illusions arise when people misperceive the causal connection between events (e.g., believing that wearing a charm helps passing an exam). These mistaken beliefs can sometimes have serious consequences and are related to pseudoscience and superstition.

After piloting the innovative intervention designed by Labpsico Deusto in a real classroom environment, it was replicated with 1,660 13- to-16-year-old students from 40 schools in four Spanish regions. Evaluation results showed how the students who took part in the activity made more realistic causal judgments than those in the control group. This novel educational intervention, which has proven effective to reduce causal illusions and the many problems associated with them, can be easily replicated in any classroom environment.

We will present the dynamic of the intervention, followed by a comparative analysis of its short and mid-term impacts in a trial and a control group. In line with the “Creating Common Ground” theme of PCST 2023 Conference, science communication practitioners, research psychologists, schoolteachers, and – of course – students collaborated in this action. The lessons learned, timing and format issues due to the pandemic context and the nature of the intervention itself, as well as other challenges faced during the development of the action will also be discussed.

ABSTRACT

Montenegro, Mário

When & where: Parallel session 6-H, Thursday 13 April 11:30 – 12:45, *Ruys Room*
 Title: 6. The Dream Machine: a science and theatre hybrid communication format experiment
 Format: Individual papers
 Author: **Mário Montenegro**, Marionet theatre company, CEIS20 - Centre for Interdisciplinary Studies of the University of Coimbra, Portugal
 Chair(s): Liselotte Rambonnet
 Co-author(s): Ana Rita Álvaro, Laetitia Gaspar, Francisca Moreira, Sara Amaral, Bárbara Santos

The Dream Machine is a joint project of Marionet theatre company and the Centre for Neuroscience and Cell Biology of the University of Coimbra (CNC), with the objective of raising awareness of the importance of sleep and, in particular, Obstructive Sleep Apnea (OSA). This disorder, characterised by the occurrence of episodes of breathing cessation during sleep, is quite unknown, partly due to a difficult diagnosis. Worldwide, it is estimated that 80-90 % of OSA cases are not diagnosed.

In November 2020 we presented a hybrid performance combining a scientific presentation with a theatrical act. In the context of a growing and varied ecosystem of Science-Theatre practices, this performance experiments with a novel format for a dynamic presentation with artistic and scientific discourses intertwined. On stage, a scientist presents a communication on OSA and, at the same time, an actor and a musician perform a theatrical act on the same subject. The performance was conceived to cover relevant topics about OSA such as its world prevalence, means of diagnosis, health consequences, symptoms and treatments. Both discourses were weaved together to create a coherent and dynamic performance.

After the performance, questionnaires were presented to the audience to evaluate its efficacy and to identify which elements had the most impact in conveying information and engaging the public. A Google form was used to collect the data, with a mix of closed and open-ended questions, structured into four main groups: characterization of the respondent, prior knowledge about the disease, efficacy of the performance to convey knowledge on the disease and perception on the efficacy of weaving the scientific and artistic discourses together. We performed a mixed quantitative and qualitative analysis, using statistic and content analysis tools in MAXQDA.

The results point to a large efficacy of this hybrid format for transmitting knowledge about Sleep Apnea. The vast majority acknowledged they learned something about the different aspects related to the disease and expressed very positive opinions about the efficacy of this joint presentation.

The results also inform the audience's perception about the relevance of the components of the performance - researcher's speech, slide projection, actor's performance, musician's performance - in transferring knowledge and creating awareness about the disease.

ABSTRACT

Moreno-Castro, Carolina Moreno-Castro

When & where: Parallel session 11-B, Friday 14 April 14:15 – 15:30, *Van der Mandele (mezzanine)*
 Title: 7. The role that people that seek trust information about food-related myths play as fact-checkers
 Format: Insight talks
 Author: **Carolina Moreno-Castro Moreno-Castro**, University of Valencia, Spain
 Chair(s): Luz Helena Oviedo
 Co-author(s): Paula Von-Polheim, Ana Serra-Perales, Isabel Mendoza-Poudereux

An online survey conducted within the framework of the ESMODA-ECO project (Spain)* was launched between March and April 2022. The survey objectives were to know if people checked and contrasted the information they received from different nutrition and food channels and, if so, through what kind of sources they did it.

The survey included a first filter question that targeted people interested in fact-checking the veracity of the information on food and nutrition issues with data sources. These people continued responding to the questions and successfully finalised the survey; meanwhile, people uninterested in this type of information or verification process left the study at this point. No sociodemographic data were requested, following models of complete anonymization.

The questionnaires were sent to elderly and student associations and disseminated through the ScienceFlows research group's social networks. A total of 124 people responded, incorporating extra and valuable information into the open-ended questions. The results identified that consulting nutritionists and scientific references were the most minor consulted sources. In contrast, respondents referred broadly to websites and social networks to determine if a piece of news was authentic or fake.

At PCST2023, we will present the results obtained through the multiple correspondence analysis (MCA) with R software, applied to the quantitative variables, and the qualitative analysis with the T-Lab software for the open questions.

*Grant RTI2018-099663-B-I00, funded by MCIN/AEI/ 10.13039/501100011033 and by the European Union NextGenerationEU/PRTR. The ESMODA-ECO project stands for Study of Food Trends Through the Communicative Ecosystem.

ABSTRACT

Motion, Alice

When & where: Parallel session 1-K, Wednesday, 12 April 09:45 – 11:00, *Van der Vorm Room*
 Title: Facilitating public engagement with science through live comedy performances
 Format: Roundtable
 Author: **Olivia McRae**, The University of Sydney, Australia
 Chair(s): **Alice Motion**
 Co-author(s): James Dolan, Hauke Riesch

In this roundtable discussion, we will explore the use of live comedy performances that focus on or otherwise incorporate science, considering their value, potential, and possible pitfalls from a science communication and public engagement perspective. This panel will feature James Dolan, King's College, Cambridge, and Olivia McRae, University of Sydney who actively perform and research science-themed improvised comedy, and Hauke Riesch, Brunel University, who research the intersection of science communication and humour in different cultural contexts. Together, the panellists will contribute, compare, and contrast their perspectives, as researchers and practitioners, on how comedy performances centred on science fit into the differing science communication landscapes in the UK, Ghana, and Australia.

To facilitate audience interaction during the session, we will create an online poll that the audience can complete at the start of the session to gauge the audience's familiarity and perceptions of science comedy. After the opening statements, we will display the results of the poll and address these during a guided discussion that explores the value of live comedy performances about science and the strengths and challenges of these formats for public engagement. We will also provide opportunities for audience discussion and questions, and address these points within the context of our own research and practice in this area.

Speaker perspectives:

Olivia McRae is a PhD Candidate in the SCOPE Group at the University of Sydney, studying creative science communication and live science events. Her research centres on science-themed improv theatre, focusing on the motivations and perspectives of science improv practitioners from around the world to better understand the value and implications of this understudied form of science communication. From a practice-based perspective, Olivia is the founder and producer of 'Lines of Best Fit', a science-themed improv comedy show with regular performances in Sydney. As part of her PhD, Olivia has also been evaluating these performances, collecting data from both audiences and performers to gain insight into the impact of science improv performances.

James Dolan is an Assistant Teaching Professor in the Department of Physics, University of Cambridge, and a Research Fellow in Science Communication at King's College, Cambridge. As a postdoctoral nanotechnologist at the University of Chicago, he co-created the science-themed improvised comedy (improv) show, The Excited State, and as a research fellow at King's he now

studies the intersection between science and improv, both as a medium for science communication and public engagement and as a form of communication and collaboration training. James' research highlights the central tension between the medium and the message in the context of science improv and how different scientist-improvisers have attempted to resolve this tension.

Hauke Riesch is a senior lecturer in sociology at Brunel University London. His research interests include popular science writing, the public understanding of health and environmental risks, citizen science, and science comedy. As a member of the Brunel Centre for Comedy Studies Research, he has taken an interest in the use of humour and comedy in science communication and its impact. He argues that taking a critical sociological look that is informed by critical comedy and humour studies is essential in understanding how humour can be used within science communication and public engagement and understanding its strengths and potential pitfalls.

ABSTRACT

Motion, Alice

When & where: Parallel session 8-E, Thursday 13 April 17:00 – 18:15, *Hudig Room*
 Title: 5. Live From The Lab: Exploring the Communication of Science Through Contemporary Music
 Format: Individual papers
 Author: **Alice Motion**, University of Sydney, Australia
 Chair(s): Luisa Massarani
 Co-author(s): Chiara O'Reilly, Daniel Yeadon, Alexis Weaver, Jadey O'Regan

For the past three years, as part of Australian National Science Week, we have paired scientists from the University of Sydney with local musicians in a project called Live From The Lab. Following guided conversations over Zoom, the musicians were commissioned to create new music as emotional responses to the science. Each weekday morning of National Science Week, pairs of musicians and scientists were invited to share their science and creative process live on FBi Radio (a community station local to the University of Sydney) with scientists hearing the music inspired by their research together with listeners to the station.

In an expanded format in 2022, participants took part in an 'In Conversation' event where stories behind the science and the collaboration were explored in more detail together with a closer listen to each of the tracks, and a 'Gig' where the musicians played their new track as part of a short set.

Our research has analysed the on-air conversations and musical tracks from the past three years to gain insight into the potential of this format for science communication, and further explored the experience of participating scientists and musicians through semi-structured interviews.

In this paper, we will share insights from our research that support the demonstrated significance of arts-based approaches for science communication, explore the similarities in creative approaches of musicians and scientists and present a creative and engaging new format for science communication.

ABSTRACT

Mullen, Clare

When & where: Session 1, Monday, 3 April 09:00-10:15, Zoom
 Title: Building climate resilience in the Pacific: The Early Action Rainfall (EAR) Watch service
 Format: Online conference
 Author: **Clare Mullen**, Australian Bureau of Meteorology, Australia
 Chair(s): Michelle Riedlinger
 Co-author(s):

Overview: In this session, presenters will explore how important (potentially life-saving) information is communicated to different audiences and how practices are adapted and developed to account for differences in perspectives.

Drought and prolonged wet periods present significant challenges for communities and disaster management response, particularly in Pacific Island countries (PICs). “Too little” or “too much” rain over several months can affect livelihoods, water security, food security, and health - particularly in remote islands far from centralised support services.

Early warning – accessible and understandable to all – is fundamental to effective preparation and response. In this presentation, we outline the development of communication products for the ‘Early Action Rainfall Watch’ (EAR Watch) service. This project involves 15 PICs, with an established service in at least 10 National Meteorological Services (NMS). Key disaster management stakeholders can access information via monthly detailed bulletins on a website or sent by email; also, via local briefings.

Recent work has focussed on working with national and subnational stakeholders to develop products to reach the last mile e.g. an alert system at a local water tank. Social media via Facebook is a popular channel, but internet access can still be costly and difficult to access (because of connection issues, power outages, etc.). Some countries (e.g. Kiribati) use a large billboard on a main road to communicate information, although this relies on (monthly) manual updates. Tailored approaches are favoured depending on the country and capability.

Communication challenges can include multiple languages in-country, poor Internet, also reduced literacy and education levels. Most Pacific countries experience a ‘wet’ and ‘dry’ season; some stakeholders confuse the concept of ‘drought’ (consecutive months of well below average rainfall) with the dry season. Educational and promotional videos are under development to help explain the terms and the EAR Watch service. On-going training, mentoring and capacity development for NMSs are included in the project.

Radio could be used in remote areas; the project is trialing media training with the NMSs. Future work may investigate controlled (paid) messaging.

ABSTRACT

Muller, Lindie

When & where: Parallel session 3-H, Wednesday, 12 April 15:15 – 16:30, *Ruys Room*
 Title: 3. Collaboratively Contributing to the Value Proposition of Science Engagement in South Africa
 Format: Individual papers
 Author: **Lindie Muller**, National Research Foundation, South Africa
 Chair(s): Julia Cramer
 Co-author(s):

In 2015, the South African Department of Science and Innovation (DSI) appointed South African Agency for Science and Technology Advancement (SAASTA) as the national coordinator to drive science engagement and act as one of the catalysts between science and society. Contextually, science engagement is facilitated by SAASTA through three core focus areas; supporting science education in the primary, secondary, and tertiary educational institutions; facilitating dialogue with the general public to create science awareness; and enabling science communication through the training of researchers, journalists, and media engagement. This is done to ultimately contribute to the STEMI value system. Each stakeholder group is developed in such a manner so that they can, in turn, also enhance the value system by feeding skills back into the National System of Innovation to replenish the value chain and assist in driving the value creation process, as well as address the governments' objectives by ingraining STEMI deeper into society.

The presentation will provide a broad overview of how the different science engagement activities, coordinated by SAASTA, connect within a National Innovation System's value chain by type of implementation method and audience and the extent that the value proposition is addressed. Furthermore, the presentation will indicate how each target group is engaged to generate the most value and will outline how these skills, developed through science communication, are fed back into the NSI to repeat the process. The presentation will end by listing practice insights for similar science engagement systems.

ABSTRACT

Muller, Lindie

When & where: Parallel session 4-G, Wednesday, 12 April 17:00 – 18:15, *Van Beuningen Room*
 Title: 4. Large-Scale Science Engagement Evaluations: Managing the Complexity of Collaboration and Procurement
 Format: Insight talks
 Author: **Lindie Muller**, National Research Foundation (NRF-SASTA), South Africa
 Chair(s): Marieke Baan
 Co-author(s): Anton Binneman

Science and public engagement form an integral part of the National Research Foundation (NRF) and its national facilities in South Africa. With varied science engagement and communication interventions, it is essential to evaluate efficiency, effectiveness, and impact. This informs on best practices and gaps in science engagement and communication with varied audiences. When one focus on the broader impact of science engagement and project communication efforts, it also becomes a complex collaboration between varied stakeholders.

The complexity of procuring evaluation studies is a very under-researched area. Over the past few years, two of the NRF's facilities, the South African Agency for Science and Technology Advancement and the South African Radio Astronomy Observatory, collaboratively procured large-scale evaluation studies that focus predominantly on public perceptions to measure project effectiveness. After experiencing several obstacles, false starts, and misaligned outcomes, the complexity of the process was reduced internally through its own process of consistent monitoring, evaluation, adjustment, and documenting. One of the outputs from this process included a simple but robust terms of reference.

By reducing the complexity, the quality of the studies increased and outcomes could be applied in a broader context than initially intended. Indications are that the process can also be duplicated with increasing ease. One of the studies, the Public Perceptions of Biotechnology, received international acclaim for its multi-faceted value from both an academic and strategic perspective, but curiosity from funders and research entities and practitioners was also piqued by the abbreviated procurement process that was suggested.

This paper will reflect on collaborative efforts, the refined procurement processes, with supporting successes and failures, to establish a baseline for best practice in procuring large-scale evaluations of this kind. The paper will conclude by outlining the increased benefits for science engagement and communication derived directly from the refined processes.

ABSTRACT

Mumm, Anina

When & where: Parallel session 2-G, Wednesday, 12 April 11:30 – 12:45, *Van Beuningen Room*
 Title: We're using AI, translation and scicomm to open up African research
 Format: Storytelling presentation
 Author: **Anina Mumm**, ScienceLink, South Africa
 Chair(s):
 Co-author(s): Sibusiso Biyela, Ntokozo Nomasiko Msomi, Gosaitse Tubatsi

Our story, told by a translator, a researcher and multilingual science communicators, will inspire colleagues across the world to develop scicomm in indigenous languages. We are helping to create a “Google Translate” for African research under a project called “Decolonise Science”. Our ultimate goal is to make scientific research published by Africans, or relevant to Africans, accessible to broad publics, in at least six languages on the continent. We'll share how skilled African science writers and translators have simplified and translated 200 open access publications across disciplines. These research summaries are now serving as a dataset to teach artificial intelligence (AI) how to simplify and translate scientific papers into African languages, including isiZulu, Northern Sotho, Yoruba, Hausa, Luganda and Amharic. We'll also demonstrate how we created open-access glossaries of newly-coined scientific terms that have never existed in those marginalised languages. When words don't exist in a certain language, people who speak that language are excluded from science. Therefore, these glossaries alone will allow many more African communities to participate in science in their own language.

A grassroots community of African computer scientists called “Masakhane”, which means “we build together” in isiZulu, first had the idea to use AI for translating research into African languages.

They partnered with science communicators to find common ground between the ideals of science communication, translation, machine learning technology and open-access research. The resulting “Decolonise Science” project speaks to all sub-themes of the conference, but in particular to inclusiveness, openness and collaboration.

We'll share our experiences and challenges, and welcome any feedback, questions or critique from colleagues. We also want to use this session to connect with African science communicators interested in growing native-tongue discourse in science.

ABSTRACT

Murfree, Lauren

When & where: Parallel session 9-E, Friday 14 April 09:45 – 11:00, *Hudig Room*
 Title: 5. "Lots of People at the Table": A call for democratization of innovation in rural U.S.A.
 Format: Individual papers
 Author: **Lauren Murfree**, Purdue University, United States
 Chair(s): Frank Kupper
 Co-author(s): Roberta Weiner, Mark Tucker, Linda Pfeiffer

Current advances in “disruptive” technology innovations have galvanized scientists and funding agencies in the U.S. concurrently with heightened concerns from members of the public. The American public has been increasingly critical of emerging science and technology, potentially due to the lack of attention to social risks associated with technological development. Additionally, in the US, there has been a scarcity of effective models for intentional engagement with the public in science and technology design and governance.

To better understand the rural public’s conceptualizations of novel technology, this study explored public attitudes, perceptions, beliefs, and experiences of emerging technologies in general, along with a specific focus on agricultural technologies (big data and plant genetics) in a rural Midwestern U.S. state. Nineteen semi-structured interviews were conducted. Interview data were analyzed using coding reliability thematic analysis, with an additional in-depth examination of subthemes.

Findings show themes of community loss and renewal, indicating that technology is seen as an opportunity for the continuation of “the rural way of life” and potential for “the future of our communities.” This theme appeared to be exacerbated by the recent Covid-19 pandemic and increased demand for access to communication technologies. However, the most prominent narratives focused on the desire for “bottom-up” governance processes in which the public had a substantive voice in the technological developments that impacted their communities. Most preferred committee structures in which multiple stakeholders have a voice; however, “top-down” government protection was endorsed to ensure public safety, privacy, and equitable access to technology. Our results provide insight into why integration of democratic communication processes and placed-based engagement with communities on technology implementation could be key to more equitable scientific innovations.

ABSTRACT

Muriello, Sandra

When & where: Session 3, Tuesday, 4 April 17:00-18:15, *Zoom*
 Title: Do we need Science and Technology museums?
 Format: Online conference
 Author: **Sandra Murriello**, CITECDE, UNRN, Argentina
 Chair(s): Marlit Hayslett
 Co-author(s): Astrid Bengtsson

Overview: In this session we will consider roles and responsibilities, of audiences, science communication practitioners and science journalists.

Museums are widely recognized as spaces for non-formal education that promote visitor participation. This has just been ratified by ICOM's new and debated definition of museums in 2022. Based on a critical review of contemporary museum experiences that question the established models and bibliography of the area, we observe that the STS (Science, Technology and Society) perspective, which has permeated educational and academic spheres for more than four decades, has not yet been deeply assumed in museums to any great extent. However, the potential of these spaces to address science and technology (S&T) as historically situated social constructions and to initiate debate on emerging issues at the local and global level is huge. They are also an opportunity to combat the distorted visions of S&T that are reproduced in schools and the media. Therefore, it is proposed here to rethink the role of S&T museums in the light of the theoretical perspectives of critical museology and the process of decolonizing museums cultures and collections in Latin America.

In this presentation we analyze experiences of museums and exhibitions from different countries which assume debates of contemporary problems linked with S&T. We argue that the challenge for museums today is to play an important role in social debates putting Science-Technology-Society + Environment in dialogue, to work towards equity and social inclusion and to build a space open to communities where the political dimension of these institutions is expressed without losing their poetic potential.

ABSTRACT

Nabavi, Ehsan

When & where: Parallel session 5-J, Thursday 13 April 09:45 – 11:00, *Plate Room*
 Title: Pathways Theatre: A method for experimental futures
 Format: Mini-workshop
 Author: **Ehsan Nabavi**, Australian National University CPAS, Australia
 Chair(s):
 Co-author(s):

To give more weight to plural understanding of the future, which is often accompanied by varying degrees of disagreement or conflict, new forms of public engagement are key. Among various deliberative methods, art-based and embodied practices are particularly important in connecting mind and body of participants and their disparate ways of knowing and meaning making. They can be used to facilitate dialogue and create spaces in which people with different perspectives and experiences can engage in transformative practices.

This mini-workshop introduces participants to the Pathways Theatre technique and demonstrates how it can be used to open up space for dialogue in controversial topics that may polarize community interests and divide people. This includes conversations on emerging debates around climate change, artificial intelligence (AI), and biotechnology. The Pathways Theatre is a collaborative scenario-making approach that uses speculative improvisations and embodied experimentation to create new spaces for dialogue and transformative engagement. Participants are introduced to the technique, the design requirements, the potential challenges and the ways to overcome them. Participants are encouraged to be engaged in some warm-up activities and collective scenario development and performance. Given the time limitation, this min-workshop aims to provide a mock version of the real Pathways Theatre. A real case study will be used to expose contradictory emerging scenarios around the topic, in order to confront different technical, social, and political understandings of what a solution could and ought to be.

ABSTRACT

Nabavi, Ehsan

When & where: Parallel session 10-C, Friday 14 April 11:30 – 12:45, *Van Weelde Room*
 Title: 7. Responsible Innovation: from research to hackathon
 Format: Insight talks
 Author: **Ehsan Nabavi**, CPAS, Australia
 Chair(s): Brooke Smith
 Co-author(s):

In the last decade, responsible innovation (RI) has become a major field of research in Europe and North America. The field investigates ways of aligning novel science and technological innovation with public values and policy arrangements for the creation of a sustainable, socially equitable future. In Australia, the Australian National Centre for Public Awareness of Science (CPAS) has contributed significantly to setting up a research base and partnerships in this cutting-edge field.

In 2021 CPAS established Responsible Innovation Lab (RI-Lab) to build capacity in Australian stakeholders to reflect upon the existing RI frameworks, and to identify, understand, and address the needs in government and industry. This is a major translational research opportunity in responsible innovation governance that CPAS has identified over the last few years.

Along with various research and outreach activities, the RI-Lab has also developed two Responsible Innovation Hackathon (rHack) to engage engineering students using RI to develop solutions. Primarily, centred on computer programming and others involved software development, most of the Hackathon events are focusing on technological innovation without paying due attention to social, ethical, and environmental concerns. rHack, instead, seeks to turn Hackathon on its head, reorient and thus liberate its potential to find and incentivize not only the best innovation, but the most responsible one.

In this talk, I will briefly share my experience of establishing RI-Lab at the Australian National University and lessons I learned in developing research, organizing events, and industry engagement activities. This would hopefully provide a common ground for conference participants to discuss their own RI activities and to find synergies and possible collaborations with their ongoing projects.

ABSTRACT

Naudon, Frédéric

When & where: Parallel session 11-E, Friday 14 April 14:15 – 15:30, *Hudig Room*
 Title: 4. Challenges and benefits of collaboration between specialists and “laypersons-neophytes”
 Format: Individual papers
 Author: **Frédéric Naudon**, University of Caen-Normandie, France
 Chair(s): Alessandra Fornetti
 Co-author(s):

Is a person with no particular knowledge in a field – i.e. a layperson-neophyte – able to help a specialist in that field to produce new knowledge? Our doctoral research focused on the contribution of laypersons-neophytes in tools of technical democracy (typically consensus conferences). We will present the two experimental devices we implemented to answer our research question: i/ laboratory meetings between one researcher and laypersons-neophytes and ii/ interdisciplinary meetings between several specialists and laypersons-neophytes about a project for a hydrogen-powered school boat intended for a maritime high school. We will insist on the method used to constitute the group of lay volunteers and meeting tools (“common ground”) designed to facilitate symmetrical communication between lay-neophytes and specialists.

The results will be presented: laypersons-neophytes are sources of interdisciplinary knowledge. They have a capacity to think clear of specific brakes linked to the knowledge of his subject, which allows them to give the specialist more mobility in relation to the subject. Laypersons-neophytes are also able to put a technological project to the test, in particular its purpose and social relevance. Two conditions are necessary: the laypersons-neophytes must not be trained before the meeting with the specialist(s) and the process must give them a strong status. The limiting factor is on the side of the specialist’s responsibility: his approach, particularly with humility and openness to others, plays a determining role.

We believe that these results can re-establish a continuity between “knowers” and “non-knowers” and propose a common ground that would not be based on common knowledge (as is often desired) but on the recognition of the Other - the layman - as a cognitive resource, suggesting the possibility of real science-society dialogues.

ABSTRACT

Negrete, Aquiles

When & where: Parallel session 3-E, Wednesday, 12 April 15:15 – 16:30, *Hudig Room*
 Title: 5. The use of narratives in communicating neuroscience to low-income status pregnant mothers
 Format: Individual papers
 Author: **Aquiles Negrete**, Universidad Nacional Autónoma de México, Mexico
 Chair(s): Brian Trench
 Co-author(s):

The “Let’s Talk Mom” is a social intervention and a research project directed at low-income pregnant women in Chile. The initiative seeks to communicate neuroscientific information to them, starting when they get pregnant until their child is four years old. The program aims to communicate information to mothers on how to use language and to carry out early cognitive stimulation to take care of their children in the best possible way given the environment. This paper proposes that using narratives, in conjunction with other ludic activities is one possible way to communicate neuroscience in an understandable, reliable and enjoyable way to audiences with low literacy and low-income levels in Latin America.

Several studies associate living in an environment of chaos and inequality with cognitive/social development disadvantages. The relationship between learning skills and poverty has been well documented. Recent studies explain that poverty might affect brain development and therefore academic performance. The reality in Chile suggests this same situation: income level appears to be crucial in developing learning skills. Despite this evidence, in Chile, and in most parts of the world, public policies have failed to provide solutions to reduce the stresses of living in poverty during pregnancy. We believe that one possible way to alleviate this problem is to design a science communication strategy in order to equip pregnant women (in poverty situations) with neuro-scientific information so that they become aware of the danger for their children in early development stages due to stress situations and therefore to enable them to identify, prevent and handle such situations.

The importance of communicating science by means of narrative forms has been suggested by several authors. Research in the fields of narrative and figurative language has spawned important conclusions concerning the importance of narrative cognition and its implications in communication.

ABSTRACT

Nelissen, Elisa

When & where: Parallel session 6-C, Thursday 13 April 11:30 – 12:45, *Van Weelde Room*
 Title: Churnalism and the intercultural circulation of science news
 Format: Linked papers
 Author: **Elisa Nelissen**, KU Leuven, Belgium
 Chair(s): Anne Dijkstra
 Co-author(s):

Scientific knowledge undergoes various transformations in the course of traveling from the lab to the media. Various studies have looked at framing or the use of press releases, though this research typically ignores the cultural context in which science news is published and/or focuses solely on English-language media. I propose to apply a cultural and translational lens to the study of science news that places it within a specific cultural, linguistic, and political space. For example, our research at different news outlets in Flanders (Belgium) and the Belgian national news agency has indicated that much science news is (re)written and translated by generalist reporters without any expertise in the matter. National guidelines about sound scientific reporting do not exist (nor does a national professional association of science communicators) and international guidelines do not appear to reach these reporters. How can we encourage sound science reporting by (generalist) journalists in a non-English speaking region with little tradition in the field? In this paper, findings on how the intercultural circulation of science news takes place are presented and discussed.

ABSTRACT

Nelissen, Elisa

When & where: Parallel session 11-G, Friday 14 April 14:15 – 15:30, *Van Beuningen Room*
 Title: 1. “Not validated by colleagues”: How preprints are explained in the Flemish and Dutch press
 Format: Visual papers
 Author: **Elisa Nelissen**, KU Leuven, Belgium
 Chair(s): Jenni Metcalfe
 Co-author(s):

The urgency of the COVID-19 pandemic caused a surge in preprints published on servers like medRxiv, many of which made their way into mainstream news media. Whereas reporters covering science must be able to appraise the relevance of scientific findings (a skill that requires specialised background knowledge), science news in Flanders is often written by non-specialist reporters. (How) do generalists appraise the implications of covering preprint research and convey the absence of peer review?

This study investigates whether Flemish reporters at different newspapers label preprints as such, and if they do, how they translate and explain the term. The results are compared with similar data from the Netherlands to reveal possible (cultural) differences in the treatment of academic jargon. During the presentation, the audience will be asked to share insights from their own country's science news reporting.

An exploratory investigation has revealed the use of the term ‘prepublication’ (Dutch: ‘voorpublicatie’) or explanations such as ‘this study has not been validated by colleagues’. Having a complete picture of the range of choices made by reporters to identify a preprint as such (or not) will allow for additional research into news consumers’ understanding of such terms and descriptions. This visual presentation will share (in graphs) some general results of the study, supplemented by concrete examples to illustrate the findings.

ABSTRACT

Nepote, Ana

When & where: Parallel session 11-H, Friday 14 April 14:15 – 15:30, *Ruys Room*
 Title: 3. Mapping the landscape of environmental news in digital media in western Mexico
 Format: Individual papers
 Author: **Ana Nepote**, Universidad Nacional Autonoma de Mexico, Mexico
 Chair(s): Anne Dijkstra
 Co-author(s):

Environmental journalism as an area of specialization both in practice and in research has been scarcely studied in Mexico. However, in the last twenty years, socio-environmental issues have gained greater prominence in the media. However, communicating issues related to the environment and science remains a complex task in local and national contexts. The importance of this work lies in identifying the initiatives developed by regional media in the face of the current environmental complexity in western Mexico. The methodology used in this study is based on the work of Rosen et al. (2011). We chose media outlets in the city of Morelia and Guadalajara (Mexico) that had at least one of the following sections: Science, Science, and Technology, and Environment. For the contrast of information, a survey was done with reporters, journalists, editors-in-chief, editors, or conductors of the media identified. Later, in-depth interviews were conducted with the people who were willing, of those who previously answered and provided their data in the survey. Once the media were identified, a directory of them was created, filling certain items that served us to classify information. For the purging of these, the common denominator was that they covered news from the following sections: Science or Science and Technology, or Environment or related. A database was created by compiling journalistic notes from February 15 to June 15, 2021 to know what has been covered in the different sections and the frequency of the news. We identified more than 30 media outlets that occasionally cover environmental issues. Of these, only 19 have at least specific environmental categories in their digital media. We obtained more than 450 articles published during the period studied and conducted 16 interviews with journalists and communicators involved in environmental issues.

In general, we conclude that with the pandemic context we experienced during the period studied, interest in health, science, and environmental issues increased. Although there is an urgency to address the environmental problems in the news, at the local level, this news is still scarce. In the interviews, we identified a greater interest in covering complex issues on the part of reporters. Still, they also recognized that they require better professional preparation for specialized work and more time dedicated to investigative journalism to cover complex issues such as science and the environment.

With regional research such as this study, our goal is to complement the information collected through digital media mapping initiatives in Mexico and Latin America to offer common ground in understanding the needs and challenges that arise in journalistic work. With the support of the Mexican Network of Science Journalists, we seek to create alliances to favor the development of more significant environmental and scientific journalism with regional

perspectives based on local stories that consider socio-environmental conflicts, sustainability approaches, and citizen mobilizations for environmental justice and climate.

ABSTRACT

Nic Daeid, Niamh

When & where: Parallel session 2-H, Wednesday, 12 April 11:30 – 12:45, *Ruys Room*
 Title: Raising the standards of science communication in Forensic Science
 Format: Roundtable
 Author: **Niamh Nic Daeid**, Leverhulme Research Centre for Forensic Science, University of Dundee, United Kingdom
 Chair(s): **Heather Doran**
 Co-author(s): Julie Burrill, Yahaya Sumara Sulley

We will discuss the global importance and challenge of science communication in the context of forensic science. The communication of forensic science takes place both in and outside of the courtroom. It needs to engage specialist and non-specialist audiences simultaneously while being inclusive, open and upholding the values of the science. It is placed on the stand and under scrutiny in a court of law.

How can the public be engaged with developments in this area when the technology applied to forensic science moves forward so quickly? How can training in forensic science communication be integrated into careers for forensic scientists – what needs to be addressed? This session includes panel members from around the world who will share their perspectives on the particular challenges forensic science communication faces and potential interventions, including citizen science approaches. The panel will invite attendees to new ideas and thoughts about how we address whether these interventions are successful.

Heather Doran will challenge the panel to discuss some of the particular challenges forensic science faces in the communication of science. Although many public audiences find the topic extremely fascinating in fiction in real life ensuring that the communication is both accurate and understandable is a challenge. Forensic science as a general field is guarded in its openness as the knowledge it holds could be used by those who intend to break the law. If a forensic scientist gets the communication wrong it could lead to immediate miscarriages of justice. There is also opportunity though as the public interest in this area can be harnessed in citizen science to improve outcomes for the field.

Professor Niamh Nic Daeid is Director of the award-winning Leverhulme Research Centre for Forensic Science (LRCFS) the 10-year mission is to provide a robust underpinning for the scientific evidence presented in court. The Centre works on a global scale. She is a Chartered Chemist, is authorised as a Forensic Chemist to provide expert evidence to the courts and is registered as a forensic expert with the National Crime Agency. She has provided expert evidence in many high-profile cases and is an expert witness for the Grenfell Tower public inquiry.

She undertakes forensic casework, primarily in fire scene investigation and has appeared as an expert witness for the Courts. She has chaired the European Network of Forensic Science Institutes (ENFSI) fire and explosion Investigation working group, the INTERPOL forensic science managers symposium and was deputy chair of the Scientific Advisory Board of the International Criminal Court.

Julie Burrill's work focuses on forensic science communication in the courtroom and she will speak about the challenges of embedding training for science communication. Dr Burrill

received her PhD in 2021 from King's College London where she worked on forensic DNA analysis. She was funded by a 2016 US-UK Fulbright grant. Prior to this she was a staff forensic scientist for the Public Defender Service for the District of Columbia from 2011-2016, where she developed and delivered forensic science training for attorneys and prepared expert witnesses for criminal trial testimony. She has worked in research and casework laboratories as well as medical examiners' offices. She received her MFS in Forensic Molecular Biology in 2011 from George Washington University and her BS in Biology in 2007 from Haverford College.

Yahaya Sumara Sulley is a Senior Research Assistant at the Forensic Science Department of the University for Development Studies. He will speak about the challenge of engaging public audiences in Ghana. Very passionate about forensic science policy and Forensic DNA sciences. Founder of Forensic Science Outreach Ghana (FSOGH) and the Deputy Secretary of the Ghana Academy of Forensic Sciences (GAFS) and has been a member of GHScientific as a writer. Yahaya is also an author at scientect.org where he has written a few articles concentrating on forensic science policy in Ghana and other relevant issues of national development. I am the Chairman of "THE CONFIDENT SCIENTIST", a young initiative established by young scientists to add a voice to the already existing science communication networks and also the content curator and assistant editor for The Bioscience Newsletter of the Faculty of Biosciences at the University for Development Studies.

ABSTRACT

Nieckchen, Petra

When & where: Parallel session 7-A, Thursday 13 April 15:15 – 16:30, *Willem Burger Room*
 Title: Should we bury or vindicate the deficit model in times of crises?
 Format: Roundtable
 Author: **Anne-Maria Brennan**, University of Kent, United Kingdom
 Chair(s): **Petra Nieckchen**
 Co-author(s): Frederike Schmitz, António Gomes da Costa

Four seasoned science communicators share their perspectives and reflection on the deficit model. We ask: Did we condemn the model too hastily? Isn't there any communicator who doesn't tacitly assume a deficit in their audience? Therefore, isn't filling in the blanks an act of empowerment for informed decision-making, especially in times of crisis? How do we assess the extent of and build on existing science literacy?

The session starts with each speaker's thought-provoking statement. Will we identify Common Ground with the help of the audience? The following World Café invites the audience to shape and articulate their findings after a round of moderated discussion.

Values: Practitioner António Gomes da Costa (Portugal) warns that communicators and scientists wrongly assume that factual knowledge is enough to ensure general acceptance of a common course of action; however, for most issues, other considerations - economic, social or ethical - may intervene. Dismissing the legitimacy of these other considerations may encourage people to distort scientifically determined facts, or undermine confidence in science, to justify options that 'disagree' with scientifically-determined facts.

Openness: Senior science communication advisor Frederike Schmitz (Netherlands) wants to bring Open Science and science communication closer together. After all, Open Science has the potential to completely open up science to audiences who were previously not involved in science. But how open do scientists want science to be? And what is Open Science actually, and why do we care? When you ask scientists this question, you get a lot of different answers. We need a common understanding (fix this 'deficit') if we even want non-scientists to learn about, get engaged in and participate in Open Science.

Inclusiveness: Senior Lecturer Anne-Maria Brennan (UK) advocates hard-to-reach audiences. She urges the widening of science literacy to meet the Sustainable Development Goals focusing on culture, education, gender equity, and health. Similarly, there are multiple 'publics' whose intersectionality requires addressing, to meet these challenges. Anne-Maria reflects on how we address gender and ethnicity to meet these challenges.

Collaboration: Chair Petra Nieckchen (Austria) is optimistic that the pandemic has unleashed a sustainable re-evaluation of scientists actively involved in crisis communication: yet, mono-directional communication continues to prevail. She argues that accelerating reforms towards a dialogue-driven interaction with audiences requires external stakeholders.

ABSTRACT

Nielsen, Kristian H

When & where: Parallel session 5-H, Thursday 13 April 09:45 – 11:00, *Ruys Room*
 Title: 5. The role of the media in vaccination controversies: From misinformation and misleading messages to complex and contextual understandings
 Format: Individual papers
 Author: **Kristian H Nielsen**, Aarhus University, Denmark
 Chair(s): Toss Gascoigne
 Co-author(s):

Controversies surrounding public vaccination campaigns often play out in the media with potential implications for health policy, vaccine hesitancy, and health communication. In many instances, scholars and health professionals have blamed the media for misleading reporting and outright misinformation about vaccination safety and efficiency. A recent review of communication research into media coverage of vaccination found that negative media messages and inaccurate information are common issues. This paper, too, draws on existing empirical research into media coverage of polio, MMR, HPV, and Covid-19 vaccination controversies to argue that communication research portrays media coverage in a positive/negative or informing/misinforming framework. Based on our own work on the HPV controversy in Denmark, we emphasize the need to understand the role of the media in more nuanced terms. In contrast to previous studies of the Danish case, we found that the media responded to the controversy by covering the science and politics of HPV vaccination in relation to specific events in the national context and by giving emphasis to many actors and their concerns. As the media continue to play an important role in disseminating information and enabling public debate about vaccines, health and science communication scholars and practitioners need to address the complexity of media coverage. True, the media are prone to sensationalism, but journalists and editors also seek to prioritize reliable information and watchdog journalism by asking critical questions to experts, holding those with power accountable, and giving voice to under-represented and less privileged groups. We invite discussion of how we best understand the complex and contextual roles of the media in vaccination controversies.

ABSTRACT

Nqowana, Thandiswa

When & where: Parallel session 9-E, Friday 14 April 09:45 – 11:00, *Hudig Room*
 Title: 2. Enhancing agency around water treatment and monitoring in remote communities: a case study of science
 Format: Individual papers
 Author: **Thandiswa Nqowana**, Rhodes University, South Africa
 Chair(s): Frank Kupper
 Co-author(s): Janice Limson

Access to safe drinking water is a continuous challenge across the world. The consumption of unsafe, untreated water exposes communities to waterborne diseases and its consequences to health. Little is known about rural water quality in South Africa, given that most water quality research and monitoring is conducted for and in support of urban areas. In remote areas that lack conventional water infrastructures, rainwater and borehole water is often collected and treated for domestic use. The challenge that communities contend with is poor microbial quality and chemical composition of the water collected. A defined need exists for the monitoring of water quality in remote areas. Drawing on the principles of engaged research, responsible research and innovation as well as citizen science a multi-disciplinary approach engaging scientists, communities, community engagement practitioners and humanities researchers was adopted, in order to develop sustainable solutions.

The purpose of the proposed study was to formulate a community-based water quality monitoring programme in collaboration with communities in villages in the Amakhala Game Reserve in South Africa. The community-based water quality monitoring involves the development of scientific tools for microbial water quality monitoring by members of the community at Amakhala, supported by confirmatory tests by the researcher. The approach followed can not only lead to scientific solutions for community water quality monitoring, but helped develop a sense of agency amongst community members with respect to monitoring of water quality and sharing of information. In this paper we detail the approach followed as a case study of engaged research between scientists and communities on enduring challenges.

ABSTRACT

Nuijens, Frank

When & where: Parallel session 3-B, Wednesday, 12 April 15:15 – 16:30, *Van der Mandele (mezzanine)*
 Title:
 Format: Linked papers
 Author: **Frank Nuijens**, ASTRON, Netherlands
 Chair(s): Marjolein Oorsprong
 Co-author(s):

Research infrastructures provide services to the scientific community, but also others. Stakeholder engagement is one of the major activities of science communication professionals working at scientific facilities. Every stakeholder requires a unique approach. This session highlights a selection of projects for both scientists and non-expert audiences.

- Facility users/scientists: Community building models offer the possibility to choose whether the work of a scientific facility should be directed by a central board or by the community of users. Towards a community-led radio telescope - Elise Brouwer (ASTRON, The Netherlands)
- Internal staff: Changing the behaviour of scientific staff to be more sustainable requires careful usage of behavioural change models, especially when it has to be adopted at different locations across Europe. Changing sustainability behaviour across a distributed organization - Tabea Rauscher (EMBL, Germany)
- Local First Nations: Engagement with local communities starts way before a new research infrastructure is built and should be constantly monitored. Engagement to counter misinformation and framing - Anton Binneman (SARAO, South Africa)
- Non-expert publics: Ensuring a broad spectrum of visitors connect with content involves working with diverse role models and reaching out and engaging with communities who don't yet visit - Emma Sanders (CERN, Switzerland)

After the presentations, Marjolein Oorsprong will lead a discussion on the opportunities that stakeholder engagement holds for professionalising science communication, strengthening the link between scicomm research and practice: lessons learned and pitfalls.

ABSTRACT

Nuijens, Frank

When & where: Parallel session 10-B, Friday 14 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: 3. Defusing deficit thinking in science communication practise
 Format: Insight talks
 Author: **Frank Nuijens**, ASTRON, Netherlands
 Chair(s): Erik van Sebille
 Co-author(s):

One of the tensions in the practice of science communication is the prevalence of deficit-model-based communication tactics, where science communicators (both scientists and science communication professionals) choose to transfer information unidirectionally from experts to non-experts, falsely assuming that this will fill an assumed knowledge gap and result in acceptance and understanding of the science.

Astronomers are very active in outreach activities to enthuse the public about their work on exploring the Universe. Two recent studies have shown that what most astronomers practise as science communication is the transmissive, deficit-model-driven kind of communication e.g. giving a PowerPoint presentation to a laymen audience or trying to get research results published in a newspaper. They make much less use of the transactional forms, such as dialogue and public participation.

This contribution will present a number of interventions that we are testing at the Netherlands Institute for Radio Astronomy (ASTRON) to challenge the deficit mindset. We have developed a public engagement training for astronomers and engineers and are trialing it in our institute. We have also introduced coaching for engineering project teams to use the value proposition model, a marketing model that stimulates focusing on the needs and wants of your stakeholders. These and other interventions all aim to facilitate scientists to treat science communication as the social conversation around science. We will discuss our lessons learnt that can be used by other practitioners. Two tips are to stimulate outside-in thinking using guided training and challenge scientists to listen to and question their audiences rather than only disseminate information.

ABSTRACT

Nyoh, Israel Bionyi

When & where: Parallel session 6-G, Thursday 13 April 11:30 – 12:45, *Van Beuningen Room*
 Title: 7. Using communication to support energy transition in Africa
 Format: Individual papers
 Author: **Israel Bionyi Nyoh**, University of Douala/ University of Leicester, Republic of the Congo
 Chair(s): Alice Fleerackers
 Co-author(s):

Over the last two decades, numerous initiatives have attempted to solve the problem of access to electricity in Africa by massively deploying renewable solar solutions to rural areas. In doing so, they are helping to redress the problem, yet struggling to convince rural stakeholders to accept and integrate solar systems. This article explores how energy initiatives can strategically employ communication models to ease transition, acceptance, and integration of renewable energy in rural Africa. Qualitative and quantitative research methods and tools such as surveys, in-depth interviews, and field observation, were used. These were collected and feedback analyzed from rural stakeholders on how communication shaped their understanding, acceptance, and integration of renewable solar energy in their local area. The results showed that the attitudes rural stakeholders generally show towards renewable solar technologies depend on the communication approach used to engage them. The results also revealed a range of symbiotic factors that can change public perception and acceptance of solar energy. One of them is including rural voices in the process of developing and delivering communication. The research results demonstrate that public engagement in energy initiatives is a very important way of encouraging acceptance. The results recommend energy communication scholarship use inclusive methods to try to understand what makes rural stakeholders shift their attitudes and beliefs. Finally, it is argued that grassroots innovations and community-led renewable approaches are socially acceptable and inclusive and development projects and initiatives need to find better ways to offer rural stakeholders the ability to shape their own communications.

New research is examining how these approaches fare in at least five rural communities across Cameroon, Kenya, Uganda, and Malawi. Because this paper discusses renewable technology integration into local and rural communities, its recommendations can be adopted by local governments to strengthen their communications around energy transitions.

The research will bring insights into how to put science communications into practice. It examines how technologies that are developed using a scientific approach get domesticated and used in the fight against climate change. The two theories it is examining are critical for environmental and science communication. Insights and findings will help both science communicators and scientists working on energy transition to develop a better understanding of the African energy technology landscape.

ABSTRACT

Okoliko, Dominic Ayegba

When & where: Parallel session 1-B, Wednesday, 12 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: 4. Exploring inclusive climate change coverage from the journalists' perspectives: Evidence from South Africa, Nigeria and Kenya
 Format: Individual papers
 Author: **Dominic Ayegba Okoliko**, Stellenbosch University, South Africa
 Chair(s): Hans Peter Peters
 Co-author(s): Martin de Wit

This study explores the political dimension of mediated climate change communication (CCC) and the role of climate journalists in it. The increasing plurality of actors engaged in the mediated ways of sensemaking around climate change is well described in the literature, with varying emphasis on who gets heard the most and for what purpose. It is less clear how journalists facilitate the engagement between actors and bound by the norms and conditions of their practice, shape the nature of media coverage of climate change. This is truer for societies in Africa which are among the least studied contexts in the literature on climate change coverage by the media.

A semi-structured interview approach was used to gain insights from eleven journalists covering climate change in South Africa, Nigeria, and Kenya. Results from the thematic analysis of the interview records show that while inclusive climate change coverage is acknowledged as an ideal, its practice is affected by several interacting factors in Africa. The factors are clustered around the journalists' role orientation, norm application and work environment. For instance, the interaction between the disseminator role, objectivity and authority-order norms, and constraining resources orient coverage of climate change in the examined contexts towards the elites and away from other subjectivities and place-based knowledge. The paper contributes to the literature on social phenomena associated with media representation of climate change by discussing the implications of the findings from an African relational media framework.

ABSTRACT

Olesk, Arko

When & where: Parallel session 3-H, Wednesday, 12 April 15:15 – 16:30, *Ruys Room*
 Title: 6. The engagement blind spot: locations of quality in perceptions of science communication stakeholders
 Format: Individual papers
 Author: **Arko Olesk**, Tallinn University, Estonia
 Chair(s): Julia Cramer
 Co-author(s):

Science communication is a field that, both in theory and practices, acknowledges and cherishes a diversity within science communications activities, concerning not only the involved actors and used formats but also its general functions and objectives. At the same time, some approaches are considered more effective and impactful, whether based on empirical evidence or rooted in the perceptions of individuals. We sought to understand these perceptions by asking science communication stakeholders to provide “good” examples of science communication.

These perceived locations of quality can be interpreted as role models for these stakeholders, thereby influencing their own preferred activities. In addition, the results can be linked to discussions in literature about organization turn in science communication, relevance of engagement activities, the crisis of legacy media and prominence of social media.

As part of the Horizon 2020-funded project QUEST we organized six workshops in five European countries (Estonia, Ireland, Italy, Norway and UK), each involving representatives of various science communication stakeholder groups, 62 participants in total. We asked the participants, prior to attending the workshop, to submit to us some examples that they consider quality science communication, each accompanied by explanatory criteria. The respondents provided 99 examples.

The analysis of these examples show that legacy media is the dominant source, followed closely by online-only/social media sources (of which websites and YouTube are most often mentioned). In vast majority of cases (75%), the source was an organization, most frequently a media organization, followed by academic and public institutions. None of the mentioned examples was a public engagement exercise, indicating a blindspot. We will discuss the possible explanations for this absence.

ABSTRACT

Oltersdorf, Anna-Lena

When & where: Parallel session 6-F, Thursday 13 April 11:30 – 12:45, *Schadee Room*
 Title: 7. Listening to experts: Podcasting as a practice of science communication during the COVID-19 pandemic
 Format: Insight talks
 Author: **Anna-Lena Oltersdorf**, Universität Hamburg, Germany
 Chair(s): Laurens Landeweerd
 Co-author(s):

During the pandemic, podcasting was a popular practice of science communication. For example, media houses started podcast formats solely dedicated to the topic of COVID-19. Some of them are named after and presented by a virologist or epidemiologist who – in dialogue with a science journalist – updates listeners on current developments of the pandemic in detail. In other formats, e.g. daily news podcasts, journalists appear as COVID-19 experts who, based on their prior reporting, seem entitled to subjectively assess the current situation. These different types of COVID-19 podcasting are prime examples of closely linking knowledge on a certain topic to individual experts when communicating science. Accordingly, COVID-19 podcasting is a relevant case to study contemporary science communication – especially to empirically explore the construction of expertise. A guiding question is: How do different actors, such as journalists and scientists, construct expertise on COVID-19 through the practice of podcasting?

In my talk, I will present examples from German COVID-19 podcasting to show how journalists and scientists use this practice as a form of science communication and how they construct expertise in different ways. This input may initiate a discussion among participants, e.g. on the question of how they – as listeners, scholars and/or podcasters – have perceived the role of podcasting in COVID-19 science communication. Another question that might guide the discussion is: What is beneficial and what is problematic about closely connecting knowledge on COVID-19 to individual experts? Since these questions touch upon various fields such as the theory and practice of journalism, podcasting and science communication, the session highly values participants' contributions coming from diverse backgrounds.

ABSTRACT

Oltersdorf, Anna-Lena

When & where: Parallel session 8-H, Thursday 13 April 17:00 – 18:15, *Ruys Room*
 Title: 7. Knowledge transfer as a wicked problem: How can organisations create common ground between science and the media?
 Format: Insight talks
 Author: **Anna-Lena Oltersdorf**, Universität Hamburg, Germany
 Chair(s): Sook-kyoung Cho
 Co-author(s): Simone Rödder

Science communication is challenging because it is situated at the boundaries of different social worlds such as science, politics and the media, all of which follow their own logic and values. The COVID-19 pandemic highlights fundamental challenges of science communication as if in a burning glass. These include the trustworthiness, competence and reputation of experts, the disciplinary fragmentation of the knowledge base, and the handling of multiple voices, uncertain and provisional evidence. We thus conceptualise science communication as a wicked problem, which as such requires reflective attention, because communicative risks between science, politics and the media must be managed to overcome crises such as the recent pandemic.

Novel organisations such as the Science Media Center Germany or the Leopoldina, the National Academy of Sciences in Germany, have played a relevant role in this undertaking as they established science communication instruments to boost the collaboration between scientists and journalists. For example, they organise press briefings, publish reactions and collect expert statements – practices that individuals have hitherto performed. However, these organisations have received little academic attention so far. In our talk, we ask how they can create common ground between science and the media to enable science communication. Connected to this overarching question, the question we address is: How do science communication organisations influence the role and perception of experts?

Following our talk, we want to discuss these questions with interested participants. We hope to hear from participants coming from different backgrounds such as theory, the empirical exploration of science communication, or its everyday practice – and everyone meandering between these three fields.

ABSTRACT

Onstad, Courtney

When & where: Parallel session 3-H, Wednesday, 12 April 15:15 – 16:30, *Ruys Room*
 Title: 5. Evaluating Youth Engagement with (Geo)Science Communication Models: A Case Study with a Métis Community in Saskatchewan, Canada
 Format: Individual papers
 Author: **Courtney Onstad**, Simon Fraser University, Canada
 Chair(s): Julia Cramer
 Co-author(s): Eileen van der Flier-Keller

Geoscience underlies complex societal challenges like those in the UN's Sustainable Development Goals. Geo-literacy via geoscience communication engages diverse audiences to solve these issues. However, there is a lack of scholarly literature evaluating geoscience communication practice contextualized by the theoretical models and on particular target audiences. This case study helps fill this gap by utilizing science communication theory in an informal geoscience educational program to understand how youth from a Saskatchewan Indigenous community experience the models. Insights may inform how practitioners conceptualize, plan, and implement communication strategies. School-aged students were selected to participate since they are a typical target audience of geoscience communication practice, and they act as a conduit to the broader community. This research aimed to determine 1) how youth engage with geoscience activities and the factors influencing this engagement, 2) how youth unite Indigenous and western science perspectives, and 3) if perceptions, knowledge, and interest in geoscience are influenced by their participation. Ten activities completed during the workshop were coded by the science communication models: two participatory, five dialogue, and three deficit. A mixed-methods approach evaluated engagement through post-activity surveys and content analysis of recorded classroom dialogue and video footage. Preliminary results suggest that other factors (e.g., educational pedagogies) influence how youth engage with geoscience. Participatory activities had less engagement than dialogue activities suggesting students' values may not align with the participatory model, at least at this age and in the context of the workshop delivery. Analysis of the 'Uniting Perspectives' assignment (where Indigenous and western science perspectives were combined) suggests that students created the most meaning by framing it around a local, land-based feature of which they had pre-existing knowledge. Overall, this workshop saw increased knowledge, enjoyment, and interest in geoscience, with the dialogue model most effective at engaging this audience.

ABSTRACT

Oorsprong, Marjolein

When & where: Parallel session 3-B – 12 April, 15:15 – *Van der Mandele (mezzanine)*
 Title: Research infrastructures: connecting scientific facilities to society
 Format: Linked papers
 Author:
 Chair(s): Marjolein Oorsprong
 Co-author(s):

Research infrastructures provide services to the scientific community, but also others. Stakeholder engagement is one of the major activities of science communication professionals working at scientific facilities. Every stakeholder requires a unique approach. This session highlights a selection of projects for both scientists and non-expert audiences.

- Facility users/scientists: Community building models offer the possibility to choose whether the work of a scientific facility should be directed by a central board or by the community of users. Towards a community-led radio telescope - Elise Brouwer (ASTRON, The Netherlands)
- Internal staff: Changing the behaviour of scientific staff to be more sustainable requires careful usage of behavioural change models, especially when it has to be adopted at different locations across Europe. Changing sustainability behaviour across a distributed organization - Tabea Rauscher (EMBL, Germany)
- Local First Nations: Engagement with local communities starts way before a new research infrastructure is built and should be constantly monitored. Engagement to counter misinformation and framing - Anton Binneman (SARAO, South Africa)
- Non-expert publics: Ensuring a broad spectrum of visitors connect with content involves working with diverse role models and reaching out and engaging with communities who don't yet visit - Emma Sanders (CERN, Switzerland)

After the presentations, Marjolein Oorsprong will lead a discussion on the opportunities that stakeholder engagement holds for professionalising science communication, strengthening the link between scicomm research and practice: lessons learned and pitfalls.

ABSTRACT

Oviedo Luz Helena

When & where: Parallel session 2-C, Wednesday, 12 April 11:30 – 12:45, *Van Weelde Room*
 Title: 7. Towards inclusiveness: two museum strategies to foster a society of knowledge
 Format: Insight talks
 Author: **Luz Helena Oviedo**, Parque Explora, Colombia
 Chair(s): Liesbeth de Bakker
 Co-author(s): Juliana Restrepo, Veronica Barrera

Recently, the International Council of Museums (ICOM) added elements to the museum definition to highlight its social role to include concepts such as accessibility, inclusion, diversity, sustainability, communities' participation and knowledge sharing. The role of museums is more critical in Latin-American countries where their part as "knowledge brokers" (Meyer 2010) that catalyze relationships in society may improve people's contexts. Making science relevant to them. In order to move effectively towards more equitable practices in science and society, a first step is to get to know each other, shorten the distance.

Here we present two strategies led by Parque Explora, a science center in Medellin, Colombia, to foster interest towards science in vulnerable communities with limited access to local cultural offer through inspiring actions in an effort to "decentralize" the museum and at the same time reading the city (people, Educational Institutions, leadership, projects, interests) to create and strengthen relationships with the communities. Explora en los barrios (Explora in the neighborhood), is an strategy developed on the bases that the limits of the museum and its thematic and methodological universes must transcend its walls and increasingly welcome diverse audiences, including those who are unable to visit museum facilities. A second strategy, Puertas abiertas (Open doors), is a museum strategy to ensure the visit of all people. It is an intentional commitment to open the doors to the inhabitants of the city and surrounding municipalities, and reduce the distance between the museum and its public.

In 2022 these two programs will allow the visit of about 4,500 people that normally would not consider a visit to a science center among their priorities. We present the methods and results, describe main barriers perceived by diverse publics and suggest recommendations for similar programs that aim to become museums more diverse, open and inclusive.

ABSTRACT

Oviedo, Luz Helena

When & where: Parallel session 7-H, Thursday 13 April 15:15 – 16:30, *Ruys Room*
 Title: 7. The power of a relationship: museum community engagement
 Format: Insight talks
 Author: **Luz Helena Oviedo**, Parque Explora, Colombia
 Chair(s): Marlit Hayslett
 Co-author(s): Juliana Restrepo, Veronica Barrera

The union among science, art and technology and the process of creation, inquiry and experimentation are a trigger to foster skills that promote dialogue and opinion forming in society. Parque Explora, a science center in Colombia aims to renew the way in which the museum relates to the communities that host it, to create and strengthen links that make contexts a dynamic, participatory and open space to society. Explora's community engagement programs are based on the concept of social appropriation of knowledge, a gradual process in which not only scientists are involved, and which implies that multiple ways of understanding reality come into play to reach a common understanding.

Here we present two strategies aimed to foster leadership skills and scientific competencies in community leaders and high school students to identify and solve local problems through creation, inquiry and experimentation. The efforts of this line are divided into two major components: training and project development. In the first, there are inspiring talks, workshops and prototyping sessions. In the second, projects are designed and developed in accordance with the needs and interests of the participants. All this through collaborative work and experimentation.

In Ciencia a la mano (Science at hand) and Escuela de líderes (Leaders' school) we have a participation of about 70 students from nearby schools and 20 local social leaders, 15 projects, families and institutions involved. We share main lessons learned throughout 4 years of development.

ABSTRACT

Packer, Adam Michael

When & where: Parallel session 6-L, Thursday 13 April 11:30 – 12:45, *Mees Room*
 Title: Ecologies of 'Participation' in Smart Cities: The case of Oxfordshire, UK
 Format: Linked papers
 Author: **Adam Michael Packer**, University of Birmingham, United Kingdom
 Chair(s): Fern Elsdon-Baker
 Co-author(s):

Several scholarly assessments of smart cities argue increasing 'participation' is a central process in reconceptualising smartness as 'bottom-up' or 'citizen centric' in some way. 'Active' participation is widely considered an antidote to state and corporate power expressed through digital infrastructures and top-down initiatives. But what precisely constitutes participation? In this paper, I unpack the various meanings of participation held by local authority actors and wider stakeholders in Oxfordshire, UK. I show how participation is discursively framed in methodological terms as a measurable set of deliberative practices or engagement procedures. Despite using terms like 'co-creation' or 'empowerment' to signal horizontal politics, the smart projects I consider reinforce forms of verticality by selectively engaging citizens in key development stages or processes. The republican ideals expressed by smart stakeholders also assume the wider affordances of technologies like apps or sensor data for Oxford citizens. In practice, the participatory 'ecologies' I identify signal a far more nuanced account of the qualitative experiences of smart participation. The paper is thus critical of the largely procedural manner in which participation is currently understood and the politics this smooths over in the process.

ABSTRACT

Palfreyman, Harriet

When & where: Parallel session 3-A, Wednesday, 12 April 15:15 – 16:30, *Willem Burger Room*
 Title: 5. What place has history in science communication? Reflections from a lapsed historian
 Format: Individual papers
 Author: **Harriet Palfreyman**, University of Manchester, United Kingdom
 Chair(s): Emma Weitkamp
 Co-author(s):

History is a familiar feature in science communication often appearing thusly; once upon a time, we did not know what caused disease, what everything in the world was made up of, or where we came from. Then some clever scientists discovered germs and atoms and ape ancestors, and we are much better for it.

I admit, having been trained as a historian these tales make me cringe. They offer up science as an unquestionable engine of progress, and they flatten the complexities of the past into nothing but ignorance. As a lecturer in science communication, I find these narratives equally tedious because of how they ignore the complexities of our present. This paper explores this common ground between the historian and science communicator and the real potential of history in science communication.

When history is invoked in science communication it most often refers to the past. The history that I talk about here is not this somewhat nebulous 'beforetime', but the discipline of history, the study of the past. The discipline is vast, its theories and methods legion, but I would argue that at its most foundational it is a critical and analytical approach to telling stories about the past and how it has made us what we are. So, thinking of history as an approach to science communication fits well with recent calls to see science communication as a part of culture. This paper is offered as a reflection from a historian-turned-science communicator. I look at several examples (good and bad) of history being used in science journalism, engagement, and entertainment. And I explore the (mostly) shared disciplinary values of historical study and science communication to make a case for more sustained collaboration between historians and science communicators.

ABSTRACT

Pan, Yeheng

When & where: Parallel session 6-G, Thursday 13 April 11:30 – 12:45, *Van Beuningen Room*
 Title: 1. Economic ideology, nationalism, and climate change: Chinese public engagement with climate change
 Format: Individual papers
 Author: **Yeheng Pan**, School of Communication, Soochow University, China
 Chair(s): Alice Fleerackers
 Co-author(s): Hepeng Jia

This study investigates the social-cultural factors for climate engagement of the Chinese public. Existing literature seems to suggest that the majority of the Chinese public have a high awareness of climate change and understand that the issue was human-caused. And most of the Chinese public are willing to pay more for climate-friendly products and have realized the importance to adapt to a less carbon-intensive lifestyle. However, most of the existing survey studies fail to provide rigorous contextual factor analyses, without which, we cannot truly find ways to motivate Chinese public engagement with climate change and further effectively solve the problem.

This present study investigates Chinese public's awareness of climate change, their intention for climate action, and the influencing factors. By conducting a national survey with 1500 respondents, we found a series of variables that can predict climate perception and actions. The survey showed that Chinese people had a higher climate awareness, but just moderate willingness to act for climate. Among various predictors, the most notable one is that both economic leftism and rightism can positively predict climate awareness and actions, which may indicate that economy is the major consideration of the Chinese public regarding climate actions. Nationalism is another important positive predictor of climate action: People who rate higher on nationalism are more willing to act. However, scientific literacy can only predict, very slightly, the climate awareness of the Chinese respondents, but not their behavioral intention. These results carry implications for understanding as well as mobilizing Chinese public engagement with climate change. Chinese people's climate awareness and their willingness to act were because dealing with climate change has dominated the country's policy agenda. This can be confirmed by the positive association between people's familiarity with recent low carbon policies and their climate awareness and action intentions.

ABSTRACT

Panzer, Julia

When & where: Parallel session 10-C, Friday 14 April 11:30 – 12:45, *Van Weelde Room*
 Title: 2. What do we mean when talking about ‘formats’ and ‘target groups’ in science communication? Finding a common understanding
 Format: Insight talks
 Author: **Julia Panzer**, Wissenschaft im Dialog, Germany
 Chair(s): Brooke Smith
 Co-author(s): Ricarda Ziegler, Liliann Fischer, Nina Wicke, Philipp Schrögel

For science communication to be effective and successful, strategic planning is mandatory. Ideally, every science communication project should have a clear audience in mind in order to effectively reach and engage with them (“target group”) and a well-thought out format design fitting its purpose and target group. But how exactly can different target groups be described and science communication formats be distinguished? Based on a systematic literature analysis of scientific publications and publications from practice, the talk will demonstrate which typologies and categories are used in practice and what research has to offer.

The analysis shows that approaches from research especially tend to describe science communication formats by way of the conceptual or theoretical models and assumptions on the function of science communication or the role of its actors (e.g. deficit or dialogue model, lay expertise model). In more heuristic practical approaches, organisational aspects for implementing an activity such as duration/length, location, and overall design of the format are referred to as criteria to set them apart.

The situation is similar when it comes to defining target groups. Socio-demographics are often turned to for describing target groups in science communication practice and research. However, more complex science communication related characteristics that have been shown to be highly relevant in a variety of studies, are used much less often in practice. These would include among others pre-existing attitudes towards science and research as well as the target group’s relation to the scientific institution that is communicating.

This variety of approaches and lack of common understanding on how to distinguish and describe target groups and formats prevents meaningful planning of science communication activities as well as exchange and learning between projects. The insight talk will serve as a basis for stimulating discussions on a shared understanding.

ABSTRACT

Pavlou, Yvoni

When & where: Parallel session 4-G, Wednesday, 12 April 17:00 – 18:15, *Van Beuningen Room*
 Title: 2. Developing a community-based group to tackle socio-scientific issues: the potential of evaluation
 Format: Insight talks
 Author: **Yvoni Pavlou**, University of Cyprus, Cyprus
 Chair(s): Marieke Baan
 Co-author(s): Marios Papaevripidou, Marilena Savva

The sustainability of community-based groups that seek to deal with current socio-scientific issues with the involvement of a wide range of stakeholders can be challenging. The evaluation of the interplay among stakeholders in this type of initiatives is a demanding and complex process which nevertheless, can potentially lead to targeted suggestions on how to balance the needs, goals, and objectives of all parties.

To address this issue, the evaluation framework of a school-based methodology, which was implemented in the context of the “School as Living Labs (SALL)” project (Horizon2020; <https://www.schoolsaslivinglabs.eu/>), will be presented. SALL methodology supports schools in becoming agents of community change and well-being by creating new partnerships with other stakeholders to address local issues through co-creation processes. One of the evaluation tools was the Strengths-Weaknesses-Opportunities-Threats (SWOT) analysis which was adapted and utilized to identify: (i) the beliefs and expectations of participants (i.e., teachers, members of the administration staff and other stakeholders such as parents, companies and NGOs), (ii) the perceived impact of the SALL methodology and (iii) the perceived external factors that facilitated/hindered the collaboration and implementation of actions.

Amongst other findings, teachers and staff considered their prior experience with similar initiatives as a source of confidence and societal actors highlighted a number of benefits after their participation which they did not initially expect (e.g., ability to expand their network) while some expressed a lack of understanding of their role. The findings support the on-going improvement of the SALL methodology and the development of good practices for similar community-based initiatives. The audience will be engaged in a discussion on how the evaluation procedures employed in this study can be utilized in science communication research and practice, especially when enabling collaboration and co-creation of knowledge among various stakeholders.

ABSTRACT

Pavlou, Yvoni

When & where: Parallel session 7-E, Thursday 13 April 15:15 – 16:30, *Hudig Room*
 Title: The voice of young people in the co-creation of knowledge
 Format: Roundtable
 Author: **Yvoni Pavlou**, ReSciTeg, University of Cyprus, Cyprus
 Chair(s): **Paola Rodari, Greta Alliaj**
 Co-author(s): Omer Gaist, Mairéad Hurley, Chris Gary

Are we forgetting children and teens? Or, at any rate, are we really trying hard to listen to them and involve them in our projects? This session aims at focusing on the methodologies that enable young people's voices to be heard and to count in a connected, collaborative society. The expression open schooling (OS) covers various kinds of projects that involve teachers, children and teens, researchers, businesses and all kinds of organisations of civil society. Science communicators frequently act as promoters and facilitators of the dialogue and collaboration between the stakeholders. In well-developed OS projects, the goal of the collaboration is the co-creation of knowledge among a community partnership. Children and young people are active participants (and in some cases main actors) of the processes and they closely collaborate with adults, among them many researchers, to conduct active research and innovation in real-time and real-life contexts. Sharing their experiences, speakers will also point out weaknesses and strengths of the actual practices. This roundtable will stimulate the discussion on open questions such as: Can education institutions really contribute to innovation and research? Should research and education institutions be part of the same ecosystem? What are the methods more effective to include young voices, also outside the school environment, in participatory, co-creation projects? How can OS initiatives have a greater impact on research and innovation sectors? The speakers represent many diverse institutions, mainly European but not only. Proposers will work on the session, if accepted, well before the conference in order to reach and involve in it other OS projects from other geographical regions. The convenor will take care that speakers' introductions are short so as to give time to all participants to share their experience and thoughts.

Yvoni Pavlou is involved in a Horizon2020 project - Schools As Living Labs - that strives to transform classrooms into living labs, placing students at the heart of the learning process and giving them an active role. In this session, Yvoni will reflect on what happened in Cypriot schools, where teenage students with limited knowledge of the food system and food sustainability, went through a path of co-creation of knowledge, together with researchers, entrepreneurs and other stakeholders, to address food waste and healthy eating habits. Was the methodology successful in increasing students' awareness, self-government, and critical thinking? And did it bring something to researchers and other external partners?

Omer Gaist: 'Make it Open' project aims to develop a sustainable infrastructure of Open Schooling in Europe and Israel based on the approach, pedagogy, content, processes, and tools of the maker movement. The partners co-created 16 Learning Scenarios (available on the Open Schooling Navigator) with 8 pilot schools in the UK, Israel, Netherlands and Poland. These Learning Scenarios showcase how Open Schooling brings schools and communities together to work towards a common goal. Two case studies will be presented during the session. 10

national Open Schooling hubs were formed and they act as incubators to provide leadership and mentorship to schools and communities in developing research and innovation projects which address relevant local challenges, contribute to community development, and promote an active global citizenship attitude.'

Mairéad Hurley will introduce the approach of new Open Schooling project LEVERS (2023 - 2026), in which local learning ecosystems in 9 countries will tackle education for climate and environmental justice utilising approaches from systems thinking, design, and behavioural science. LEVERS focuses not only on learning within school settings, but also in non-formal spaces. It integrates science learning with creative approaches from a range of disciplines, involving young people within their communities in collaborative participatory projects to tackle locally relevant climate and social justice issues. The LEVERS project utilises critical pedagogy and aims to empower young people to embrace science learning as "an activist project".

Chris Gary: The PHERECLOS project (H2020, 2019-2022) was aiming at designing and implementing innovative models for cross-sectoral collaboration in education, which is based on the proven ability of Children's Universities to be agents of change towards the Third Mission of universities, with a clear focus on social inclusion and community engagement. Within PHERECLOS, this approach was transferred in order to support schools in making a change in their environments and becoming local knowledge hubs for their communities. Such "Local Education Clusters" were implemented in six model regions in Europa and beyond as a collaborative approach among several knowledge providers of formal and non-formal kind. The findings from the model implementation were distilled in tools which enable educators and stakeholders to prepare and advocate for more advanced setting of Open Schooling - and success criteria were defined which can help to understand how Open Schooling can be effective in the longer run.

ABSTRACT

Pellegrini, Giuseppe

When & where: Parallel session 10-L, Friday 14 April 11:30 – 12:45, *Mees Room*
 Title: The Italian landscape of public communication of research universities
 Format: Linked papers
 Author: **Giuseppe Pellegrini**, Observa Science in Society, Italy
 Chair(s): Manuel Valenca
 Co-author(s):

For some year now, we have witnessed mobilisation on the part of scientists and research institutes in Italian universities aimed at intervention in the public debate by means of initiatives relating to the dissemination of information, communication and public engagement. This paper will describe efforts of Italian research universities to address public audiences with a focus on the centralised activity. We use a robust dataset from the OPEN project, covering 90% of the universities in Italy, which participated in the study. It explores a few variables of the dataset associated with activities and audiences that are the main target of universities. A specific analysis of the different forms of public involvement with various activities will be proposed. In this way it will be possible to identify the main orientations of universities in developing a public communication of research. Discussion will address the degree to which these data provides an argument for putting increased attention on public relations of science communication rather than on science communication.

ABSTRACT

Pengqi, Gan

When & where: Session 1, Monday, 3 April 09:00-10:15, *Zoom*
 Title: Femininity as a medium: The grassroots communication practice and dilemma of female barefoot doctors
 Format: Online conference
 Author: **Gan Pengqi**, Peking University, China
 Chair(s): Michelle Riedlinger
 Co-author(s):

Overview: In this session, presenters will explore how important (potentially life-saving) information is communicated to different audiences and how practices are adapted and developed to account for differences in perspectives.

My research aims to explore the grassroots communication practice of female barefoot doctors in Chinese vernacular society and the dilemmas they face in socialist China.

Previous accounts have demonstrated that the barefoot doctor is a part-time rural grassroots medical practitioner. Compared to the specialized science and technology, barefoot doctors and the medical technology they represent belong to mass science, which breaks the monopoly of medical knowledge held by institutionalized doctors. They use vernacular resources and combine Chinese and Western medical knowledge to accomplish technological innovation.

Above all, my study starts from the gender dimension. By analyzing the images of barefoot doctors in the visual media in socialist China, I found an interesting phenomenon: Although the image of women in socialist China has often been perceived as a de-gendered "iron girl", this perception is different in the field of barefoot doctors. Although there are more male barefoot doctors in reality, most of the highly publicized are women, which shows the Communist to practice grassroots communication by promoting the femininity of female barefoot doctors

My research will demonstrate that female barefoot doctors have two ways to create common ground. On one hand, they popularize indigenous medical knowledge and alleviate the urban-rural medical gap, which is a prominent manifestation of the open, inclusive, and egalitarian technological politics in socialist China. On the other hand, from the perspective political grassroots mobilization, their own bodies were expropriated by the state and portrayed as traditional women who were gentle and in tune with nature, unlike the "iron girl" in industrial production, in order to maintain the vernacular order and propagate official ideology. However, there is an inherent tension between the state's regulation of female barefoot doctors and the dilemma they face in their daily vernacular practice, which leads to the crisis of subjectivity of them.

ABSTRACT

Permatasari, Dyah Ratna

When & where: Session 1, Tuesday, 4 April 09:00-10:15, Zoom
 Title: Young Citizen Conferences: Tools for developing youth science culture
 Format: Online conference
 Author: **Dyah Ratna Permatasari**, DoctoRabbit Science Inc., Indonesia
 Chair(s): Toss Gascoigne
 Co-author(s):

Overview: This session will cover lessons learned from conferences, exhibitions and trans-disciplinary strategies to improve science engagement.

The future of the world will be run by the next generation. We should continuously build their capacity and skills to enable them take over our job. The rapid development of technology nowadays needs to be mastered by our youngsters. Therefore, we need to develop their science culture as early as possible.

After joining the MILSET (Mouvement International pour le Loisir Scientifique Et Technique), our institution could manage a Young Citizen Conference under their supervision. We have done it twice in this couple of years on virtual mode. In 2021, the conference was participated by 195 students from 19 countries and had a theme of “Inventing the New World” with five sub-topics: Globalization, Science & Medicines, Environment, Digital Lifestyle, and Space. In 2022, the second conference was attended by 164 participants from 14 countries, with a theme of “Our Future in Space”. There were four sub-topics in 2022 conference: Space Tourism, Space Debris, New Materials, and Space Jobs of the Future.

The conference's goals are to create a space where youth can express their views on the topic; to engage youth in discussion and debate concerning their future; to enable youth to discover their personal responsibilities; to encourage youth to express their concerns about the topic through participation in an open global discussion; and to present the voice of youth. Therefore, at the end of the event, each sub-topic group should make statements regarding the problem and solution of issues happened in their sub-topics.

This conference's methodology includes concerns, discussion, and actions. For developing the concerns' part, we have invited some distinguished speakers to share their expertise and experience. In 2021, we invited 10 distinguished speakers to talk about their expertise that in line with the five sub-topics in the conference theme, such as Dr. Jenni Metcalf, the PCST President; Prof. Alfonso Serrano Heredia from Mexico; Dr. Bambang Susantono, VP of Asian Development Bank; and many other experts from Indonesia. On the second conference in 2022, we invited a representative from NASA, Mr Jorge Sotomayor, to make an inspiring talk to the youngsters on the opening ceremony. We also invited 5 other distinguished speakers for the plenary session, such as Prof. Eugenio Urrutia from UPAEP, Mexico, Dr. Premana Premadi from Bosscha Observatory, Dr Ardi Sutedja from Indonesian Cyber Security Forum, and Dr. Wahyudi Hasbi from National Research & Innovation Agency. The youth participants were actively making some interesting questions regarding their curiosities to those speakers. The plenary sessions were also

live broadcasted on the YouTube: <https://bit.ly/ycc21-plenary1>; <https://bit.ly/ycc21-plenary2>; and <https://bit.ly/ycc22-plenary>.

After the plenary sessions, all participants were doing group discussions at breakout rooms. They were accompanied by our facilitators in doing it to find solutions to problem faced in the sub-topics. They then prepared the group statements and chose representatives to present it on the closing ceremony. Their draft statements could be seen at <https://bit.ly/ycc22-statements> and <https://bit.ly/ycc21-statements>. The closing ceremonies were also live broadcasted on the YouTube and could be watched at <https://bit.ly/ycc21-closing> and <https://bit.ly/ycc22-closing>.

We found that this kind of program has a good impact for developing science culture to the youth. They already have curiosities that could be enhanced, even some of them had good knowledge on the subject discussed. Their group statements that were presented at the closing ceremony were very good in structure and content, although they only have very limited time to create it. We should continuously run this program in the future and give more opportunities for the young generation to speak science.

ABSTRACT

Peters, Nicola

When & where: Session 1, Wednesday, 5 April 10:45-12:00, *Zoom*
 Title: "You can do better than that!" – Climate and Covid-19 experts addressing politics on Twitter
 Format: Online conference
 Author: **Nicola Peters**, Technische Universität Braunschweig, Germany
 Chair(s): Jenni Metcalfe
 Co-author(s): Kaija Biermann, Monika Taddicken

Overview: In this session presenters will explore connections between science communication, politics and social themes.

Climate change and the Covid-19 pandemic are global challenges in which scientists play a crucial role, and immediate political actions are necessary. However, in contrast to climate change, strong governmental actions have been taken during the pandemic. While climate change has been on the public agenda for several decades, the pandemic is a rather new issue. In such cases, social media offer scientists the potential to disseminate scientific results to the public, and express calls to action and their personal views towards politics. Thus far, little is known about the extent to which scientists make use of this option. We investigated the similarities and differences between visible German climate experts and visible German Covid-19 experts regarding advocacy and assessments of policies and political actors on Twitter. We conducted a manual content analysis of tweets (N = 5915) from 2021 of the most visible climate experts (N = 5) and the most visible Covid-19 experts (N = 5). The results show that climate experts addressed politics more often than Covid-19 experts in their tweets. The selected climate experts more often expressed negative evaluations, the degradation of competence and blaming. The Covid-19 experts, however, made more political calls for action. We assume that an issue's history and context will affect scientists' public assessments of politics. With this study, we provide insight into the interrelations between science and politics in digital communication environments and elucidate visible scientists' communication behaviours towards different socio-scientific issues.

ABSTRACT

Peters, Roanne

When & where: Parallel session 2-C, Wednesday, 12 April 11:30 – 12:45, *Van Weelde Room*
 Title: 2. Learnings from a co-produced puppet theatre show in rural South Africa
 Format: Insight talks
 Author: **Roanne Peters**, AHRI Africa Health Research Institute, South Africa
 Chair(s): Liesbeth de Bakker
 Co-author(s): Hannah Keal

This insight talk will reflect on a public engagement project – a puppet theatre roadshow – currently being implemented in rural South Africa. The project began pre-Covid-19 and was developed out of five scientific studies conducted by Africa Health Research Institute (AHRI) – focussed on young people’s health. The outcomes of these studies were workshopped with school learners and scientists, and public health messages and messages about the purpose of research were developed into five hip hop songs – written and produced by the learners (the Hip Hop Health methodology has been previously presented at PCST). We took these songs as a departure point, and a theatre script was workshopped with researchers, public engagement officers, a theatre production company, and young ‘peer navigators’ from AHRI’s research area. The theatre production will ultimately be performed by peer navigators – all amateur actors – using puppetry and presented in a mix of isiZulu and English languages.

For this talk, I will reflect on the challenges and opportunities the Covid-19 remote work context presented for a co-produced, bi-lingual public engagement project such as this – especially in a rural setting with limited connectivity – and learnings for similar work going forward. I will also reflect on the agility and flexibility required to re-workshop and translate the script virtually, and issues around the acceptability of adapting the production to life-size puppets and a pre-recorded show – instead of a live performance - in our rural context. I will additionally investigate the effectiveness of using theatre to explore the concept of research to our audience. The production will run in November at local schools and community roadshows. It's my aim to include our evaluation results in this talk, which is presented with the hope of discussing and sharing lessons learned, challenges, and recommendations.

ABSTRACT

Peters, Hans Peter

When & where: Parallel session 4-E, Wednesday, 12 April 17:00 – 18:15, *Hudig Room*
 Title: 2. Medialization of science: Evidence from a reanalysis of German surveys of scientists and semi-structured interviews with university public information officers (1983–2014)
 Format: Individual papers
 Author: **Hans Peter Peters**, Free University of Berlin, Germany
 Chair(s): Michelle Riedlinger
 Co-author(s): Yin-Yueh Lo, Lars Guenther

Our paper aims at contributing to the debate about the influence of organizational communication of universities and other research institutions on PCST. On one hand, there is evidence that public visibility is an important goal of scientific organizations and leads to encouragement of scientists for public communication. On the other hand, there is concern that this encouragement is selective and that strategic organizational goals of positive visibility subtly undermine academic and democratic orientations in public communication. Peter Weingart has emphasized this concern again in an essay published in April 2022 in PUS, in which he revisited his thesis of increasing medialization of science.

In our paper, we present results of a retrospective reanalysis of six surveys of German scientists carried out between 1983 and 2014, and of 17 semi-structured interviews with university public information officers (PIOs) conducted in 1983 and 2006/10, using "medialization of science" as a theoretical lens. Analyzing data from the scientists' surveys, from a content analysis of claims of PIOs in the interviews, and from a semantic network analysis of the vocabulary used by PIOs to describe their work, we review three hypotheses: (1) media orientation of scientists increased over time, (2) university public communication offices increasingly catalyzed scientists' media relations, and (3) organizational public relations of universities increasingly became strategic with respect to organizational goals.

Since the surveys and interviews were guided by different conceptual frameworks, and the surveys used different samples and question formats, the comparison is not straightforward and has limitations. However, the data show that signs of medialization were recognizable already in 1983, but became more common later. We also find evidence for an organizational policy that – differentiated by disciplines – combines motivation of scientists for science communication with expectations and provisions to safeguard organizational interests.

ABSTRACT

Pfeijffer, Maud

When & where: Parallel session 5-H, Thursday 13 April 09:45 – 11:00, *Ruys Room*
 Title: 4. Who are these people? A study into communities on Twitter discussing COVID-19 conspiracy theories
 Format: Individual papers
 Author: **Maud Pfeijffer**, University of Twente, Netherlands
 Chair(s): Toss Gascoigne
 Co-author(s): Sikke Jansma, Shenja Van der Graaf, Maryam Amir Haeri

With the rise of the COVID-19 pandemic, COVID-19 conspiracy theories emerged as well. On Twitter, these theories spread widely, due to easy interaction with many people and lack of accurate content moderation. Contributing to conspiracy belief is social identification, which is reinforced by identity bubbles. Those facilitate echo chambers too. Previous research showed that social identification and echo chambers can spark attention to conspiracy theories within online communities, however little is known about these communities.

We applied a network analysis and a large-scale content analysis of 84.655 COVID-19 conspiracy tweets that were sent in the Netherlands between 3 January 2020 and 19 January 2021. A content analysis of the included tweets was executed based on a hashtag analysis. The network analysis used the fast greedy method, resulting in a modularity score of 0.63 indicating that coherent communities were found. Per community, the most prominent topics were identified as well as the most pivotal users.

Around 10 large communities on Twitter were identified and 7 of those were reviewed extensively. In general, a lot of tweets were connected to and discussed Viruswaarheid (a grassroots group against COVID-19 measures), COVID-19 vaccines, and political measures. The main topics differed per community. Some communities included more conspiracy believers than opposers as well as the other way around. However, in all of these communities, a mixture of COVID-19 conspiracy believers and opposers was present.

The results show communities form around a topic, indicating that echo chambers were not apparent in the communities. Still, social identification was very present. Moreover, COVID-19 conspiracy theories became part of the public debate. This study showed how social media, traditional news media and real-life events are entangled.

ABSTRACT

Phillips, Shanii

When & where: Parallel session 10-A, Friday 14 April 11:30 – 12:45, *Willem Burger Room*
 Title: 4. Getting the ball rolling on equity: Using a virtual 'Ball Run Challenge' to engage First Nations Australians living in remote communities
 Format: Individual papers
 Author: **Shanii Phillips**, Scitech, Australia
 Chair(s): Bruce Lewenstein
 Co-author(s): Caitlin McLeod

Connecting with underrepresented audiences, including First Nations peoples, is a key challenge for science communication. Promoting equity through access to STEM engagement is an important step in diversifying STEM industry and research communities, allowing everyone to make informed decisions about socio-scientific issues.

Since 2007, Scitech (Perth, WA) has delivered Aboriginal Education Programs in Remote Aboriginal Communities around Western Australia. When COVID-19 lockdowns halted travel within the state and prevented access to many Remote Communities, a creative solution had to be found. Using the YESTEM Equity Compass to reflect upon current practice and opportunities, a pilot program was developed. The idea: A Virtual Ball Run Challenge! Students from 35 Remote Aboriginal Communities around WA competed to create chain-reaction ball runs (aka Rube Goldberg machines) from everyday items and filmed their creations in action. Students were encouraged to showcase their local communities, Country and landmarks in their ball runs, and the videos were combined to create 'A Ball Run around the State'.

Key successes included opportunities for students to practice teamwork and problem solving, developing their ideas and creations beyond typical science activities in school, with many collaborating with their local community. To conclude the Challenge, students watched videos created by their peers, providing a unique opportunity to see each other as role models in a discipline often dominated by Western examples.

Scitech plans to deliver Virtual Challenges in the future, complementing the existing face-to-face Aboriginal Education Programs. By continuing to think outside the box (or the ball?), we can keep exploring opportunities to reach and learn from underrepresented audiences to promote equity in STEM participation and help communities feel connected to each other, no matter what corner of the globe they live in.

ABSTRACT

Piccolo, Chiara

When & where: Parallel session 4-L, Wednesday, 12 April 17:00 – 18:15, *Mees Room*
 Title: 5. Citizen Science: public involvement in research processes and public communication of science
 Format: Individual papers
 Author: **Chiara Piccolo**, Observa - Science in Society, Italy
 Chair(s): Anne Land
 Co-author(s): Giuseppe Pellegrini

Is it possible to develop public participation practices and effective communication processes in the field of innovation and research? To what extent can citizens be involved in the choices that researchers and policy makers make to achieve specific goals?

Deliberation is the opportunity for social actors to participate in consultative processes and discussions that can influence public decisions. The need for such involvement is due to the considerable influence that research has in the lives of citizens and the consequent possibility of opening up spaces for participation. These spaces allow the development of the so-called Citizen Science: a heterogeneous set of activities that have in common the aim of supporting and increasing the inclusion and involvement of people in civic choices of techno-scientific interest (e.g. climate change, health treatments, artificial intelligence, etc.).

This presentation illustrates some considerations about the topic of Citizen Science in the light of the results of the research carried out by Observa within the ISEED - Inclusive Science and European Democracies project. We studied the participatory and deliberative practices on scientific and technological issues through (a) a mapping work of tools and practices and (b) experts' interviews with a particular focus on communication processes.

The interviews (N=50) involved academics and practitioners in order to gather different perspectives and strengthen the link between theory and practice. Furthermore, interviewees come from all European countries to explore different ways of understanding and implementing Citizen Science. To take these elements into account, the interviews were analysed with a careful use of qualitative-quantitative content analysis oriented by Grounded Theory.

Thanks to this work, we can highlight some salient features of Citizen Science going beyond an exclusively conceptual description to grasp indications for operational purposes, considering the conditions that can make Citizen Science experiences and their communication processes more effective and inclusive.

ABSTRACT

Pilskog, Veronica Kvalen

When & where: Parallel session 11-A, Friday 14 April 14:15 – 15:30, *Willem Burger Room*
 Title: 5. Science communication on a controversial topic to hospital health professionals – Which channels are best suited?
 Format: Individual papers
 Author: **Veronica Kvalen Pilskog**, Volda University College, Norway
 Chair(s): Katrien Kolenberg
 Co-author(s):

Research in science communication has pointed to the need for tailored communication. However, such endeavors frequently meet practical difficulties, particularly regarding resources and time. Best practices in science communication appear to be highly context and format-dependent, and there is no single approach.

This paper focuses on a particular challenge: choosing channels to reach a diverse target group – hospital health professionals. Doctors and nurses have different expertise, limited time to acquire empirical knowledge and work in shifts. Thus, the question discussed is: What channels should be used to reach these groups with empirical knowledge from a research project?

The paper builds on a case study of the potential communication strategies of the research project MANREPORT-IPV of which the author is a part. The project is a cross-professional study examining service providers' mandatory reporting of intimate partner violence.

To answer the research question, 22 interviews have been conducted to map differences and similarities between doctors and nurses in terms of experiences and reflections on science communication and their knowledge and attitudes towards the duty to prevent intimate partner violence.

Preliminary results indicate that

1. Acquiring empirical knowledge for hospital health professionals occurs in formal and informal settings. Doctors spend a significant amount of time. Nurses often rely on doctors for the necessary expertise.
2. Time is a challenge. During working hours, it is limited time to, for example, reading scientific journals. Furthermore, in large hospitals, it is challenging to reach everyone. Informants highlight internal teaching as an important channel. When the presenter is well-prepared, there are often good discussions. Due to rotation and working tasks, not everyone can attend.
3. Both doctors and nurses emphasize the importance of discussing complex issues with colleagues.

ABSTRACT

Pitrelli, Nico

When & where: Parallel session 10-B, Friday 14 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: 7. Communicating knowledge for policy under conditions of uncertainty: towards a civic science education
 Format: Insight talks
 Author: **Nico Pitrelli**, Sissa - International School for Advanced Studies, Italy
 Chair(s): Erik van Sebille
 Co-author(s): Mariachiara Tallacchini

Climate emergency, loss of biodiversity, energetic crisis, pandemics, demographic changes. The great dilemmas of the contemporary world all have to do with scientific knowledge and technological development. Policy makers need expert knowledge to frame adequate public policies and yet, precisely in the most complex challenges of modernity, the available science is often ambiguous, incomplete, multidisciplinary.

Therefore, the real issues concern which forms democracy should take to hold together the urgency of decisions with the uncertainties of knowledge, and how we can remain open to different positions and public values. All of this is particularly relevant in the context of institutional communication. What is its role with respect to these issues? How should it proceed?

From our point of view, a relevant step consists in rethinking science policy towards what we called a ‘civic science education’. This proposal refers to a scientific and civic training involving institutions, scientists, and citizens, and aims at exploring different and plural science policy models evolved from “science speaking truth to power” to the “democratization of science”, building new institutional architectures for public science advice, and implementing scientific citizenship.

Within this perspective, science communication plays a central role in strengthening preparedness, namely the ability and trust among all the institutional, scientific, and public participants to respond quickly and in a coordinated manner to emergency situations. This implies, for instance, to make citizens familiar with probabilistic forecasts even for events characterized by low probability; to create and maintain a constant communication with citizens to increase their awareness of scientific knowledge and to establish a connection with the experts involved; to reduce misinformation and motivate public engagement.

In this presentation, we propose a reflection on the general principles that should inform science communication under conditions of scientific uncertainty that characterizes the current relationship between expertise and politics.

ABSTRACT

Poupardin, Elsa

When & where: Parallel session 11-H, Friday 14 April 14:15 – 15:30, *Ruys Room*
 Title: 1. Science bloggers on Hypotheses.org: communities and co-authorship
 Format: Individual papers
 Author: **Elsa Poupardin**, Université Paris Cité, France
 Chair(s): Anne Dijkstra
 Co-author(s): Camille Claverie

The diversity of science blogs that emerged in the 2000s, their success and longevity, has generated a great deal of research. Blogging platforms have been studied more from the perspective of communication between layperson and expert than from the perspective of interdisciplinary collaboration and community building. The belief that blogs are personal objects hide the fact that a lot of them are in fact written by more than one hand.

We will present here part of the work done on the platform “hypotheses.org”. Created in 2008, in France, today it hosts several thousand academic blogs in Europe covering all areas of the humanities and social sciences. Our corpus includes 389,089 posts written since the opening of the platform by 12,893 different authors on 3540 blogs.

We studied the evolution of authors' co-presence in blogs and mapped clusters in order to understand the practice of collaboration or cooperation over three different four-year periods. Indeed, these practices vary. In some periods authors participate in several blogs gathered around a field of study or an academic discipline. But multi-author blogs can also exist around questions of researcher practice (what methodology to adopt for the survey, or in their thesis) because the authors share a belief in the potential of new digital tools for research. In some cases they also gather around the hope that blogs and digital tools will allow a transformation of research institutions (evaluation in particular) and of the positioning of each researcher in relation to their work. Hence the importance of academic blogs on reflexivity, methodology or epistemology in the early days. The study of these networks allows us to see how, in order to reach a wider public, researchers make themselves and their 'values' visible to their peers, and can thus come together and cross disciplinary boundaries.

ABSTRACT

Purcell Andrew

When & where: Parallel session 3-G, Wednesday, 12 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 4. Science communication through public-private partnership at CERN
 Format: Visual papers
 Author: **Andrew Purcell**, CERN, France
 Chair(s): Melanie Smallman
 Co-author(s):

Science communicators working at universities and research laboratories are accustomed to working with stakeholders such as the media, “the public”, scientists, policymakers, students, educators, and members of the local community. However, businesses (very important actors in society) are often overlooked. Science communication aimed at engaging businesses—building common ground between the public and private sectors—is vital for knowledge transfer, public-private partnerships, and even simple customer-supplier relationships. This is particularly important at large research laboratories. Like science, the world of business has its own jargon(s) and set(s) of cultural norms. “Translating” between these and those of science can be particularly challenging, even compared to other highly specialised audiences (such as policy makers or local communities, where more effort—and research—is often targeted).

Since 2016, I have worked as the chief communications officer for a public-private partnership called “CERN openlab”. Based at CERN, this partnership works to accelerate innovation in the cutting-edge computing technologies needed at the laboratory. Leading tech companies work with CERN on joint R&D projects through this partnership.

In terms of science communication, working with these large companies poses both challenges and opportunities (many of which are different to those experienced when engaging with other stakeholders):

1. Businesses can amplify messages and help reach new audiences.
2. Beneficial in demonstrating impact to other stakeholders (particularly policymakers).
3. Goals (and ways of measuring impact) not always fully aligned.
4. Clashes of working cultures (particularly related to speed and timescales)
5. Identifying key partners and cultivating relationships based on trust within large companies is vital, but this can be made difficult by size of companies and turnover of staff.

Discussion of these points should help us to compare how science communication aimed at engaging business differs (if at all) from working with other stakeholders and to share best practice among other science communication professionals.

ABSTRACT

Purcell, Andrew

When & where: Parallel session 6-F, Thursday 13 April 11:30 – 12:45, *Schadee Room*
 Title: 4. Going global during a pandemic: moving collaborative events online
 Format: Insight talks
 Author: **Andrew Purcell**, The European Organization for Nuclear Research - CERN, France
 Chair(s): Laurens Landeweerd
 Co-author(s):

During the first two years of the ongoing Covid-19 pandemic, in-person events of all kinds were moved online. This talk focuses on collaborative science communication events and how the move online presented both challenges and opportunities. I will discuss the following points: what we can learn from this change; what benefits going online brings in terms of inclusivity; what challenges remain when moving in-person events online; and which positive aspects of online events can be maintained when moving back to in-person events.

These themes would be explored in the context of events organised by large international organisations, taking events I was involved in organising at CERN as examples:

1. CERN Webfest

This hackathon moved online and went global, increasing participation by 10x in 2020. Technology enthusiasts from 75 countries worked to create tools to aid scientific collaboration carried out at distance.

2. CERN IT lectures and summer-student programme

The CERN openlab Summer Student Programme moved online, with the students' lectures being shared with a global audience, technical projects being adapted to suit working at distance, and in-person visits becoming virtual ones. Some lectures given in late 2020 on quantum computing reached >100,000 people.

3. CERN Alumni "Second Collisions" event

CERN's second-ever CERN alumni reunion had to be held online. We ran the event in a digital recreation of parts of the CERN site. Over 1000 people signed up for the event from 80 countries and the Council for Advancement and Support of Education presented the organisers with its gold "Circle of Excellence" award.

The goal of this short talk would be to spur further sharing of best practice among attendees, helping to ensure that the positive aspects of online events (such as improved inclusivity, access for those who cannot afford travel, etc.) are not lost as we transition back to in-person events

ABSTRACT

Quinn, Elaine

When & where: Parallel session 10-H, Friday 14 April 11:30 – 12:45, *Ruys Room*
 Title: STEP through the looking glass; stories told of experimental processes
 Format: Discussion and storytelling
 Author: **Elaine Quinn**, University College Dublin, Ireland
 Chair(s):
 Co-author(s): Lorna Donlon, Helen Roche

This discussion is based on a project that evolved from an artistic residency by award-winning Irish artist, Lorna Donlon in UCD Conway Institute, a biomedical research institute in University College Dublin. Lorna brings a unique perspective to her work as an artist with a first-class honours degree in cell and molecular biology. She understands the scientific method and has direct experience of the scientific rigour involved in successfully designing and carrying out experiments and interpreting data.

We focused on addressing findings from a recent study (SFI Barometer 2020*) on public perception of scientists and specifically why the strength of positive sentiment towards scientists was not quite as extreme as positive sentiment towards science itself. Our goal was to reveal scientists as ordinary people by creating a sense of connection through personal and research objects. Researchers and patient advocates selected personal and scientific objects as unique and curious ways to spark a conversation with the artist. As storytelling devices, the objects created common ground to opening conversations about research.

An exhibition (physical and digital: <https://stepartexhibition.com>) provided a window for audiences in community and hospital settings to glimpse the trappings and workings of a scientist's world by seeing and hearing explanations of objects, the research that inspired them and the person behind the research. A public engagement event was held in person at each exhibition location, with some of the researchers, patient advocates and the artist bringing the exhibition to life and engaging diverse audiences (general public, healthcare staff, community volunteers, hospital schoolteachers and pupil patients) in research stories with the help of the selected objects.

Finding common ground demands letting go of egos and status and showing empathy. Revealing the meaning behind ordinary but deeply personal objects created a sense of openness and vulnerability. This enabled researchers to meaningfully connect with audiences; creating a strong, tangible sense of common ground with them as people, the effect of which was palpable from both sides. Feedback from the public engagement events suggests that visitors are impacted by the content, being surprised by how 'normal' the scientists are, and how inspired the public are by their research.

At this session we will engage delegates with the stories behind a selection of curious objects and open a discussion between them, the artist (Lorna Donlon), a researcher (Prof. Helen Roche) and science communicator (Elaine Quinn) on pitfalls and successes that emerged in the

co-creation of this visual narrative of scientific research.

Lorna will discuss her approach to opening conversations with researchers, and how she translated this into art. Helen will share her perspective as an academic researcher of the experience, and how this project impacted her view and understanding of the role art plays in science communication. Elaine will discuss implementing an art/science project from co-creation to engaging new audiences.

This session will highlight the value of art in STEM and may not only inspire scientists and science communicators to collaborate with artists to influence dialogue and opinion forming in research, but also provide a helpful blueprint for similar collaborations.

* SFI-Science-in-Ireland-Barometer-2020-Research-Report.pdf Chpt 2.1 | Attitudes Towards Science

ABSTRACT

Rademan, Lili

When & where: Parallel session 1-B, Wednesday, 12 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: 2. Cancer in the news: An investigation into pseudoscience in cancer reporting in South Africa
 Format: Individual papers
 Author: **Lili Rademan**, Stellenbosch University, South Africa
 Chair(s): Hans Peter Peters
 Co-author(s):

Cancer is a dreaded disease and the second leading cause of death globally. Low income countries account for 57% of all new cancer cases partly due to lack of awareness and preventive strategies. Cancer affects one in four South Africans, through diagnosis of family, friends, colleagues or self.

People rely on the mass media for information about cancer and increasingly prefer online media when they look for information. People make decisions regarding their own health (and the health of their families) based on information they find online, and therefore pseudoscience and misinformation about cancer can be harmful and even life-threatening.

It is therefore important to explore the credibility of online media reports on cancer by investigating the presence of pseudoscientific information. My research study will employ a mixed-methods approach, combining a qualitative and quantitative research design. Firstly, the study will comprise content analysis of the 10 most popular South African online news media sites, as identified by Narratiive, to explore the presence of pseudoscientific cancer-related messages. Based on these findings, a web-based survey will be done with South African cancer researchers about cancer reporting.

Although the journalistic media should not be guilty of pseudoscientific reporting it is quite likely that pseudoscience is still present. Therefore, it is important to assess the prevalence of pseudoscience to bring awareness to the topic and to make recommendations on how to combat it. And although we cannot stop pseudoscientific claims from being made. The input of journalistic media and cancer researchers can shed light on the topic and bring awareness to their potential for making South Africans understand evidence-based science or to distinguish it from pseudoscience.

ABSTRACT

Ramalho e Silva, Marina

When & where: Parallel session 11-A, Friday 14 April 14:15 – 15:30, *Willem Burger Room*
 Title: 1. “Covid-19 care Kit”: a social controversy discussed by the public with scientific arguments used both to assert and to deny a health treatment
 Format: Individual papers
 Author: **Marina Ramalho e Silva**, Museu of Life / Oswaldo Cruz Foundation, Brazil
 Chair(s): Katrien Kolenberg
 Co-author(s): Aline Autran

From April to October 2021, Brazilians followed the meetings of a Parliamentary Commission of Inquiry (PCI) that investigated irregularities in the Brazilian Federal Government’s actions during the Covid-19 pandemic. About 60 people were heard, among politicians, members of the Government, businessmen, doctors, scientists, and others. One of the topics discussed at length was the adoption of the “Covid Kit”, also referred to as “early treatment”, a combination of drugs with no proven effectiveness against Covid-19. The adoption of such treatment was widely encouraged by the Brazilian President. During the PCI meetings, four women deponents, in particular, focused on this topic: two physicians – Mayra Pinheiro and Nise Yamaguchi – who publicly took a stand IN FAVOR of adopting the kit; and an epidemiologist and a microbiologist – Luana Araújo and Natalia Pasternak –, who were vehemently OPPOSED to the adoption of early treatment. Their testimonies were broadcast live by the public Senate TV.

This research aims to analyze the comments (516) made by internet users on the videos of the four deponents, published on Senate TV’s official YouTube channel. We used a qualitative approach and principles of Grounded Theory to verify the major topics that emerged from the discussions in this forum.

Preliminary results identified two major umbrella themes: legitimation and delegitimation of interlocutors. Each one was crossed by moral and scientific arguments. Gender and political position were used to support arguments in these two subcategories.

Such videos, and their respective comments, are of special interest for science communication as they articulate different social actors (politicians, press, doctors, scientists, and society), expressing their values and attempts to interfere in the formation of public opinion around a scientific theme: Covid-19 treatment. The comments analysis can also shed light on the public debate around scientific authority in this health crisis context.

ABSTRACT

Raman, Sujatha

When & where: Parallel session 8-C, Thursday 13 April 17:00 – 18:15, *Van Weelde Room*
 Title: Science communication for the common good
 Format: Roundtable
 Author:
 Chair(s): **Sujatha Raman**
 Co-author(s): Anne Dijkstra, Mohamed Elsonbaty Ramadan, Fabien Medvecky

A landmark global history of science communication from 2020 shows that our field emerged from myriad motivations and science-society linkages. Science communication today encompasses efforts to enhance public accountability, as well as public understanding, of science. Our work spans diverse domains including science activism, responsible innovation, transdisciplinary responses to planetary crises, art/science collaborations, etc. In this context, recent calls for science communication to contribute to transformative ways of responding to planetary crises represent an opportunity and a challenge. The International Science Council has called for new forms of science for the common good to trigger deep transformations needed for Global Goals, arguing that science must link with aspirations for social justice and new economic thinking. Science communication is expected to play a key role.

This roundtable aims to explore if and how a focus on the common good might stimulate productive conversations to connect diverse ways of conceptualising and doing science communication in response to such concerns about planetary futures. The concept of common good tends to be voiced through Western languages of ‘public good’, but the idea has a long history across different cultures signifying a concern with how humans are bound together and with nature. Equally, appeals to the common good spark fears that vital differences in perspective will be suppressed.

Panellists will provide 5-minute reflections to prompt a facilitated conversation with each other and with the audience on the following questions. How can we conceive of the common good and connect different perspectives on science communication to it? How can science communication help link science with social and economic matters? What are the dangers in invoking ‘the’ common good and how might we work through them?

Sujatha Raman will draw on the program of work she is leading on Science Communication and the Public Good under the auspices of a UNESCO Chair at the Australian National University. She will briefly introduce the topic and co-facilitate discussion amongst the panellists and with the audience. Working with Anne Dijkstra, she will record insights from the roundtable conversation in a way that will allow creation of a shared artefact for future collaboration on further developing the proposed topic to make a distinct and useful contribution to science communication. The session will help develop our field's contribution to the UN 2030 Agenda. Anne Dijkstra will draw on her extensive experience with science communication research in the context of public participation around multiple emerging technology areas, contributing questions to help connect public engagement around emerging technologies in particular settings with broad global goals.

Mohamed Elsonbaty Ramadan's contribution to the roundtable will draw on his extensive

experience as a freelance science journalist, science communication consultant and trainer in Egypt, as well as his significant contributions to broader institutional work in capacity-building for science communication in the global South. This work is reflected most notably in his role as co-founder of the Arab Forum of Science Media and Communication. His expertise will be critical for achieving the aims of the roundtable to bring together diverse perspectives and experiences in science communication work in order to reflect on what we can learn about the creation of common good through everyday practice and institution-building. He will reflect on lessons from connecting matters to do with science with social and economic development aspirations in Egypt for how we imagine the contribution of science communication to the achievement of the UN Sustainable Development Goals.

ABSTRACT

Raman, Sujatha

When & where: Parallel session 1-C – 12 April, 09:45 – *Van Weelde Room*
 Title: Dialogue, technology and societal change
 Format: Linked papers
 Author:
 Chair(s): Sujatha Raman
 Co-author(s):

Within research operating at the science-society-policy nexus, dialogue has become an important term denoting the meaningful inclusion of relevant populations in science co-creation and democratic decision-making processes. Technology plays a complex but important role in such dialogues. New communication technologies provide a platform for communication, shaping the environment in which meaningful inclusion is pursued and performed. In addition, new technologies shape the world in which we live in multiple ways. As a consequence, they have become important as they can bring people together and enhance meaningful interaction, but also divide people and foster (affective) polarization. Understanding how technology affects dialogue, and dialogue affects technology, is necessary to ensure that its development and use are socially beneficial.

Our session will explore how technological change interacts with efforts to enhance meaningful dialogue for a vibrant and just society. In this session, we look at the role of technology in sustainable behaviour campaigns, challenges to the inclusion of citizen demand in the development of research agendas, challenges to collaboration in responsible innovation for synthetic cells, and frictions associated with the co-design of autonomous robotics for agriculture.

ABSTRACT

Raman, Sujatha

When & where: Parallel session 5-C, Thursday 13 April 09:45 – 11:00, *Van Weelde Room*
 Title: Science, trust and the public good
 Format: Linked papers
 Author: **Sujatha Raman**, Australian National University, Australia
 Chair(s): Katharine Legun
 Co-author(s):

Within research operating at the science-society-policy nexus, dialogue has become an important term denoting the meaningful inclusion of relevant populations in science co-creation and democratic decision-making processes. Technology plays a complex but important role in such dialogues. New communication technologies provide a platform for communication, shaping the environment in which meaningful inclusion is pursued and performed. In addition, new technologies shape the world in which we live in multiple ways. As a consequence, they have become important as they can bring people together and enhance meaningful interaction, but also divide people and foster (affective) polarization. Understanding how technology affects dialogue, and dialogue affects technology, is necessary to ensure that its development and use are socially beneficial. Our session will explore how technological change interacts with efforts to enhance meaningful dialogue for a vibrant and just society. In this session, we look at the role of technology in sustainable behaviour campaigns, challenges to the inclusion of citizen demand in the development of research agendas, challenges to collaboration in responsible innovation for synthetic cells, and frictions associated with the co-design of autonomous robotics for agriculture.

ABSTRACT

Raman, Sujatha

When & where: Parallel session 5-C, Thursday 13 April 09:45 – 11:00, *Van Weelde Room*
 Title: Democratizing Biotechnology: Constructing Common Ground in Community Science Labs
 Format: Linked papers
 Author: **Sujatha Raman**, Australian National University, Australia
 Chair(s): Katharine Legun
 Co-author(s):

In the last fifteen years or so, biotechnology tools and resources (e.g. lab equipment, DNA sequencing) have become more easily accessible and progressively cheaper than ever before. This has allowed experiments with biotechnology to occur in spaces, most prominently community science labs, which operate outside of mainstream scientific labs in academia and industry. Communities in these alternative labs often espouse values and aspirations defined in contrast to norms, cultures and incentives established by mainstream science, allowing broader publics to define how to engage with biotechnology for public benefit and the ‘public good’. As such, these are spaces where biotechnology may be ‘democratized’ in an open and distributed way. In the last few years, a global movement has emerged, aspiring to ‘build an inclusive global network’, ‘cultivate an accessible commons of knowledge and resources’ and, ultimately, to ‘fundamentally transform life sciences’.

This paper analyzes efforts to democratize biotechnology by drawing on ethnographic research undertaken in two prominent community science labs (Counter Culture Labs and BioCurious), located on opposite ends of the San Francisco Bay Area. Within these labs, it examines and compares each lab’s efforts to build inclusive and open communities promoting engagement with science and biotechnology, and highlights the ways in which the movement’s visions are being enacted in multiple, sometimes contradictory ways. Beyond these labs, it will examine their efforts to be transparent about their activities in the hopes of assuaging concerns about risks and earning broad societal trust. Overall, this paper highlights the diversity of this nascent global movement even within the same geographical region, and argues for the importance of appreciating the geographical processes and dynamics which shape imaginaries and efforts to ‘democratize’ science and biotechnology.

ABSTRACT

Ramani, Donato

When & where: Parallel session 2-C, Wednesday, 12 April 11:30 – 12:45, *Van Weelde Room*
 Title: 9. Talking about myself: when the scientist meets the artist
 Format: Insight talks
 Author: **Donato Ramani**, SISSA International School for Advanced Studies, Italy
 Chair(s): Liesbeth de Bakker
 Co-author(s): Chiara Saviane

How often do scientists reflect on their work, their career, their successes, and failures? Do they ever have the chance to talk about themselves and their life, and what it means to be a scientist? Yet, the “human factor” is an essential element of the scientific enterprise, useful for communicating science with a less rhetorical, and more authentic perspective. This approach could also have great value in institutional communication, allowing to overcome a celebratory and uncritical approach too often used by organizations.

Accustomed to look at reality from a different point of view, artists may be effective mediators of this process. Several experiences have already proven it. Taking a cue from some of the initiatives carried out at our institution, SISSA-Scuola Internazionale Superiore di Studi Avanzati, located in Trieste, Italy, in this session we would like to explore a possible fruitful, and more intimate, dialogue between different cultures and professionals aimed at communicating science from a new perspective.

it will be also the occasion to discuss the possible role of communications offices as "Cultural agencies" which are able to connect different professionals and cultures avoiding and going beyond a mere PR approach. Moreover, we will explore the strong and weak point of these experiences, where scientists actively collaborated with artists. In fact, these activities, which have been carried out with different artists (dancers, actors, narrators), are not free from difficulties. Often happy to tell their story to a new interlocutor and contribute to the creation process, scientists seem much less inclined to take part in the public events, thus expressing a remarkable need for openness and narration but also a peculiar detachment from the ultimate goal of the communication initiative in which they took part.

ABSTRACT

Rauscher, Tabea

When & where: Parallel session 3-B, Wednesday, 12 April 15:15 – 16:30, *Van der Mandele (mezzanine)*
 Title: Changing sustainability behaviour across a distributed organization
 Format: Linked papers
 Author: **Tabea Rauscher**, European Molecular Biology Laboratory, Germany
 Chair(s): Marjolein Oorsprong
 Co-author(s):

In 2021 the European Molecular Biology Laboratory (EMBL) published its first Sustainability Strategy, acknowledging our responsibility to help address the urgent challenges facing humanity and the planet. We recognise we must ensure our research is relevant to the current environmental challenges, contributes to new understanding of the natural world in changing environments, and helps us to understand life in context. Second, as an organisation, we must ensure our operations are environmentally responsible and that we embed processes to continually reduce our own impact. Third, our unique position as Europe's life sciences research institute provides an opportunity to exemplify and promote sustainable science.

With 27 member states, EMBL has more than 110 independent research groups and service teams covering the spectrum of molecular biology at six sites across Europe. Hence, a holistic approach to drive multi-channel and targeted campaigns is an essential tool to promote sustainable science across a distributed organisation.

This presentation will identify how we developed the strategy and communicated it internally and externally, and are using it as encouragement for wider engagement with sustainability issues across the Research Infrastructure sector.

ABSTRACT

Reardon, Louise

When & where: Parallel session 6-L, Thursday 13 April 11:30 – 12:45, *Mees Room*
 Title: Exploring Governance and Policy Instruments for Steering Future Flight
 Format: Linked papers
 Author: **Louise Reardon**, University of Birmingham, United Kingdom
 Chair(s): Fern Elsdon-Baker
 Co-author(s):

Transport is a sector at the centre of a raft of new technological developments such as autonomous vehicles, platform services, and air taxis. Proponents claim these technologies can have considerable co-benefits if implemented successfully – helping to address a range of persistent policy problems such as traffic congestion, accessibility, and carbon emissions, whilst also supporting economic growth and wider innovation. While these innovations are often supported, promoted and invested in nationally, it is at local level where these technological innovations are being piloted and demonstrated in support of their scale up and roll-out and in turn where the “governance” of innovation is happening most explicitly.

This paper will discuss the ways in which future flight technologies/innovations such as air taxis and autonomous drones are being governed at the local level, drawing on literature which conceptualises future flight demonstrations and pilots as a form of “policy instrument”, of use by and for both local and national policy actors. The paper will explore how local authority actors, national-level policymakers, and wider stakeholders are conceptualising future flight technologies and their role in the wider policy landscape. It will also outline what role these actors see the pilots and demonstrators playing in helping to address policy challenges, and their motivations for participating in them. Importantly it will begin to identify any tensions or disconnects between publics, and the potential implications of this for development of these technologies.

ABSTRACT

Reif, Anne

When & where: Parallel session 9-F, Friday 14 April 09:45 – 11:00, *Schadee Room*
 Title: 2. Trust in science among digitized publics in Germany and South Africa: A comparative study
 Format: Individual papers
 Author: **Anne Reif**, TU Braunschweig, Germany
 Chair(s): Ana Claudia Nepote
 Co-author(s): Justin Schröder, Lars Guenther, Monika Taddicken

Nowadays, large parts of the public primarily obtain information about science online – including journalistic online media but also social media. Online and especially social media provide content that is heterogeneous in terms of actors, publics, and topics, with potential consequences for the formation of diverse “digitized” publics and for public trust in science. Against this backdrop, the aim of this paper is to identify different groups within online users according to their trust in science that provide the basis for an in-depth analysis of differences regarding the use of (online) science communication. We compare samples from South Africa and Germany as they differ considerably regarding demographics, exposure to science, the use of online/social media, and conspiracy beliefs.

We conducted an online survey among South African (n=1,624) and German (n=4,824) online users, to identify different groups based on multidimensional measures of trust in science (k-means cluster analyses). The groups vary in their trust assessments and in their frequency of using diverse types of science communication (direct, mediated by social agents, journalistic (online) media, and social media). Despite similarities with the five South African “digitized” publics identified (trusting insiders, trusting friends, trusting optimists, undecided, and suspicious disengaged), there are considerable differences in trust assessments for some groups in Germany. Furthermore, the frequencies of the groups differ significantly. Most notably, we found more trusting insiders in the South African sample and fewer people who are undecided about their trust in science compared to the German sample. The frequency of using different types of (online) science communication varies strongly between the countries. These findings can help science communication practitioners to appropriately reach and address different audiences.

ABSTRACT

Reijnierse, Gudrun

When & where: Parallel session 10-C, Friday 14 April 11:30 – 12:45, *Van Weelde Room*
 Title: 6. Can metaphors create common ground? On the promises and pitfalls of metaphor in science communication
 Format: Insight talks
 Author: **Gudrun Reijnierse**, Vrije Universiteit Amsterdam, Netherlands
 Chair(s): Brooke Smith
 Co-author(s):

Metaphors abound in public communication about science-related topics. Politicians talk about the COVID-19 pandemic as a marathon, science journalists described the first picture of a black hole in terms of a fluffy doughnut, and teachers explain global warming by referring to a greenhouse. Because metaphors allow us to describe concepts in terms of more familiar things, they are considered a powerful tool for effective science communication.

It remains an open question, however, whether metaphors are equally effective for different target audiences. For instance, research has shown that school children who learn about phenomena such as global warming, may have too little knowledge about the topic to correctly understand the scope (i.e., possibilities and limits) of the greenhouse metaphor. Furthermore, Dutch guidelines for communication aimed towards people with lower literacy levels even advise against the use of metaphor, because people may experience difficulties in interpreting metaphorical uses of words. Instead of making communication more comprehensible, metaphors may thus also hinder effective communication and even be a source for misinformation.

To date, little research has been conducted on this potentially paradoxical role of metaphor in science communication – especially with respect to their use for people with varying levels of expertise or literacy. This is remarkable, given current scientific and societal debates about comprehensible language for all.

In this insight talk, I will introduce an interdisciplinary research agenda that addresses pressing questions about the promises and pitfalls of metaphor use in communication with different audiences. Given the fundamental and applied nature of this research agenda, I would also like to use this opportunity to seek collaboration with both science-communication researchers and practitioners to explore when and how metaphors may create common ground in science communication.

ABSTRACT

Reincke, Cathelijne

When & where: Parallel session 4-F, Wednesday, 12 April 17:00 – 18:15, *Schadee Room*
 Title: 2. Learning how to listen: a key aspect in training future scientists for meaningful dialogue with society
 Format: Individual papers
 Author: **Cathelijne Reincke**, UMC Utrecht, Netherlands
 Chair(s): Pedro Russo
 Co-author(s): Marc van Mil, Annelien Bredenoord, Annelies Pieterman-Bos

Scientists practicing science communication need more than a competence to transform complex science into simple language. In order to engage in inclusive and meaningful dialogue with society, scientists require a wide range of skills, including listening and showing respect. However, contemporary science communication training still focusses mainly on skills related to transmitting a message. Consequently, scientists are still inclined to take on an informing role, instead of reaching out to promote dialogue. Although adapting training seems to offer at least part of the solution, questions remain as to which specific skills would be (most) relevant and what educational strategy (most) effective. We contend that a focus on skills related to listening and learning contains high potential to achieve significant, positive change in scientists' behavior.

In this contribution, I present our insights into training future scientists for meaningful dialogue with society. At Utrecht University, we run a 10-week elective course on science communication for third-year undergraduate biomedical students. During this course, students design a dialogue activity relating to socio-ethical issues concerned with advancing biomedical science, which they deploy with high school students in multiple biology and sociology lessons. By means of experiential learning supported with peer observation and -feedback, students work on various communicative and didactic skills. Specific attention is paid to their listening skills. To guide development in listening competence, we introduced an existing observation scale - the 14-item Active Listening Observation Scale (ALOS) - in a slightly modified version to fit our training context. We examined if and how the ALOS plays a supportive role in training active listening, using semi-structured interviews conducted with students who had worked intensively with the ALOS as an observation instrument (N=10). Overall, results suggest that the ALOS is indeed a useful tool to support training active listening. Through reflexive thematic analysis of the combined interviews we characterize three ways in which the ALOS can play a beneficial role in the learning process. Firstly, students reported working with the ALOS increased their knowledge and insight of active listening, e.g. with regards to skill composition and skill function. Secondly, observing with the ALOS helped them to identify areas for development within active listening. Thirdly, concrete examples included in the ALOS enhanced observation and feedback. Moreover, students reported a positive development in active listening skills throughout the course. They considered active listening a relevant skill in the training context, making them feel (more) proficient in, amongst other things, transcending a mere informing role and deepening conversations. Reported areas of concern for using the ALOS included the size of the instrument (to ensure good quality feedback only two or three

items can be observed simultaneously) and the necessity to follow up on a completed ALOS with feedback dialogue. Based on our findings we tentatively conclude that training listening skills can offer a good starting point for helping scientists to grow into new behavior that is consistent with dialogue oriented science communication. Training programs in which participants have the opportunity to practice listening in action could well consider making use of the ALOS to enhance learning.

ABSTRACT

Revuelta, Gema

When & where: Parallel session 7-L, Thursday 13 April 15:15 – 16:30, *Mees Room*
 Title: Communicating science to young people. Can we do better?
 Format: Roundtable
 Author: **Gema Revuelta**, Studies Center on Science, Communication and Society – Universitat Pompeu Fabra, Spain
 Chair(s): **Carolina Llorente**
 Co-author(s): Julia Lorke, Christian Humm, Hannah R. Feldman

Reaching teenagers and young adults is one of the great challenges of current science communication. It is a group that has traditionally been difficult to engage. For example, in science museums, engagement with children, families and adults is very well achieved, but the youth are under-reached.

Something similar happens with the media. It is a channel that works well to reach the adult audience, but younger people do not have the habit of consuming information in that way so it is more difficult to reach them massively. During the COVID-19 pandemic, this need has become even more evident since mitigating measures, vaccination, etc. had to be specifically communicated to this group. And we can also find the same problem in other entities such as the administration, research centers or universities where many times there is no specific communication of scientific knowledge for young people.

This situation has led science communication professionals to reflect on communication with young people. What lessons have we learned from the COVID-19 pandemic? What strategies are being followed? Which ones have been shown to be the most effective? What recommendations can we extract to communicate science to young people? In short, in this space we want to share ideas, suggestions, proposals, concerns and reflections to improve science communication towards this group. Gema Revuelta: the COVID-19 pandemic has abruptly broken into societies, with health, psychological, economic, political and communicative implications. In this context, more than ever, science communication has played a key role in many countries. This situation has led science communication professionals to reflect on communication with young people. What lessons have we learned from the COVID-19 pandemic? What strategies are being followed? Which ones have been shown to be the most effective? What recommendations can we extract to communicate science to young people?

Gema Revuelta will share recommendations from the youth, gathered through a participatory process, to improve communication on health and science.

Julia Lorke will discuss youth-focused citizen science and how it is rapidly expanding; in this roundtable discussion we are going to talk about it as a way to open up science to the young group. We are also going to reflect on the need of shifting our focus from motivation, interest and knowledge to ownership, identity and agency. And, finally we will discuss the better way to design features that foster or hinder youth participation.

Christian Humm: in a world decisively influenced by scientific developments, science communication grows ever more important to enable informed decision-making and participation of citizens in society and political discourse. However, science communication, be

it public talks, or participatory projects often reaches only certain parts of society. Christian Humm will present and discuss the different strategies we can use for tackling these exclusion factors.

Hannah R. Feldman: political expression, the environment, and the way we communicate about these two topics is changing dramatically with the warming planet, particularly among teenage citizens. No event in history captures this better than the global School Strike for Climate, a protest movement for environmental action that has seen millions of school-aged youth mobilizing across events in over 150 countries since 2018.

Hannah Feldman will reflect on the concept of young people as science communicators themselves and the factors that influence youth participation, and the concept of youth as part of a broader societal system which includes the use of technology and networks.

ABSTRACT

Reynoso-Haynes, Elaine

When & where: Parallel session 2-F, Wednesday, 12 April 11:30 – 12:45, *Schadee Room*
 Title: 3. A Binary Star System Model for Designing a Science Communication Training Program
 Format: Insight talks
 Author: **Elaine Reynoso-Haynes**, Universidad Nacional Autónoma de México, Mexico
 Chair(s): Sarah Davies
 Co-author(s): Yazmin Hernández Arellano, Patricia Aguilera

The National Autonomous University of Mexico (UNAM) has three substantive functions: teaching, research and dissemination of culture. Regarding scientific culture, this last function is performed primarily by the General Department for Science Communication (DGDC). The DGDC communicates science using a range of media such as: our two science museums and exhibitions; TV and radio; a journal for youngsters, scientific theater, shows and talks; massive events and social media. The DGDC also performs academic activities such as research in science communication and training professional science communicators, this last one as part of UNAM's offer of Continuous Education.

Based on the idea that there is no unique formula for training professional science communicators, we have developed a "binary star system model" for developing our educational offer in the field". The "stars" are our two core programs one in public communication of science and the other in science journalism which offer the basic knowledge and skills required to become a professional in either field. After the students have completed one of these courses (an average of 150 hours each) they have the option to complement their training by enrolling in various shorter specialized courses (the planets). For example, some of these "planetary courses" are: science writing, narrative workshops and research methodologies in science communication. Beyond this orbit we offer courses for those who are already science communicators and want to complete or refresh their knowledge and skills as well as for students, teachers and the general public interested in acquiring these skills or learning strategies for communicating certain scientific topics. These courses have a curricular value recognized by the UNAM.

In this session we will share the theoretical and methodological criteria used for designing this offer of Continuous Education, as well as the challenges we face.

ABSTRACT

Reynoso-Haynes, Elaine

When & where: Parallel session 2-F, Wednesday, 12 April 11:30 – 12:45, *Schadee Room*
 Title: 7. Planning, developing and evaluating a backbone course for science communicators
 Format: Insight talks
 Author: **Elaine Reynoso-Haynes**, Universidad Nacional Autónoma de México, Mexico
 Chair(s): Sarah Davies
 Co-author(s): Yazmin Hernández Arellano, Patricia Aguilera

During 23 consecutive years, the General Department for Science Communication (DGDC) of the National Autonomous University of Mexico (UNAM) has offered the Diplomado en Comunicación Pública de la Ciencia (Graduate Course in Public Communication of Science) a 240-hour course which provided the theoretical and methodological tools required to become a professional science communicator. During that period, it went through a continuous process of evaluation and up-dating. However, in 2018, we decided it was time for a complete makeover. For two years, a team of science communicators and science journalists, worked on a proposal of what we considered should be the backbone of knowledge and skills every professional science communicator require to communicate science to different audiences using a variety of media.

The new program was going to be offered for the first time in 2020. However, due to the Covid 19 Pandemic, the seven proposed modules had to be adapted to an on-line course using a Moodle Platform. It was offered for this first time in October 2021 and concluded in June 2022, with 36 students selected from 128 applicants.

This new course was based on educational research using the methodology for evaluating non formal educational programs which consists of four phases: the context, the planning stage, the process and the products. The tool that we used was an on-line questionnaire consisting of open and closed end questions applied to the 36 students at the end of each of the seven modules that were offered. The categories we considered were objectives, teachers, contents, resources and the digital platform. The final result was 213 valid questionnaires. This information has been an important resource for improving and planning the new program which will be offered in the Fall of 2023.

ABSTRACT

Rose, Kathleen

When & where: Session 3, Tuesday, 4 April 17:00-18:15, *Zoom*
 Title: Who's to blame? Attribution of responsibility for addressing environmental issues in the US
 Format: Online conference
 Author: **Kathleen Rose**, University of Missouri, United States
 Chair(s): Marlit Hayslett
 Co-author(s): Vy Luong

Overview: In this session we will consider roles and responsibilities, of audiences, science communication practitioners and science journalists.

As the effects of climate change continue to be felt at the global, regional, and local levels, appropriate actions are necessary at all scales. Pro-environmental actions have often been discussed on an extreme dichotomy of individual-scale (e.g., recycling, driving less) or international-scale (e.g., United Nations Climate Change COP conferences), yet there are many stakeholders who operate somewhere in between. Since the tragedy of the commons, research has demonstrated public perception regarding responsibility for environmental issues can vary considerably. Often, there is a disconnect between individual actions and regional impacts, the local and the global. Understanding who members of the public view as responsible for taking actions to address regional environmental issues, and what factors impact those views, can inform communication efforts aimed at spurring action and encouraging regional collaboratio

To investigate public views of responsibility for regional environmental issues, we conducted a survey using a representative sample of adults in the 10 stem states in the Mississippi River (N=2,250), a major river running through the United States Midwestern and Southern regions. The Mississippi River Basin spans nearly half of the continental U.S., and produces more than 90% of the country's agricultural exports.

Using regression analyses, we explore the factors that predict who respondents hold responsible for environmental issues in their region (themselves, other people, agriculture sectors, other industry, government at different levels), including age, political beliefs, religious beliefs, trust in science, news consumptions, and environmental attitudes. We discuss differences in which stakeholders members of the public hold responsible and the factors that contribute to these beliefs and implications of this research for environmental communicators and regional efforts to address environmental issues.

ABSTRACT

Ribeiro, Daniela

When & where: Parallel session 3-G, Wednesday, 12 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 6. Fight resistance: an evolution game
 Format: Visual papers
 Author: **Daniela Ribeiro**, Institute of Education and Citizenship, Portugal
 Chair(s): Melanie Smallman
 Co-author(s): Gonçalo Figueiredo, Lucy Ruas, Richard Marques, Sónia Ferreira

Antibiotic resistance remains a public health problem due to excessive and inadequate use over the years. Worldwide, the general population adopt behaviours that contribute to this problem. In a near future (2050) 10 million deaths per year will be related to antibiotic resistance. Therefore, it is necessary to promote scientific literacy in society to raise awareness of the importance of this issue. Moreover, science communication is essential to avoid misinformation among the population. As the future of antibiotic resistance depends on prevention, science communication plays a fundamental role in acting upstream of this problem that the world is facing. However, transmitting scientific content to the public can be a challenge and therefore non-conventional methods must be used to make this communication more effective. To build a strong relationship between scientists and citizens we created a board game where the players can explore the world of Microbiology while having fun. This game aims to explain complex scientific concepts in a dynamic and engaging way. Thus, through this game, we intend to raise awareness among the general public and encourage them to adopt good hygiene practices and conscious antibiotic consumption. The players are challenged with questions on different topics, such as the history of science and antibiotic resistance, and can get infected by different microorganisms. During the game, we also emphasise prevention and transmission mechanisms. Furthermore, they are presented with missions to get further in the game. This game can be played by everyone, beginning with children from 9 years old. It's ideal to play with family and friends, and in a classroom encouraging teamwork. Upon completion, the players are expected to better understand the principles of antibiotic resistance, the best hygiene practices and the appropriate use of antibiotics.

ABSTRACT

Ridgeway, Sam

When & where: Parallel session A-A – Tuesday 11 April 14:00-16:00 – *SP-3411*
 Title: Making your science a blockbuster – creative lessons from television
 Format: Professional development workshop
 Author: **Sam Ridgeway**, Nutopia, United Kingdom
 Chair(s): Sam Ridgeway

Science Communication and Factual Television share a common ground as both strive to engage and entertain audiences whilst remaining true to the topics they cover. Whilst SciComm practices are making an impression on TV production, there are also many lessons that those in broader SciComm can learn from the world of television.

In this workshop, Assistant Producer and Science Communicator Sam Ridgeway guides attendees behind the scenes of the industry to reveal how an idea makes it to your screens. From how the same thinking used to develop a hit TV show can help design an exhibition, to which Netflix secret can give your academic paper a second life, Sam builds upon foundational SciComm concepts from a different lens.

A highly interactive workshop with physical tabletop activities and discussion, there'll be emphasis on the creative process challenges of generating ideas collaboratively and responding positively to "no" - the most common answer in TV pitching!

Through case studies and Q&A, attendees will also discuss the nuances of documentary ethics, on-screen representation and collaborating between media and scientists.

With a toolkit of games, case studies and techniques, attendees will be able to share the TV insights with other SciComms and scientists in their collaborations as they craft fresh formats for their own SciComm activities.

ABSTRACT

Ridgeway, Andy

When & where: Parallel session 6-B – 13 April, 11:30 – *Van der Mandele (mezzanine)*
 Title: Diversity is strength – science communication enabling common ground for climate action
 Format: Linked papers
 Author:
 Chair(s): Andy Ridgeway
 Co-author(s):

Diverse citizens need to be involved in the net zero transition to ensure policy interventions do not entrench inequalities for people from minoritised or disenfranchised groups and ensure broad public support for the rapid social changes needed. Science communication and public engagement efforts for environmental issues tend to focus on individuals, communicating the impact of our personal behaviours in the hope we change to benefit the environment or other citizens. According to Arnstein's Ladder of Participation, this amounts to informing, consultation and placation, which are all degrees of tokenism. To fully understand the norms and barriers to changing behaviour within diverse cultural groups, policymakers need to harness social learning; encompassing citizen control, delegated power, and leadership. There is a growing recognition within the climate movement for shared power, with activists acknowledging intersectional issues and advocating for climate justice for minoritised groups and Indigenous Peoples. Similarly, climate communications researchers advocate for collaborative and interdisciplinary projects bringing together the social and physical sciences alongside artists and communication practitioners.

The full spectrum of public engagement around climate change, therefore, needs to be enhanced; from communicating health impacts of air pollution and carbon emissions, consulting about new technologies or behavioural interventions, involving citizens in policy design, collaborating to enact the changes, and finally empowering communities to make a difference themselves. This series of linked papers draws on research from the EU citizen engagement project ClairCity, the EU citizen science project WeCount, and subsequent collaborations between researchers in climate action. The papers illustrate the importance of a breadth of experience and expertise with the research team (multidisciplinary and demographic), which enables co-development of science communication activities aimed at segmented citizen and community groups, to ensure a broad cross-section of society can participate in policymaking.

ABSTRACT

Ridgeway, Sam

When & where: Parallel session 4-G, Wednesday, 12 April 17:00 – 18:15, *Van Beuningen Room*
 Title: 1. SciComm100 – Learning through case studies
 Format: Insight talks
 Author: **Sam Ridgeway**, @ridgewaystories, United Kingdom
 Chair(s): Marieke Baan
 Co-author(s):

In the past few years there has been a big push for the Science of Science Communication, however I personally believe there is a lack of Communication of Science Communication. Theories are still disseminated primarily through web articles and academic papers. As an early career science communicator, I am trying to develop an accessible media platform to share lessons and stories from other SciCommers.

SciComm100 is an idea for an online science communication database collating case studies of various projects. Currently in SciComm, I feel there is a lot of coverage of foundational theories, such as audience and dialogue model, but few resources documenting the process of practitioners. From the conversations between installation artists and local councils collaborating on interactive exhibitions, to scientists' expressing the emotional pressure and thrill of contributing to Soapbox Science, it is inspirational and helpful to understand what has been done before and how.

An important distinction to previous databases, such as EUSEA Formats and Quest Toolkits, is to present the information with personal testimony and through video content - particularly on YouTube (an under utilised platform for Communication of Science Communication). I believe it is important to be able to engage with the content through a personality and face, especially for practitioners who may not read or seek out academic websites. It also provides the opportunity for people to connect and collaborate with those featured and highlights the diversity of SciComm practices and practitioners.

This personal project is set to launch at the end of 2022. I would love to have the opportunity to present and receive feedback from SciComm professionals and link with potential collaborators who could feature.

ABSTRACT

Ridgway, Andy

When & where: Parallel session 1-H, Wednesday, 12 April 09:45 – 11:00, *Ruys Room*
 Title: Misinformation and polarization dominates online – how can we rethink science communication to create common ground?
 Format: Problem-solving workshop
 Author: **Andy Ridgway**, University of the West of England, United Kingdom
 Chair(s):
 Co-author(s): Frank Kupper, Tessa Roedema

Participants will engage in small group problem solving tasks in which they will be set the challenge of forming connections with specific audiences given the sensemaking practices identified in our research. These tasks may involve exploring specific communication scenarios (about specific subject matter and taking place in specific contexts) with help of the sensemaking perspective and employing a reflective approach, to help reframe and reorient interactions between science and citizens. Participants will be encouraged to consider the communication challenges in their own contexts, with audiences they struggle to reach or engage in dialogue with, as well as developing a reflective approach to their practice.

The tasks undertaken by participants will result in the development of a toolkit of creative approaches to forming connections with audiences, building on the toolkit created as part of the RETHINK project. This toolkit will be communicated with practitioners following the conference in blogs and social media activity.

ABSTRACT

Ridgway, Andy

When & where: Parallel session 9-F, Friday 14 April 09:45 – 11:00, *Schadee Room*
 Title: 5. Trust and expertise online – new insights for practice and research
 Format: Individual papers
 Author: **Andy Ridgway**, University of the West of England, United Kingdom
 Chair(s): Ana Claudia Nepote
 Co-author(s):

What and who people trust online has implications for how we address global challenges ranging from vaccine hesitancy to food waste. This session will provide insights from completed PhD research exploring interactions about food on social media into how judgements about trust are made online. The research demonstrates how evaluations of expertise have been transformed by online interaction and become much more fluid. It also demonstrates the need for researchers and practitioners to work more closely. Evaluations of trust online are highly contextual – shaped by the subject matter to which the interaction relates. So a more nuanced understanding of the publics we interact with, informed by research, needs to form part of communication plans.

The research used Social Practice Theory (SPT) as a theoretical lens to view interactions about food by parents on social media. While SPT is being increasingly employed in consumer research, particularly into environmentally sensitive behaviours or ‘practices’, it is rarely employed in science communication studies. This session will describe how SPT can be applied to research into online discourse and how it shifts the researchers’ view from one solely focused on the online interaction itself, to a broader scope that encompasses the offline practices to which the online discourse relates.

For researchers, this session will provide food for thought on a new theoretical approach to studies exploring trust online in interactions about offline practices shaped by understandings of science. Anything from decisions about whether or not to have a vaccine, to food safety. For practitioners, this session provides new insights into how individuals make judgements about what they trust based on the tone and content of any communication. Also, the need to provide voices to a broader range of individuals who are trusted, given the transformations in assessments of expertise.

ABSTRACT

Riedlinger, Michelle

When & where: Parallel session M-B – Tuesday 11 April 9:00-10:30 – *ErasmusMC SP-2407*
Title: Welcome session for first-time PCST participants
Format: Welcome session
Author: **Michelle Riedlinger**, Queensland University of Technology, Australia
Chair(s): Michelle Riedlinger
Co-author(s): Heather Doran, Jenni Metcalfe

Is it your first time attending a PCST conference? This session provides you with the opportunity to meet with other first-time PCST attendees and members of the PCST Scientific Committee. We'll share a brief history of PCST through the ages, and we'll have some fun activities with prizes

ABSTRACT

Riedlinger, Michelle

When & where: Parallel session 7-B, Thursday 13 April 15:15 – 16:30, *Van der Mandele (mezzanine)*
Title: Scientists writing news: Emergent science news websites as boundary spanners
Format: Roundtable
Author: **Michelle Riedlinger**, Digital Media Research Centre, Queensland University of Technology, Australia
Chair(s): **Jenni Metcalfe**
Co-author(s): Lars Guenther, Alice Fleerackers, Ayelet Baram-Tsabari

Research amplifier platforms and emergent science news websites, such as The Conversation and The Davidson Institute media collaborations in Israel have emerged as new forms of web-based science communication aimed at non-experts that blur the boundaries between science communication and science journalism. The Conversation was launched in Australia in 2011, and now has outlets in 10 countries and regions including Africa, Spain, France, the United States, Canada, Indonesia, and a global edition that is edited by regional and national editorial teams. Researchers who write columns for The Conversation work with trained news editors to provide “Academic rigour [and] journalistic flair”. Similarly, the Davidson Institute employs graduate students in science edited by professional news editors and get the products of these collaborations published with general news sites in Israel. In return, these news sites receive accurate, innovative, and high-quality science content, but may be less motivated to pay a science journalist. The panellists and attendees in the Roundtable will consider the agenda for science communication research associated with these emergent science news websites. Who are the scientific researchers writing for these sites? What motivates them? What image of science do they represent? Are these emergent science new websites science writing or are they journalism? How does content circulate and what is the impact? What opportunities and challenges do these models of peripheral science journalism pose from a science communication perspective? The answers have important implications for science communication theory and practice, touching on issues of public (dis)trust in science, digital media innovation, and the changing roles for scientists as communicators.

Michelle Riedlinger: this contribution focuses on how audiences use The Conversation stories to prepare for health and environment-related emergencies. It brings together findings from two case study investigations: one focused on the Covid-19 crisis, the other on climate-related emergencies (fires and flooding). Drawing on issue mapping approaches, we investigate how online audiences engaged with The Conversation stories about these issues when the media “pull” for relevant research information was high. Given that The Conversation authors are in relatively unique positions of being able to provide direct, timely and publicly accessible information during uncertain times, we also consider their motivations and the roles that they occupy when public reliance on individual expertise and experience becomes a substitute for scientific consensus. This research was conducted in collaboration with Kim Osman (Australia) and Alice Fleerackers (Canada).

Lars Guenther: with a focus on Africa, this contribution will address the raised questions by drawing on findings of a content analysis of author information and articles published over a

five-year span on The Conversation Africa as well as assessments of their impact (in journalistic as well as social media), and interviews with scientists who either often published articles on the platform or only did so infrequently. The insights gathered help us understand the role The Conversation Africa has as inter-media agenda setter, who the authors are (mostly social scientists), the different foci journalistic and social media have when selecting/sharing articles of The Conversation Africa (e.g., hard vs soft news), the factors that motivate or deter scientists from writing for the platform, as well as the comparisons they see to interactions with traditional journalistic media. This research was conducted in collaboration with Marina Joubert (South Africa).

Alice Fleelackers: because people trust communicators from their social ingroup, science news stories are more likely to resonate if the authors who write these stories represent the diversity of citizens. This contribution will describe the imbalances in the representation of different genders, academic specialisations, career stages, and Indigenous identities among experts contributing to The Conversation Canada. It will also discuss the amplifying role of digital media outlets that republish these stories and social media users who engage with these outlets, raising questions about how other actors in the changing digital media landscape can contribute to—and perhaps help rectify—existing imbalances in science communication.

Ayelet Baram-Tsabari: what are the objectives of science news websites in communicating science to the public, and how are these objectives manifested through the website articles? Are these objectives reflecting journalistic logic or traditional science communication aims? We investigated two Israeli news websites that rely on scientists writing for the public with professional journalists as editors. Their objectives and practices were studied based on interviews with the websites' operators, content analysis of their publications as well as the discussion threads that stem from them. Findings indicate aims that were aligned with deficit and dialogic models for science communication, rather than journalistic objectives. The implications for quality science coverage, but also professional science journalism will be discussed. This research has been conducted with Ifat Zimmerman (Israel).

ABSTRACT

Riesch, Hauke

When & where: Parallel session 3-A, Wednesday, 12 April 15:15 – 16:30, *Willem Burger Room*
 Title: 7. Science communication and prophecy
 Format: Individual papers
 Author: **Hauke Riesch**, Brunel University London, United Kingdom
 Chair(s): Emma Weitkamp
 Co-author(s):

Following on from Lynda Walsh's work that compared the rhetoric of classical prophecy with that of 20th-century public scientists such as Carl Sagan and Stephen Hawking, this talk will take a further look at how prophetic rhetoric, such as the appeal to the "universal audience" described by O'Leary as well as the prophetic persona as described in classical sociology of religion, is being utilised in modern science communication. Particularly on the big, potentially world-changing, issues such as climate change, biodiversity loss or nuclear warfare, there are clear affinities between public science and the apocalyptic tradition of prophecy. Using case studies of the Bulletin of the Atomic Scientists and contemporary climate change activism, this talk will look at both the prophetic persona and prophetic rhetoric that is being employed as a way of persuading audiences of the urgency of the matter. Following on from that ask wider questions as to the potential consequences of prophetic communication techniques.

ABSTRACT

Riley, James

When & where: Parallel session 6-L, Thursday 13 April 11:30 – 12:45, *Mees Room*
 Title: Plastics: Towards a Publicly-Engaged Future
 Format: Linked papers
 Author: **James Riley**, University of Birmingham, United Kingdom
 Chair(s): Fern Elsdon-Baker
 Co-author(s):

Despite the central place plastic use and pollution have come to occupy in environmental public discourse and policy interventions, publicly-engaged research around plastics and our present and future relationships with them remains an underdeveloped area. In this paper, I present data from one of the first dedicated, nationally-representative social scientific surveys of public attitudes to plastics in the UK. The survey moves beyond the standard approach of solely investigating attitudes towards specific interventions such as recycling, to include public hopes and fears around our future relationship with plastics, and specific understandings around modish terms such as 'biodegradable', 'compostable', and 'bioplastics'. Our findings reveal what is perhaps one of the broadest mandates for action on any science and society issue, ever. However, public expectations of purportedly greener plastics – bioplastics and biodegradable plastics – and the physical realities of these substances, reveal the possibility for marketers of plastic products to hijack and placate this broad public mandate for change. Therefore we argue for stricter policy and regulation in the use of terms such as bioplastic and biodegradable plastics, as well as more research on plastics that centres publics rather than seeing them as barriers to overcome.

ABSTRACT

Riley James

When & where: Parallel session 4-L, Wednesday, 12 April 17:00 – 18:15, *Mees Room*
 Title: 2. Dark Citizen Science: Scientific Labour Hidden in Plain Sight
 Format: Individual papers
 Author: **James Riley** University of Birmingham, United Kingdom
 Chair(s): Anne Land
 Co-author(s): Will Mason-Wilkes

Citizen Science is widely regarded as an ideal means to both build public trust in, and democratise, science. Recent years have seen an explosion in Citizen Science activities -from finding exoplanets, to counting birds in your garden, and labelling white blood cells on plates - each in their own way using citizens as a resource to help generate new scientific knowledge. The new diversity of Citizen Science activities has led the academic research community to develop a number of definitions and typologies aiming to better encapsulate the rich variety of projects now termed Citizen Science.

In this conceptual paper we sketch current definitions and typologies of Citizen Science, explore their origin, and argue these definitions and typologies are excessively optimistic. We invite scholars to look at science-society relations which are not encompassed under current definitions and typologies yet should be. We offer an empirical exemplar of these opaque practices, which mirror Citizen Science approaches but are antithetical to the ideals which Citizen Science was designed to achieve. These practices we term Dark Citizen Science.

We argue that both this newly identified Dark Citizen Science, along with lack of due consideration of the implications of Citizen Science ideals for the scientific profession and wider democracy, have created an investigatory blind spot allowing exploitative elements of Citizen Science to evade the sociological gaze. This paper aims to bring them to the fore.

ABSTRACT

Roblas, Mark Ivan

When & where: Parallel session 11-B, Friday 14 April 14:15 – 15:30, *Van der Mandele (mezzanine)*
Title: 4. Square One: Developing the Science Communication Research and Development Roadmap of the Philippines
Format: Insight talks
Author: **Mark Ivan Roblas**, Department of Science and Technology Philippine Council for Industry, Energy and Emerging Technology Research and Development, Philippines
Chair(s): Luz Helena Oviedo
Co-author(s):

Over the past decade, the Department of Science and Technology (DOST) has been supporting various science communication approaches aimed at helping its various agencies reach its target audience and engage the citizenry. In 2016, it supported the Communicating Science For The People campaign, a multi-faceted approach in engaging the Filipino and extending the reach of the department to the public. The DOST Philippine Council for Industry, Energy and Emerging Technology Research and Development (DOST PCIEERD) has supported research and development institutes in their science communication approaches, pouring over P14 million to fund initiatives to scientists reach the public.

In 2020, to consolidate these efforts in science communication, DOST PCIEERD spearheaded the development of the science communication research and development roadmap. In consultation with various stakeholders, opportunities were identified in terms of human resource, research and development, policy, and facilities. From the consultation, the roadmap was developed and has been the basis for succeeding calls for proposals of the Council.

In this talk, the learnings from the conceptualization to the development, implementation, and evaluation of the roadmap will be shared in the hope that other supporters of science communication can learn from them. It is hoped that it can also initiate collaborations with other funders on how to support science communication proposals.

ABSTRACT

Roche, Joseph

When & where: Parallel session 7-C, Thursday 13 April 15:15 – 16:30, *Van Weelde Room*
 Title: Building a (European) Science Communication Centre on common ground
 Format: Roundtable
 Author: **Rosa Arias**, Science For Change, Spain
 Chair(s): **Joseph Roche**
 Co-author(s): Jason Pridmore, Alessandra Fornetti

This roundtable will bring together key voices involved in establishing the new pan-European Science Communication Centre that has been funded by the European Commission from 2023 until 2027. The centre will build on the common ground of eight research and innovation actions that were funded under the European Commission's 2018–2020 Horizon 2020 Science with and for Society (SwafS) Work Programme: CONCISE, RETHINK, QUEST, NEWSERA, TRESCA, ParCos, ENJOI, and GlobalSCAPE. To-date, these have been the only research and innovation actions funded by the European Commission under its research funding framework in the specific field of science communication. The eight research projects received almost €10 million in research funding from the European Commission under the topic "SwafS-19: Taking Stock and Re-Examining the Role of Science Communication." This roundtable will bring together the coordinators and key partners of those eight projects who have combined their resources and experience to develop a plan for the new European Science Communication Centre. The speakers will offer their vision on how the €10 million investment in science communication research has created a common ground to build the new centre and will invite audience members to suggest how such a centre can best support all science communication researchers and practitioners across the continent and around the world. The speakers will discuss plans for the European Commission funded project COALESCE ("Coordinated Opportunities for Advanced Leadership and Engagement in Science Communication in Europe") to co-design a self-sustaining European Competence Centre for Science Communication that will help create, curate, and share resources, tools and training, as well as coordinating communities of practice and developing excellence criteria to support the future of science communication research and practice. More than 15 members of the COALESCE consortium team will be in attendance to maximise opportunities for networking and further discussion after the session.

Joseph Roche is the Director of Research at the School of Education in Trinity College Dublin. He is an Associate Professor in Science Education and leads the Science & Society research group which coordinates international research projects on science communication, informal learning, citizen science, public engagement, and higher education science. He is the Principal Investigator of GlobalSCAPE — a European Commission funded research project exploring the global state of science communication. Joseph has worked at NASA and is a visiting scholar at Harvard. He is a Fellow of Trinity College Dublin and is the author of the textbook "Essential Skills for Early Career Researchers".

Rosa Arias is the CEO and Founder Science for Change. She is a Chemical Engineer and has an MSc in Energy. Rosa is the creator of the citizen science App OdourCollect aimed at building

collaborative odour maps based on citizen observations. She is a member of the Science at the Spanish Parliament Initiative. She is the coordinator of the NEWSERA project, with the main goal of integrating citizen science in science communication and the coordinator of the Catalan Cluster at TRANSFORM. She is also the coordinator of the recently funded Horizon Europe project — COALESCE — which aims to establish a European Centre for Science Communication. Jason Pridmore is the Vice Dean of Education for the Erasmus School of History, Culture and Communication and an Associate Professor in the Department of Media and Communication at Erasmus University Rotterdam. Jason directs the educational resources of the faculty including the education professional services personnel and oversees the bachelor and (pre) masters programmes in three departments. He is the coordinator of the TRESKA project, Project Exploitation Manager and Data Security Manager on the BIM-SPEED project, Project lead at EUR for the Ashvin Project, and Principle Investigator on the Mobile Privacy Project. He and his team will soon be participating in the upcoming SPATIAL project as well as the European Centre for Science Communication (COALESCE).

Alessandra Fornetti is Executive Director of the TEN Program on Sustainability at the Venice International University (VIU), Italy. With a humanities background, she has been working for almost two decades in the field of sustainability developing international projects on capacity building, communication and dissemination with experiences in China, East Europe and Central Asia. In her role as Executive Director, she promotes the dialogue among the different stakeholders to support the creation of knowledge networks bridging research, policy makers, corporate and the wide public. She currently coordinates H2020 project QUEST on Science Communication and leads comm&diss in H2020 project MUHAI on Artificial Intelligence.

ABSTRACT

Rodari, Paola; Greta Alliaj

When & where: Parallel session 7-E, Thursday 13 April 15:15 – 16:30, *Hudig Room*
 Title: The voice of young people in the co-creation of knowledge
 Format: Roundtable
 Author: **Yvoni Pavlou**, ReSciTeg, University of Cyprus, Cyprus
 Chair(s): **Paola Rodari, Greta Alliaj**
 Co-author(s): Omer Gaist, Mairéad Hurley, Chris Gary

Are we forgetting children and teens? Or, at any rate, are we really trying hard to listen to them and involve them in our projects? This session aims at focusing on the methodologies that enable young people's voices to be heard and to count in a connected, collaborative society. The expression open schooling (OS) covers various kinds of projects that involve teachers, children and teens, researchers, businesses and all kinds of organisations of civil society. Science communicators frequently act as promoters and facilitators of the dialogue and collaboration between the stakeholders. In well-developed OS projects, the goal of the collaboration is the co-creation of knowledge among a community partnership. Children and young people are active participants (and in some cases main actors) of the processes and they closely collaborate with adults, among them many researchers, to conduct active research and innovation in real-time and real-life contexts. Sharing their experiences, speakers will also point out weaknesses and strengths of the actual practices. This roundtable will stimulate the discussion on open questions such as: Can education institutions really contribute to innovation and research? Should research and education institutions be part of the same ecosystem? What are the methods more effective to include young voices, also outside the school environment, in participatory, co-creation projects? How can OS initiatives have a greater impact on research and innovation sectors? The speakers represent many diverse institutions, mainly European but not only. Proposers will work on the session, if accepted, well before the conference in order to reach and involve in it other OS projects from other geographical regions. The convenor will take care that speakers' introductions are short so as to give time to all participants to share their experience and thoughts.

Yvoni Pavlou is involved in a Horizon2020 project - Schools As Living Labs - that strives to transform classrooms into living labs, placing students at the heart of the learning process and giving them an active role. In this session, Yvoni will reflect on what happened in Cypriot schools, where teenage students with limited knowledge of the food system and food sustainability, went through a path of co-creation of knowledge, together with researchers, entrepreneurs and other stakeholders, to address food waste and healthy eating habits. Was the methodology successful in increasing students' awareness, self-government, and critical thinking? And did it bring something to researchers and other external partners?

Omer Gaist: 'Make it Open' project aims to develop a sustainable infrastructure of Open Schooling in Europe and Israel based on the approach, pedagogy, content, processes, and tools of the maker movement. The partners co-created 16 Learning Scenarios (available on the Open Schooling Navigator) with 8 pilot schools in the UK, Israel, Netherlands and Poland. These Learning Scenarios showcase how Open Schooling brings schools and communities together to work towards a common goal. Two case studies will be presented during the session. 10

national Open Schooling hubs were formed and they act as incubators to provide leadership and mentorship to schools and communities in developing research and innovation projects which address relevant local challenges, contribute to community development, and promote an active global citizenship attitude.'

Mairéad Hurley will introduce the approach of new Open Schooling project LEVERS (2023 - 2026), in which local learning ecosystems in 9 countries will tackle education for climate and environmental justice utilising approaches from systems thinking, design, and behavioural science. LEVERS focuses not only on learning within school settings, but also in non-formal spaces. It integrates science learning with creative approaches from a range of disciplines, involving young people within their communities in collaborative participatory projects to tackle locally relevant climate and social justice issues. The LEVERS project utilises critical pedagogy and aims to empower young people to embrace science learning as "an activist project".

Chris Gary: The PHERECLOS project (H2020, 2019-2022) was aiming at designing and implementing innovative models for cross-sectoral collaboration in education, which is based on the proven ability of Children's Universities to be agents of change towards the Third Mission of universities, with a clear focus on social inclusion and community engagement. Within PHERECLOS, this approach was transferred in order to support schools in making a change in their environments and becoming local knowledge hubs for their communities. Such "Local Education Clusters" were implemented in six model regions in Europa and beyond as a collaborative approach among several knowledge providers of formal and non-formal kind. The findings from the model implementation were distilled in tools which enable educators and stakeholders to prepare and advocate for more advanced setting of Open Schooling - and success criteria were defined which can help to understand how Open Schooling can be effective in the longer run.

ABSTRACT

Rödder, Simone

When & where: Parallel session 9-C, Friday 14 April 09:45 – 11:00, *Van Weelde Room*
 Title: Visible Scientists in the age of Covid-19: Characteristics, Changes, Challenges
 Format: Roundtable
 Author: **Simone Rödder**, University of Hamburg, Germany
 Chair(s): Marina Joubert
 Co-author(s): Declan Fahy, Germana Barata, T.Y. Branch

The Covid-19 pandemic created an unusual global situation characterised by high demand for scientists' expertise. Consequently, in many countries, individual scientists became highly visible in the public domain. This roundtable will reflect on the characteristics of visible scientists and the associated rewards and risks associated with a high public profile.

Contributions by speakers:

1. Celebrity scientists revisited: rewards and risks of becoming visible: Simone Rödder will reflect on insights from a sociology of visible scientists. Based on the proposition that science is not a visible occupation per se, a concept of visible scientists is proposed that situates visibility in the role-set of scientists. It is argued that visibility – to this day – comes with tensions attached that need to be dealt with by forms of ambivalence management. Some of these forms are discussed based on studies of visible scientists in different fields.
2. The visible scientists of Covid-19: A new type of public scientist? Declan Fahy argues that the high-profile scientists of the Covid-19 years have come to constitute a new category of public scientist. These emblematic figures, he argues, have combined characteristics of science policy advisors, public experts, visible scientists, and celebrity scientists. The combination of these roles have both helped and hindered their efforts at public communication. These scientists have illustrated, in their media representations and their public communication, the fundamental and ongoing tension between expertise and democracy in modern societies around science-related social problems.
3. 'Pandem-Icons' – Exploring the characteristics of highly visible scientists during the Covid-19 pandemic: Germana Barata will present highlights from a recent 16-country study that explored scientists who became highly visible in public life during the pandemic, including how these scientists compare with visible or celebrity scientists in history. She will share insights about their characteristics, scientific reputation and credibility, role, communication styles that made them sought after as frequent media sources, while also comparing and contrasting their national contexts and how this shaped their status as public experts.

The opening statements will be followed by reflections from the chairs. Marina Joubert will moderate the discussion, while Ty Branch will act as a critical challenger to the 'celebrity scientist birthed of the pandemic' narrative. We will invite the audience to join the discussion on how we can use insights from this session to inform science communication challenges in future.

ABSTRACT

Ross, Kirsty; Ardati, Abd Alsattar; Thomas, Sara

When & where: Session 3, Monday, 3 April 14:00 – 16:00, *Zoom*
 Title: Wiki Workshop with the IDEA Network @ University of St Andrews
 Format: Workshop
 Author(s): Kirsty Ross (University of St Andrews), Abd Alsattar Ardati (University of St Andrews), Sara Thomas (Wikimedia UK)

Wikipedia is the world's largest encyclopaedia with 23 billion page views and 50 million edits made every month. Did you know that you can edit Wikipedia? If you'd like to give it a try, join us (and lots of other newbies) in finding out where your knowledge might improve Wikipedia and make it a better place for everyone. Speak/read more than one language? Even better!

The Inclusion, Diversity, Equity and Accessibility Network for Open Knowledge (IDEA Network for short!) is based at the University of St Andrews. It aims to make Wikipedia a more inclusive, diverse, equitable, and accessible place for all forms of knowledge. The award-winning Network co-founders will be running this CPD workshop. We will take you through the process step by step in this deeply practical session, and will be available to answer any questions you may have about incorporating Wiki editing into your public engagement practice, illustrated with real-world science communication examples.

Participants will be asked to create a Wikipedia account (if they do not already have one) and will be taken through the background and rules that govern Wikipedia editing. They will be introduced to simple tools for specific tasks for editing Wikipedia and other sister projects, and will have the opportunity to practice using the tools under the guidance of the workshop leads. At the end of the session, all participants will receive an email with links to the tools used during the session, as well other useful resources and additional self-led training. The workshop leads will also be available to answer questions about how Wikipedia editing and the Network influences their engagement practice, and where the Network hopes to go in the future.

Objectives:

- To learn how to register as a Wikipedia editor
- To understand the knowledge gaps, present on the world's largest encyclopaedia, and how we might fill them
- To appreciate the community rules for adding content to Wikipedia (neutrality, conflict of interest, tone etc)
- To experience adding materials to other Wikimedia projects (WikiData, WikiCommons)
- To understand the possibilities such approaches can offer to make open knowledge more inclusive, diverse, equitable and accessible

ABSTRACT

Rothe, Ingmar

When & where: Parallel session 6-H, Thursday 13 April 11:30 – 12:45, *Ruys Room*
 Title: 2. Living Labs as Third Spaces: Low-threshold participation, empowering hospitality, and the social infrastructures of continuous presence
 Format: Individual papers
 Author: **Ingmar Rothe**, Leipzig University, Germany
 Chair(s): Liselotte Rambonnet
 Co-author(s): Christian Pentzold, Andreas Bischof

To construct a living lab is one thing, to maintain it is another. To invite people to visit a living lab is one thing, but to make them stay is another. To cherish diversity, openness and inclusivity is one thing, to move away from the usual suspects and truly seek a common ground is another. In our contribution, we reflect on the learnings from establishing and upholding a living lab in an urban and distinctively non-academic environment. We structure our discussion along the normative expectations which animate much of the work on living labs that are deemed to foster participation, collaboration between experts and lay people, and a public engagement with science, that should reach out to people with only feeble ties into academia, and that would allow them to become active and experience research and innovation firsthand. Realizing these well-intended purposes is, however, a thorny affair and follows no blueprint but requires researchers and science communicators to be open to surprises, to be patient and persistent, and to swap positions so to be the learners, not the instructors. Looking back at a 4+ year experience, we discuss our radically low-threshold approach that demanded us to move away from university settings and do away with any designs and forms of communication that had an academic flavor. Trying to make space for empowering hospitality necessitated withholding our schemes and workshop plans in order to facilitate grassroots endeavors on the side of the people dropping in and staying around though they might follow unexpected paths. Finally, while the physical and technical infrastructures were at one point installed, keeping the social infrastructure of continuous presence running remains an issue that requires us to rethink how to fund and support living labs and their mission in the long run.

ABSTRACT

Rothe, Ingmar

When & where: Parallel session 9-K, Friday 14 April 09:45 – 11:00, *Van der Vorm Room*
 Title: Bringing Living Labs to Life: Fulfilling the promise of open, active, and innovative public science engagement
 Format: Roundtable
 Author: **Ingmar Rothe**, Leipzig University, Germany
 Chair(s): **Caroline Wehrmann**
 Co-author(s): Christian Pentzold, Loes Witteveen, Caroline Wehrmann

Living Labs galore. Involving citizens and other stakeholders in science endeavors and integrating them in the design of new technologies and scientific inquiry is a core aim of contemporary research and development. Living Labs are prime places in the quest of science to be more inclusive and to open up to people from all walks of life, including politics, design, and culture. Promising to foster participation, collaboration and co-creation around science, Living Labs have been mushrooming across the academe, from STEM subjects to the humanities. In fact, they have become the token for up-to-date science communication. Despite the keen interest and heavy investments into Living Labs, their epistemic underpinnings and conceptual grounding remain shaky. The many approaches and initiatives do not follow a common idea or design, except the ambition to venture into the “real world” outside of labs and libraries. Moreover, little is known about the communicative and social processes happening at these sites and the ways participation is being configured. What is further missing is a critical view on the political schemes and ambitions around public engagement and Living Labs.

The roundtable addresses this lack of conceptualization and rigorous analysis of the paradigmatic foundations and practical frameworks of living labs. Its four paper contributions examine the ways living labs are constructed and operated to fulfil the promise of open, active, and innovative public science engagement. They query the underlying theories and normative assumptions of living labs, for instance regarding the varying notions of what makes for “productive” participation and “good” participants; this involves thinking about other factors such as trust, agency, and expertise that come to bear upon the living lab experience. The roundtable thus provides a space to interrogate the key moments in the life of living labs.

ABSTRACT

Rozenblum, Yael

When & where: Parallel session 9-G, Friday 14 April 09:45 – 11:00, *Van Beuningen Room*
 Title: 4. A teachable moment: The dynamics of new vocabulary use in media and reader comments during the COVID-19 pandemic
 Format: Individual papers
 Author: **Yael Rozenblum**, Technion, Israel
 Chair(s): Carolina Llorente
 Co-author(s): Ayelet Baram-Tsabari, Elad Segev, Roy Yosef

News coverage on scientific issues, specifically online news, is one of the main sources of scientific information for the public and is defined as a social structure that shapes public knowledge. Media coverage can also create a 'teachable moment' for science when news coverage of science-related events, such as earthquakes, may stimulate public engagement with the relevant science for a short period. However, it remains an open question if such teachable moments promote lifelong learning of science. One expression of learning is acquiring new scientific vocabulary and using these concepts appropriately.

Here we use a theoretical framework that views science literacy both as an individual and as a societal characteristic to document learning during the teachable moment provided by the COVID-19 pandemic among the media (as a social structure) and the public and the connections between them. Specifically, we ask: What were the changes in the scientific vocabulary used by online news articles (items) and public reactions to these articles (reader comments) during the COVID-19 pandemic, and what are the associations between them?

The database included all items and comments on these articles published between January 2018 to August 2021 on two news websites: Ynet, the most popular Hebrew general news site; 108,077 items; alongside their 67,493,665 comments; and Kikar-Hashabat the most popular news website serving the enclaved community of Ultra-Orthodox: 49,843 items, alongside their 15,567,243 comments. A list of 102 science-related concepts was developed to include concepts related to biological content knowledge (e.g., virus, receptor) and concepts related to the scientific procedure (e.g., placebo, peer-review). Concepts were characterized according to level based on the Israeli science curricula: mandatory (e.g., enzyme), elective (e.g., lymphocyte), and academic (e.g., hyperglycemia). Using a scraping crawler search tool developed for this study, the concepts have been searched for in all the items and comments, and their frequency per 1,000 words has been compared before (2018-2019) and during COVID-19 (2020-2021) in each of the data sources.

Findings indicate a significant increase in the appearance of 85 concepts on the general population website and 53 on the Ultra-Orthodox website, in 2020-2021 compared to their frequency in 2018-2019, in both items and comments. A quarter of these terms were not used at all in the two years prior to COVID-19, mostly in the elective and academic levels (e.g. antigen). Generally speaking, the new terms appeared first on the items and only later in the reader's comments. These findings demonstrate that science-related events can lead to

changes in media and public science-related vocabulary, especially in the case of advanced concepts, which are not introduced in the mandatory levels of science education. These findings provide empirical evidence for the role of scientific news coverage as allowing science literacy at the societal and individual levels.

ABSTRACT

Rozenblum, Yael

When & where: Parallel session 10-E, Friday 14 April 11:30 – 12:45, *Hudig Room*
 Title: 3. The reasoning in 'motivated reasoning': The role of scientific knowledge and personal interest in science-related dilemmas
 Format: Individual papers
 Author: **Yael Rozenblum**, Technion, Israel
 Chair(s): Bernard Schiele
 Co-author(s): Keren Dalyot, Ayelet Baram-Tsabari

Individuals' beliefs and personal commitments were previously shown to influence people's stances on COVID-19 everyday dilemmas. But how do these interact with scientific knowledge? Here we ask: How do science knowledge and personal interest interact when people are developing arguments to justify their stance on science-related dilemmas in the context of COVID-19?

Data was collected in November 2020 (the second wave of COVID-19) via an online questionnaire from a representative sample of Hebrew speakers (n=500). The questionnaire used close and open-ended questions to examine (1) decision-making in two COVID-19-related dilemmas involving social-distancing recommendations: visiting elderly family members and sending one's child to kindergarten. Participants provided their stance and a justification for it; (2) personal interest: having children and gender (women are more likely in Israel to be primary caregivers for children and elderly family members); and (3) general science knowledge (4 questions) and knowledge in the context of COVID-19 (4 questions).

Data analysis of the justifications included reference to health-related justification (e.g., 'the virus has an incubation period') and personal justifications (e.g., 'I need to go to work'). Arguments' complexity (e.g., 'although children can also get infected, they need a routine') was also calculated. Findings indicated no correlation between general knowledge or knowledge in the context of COVID-19 and stance, but general science knowledge was positively associated with reliance on health-related justifications. People with personal interests (e.g., sending kids to kindergarten when having kids), were less inclined to act according to the social-distancing recommendations. However, they also used more complex arguments, combining science and personal justifications, to justify their decision. When communicating about a scientific issue with various social implications, such as a pandemic, scientific knowledge plays an important role in the public's justifications. However, it is crucial to introduce scientific issues in the context of people's beliefs and social commitments.

ABSTRACT

Sáenz-de-Cabezón, Eduardo

When & where: Parallel session 7-G, Thursday 13 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 7. Humor in science communication. It's not about how, it's about why.
 Format: Visual papers
 Author: **Eduardo Sáenz-de-Cabezón**, Universidad de La Rioja, Spain
 Chair(s): Heather Doran
 Co-author(s):

In the last years, many initiatives on science communication use humour as a vehicle, a language or a code to communicate science to broad audiences. From TV shows to stand-up science, the mix of humour and science has proven itself very successful.

Due to this success, researchers, practitioners and students who want to get involved in science communication, are eager to learn how to use humour, how to be funny in their talks, routines, etc..

In this visual presentation, the focus is however on why to use humour in science communication rather than on how to do it.

There are three roles of humour in society that are particularly beneficial when using it to talk about science: construction of a community, shared code and breaking solemnity. We will explore examples and thoughts on these three roles that make humour a powerful ally in science communication. In particular, we explore two benefits: breaking barriers between scientists and the public and helping people get involved in science.

ABSTRACT

Sáenz-de-Cabezón, Eduardo

When & where: Parallel session 11-I, Friday 14 April 14:15 – 15:30, *Van Rijckenvorsel Room*
 Title: Scicomm live contest
 Format: Mini-workshop
 Author: **Eduardo Sáenz-de-Cabezón**, Universidad de La Rioja, Spain
 Chair(s):
 Co-author(s):

The goal of this workshop is to discuss the evaluation of short pieces of science communication, addressed to general audiences, which make use of humour, music, performance, among others. These include but are not restricted to short videos, parody songs, infographics, larger movie fragments, etc.

The main question we will address, in a novel and creative way, is: What are the criteria for a good short piece of science communication? Other questions we would like to discuss are: Do we really influence the public with this type of communication?; do we “move” perception, create new perspectives, ways of seeing and valuing science? And finally, if possible: How could we effectively test this “quality of being good” with the public?

The novelty in this workshop is the format: a funny, yet intense and participative way to discuss this topic in which will imitate a contest gala (like Eurovision for instance) but instead of performers there will be dissemination/outreach pieces and the judges will be the attendants to the roundtable/workshop.

This will be done in several steps: First, the organizers will receive proposals vía e-mail from the conference attendees and select 10 pieces for the gala (the criteria for doing so will be commented during the gala). Second: at the gala, in a funny and show-like format a host will present the “mini workshop”. Third, attendees, in groups, will vote for the best one and write their criteria. The voting will go on and a winner piece will be finally selected.

To conclude with the best part, the groups will present their voting criteria. We’ll moderate a discussion on it, where different sensibilities and cultures will foreseeably show up to enrich the dialogue and end up finding common elements that define the “good” criteria for a short piece of science communication.

ABSTRACT

Salmon, Rhian

When & where: Parallel session 10-E, Friday 14 April 11:30 – 12:45, *Hudig Room*
 Title: 2. Incubating Engagement - approaches for stimulating reflexivity and connecting science communication theory and practice
 Format: Individual papers
 Author: **Rhian Salmon**, Te Herenga Waka - Victoria University of Wellington, New Zealand
 Chair(s): Bernard Schiele
 Co-author(s): Jo Bailey

Drawing on our collective experience in science outreach creation, visual design, Public Engagement in Science (PES) research, and leadership of two national science engagement programmes in Aotearoa (New Zealand), we present both practitioner reflections and original research that have informed a series of initiatives designed to create common ground between science communication practitioners and PES research(ers).

Our research focuses on identifying and making explicit challenges that sit on the boundary of science communication practice and theory that are often undeclared, including: the (in)accessibility of PES literature to practitioners; the role that politics and funding play in science engagement; inherent power structures and inequalities in access to science communication; and mechanisms to stimulate reflexivity about PES amongst both practitioners and researchers.

These experiences have coalesced in the 'Engagement Laundromat' concept, being launched at PCST 2023. These multi-day in-person or online workshops are focused on unpacking and (re)designing science communication projects in ways that are underpinned by PES theory and encourage consideration of inherent power structures, inclusivity, co-production, equity, differing expertise, and indigenous knowledge. We hope this tool is applicable and relevant to PCST colleagues.

ABSTRACT

Sampson, Leda

When & where: Parallel session 8-E, Thursday 13 April 17:00 – 18:15, *Hudig Room*
 Title: 6. The “Knowledge Trails” project - communicating history of science through gamification
 Format: Individual papers
 Author: **Leda Sampson**, Brazilian Institute of Information in Science and Technology - IBICT, Brazil
 Chair(s): Luisa Massarani
 Co-author(s): Giulia Accorsi, Ronnie Fagundes de Brito, Marcos Sigismundo

Communicating science, especially to younger audiences, is challenging. The development of informational technologies and the diversity of online content urge innovation. To this end, gamification strategies have shown great potential.

Canal Ciência was created in 2002 as one of the first online initiatives of science communication in Brazil. It aims to popularize Brazilian science by developing strategies to increase general interest in science and technology.

Knowledge Trails is its most recent project and involves a team of science communication researchers and game experts with different backgrounds. The project comprises five free-access games that are currently being developed. They address different but interconnected themes and can be played independently or in a suggested sequence.

One of the game’s premises is to frame scientific knowledge through interactive and fun interfaces mixed with different aspects of gameplay, like entertaining narratives and quests in an immersive virtual environment. This approach is based on the analysis of perception studies in order to meet the needs and expectations of the target audience.

The game’s main objectives are to instigate critical attitudes towards science by lay citizens and present networks of actors, specialities and institutions involved in knowledge development. It also aims to characterize science as a social construct and portray scientists as human beings. To complete the trails, players will interact with scientists from different contexts through dialogues, quests and puzzles that will bring a realistic perspective of how scientific knowledge is built, eliciting social-political values, like gender, race and diversity.

Tools to assess the results, such as right/wrong questions and measurements of play time, are being integrated in the games. To determine the achievement of our goals the games will be applied to K-9 to K-11 students of partner schools, followed by post-playing questionnaires to evaluate knowledge acquisition and interest. The History of Vaccines trail will be available by March 2023, allowing the first results to be presented at the conference.

ABSTRACT

Shamsi, Nurulaini Abu

When & where: Session 1, Monday, 3 April 09:00-10:15, *Zoom*
 Title: Framing COVID-19 Booster Dose: Action, consequences and conflict
 Format: Online conference
 Author: **Nurulaini Abu Shamsi**, Universiti Malaya, Malaysia
 Chair(s): Michelle Riedlinger
 Co-author(s): Nur Aisyah Adila Akbar

Overview: In this session, presenters will explore how important (potentially life-saving) information is communicated to different audiences and how practices are adapted and developed to account for differences in perspectives.

Understanding the framing of health issues in the news enables us to infer the factors influencing news production. Numerous studies have been examining the frames of the COVID-19 vaccine news, but limited studies discussed the framing of the COVID-19 booster dose. Using Malaysia, a developing country, as the setting of this study, a content analysis was conducted on the COVID-19 booster dose articles published between February 7, 2022, to May 8, 2022. A total of 814 news articles were included from two major online Malaysian news for the final analysis. The findings of this study suggest that in comparison to other studies, Malaysian online news tend to emphasise action and consequences frames and avoid conflict frame. This finding is mainly due to the media's role in Malaysia as government propaganda. Media in Malaysia previously followed the development journalism model and upheld the concept of Asian values. These concepts emphasise the social responsibility of media in promoting unity and serving the ruling government's interest. This perspective contradicts the Western liberal approach, which focuses on individual rights and freedoms. This presentation will discuss the research on the analysis of Malaysian news media in presenting the COVID-19 booster dose issue and further discuss the factors that influence health news production in the individual paper session.

ABSTRACT

Sanders, Emma

When & where: Parallel session 3-B, Wednesday, 12 April 15:15 – 16:30, *Van der Mandele (mezzanine)*
 Title: Something for everyone? Interacting with a diverse visitor population
 Format: Linked papers
 Author: **Emma Sanders**, European Organization for Nuclear Research, Switzerland
 Chair(s): Marjolein Oorsprong
 Co-author(s):

Visitor centres, museums and guided tours at research labs can offer a wonderful opportunity for visitors to engage with science through authentic experiences, interact with researchers and discover the scientific process. CERN runs a rich programme of exhibitions, site visits and events, welcoming circa 150 000 visitors to its site every year. Authenticity can be key to success. Visitors are keen to discover the locations where science is happening and to meet the people conducting the research. Interacting with diverse role models changes students' perceptions of scientists and their work.

But are we just catering to existing science fans? Can we offer something for everyone? And why would we want to try? This paper explores how data from CERN's previous exhibitions has helped shape the plans for the lab's new flagship project, Science Gateway, opening in Summer 2023. Through its new exhibitions, labs and science shows, Science Gateway seeks to reach new publics, actively engaging with communities and recognising the importance of reaching out to younger more diverse audiences.

ABSTRACT

Sankatsing Nava, Tibisay

When & where: Parallel session 10-A, Friday 14 April 11:30 – 12:45, *Willem Burger Room*
 Title: 1. Decolonising science communication? Transformations in the Caribbean part of the Kingdom of the Netherlands
 Format: Individual papers
 Author: **Tibisay Sankatsing Nava**, Royal Institute for South East Asian and Caribbean Studies, Aruba
 Chair(s): Bruce Lewenstein
 Co-author(s):

This talk explores science communication ecosystems in the Caribbean islands of Aruba, Bonaire, Curacao, Saba, St. Maarten and St. Eustatius (the ABCSSS islands, part of the Kingdom of the Netherlands), with a focus on nature conservation and mental health. Through a brief reflection on the geopolitical and historical context of the islands, it identifies the contemporary institutional frameworks and colonial legacies that impact science communication in the islands. On these islands, science is often guided by former colonising powers. These legacies shaped the exclusionary practices that have had a long-term impact on public engagement with science on the islands, in which ‘science is done to us instead of done with us’. This is directly related to who funds, designs, leads, executes, communicates and benefits from scientific research and its results.

Using current examples from nature conservation and mental health care communication on the islands, this talk expands on the role Caribbean communities play in genuine engagement with research, results and follow-up action. The analysis of the case studies from different islands identifies a set of transformative local practices for public engagement with science in the ABCSSS islands, that “broaden the imaginary of who can make a claim on science communication” in our region.

The talk, based on work by co-authors and projects from across the ABCSSS islands, reflects on the (im)possibilities of decolonising science communication and offers an alternative vision on community-based engagement with science in Aruba, Bonaire, Curaçao, Saba, St. Eustatius and St. Maarten.

ABSTRACT

Santos, Adriana Omena

When & where: Parallel session 4-E, Wednesday, 12 April 17:00 – 18:15, *Hudig Room*
 Title: 1. Data and engagement in science communication: a comparative study on the public communication of science in research institutions in European and American countries
 Format: Individual papers
 Author: **Adriana Omena Santos**, Universidade Federal de Uberlândia, Brazil
 Chair(s): Michelle Riedlinger
 Co-author(s): Paulo Otávio Santos, Mirna Tonus, João Pedro Santos

The article concerns a comparative study on the uses of Science Communication and technology transfer (innovation), considering data and engagement, in countries with studies on the interrelation between academic production and its dissemination by selected institutions in European and American countries. The basis for this paper is that universities and research institutes develop a significant amount of scientific production, but there is no systematized data on how, and if, these productions go beyond the walls of universities. It relates subjects such as communication of public interest, data mining and engagement, because, for Public Communication of Science to actually take place, it is necessary that, in addition to having access and understanding the scientific content disclosed, the receiver must retain the technical knowledge to which he has access to. This is a study in a multidisciplinary area, because, despite scientific dissemination being an activity that directly involves communication, it also comes up in several other sciences, since this is an activity (and a social commitment) that is the responsibility of all researchers who are dedicated to science and the scientific method. The problem that supports the proposal concerns the fact that research institutions must have their communication of science in line with the public interest and with the guidelines of Public Communication, and it is important that their scientific dissemination and technology transfer are focused on the Public Communication of Science. It uses in the methodology bibliographic review in descriptive and documentary research for data collection. Through the combination of methods, the research performs content analysis and relational analysis combining the co-occurrences of terms, data mining, metrics and measurement of engagement through software such as Semantic network analysis software. Thus, having defined the categorizations related to the Public Communication of Science, mixed methods will be used to finalize the comparative study on the scientific culture and the Public Communication of Science in the selected institutions and countries.

ABSTRACT

Santos, Dan

When & where: Parallel session 5-C, Thursday 13 April 09:45 – 11:00, *Van Weelde Room*
 Title: Towards a Stem Cell Commons: The Contours of Openness in Australian Stem Cell Research
 Format: Linked papers
 Author: **Dan Santos**, Australian National University, Australia
 Chair(s): Katharine Legun
 Co-author(s):

In biomedicine and science more broadly, there is increasing emphasis on ‘openness’ in research practices, both between those involved in research and with those who might benefit from the research. Such emphasis is often invoked because it is aligned with particular conceptions about science and the public good. However, what openness means, how to realize it, and how it contributes to the public good remain open questions. Examining the diverse perspectives on these questions is important for finding common ground among those variously engaged with scientific research.

With respect to stem cell research in Australia, there are currently systematic gaps on numerous fronts, including the availability of resources, whether they align with existing standards, and how research endeavours might support relevant patient communities. This hinders the potential for open and transparent communication and collaboration between various groups, and consequently the extent to which this research could contribute to some shared sense of the public good. In this paper, we share findings from interviews with key stakeholders including researchers and manufacturers, policy influencers and community and patient groups, conducted as part of a research project investigating the potential for ‘openness’ through a commons model in Australian stem cell research. In particular, we discuss their views on ‘openness’ with respect to sharing resources, data and information, trade-offs in relation to competition and commercialization, and gaps in the existing communication systems within research and beyond.

ABSTRACT

Santos, Adriana Omena

When & where: Parallel session 7-G, Thursday 13 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 5. Audiovisual and science communication in engineering: the use of videos for technology transfer on non-destructive testing
 Format: Visual papers
 Author: **Adriana Omena Santos**, Universidade Federal de Uberlândia, Brazil
 Chair(s): Heather Doran
 Co-author(s): Antonio Carlos dos Santos, Mirna Tonus, Paulo Otávio Santos

This is an innovative study between communication, technologies and engineering with a focus on communication results of experimental research science in the area of Civil Engineering in interface with research and extension in the area of Communication, focused on Public Communication of Science (CPC), technology transfer and Scientific Dissemination (DC) of the results for the society. The proposal presents science communication actions, using scripting and production of audiovisual material to disseminate the results of engineering research to the different audiences involved, namely: universities, partner companies, employees and society in general. This is experimental and exploratory research in the area of Civil Engineering, more specifically in civil construction, with small-scale and full-size tests on concrete sleepers used on railroad tracks. In the area of Communication is characterized by descriptive, documentary and field research, with an interface in extension, based on engineering research, producing a video on non-destructive testing. The basic concept is that universities and research institutes develop a significant amount of scientific production and that different scientific dissemination actions are necessary for different internal university audiences and external ones. The research results are related to the production of the communicational identity of the project in engineering and audiovisual products in accessible language for the presentation of the tests and the pathologies in concrete studied in the research. The videos were sent to different audiences and made available on the researchers' Youtube platform. Such results indicate the importance of public communication of science in scientific dissemination actions, especially in times like the one currently experienced, in which the public interest must be based on scientific criteria.

ABSTRACT

Santos-Carvalho, Ana

When & where: Parallel session 6-H, Thursday 13 April 11:30 – 12:45, *Ruys Room*
 Title: 4. Collaborating for a Night without walls
 Format: Individual papers
 Author: **Ana Santos-Carvalho**, Institute of Interdisciplinary Research, University of Coimbra, Portugal
 Chair(s): Liselotte Rambonnet
 Co-author(s): Catarina Domingues, Rita Martins Santos, Daniela Costa, Jorge Noro, Claudia Cavadas

The European Researchers' Night (ERN) 2021 in Coimbra challenged how researchers and public interact. On September 24th 2021, researchers from the University of Coimbra (UC), Portugal, came out from their walls and invaded the Upper and Downtown of Coimbra. A collaborative network between university and its researchers, municipality stakeholders (such as Coimbra Downtown Promotion Agency, Coimbra City Council and Parish Council), and merchants gave rise to a Science Route where citizens were invited to experiment and discover Science developed at UC when revisiting the city.

The Institute of Interdisciplinary Research lead the ERN at Coimbra, inside of a consortium with the cities of Évora, Braga and Lisbon, and under the theme "Science for Climate" to raise awareness about climate change and climate neutrality.

The Science Route included 50 spaces ranging from the university to Coimbra downtown area (2,5 km long), where inside and outside of the restaurants, stores, coffees and museums, activities of a wide range of scientific areas were communicated for an audience of all ages. A WebApp especially created for the event dynamized this route, guiding its visitors and helping everyone to turn it into an Eco-Event, along with the waste reduction and separation and encouragement of ecological transportation. The Science Route was boosted by 400 researchers from 26 UC Research Centres supported by collaborators from 13 Museums, Science Centres, Municipality services and associations, and 42 local companies. This network reached 5880 visitors, 18267 views on WebApp and 24842 interactions on social media. ERN Coimbra as a Science Route contributes actively to science and climate engagement, creating common ground for different stakeholders in a city around Science, and reducing distances between researchers and citizens. This is a winner recipe that challenges us to keep this ERN Coimbra innovative and collaborative format for 2022 and 2023.

ABSTRACT

Santos-Carvalho, Ana

When & where: Parallel session 7-G, Thursday 13 April 15:15 – 16:30, *Van Beuningen Room*
Title: 10. Opening opportunities to engage PhD students in science communication
Format: Visual papers
Author: **Ana Santos-Carvalho**, Institute of Interdisciplinary Research, University of Coimbra, Portugal
Chair(s): Heather Doran
Co-author(s): Rita Martins Santos, Catarina Domingues, Daniela Costa, Cláudia Cavadas

Engaging PhD students in science communication activities at their first scientific career steps may be a strategy to make them develop transferable skills such as the ability to communicate science to a lay audience, reducing scientific misinformation.

The 3 Minute-Thesis Competition (3MT) was established in 2008 by the University of Queensland, Australia. In 2018, the 41 European universities network - Coimbra Group (CG) – adopted it. The University of Coimbra (UC), as a member of CG, has been participating since 2019 through UC3MT. The PhD students, first, send their recorded videos to be evaluated by a local multidisciplinary jury, which is responsible for choosing the best twenty that will present in front of a live audience. The UC jury selects a winner and sends the video to the next phase in the CG International 3MT competition.

Throughout these editions, the number of PhD students applying increased every year to around forty. Besides the competition, the PhD students have the opportunity to develop communication skills, through a two-day practical workshop in Science Communication, Media Training and Design Thinking, where they have individualized feedback both from colleagues and experts.

The evaluation survey shows that 85% of the UC 3MT participants (n=37) considered that this training should be included in their doctoral programs, highlighting the development of communication skills and collaborative networks with colleagues from different scientific fields. UC3MT is part of a broader UC strategy to strengthen the communication skills of its PhD students. Thus, these initiatives leverage PhD students' careers and open them to society as science communication active agents.

ABSTRACT

Saracino, Barbara

When & where: Parallel session 11-E, Friday 14 April 14:15 – 15:30, *Hudig Room*
 Title: 6. Fit for target: citizens' perceptions in policy design
 Format: Individual papers
 Author: **Barbara Saracino**, University of Bologna, Italy
 Chair(s): Alessandra Fornetti
 Co-author(s): Stefania Profeti, Elena Macchioni, Ester Macrì

The exogenous shock of the COVID-19 pandemic has placed the backbone of welfare under a new magnifying glass: the relationship between citizens and policies. Infection containment measures (from restrictive measures first, to the vaccination campaign later) have highlighted the importance of citizen compliance with respect to the effectiveness of government policies, i.e. their ability to generate the desired behaviour. Elements such as the perceptions of the problem and the public solutions put forward, the use of scientific experts, communication strategies, as well as the ascribed characteristics, beliefs, opinions and levels of trust of the target audience, are crucial when it comes to implementing public interventions whose effectiveness relies first and foremost on the responses of the target audience. What have we learnt - and what have institutions learnt - from the COVID-19 pandemic and, above all, from vaccination campaigns about the relationship between citizens and policies?

In the interdisciplinary project we are currently conducting, and of which we will present some results, considering the COVID-19 vaccination campaign as an example of national emergency policy, we started from citizens' perceptions and are comparing them with the measures taken by governments for virus immunisation campaigns. Specifically, we are conducting: a) an analysis of the profiles of vaccination hesitators in Italy, comparing them with those found in other countries in Europe, and b) an analysis of the policy tools and communication strategies developed by the governments of these countries to combat vaccination hesitancy and increase citizen compliance. Through the study of the relationship between the perceptions of the target audience and the measures adopted, we will draw up policy recommendations useful for dealing with possible future health emergency situations in Italy, trying to contain the effects of these in terms of social inequalities.

ABSTRACT

Sardo, Margarida

When & where: Parallel session 6-B, Thursday 13 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: Reflecting on deepening participation in recruitment and evaluation in citizen science - lessons from the WeCount project
 Format: Linked papers
 Author: **Margarida Sardo**, University of the West of England, Bristol, United Kingdom
 Chair(s): Andy Ridgeway
 Co-author(s):

This paper shares learnings from the evaluation of the WeCount urban mobility citizen science project. Drawing on asset-based community development, the WeCount project aimed to empower citizens to take a leading role in the production of data, evidence, and knowledge around mobility in their neighbourhoods. Analysis of surveys and interviews with citizens indicated the project did create and strengthen communities and enhanced citizen advocacy capacity. Citizens' input to the design of the sensor and project workshops resulted in a citizen science model for urban mobility that can be refined for deployment in other cultures and contexts.

However, to deepen co-development in citizen science, projects would benefit from involving citizens in the evaluation process from the outset, for example identifying priorities and evaluation questions, as well as in developing a theory of change that would define the training and skills needed to support citizens in their evaluation journey. They would also benefit from financially compensating citizen evaluators and community champions who can amplify the voice of underrepresented groups. The next step is for citizen science projects to take on board these lessons, observing whether empowerment through not only knowledge and tools for collective action, but the finances to participate, leads to a more equitable seat at the decision-making table.

ABSTRACT

Sarvary, Mark

When & where: Parallel session 9-D, Friday 14 April 09:45 – 11:00, *Zeelenberg Room*
 Title: Using evidence-based pedagogies to create an effective science communication classroom
 Format: Demonstration
 Author: **Mark Sarvary**, Cornell University, United States
 Chair(s): Merryn McKinnon
 Co-author(s): Kitty Gifford

Teaching science communication can happen in many different formats: one-day workshops, activities embedded into science classes, or semester-long courses dedicated to communication. Regardless of the format, instructors must find a pedagogical common ground and transform their science communication classrooms following the newest evidence in education research. Students learn better by doing, and science communication has many applied components that can be taught using creative, active learning techniques.

The presenters will demonstrate the active learning methods they have been using in their workshops with faculty and students and in their applied science communication course at Cornell University and Shoals Marine Laboratory. The session will be chaired by an academic practitioner from the Centre for the Public Awareness of Science at the Australian National University. Ideas about how to create an inclusive classroom, teach information literacy, encourage storytelling, assess audiences, or use social media effectively will be shared. The presenters will also discuss curriculum development using Bloom's Taxonomy.

Attendees are encouraged to bring their own teaching techniques to share and will be able to collaborate with other attendees to build an open “teaching inventory” of active learning methods. The focus of this session will be on hands-on activities, and attendees will walk away with ideas they can implement into their classes and workshops. The presenters are Mark Sarvary, who is an instructor in biology and science communication at Cornell University and conducts discipline-based education research, and Kitty Gifford, who is an independent communication consultant bringing her real-life experience of working with clients into the classroom. They co-teach a course titled “Applied Science Communication: digital platforms and public engagement” and are co-founders of the Science Communication and Public Engagement undergraduate minor at Cornell. They look forward to sharing useful teaching tools in this session and gaining new ideas from the attendees.

ABSTRACT

Schiele, Bernard

When & where: Parallel session 1-B, Wednesday, 12 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: 6. The Maya Through the Eyes of Television, a Comparison of Science and Pseudoscience Communication Documentaries
 Format: Individual papers
 Author: **Bernard Schiele**, UQAM, Canada
 Chair(s): Hans Peter Peters
 Co-author(s): Alexandre Schiele

New technologies have greatly transformed the (dust-covered) discipline of archeology, whose most famous popular culture depictions remain the swashbuckling fantasy adventures of Indiana Jones and Lara Croft. And no lost civilization in popular culture is as mysterious as the Maya, whose cities and temples were simply abandoned overnight. In 2018, Lidar (laser imaging, detection, and ranging) was turned upon the ancient Maya homeland, revealing in mere minutes, without the need for shovels and brushes, its undreamed-of extent and refinement, a revelation which would have taken centuries, if ever, to assess with traditional methods. Because television has the imperative to remain relevant, and even more so for-profit channels relying on advertisement revenues, National Geographic Channel and History Channel's Ancient Aliens seized upon the moment to each produce their own Maya documentary, both released in 2019 – before the pandemic drastically limited the scope of original productions, with Lidar cast as the strongest lead in the previews. Yet, while National Geographic is hailed as a pioneer of educational content, History Channel, and not merely Ancient Aliens, is overwhelmingly dismissed as sensationalist pseudohistory and pseudoscience. This was the perfect opportunity to contrast two television documentaries united in their topic but sharply contrasting in their coverage, to determine the degree to which science and pseudoscience documentary formats diverged from (or coincided with) one another. This talk will present the counterintuitive results of the analysis.

ABSTRACT

Schiele, Bernard

When & where: Parallel session 3-A, Wednesday, 12 April 15:15 – 16:30, *Willem Burger Room*
 Title: 1. The Uses of the Term 'Science Communication'
 Format: Individual papers
 Author: **Bernard Schiele**, Université du Québec à Montréal, Canada
 Chair(s): Emma Weitkamp
 Co-author(s):

The term 'science communication', although widely used and accepted by both researchers and practitioners, embraces an array of meanings. An analysis of its uses in a sample of discourses has revealed that the term was always qualified by co-occurring terms and expressions, modifying its meaning. This talk will describe the most common co-occurrences and the discourses in which they manifest themselves in order to deduce their real meanings. The aim of this discourse analysis is to grasp the discursive context which overdetermines the production of meaning. In the spirit of Habermas, we will also tackle the issues which research in science communication faces. This is necessary as the results of the analysis have shown that it is as though the reliability of knowledge alone, manifest in their application or scope, did not engage its objectivity to the extent that the knowledge produced is in and of itself self-evident in its aim to unveil the real, remaining silent on the social and political context which infuses the discourses that guided the research programs that led to its production.

ABSTRACT

Schiele, Bernard

When & where: Parallel session 3-K, Wednesday, 12 April 15:15 – 16:30, *Van der Vorm Room*
 Title: Freedom vs Science: How to Transcend the post-pandemic political divide?
 Format: Panel discussion
 Author: **Bernard Schiele**, Université du Québec à Montréal, Canada
 Chair(s): Alexandre Schiele
 Co-author(s): Toss Gascoigne, Germana Barata

This panel will bring together participants from all over the world to discuss the current worrying situation, largely born out of the pandemic, which sees freedom and science pitched against one another, and the measures and strategies to mitigate a contradiction which immediately has deleterious consequences for all.

The pandemic magnified the anti-vaxxer controversy, amplifying the movement to such a point that it has become a political force courted by the far-right. Although the movement remains as conspiracist as ever, its inroads within the mainstream largely stem from a major rhetorical shift: the denunciation of the harmfulness of vaccines and the ill intents of the pharmaceutical sector have largely been displaced by the denunciation of mask and vaccine mandates and the discrimination targeting unvaccinated and unmasked individuals as liberticide. Governments enacted these measures as a result of a public health expediency and sought to ground them in science as much as they sought to legitimize them with science. These measures restricted individuals to preserve collectivity – for the greater good. Thus, openly violating the vaccine mandate meant taking a stand for freedom, and above all individual freedom. From there stems the name behind the multiple freedom convoys which besieged cities like Quebec City and Ottawa in Canada. The protesters received the support of the now-dominant populist wings of the Canadian Conservative Party, the second force in Canada, and of the U.S. Republican Party. Thus, science, which aspires to and seeks to be portrayed as value-free, is more than ever thrust in the culture wars and the partisan divide, not only in North America but worldwide, with one of the sides laying an absolute claim upon freedom.

ABSTRACT

Schmitz, Frederike

When & where: Parallel session 10-B, Friday 14 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: 6. Patient engagement in basic research: not as easy as it sounds
 Format: Insight talks
 Author: **Frederike Schmitz**, Catalyze, Netherlands
 Chair(s): Erik van Sebille
 Co-author(s): Carina Pittens, Koert Hommel, Nikola Skoro, Mariska Straube

Patient engagement is increasingly recognized to improve research and development of new therapies. Ideally, patients should be involved throughout the whole process, from discovery to clinical trials. Whereas big steps have been undertaken to include patients in clinical research, the impact of patient engagement in basic research is not (yet) self-evident, nor how to meaningfully engage them. At early research stages, more efforts need to be made to include and engage patients in a meaningful way, as applications in the clinic are still far away. At this point, the patient's motivation, vision, expectations, and the framework of facilitation matter a lot, but even in the most ideal scenario, implementations in real life are still challenging.

Here we want to share practice insights and lessons learned from the patient advisory board of the interdisciplinary EU Horizon 2020 project iPSpine, which aims to develop a new therapy for chronic lower back pain. Moreover, we want to find a way forward by discussing the ideal collaboration between patients and researchers in this international EU project.

To this day, we i) created a shared vision document about the goals and roles of the patient advisory board and means to achieve this, ii) started a continuous recruitment campaign, with this vision at its core, and iii) are promoting dialogue between the patient advisory board and researchers of the consortium for instance through formal patient advisory board meetings and informal online science cafes.

However, it remains a challenge to structurally identify what works and what does not and how to go from dialogue to impact and real influence in the project.

ABSTRACT

Schoonees, Anel

When & where: Parallel session 6-I, Thursday 13 April 11:30 – 12:45, *Van Rijckenvorsel Room*
 Title: ConnectME - App connecting the media to health care experts
 Format: Demonstration
 Author: **Schoonees, Anel**, Stellenbosch University, South Africa
 Chair(s):
 Co-author(s):

A demonstration of a web- and cellphone-based application (app) that instantly connects journalists with healthcare experts in order to facilitate better communication between these important stakeholder groups.

The development of the app forms part of a larger research project which aims to improve the quality of health science reporting in the South African media, and one way to help achieve that, is through improving the communication between journalists and health care experts. The app, which is currently being developed, will serve as an online platform where journalists and healthcare experts in South Africa can find each other, send instant messages and voice notes, arrange interviews and more, all via the app. It is also envisioned to serve as a type of 'social media platform' between these two groups.

The proposed session will demonstrate the features and functionality of the web-based app and share with participants the experience and challenges of developing this innovative tool.

ABSTRACT

Schoonees, Anel

When & where: Parallel session 1-B, Wednesday, 12 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: 5. Existing strategies aimed at improving health intervention research reporting in mass media: a scoping review
 Format: Individual papers
 Author: **Anel Schoonees**, Stellenbosch University, South Africa
 Chair(s): Hans Peter Peters
 Co-author(s): Celeste Estelle Naude, George Nicolaas Claassen, Taryn Natalie Young

Health intervention research (HIR) reporting is important to inform decisions about health treatments and prevention. Mass media reports containing inaccurate, misleading or exaggerated information can do more harm than good, especially in vulnerable people such as those that are ill or with limited health literacy. This scoping review forms part of a situational analysis of the PURE (Perusing the Use of Research Evidence) Media project to improve HIR reporting in South African mass media.

We aimed to map existing strategies aimed at improving health intervention research (HIR) reporting in mass media, and identify knowledge gaps. Our eligibility criteria comprised primary studies and systematic reviews on strategies targeting any audience (e.g. journalists, media editors, scientists), and aimed at improving HIR in mass media (any type, including social media), in any country. A comprehensive literature search was conducted in August 2021. Two reviewers screened the yield independently to identify eligible studies. Relevant data were mapped using tables. Similarities and differences between studies were discussed, as well as gaps.

We screened 16,237 study ABSTRACT, of which 74 full texts were scrutinised. Six primary studies met our eligibility criteria: one multi-country study, three from USA, and one each from UK and Iran, published between 1998 and 2021, and including between 34 and 1082 participants. These included a randomised controlled trial, uncontrolled before-after study, mixed factorial design experiment, web-based survey and two qualitative studies with expert dialogue. Existing strategies varied greatly, from educational workshops for health journalists to experiments with different approaches and modalities of the actual mass media reports or of press releases, and recommendations from science writers to avoid misleading reporting after a frontpage report had negative repercussions. The results from each included study are being analysed for the conference presentation.

ABSTRACT

Schröder, Justin

When & where: Parallel session 9-F, Friday 14 April 09:45 – 11:00, *Schadee Room*
 Title: 1. Cues of (dis)trust in content about science: Comparing journalistic, social, and alternative media
 Format: Individual papers
 Author: **Justin Schröder**, Universität Hamburg, Germany
 Chair(s): Ana Claudia Nepote
 Co-author(s): Janise Brück, Lars Guenther

The demand for scientific information increases in modern societies, for instance through crises such as COVID-19 or climate change. In this context, epistemic trust is among the important variables for the public to accept this information. Recently, however, a (perceived) loss of trust in science has been debated. Since most members of the audiences receive scientific information via a variety of (digital) media, they act as intermediaries of trust in science; hence, media provide indications/cues for (dis)trust in science through content descriptions (on the micro-, meso-, and macro-level). Furthermore, such indications may vary across different types of media (outlets): e.g., social media can affect public trust both positively and negatively. However, research has yet to answer which indicators of (dis)trust can be identified in content about science, which also bears implications for science communication practice. Thus, the present study applied deductive-inductive qualitative content analysis to a sample (n = 150) of media content of important sources public audiences in Germany use to get informed about science (i.e., journalistic (television, (online) newspapers), social, and alternative media), aiming to summarize found descriptions of (dis)trust in science, so-called trust cues. The findings show that there are rich descriptions of trust cues and they link to established dimensions of trust (e.g., expertise, integrity, benevolence, transparency, dialogue). Furthermore, many focus on scientists (i.e., science on the micro-level). Trust cues are frequently represented in journalistic media, less in social media, and alternative media show tendencies to instrumentalize science against 'elites' like politicians. Moreover, trust cues can help science communication practice to foster trust in science; further research may reveal inequalities in media coverage (e.g., gender, field of research). Hence, this paper will discuss the identified trust cues, their use across (digital) media, and implications for (dis)trust in science, with a focus on research and practice.

ABSTRACT

Shakked, Dabran

When & where: Session 2, Monday, 3 April 10:45-12:00, *Zoom*
 Title: The disparity in access to reliable online information regarding COVID-19 conspiracies across four languages
 Format: Online conference
 Author: **Dabran Shakked**, Technion – Israel Institute of Technology, Israel
 Chair(s): Ayelet Baram-Tsabari
 Co-author(s): Ayelet Baram-Tsabari

Overview: This session is about the places and platforms where we acquire science communication knowledge and how that ‘knowledge’ is presented and interpreted in turn.

Inclusive science communication refers to efforts to communicate science-related topics, with the explicit goal of promoting equality across societies. A lack of reliable online science-related information in languages other than English may exacerbate or maintain inequality, specifically biasing accessibility to reliable information about COVID-19. An excessive availability of misinformation can impact decision-making processes, with individual and societal implications. Previous research found disparities in the quality of Google search results for canonical scientific terms in English, Arabic, and Hebrew. Here we ask: are there differences in the quality of search results for COVID-19-related conspiracies in different languages? Three search terms: "5G causes COVID-19", "COVID-19 is a hoax" and "COVID-19 is a biological weapon", were systematically compared for the quality of information presented on the first page of Google Search results. Each query was translated by an expert native speaker and searched for in English, Arabic, Russian and Hebrew. The searches were conducted as if performed from ten different countries where these are official languages. A codebook was developed to facilitate three categories for analysis: scientific quality; accessibility, and conspiratorial characteristics. Using the codebook, 330 search results were manually analyzed by native speakers with relevant expertise. Findings indicate significant variations in search results across languages: The scientific quality of the search results was significantly higher in English (52%) than in Russian (4%) and in Arabic (23%). Search results were significantly more conspiratorial in Russian (39% fully/moderately conspiratorial) than in English (18%), and the accessibility of search results was significantly lower in Russian (8%) than in the other languages (> 45%). These findings extend the literature about disparities in quality in canonical scientific terms, and indicate the existence of a digital divide and a potentially greater risk of misinformation when searching for conspiratorial information in certain languages.

ABSTRACT

Shakked, Dabran

When & where: Session 2, Tuesday, 4 April 14:00-15:15, *Zoom*
 Title: A narrative approach for promoting behavioural changes in sustainability
 Format: Online conference
 Author: **Dabran Shakked**, Technion – Israel Institute of Technology, Israel
 Chair(s): Lars Guenther
 Co-author(s): Ayalet Baram-Tsabari

Overview: In this session presenters will reflect on some specific science communication resources and review the techniques used in the communication process e.g. art, storytelling, cultural relevance, accessibility.

Post-truth phenomena in contemporary online spaces, such as conspiracy theories and fake news, are among the essential challenges of contemporary society. Even at their best, solutions such as regulation and technological innovations are only partially effective. The responsibility for identifying misinformation online falls disproportionately on the general public, most of whom are unfamiliar with potentially helpful technological solutions. Educational solutions are therefore invaluable to creating inclusive societies. A previous theoretical analysis examined how science literacy may support people in identifying science-related misinformation, mainly through understanding of scientific practices; identifying and judging appropriate scientific expertise, epistemic knowledge, and habits of mind such as open-mindedness. Here, we take a broader view and demonstrate how a range of educational literacies may help publics to have informed interactions with post-truth phenomena. We use the theoretical framework of the four lenses on “post-truth” challenges offered by Barzilai and Chinn (2020), which includes: (1) difficulties in evaluating information; (2) biased ways of knowing; (3) lack of confidence in the ability to find reliable information; and (4) controversy over the question of how to know. We apply a theoretical assessment of the contribution of seven cognitive literacies: linguistic literacy, mathematical literacy, scientific literacy, critical thinking, creative thinking, digital literacy, and information literacy to tackle the aforementioned challenges posed by post-truth phenomena. All the literacies examined were useful in confronting the first challenge, each addressing different aspects, thereby complementing each other. This was not the case, however, with the other challenges. For example, while information literacy, digital literacy, and linguistic literacy assisted with the third challenge, none were relevant to the fourth. This is in contrast to scientific literacy, critical thinking and mathematical literacy, which addressed the fourth challenge, but not the third. Addressing post-truth phenomena in the online space therefore necessitates varied literacies to assist the public.

ABSTRACT

Shao Anqi

When & where: Parallel session 3-F, Wednesday, 12 April 15:15 – 16:30, *Schadee Room*
 Title: 1. Cutting “Long COVID” Stories Short: Did News Outlets Oversimplify the Uncertainty in Medical Research about Post-COVID Conditions?
 Format: Individual papers
 Author: **Anqi Shao**, University of Wisconsin - Madison, Department of Life Sciences Communication, United States
 Chair(s): Bruce Lewenstein
 Co-author(s): Yehua Wang

The COVID-19 pandemic continues to have major health ramifications globally. Concerns are increasing in “long COVID”, also known as Post-Acute Sequelae of SARS-CoV-2 or Post-COVID-Syndrome, which describes parts of COVID-19 infectants having at least one sequel of the disease.

The lay public seeks information about this health-related risk due to their uncertainty in what COVID-19 infection would bring them. Meanwhile, mass media, especially news outlets, act as a critical bridge between the frontiers in medical research and the lay audiences.

There are many studies on science communication on infection, protective behaviors, and vaccine effectiveness since the pandemic started. However, compared to those topics that currently have a scientific consensus, there is a lasting controversy and uncertainty in COVID sequelae research outputs. These medical findings may be based on case studies (low-evidence-level), cohort studies (medium-evidence-level), or systematic reviews (high-evidence-level), resulting in a heated debate on what and how symptoms after COVID-19 infection would be. However, we observed the media's tendency to oversimplify by crudely erasing these uncertainties.

Therefore, this study posts questions that: while the epistemic uncertainty of “long COVID” remains high, and while there is high demand for risk-related information among lay audiences, did the news outlets oversimplify the findings in “long COVID” research in their articles? If so, what type(s) of “long COVID” studies are oversimplified? And what type(s) of media (e.g., with left or right-leaning background, from a country with more strict COVID-19 policies) tend to oversimplify the medial findings in “long COVID”?

To answer these questions, we will conduct quantitative content analyses connecting (1) news articles from international outlets mentioning “long COVID” and (2) medical research publications that are mentioned by these articles.

This study aims at creating a common ground for science communicators and medical researchers, especially during critical times of public health emergencies.

ABSTRACT

Shauli, Sophie

When & where: Session 2, Monday, 3 April 10:45-12:00, Zoom
 Title: Does general science knowledge help acquire new scientific knowledge in genetics with health relevance? The case of the hard of hearing and their families
 Format: Online conference
 Author: **Sophie Shauli**, Gordon Academic College, Israel
 Chair(s): Ayelet Baram-Tsabari
 Co-author(s): Ayalet Baram-Tsabari

Overview: This session is about the places and platforms where we acquire science communication knowledge and how that 'knowledge' is presented and interpreted in turn.

Does general science knowledge contribute to acquiring scientific knowledge in context when it is relevant to people's lives? Genetic research has a major impact on daily life, such as in terms of medical diagnosis in the areas of deafness and hearing loss. This study examined the relationship between different forms of scientific and genetic literacy, demographic characteristics, and genetic knowledge of deafness in first-degree family members of the deaf or hard of hearing. A sample of 282 deaf and hard of-hearing individuals and their first-degree family members drawn from a panel of Hebrew speakers in Israel responded to an online questionnaire.

The findings indicated that the average scores on content knowledge were quite low and that the genetic knowledge scores decreased with increasing specificity of the questions. That is, the most relevant questions about the genetics of deafness were the hardest for people to answer correctly. Significant differences were found between respondents with different levels of formal background in science, where the broader the formal scientific background, the higher the scores for general scientific knowledge, genetic knowledge, and knowledge in the context of the genetics of deafness. Although more formal general education characterized participants with greater general and genetic knowledge, the participants did not differ in terms of knowledge of the genetics of deafness. Overall, general education was needed to acquire general science knowledge and genetic knowledge, whereas formal scientific education predicted the acquisition of knowledge in the context of the genetics of deafness. These results further reinforce the claim that genetic literacy forms the basis for the acquisition of additional scientific knowledge in situations relevant to the lives of non-scientists.

ABSTRACT

Sheaves, Alison

When & where: Parallel session 8-F, Thursday 13 April 17:00 – 18:15, *Schadee Room*
 Title: 3. Understanding the impact of role and identity in researcher's engagement in science communication and advocacy
 Format: Individual papers
 Author: **Alison Sheaves**, James Cook University, Australia
 Chair(s): Toss Gascoigne
 Co-author(s): Anne Swinbourne, Maxine Newlands, Connar McShane

Despite a recognition of the value and importance of science communication or advocacy to society, not all researchers are willing to engage in these activities. By drawing on the psychological literature of role and identity theory, this paper will explore why some researchers actively engage in advocacy, and others remain silent. Identity theory is useful to explain an individual's sense of who they are as a researcher, similarly, role theory helps explain why researchers choose to perform different roles even while holding the same 'researcher' identity. Within an interpretive phenomenological analysis approach, Semi-structured interviews and thematic analysis were used to explore the lived experiences of 33 researchers (M age = 49.9, SD = 9.6). The sample consisted of 15 females and 18 males within the Public Health (n=7), STEM (n=20) and social science (n=6) disciplines. Participant career stages ranged from early career (5 years post PhD; n = 2), mid-career (5-15 years post PhD; n = 16) and late-career researchers (15+ post PhD; n = 15). The findings show that, while researchers have similar perceptions of their identities, they differ in their interpretation of their role within the science communication landscape. Researchers often reconstruct their understanding of their role, in order to engage in a form of science communication or advocacy that they are comfortable with. These results allow researchers to better understand and conceptualise how they fit within the science communication/advocacy landscape. This research identified interesting perspectives, however, the sample was skewed towards that of a regional Australian university. Broader application and understanding in other situations will require further research to understand these complexities in a broader context.

ABSTRACT

Silva Luna, Daniel

When & where: Parallel session 3-A, Wednesday, 12 April 15:15 – 16:30, *Willem Burger Room*
 Title: 3. A constructed mind approach for science communication research
 Format: Individual papers
 Author: **Daniel Silva Luna**, University of Antwerp Belgium
 Chair(s): Emma Weitkamp
 Co-author(s):

Recent advances in neuroscience, evolutionary biology, artificial intelligence, and developmental psychology argue that the brain is a multi-level predictive processing system whose main job is to regulate the organism's internal milieu in relation to its current environment. Using past experiences to predict the moment-to-moment interactions of the body with its context, the brain continuously models the state of the body in the world to allocate energetic resources effectively (i.e., allostasis). In this way, the brain constructs all aspects of experience while guiding action. This novel paradigm in the psychological sciences, labelled the constructed mind approach, has profound implications for studying all aspects of the mind, behaviour, and culture, including research in science communication. In this presentation, I describe three ways the constructed mind approach can enrich how we study science communication. First, this approach embraces the complex web of causal interactions and emergent properties within a person's context that constitute their mental events and behaviours. Methodological and analytical tools from various disciplines that factor complexity (e.g., experience sampling, unsupervised machine learning) can be extended to our research topics (e.g., trust in science, attitudes towards science). Second, it places the study of the body front and centre. Exploring how metabolism, stress, and mental health affect people's engagement with science or grounding the definition and operationalization of our conceptual tools in bodily movements and feelings, among other things, can be fertile ground for novel research questions and methodologies. Finally, it argues that a person's cultural experiences wire their brain to enhance their fitness and allostatic outcomes. This can move us beyond conceptualizations of science communication as transmission towards studying it instead as a cultural space where socialization practices and enculturation processes occur. Through complexity, the body, and culture, the constructed mind can enrich our theoretical and methodological toolkits and build interdisciplinary bridges.

ABSTRACT

Silva Luna, Daniel

When & where: Parallel session 11-C, Friday 14 April 14:15 – 15:30, *Van Weelde Room*
 Title: What do emotions 'do' in science communication?
 Format: Roundtable
 Author: **Brian Trench**, Dublin City University, Ireland
 Chair(s): **Daniel Silva Luna**
 Co-author(s): Luisa Massarani, Christian Humm, Stephen Hughes, Sabrina Vitting-Seerup

Emotions are usually described as internal private feelings that people experience in response to a triggering event. However, emotions are not only experienced inwardly but their representation through communicative acts (e.g., expressions, behaviours, words, art) help structure the mental and social lives of the members of a community. From wiring brains and regulating bodies to contributing to the construction of the practices, identities, norms, and beliefs of a community, emotions 'do' many things in the world.

What do emotions 'do' in science communication? In this roundtable discussion, we present different perspectives on the many roles that emotions play in the communication of science to different audiences, and the various functions that emotions such as awe, love, fear, and hope can assume in this space. We will discuss from sociological, psychological, and cultural views which emotions are represented in science communication, who they are represented by, and how they can make our engagement with different communities more effective.

Speaker perspectives:

Brian Trench:

I will discuss love as 1. a motivating force for scientists, that they sometimes acknowledge in public communication, e.g. where it is most conversational, as in radio interviews; and 2. a feeling that science communicators invest in science to engage audiences, e.g. in IFL Science. Related to both of these is the feeling of wonder that is expressed, for example, by astronomers - professional and amateur - and by public communicators and publics engaged with astronomy. I will raise questions about the use, and over-use, of 'Wow!' exclamations in sci-comm. My reflection on these examples will be framed as a call for more attention to emotions in science communication studies.

Luisa Massarani:

I will present a study on the role of emotions during family visits to an exhibition on biodiversity in Brazil. In particular, we tried to understand: (a) which different emotions an interactive exhibition can stimulate in families that visit it; and (b) the extent to which parents/caregivers and museum explainers trigger children's emotional expressiveness. For this, we used a protocol that referenced the Core Affect Model, involving ten family groups (26 individuals) who visited the interactive exhibition (five families in free visits and the other five in visits mediated by an explainer). A team of international researchers held the study.

Christian Humm:

Emotions are not only a positive factor influencing people's relationship with science; they can also serve as a barrier for people to engage in science communication activities. These emotional barriers can be as impactful as material ones (e.g., entrance fees, lack of means of transportation, lousy infrastructure) and sometimes can be traced back to negative emotional experiences with the education system and other such interactions with science throughout a person's life. I will present insights from a study of three underrepresented groups in Germany to illustrate the many functions of emotions in excluding and including diverse audiences in science communication activities.

Stephen Hughes:

The ways in which people manage their feelings about science have an impact on public engagement. Is the truth about climate change too painful to bear? Does overwhelming guilt push us into denial about the consequences of our lifestyles? Do alienated and lonely people fantasise that someone is thinking about them, even if those people are imaginary evil scientists wishing to turn them into 'digital slaves'? My work on difficult public engagement looks at the emotional dynamics of science-society relationships in areas like climate change and conspiracy theories to try and understand the underlying conflicts and tensions between scientists and the public.

Sabrina Vitting-Seerup:

Imagine two ways of learning about the 2019-20 Australian bushfires. In one case, you directly experience smoke pollution from breathing the air; your lungs react adversely to the lack of oxygen and smoke particles. In the other scenario, you read about how the hourly fine particulate matter concentrations exceeded $25 \mu\text{g}/\text{m}^3$. Which of these scenarios calls for the most urgent response? Which will you remember? Which do you resort to when communicating the science behind climate change? In my presentation, I will argue that we need to add more pathos to our science communication, especially when communicating science that requires urgent action – like sustainability science.

ABSTRACT

Simon, Sílvia

When & where: Parallel session 1-F, Wednesday, 12 April 09:45 – 11:00, *Schadee Room*
 Title: Research, science, games and fun
 Format: Demonstration
 Author: **Sílvia Simon**, Universitat de Girona, Spain
 Chair(s): Sílvia Simon
 Co-author(s): Carles Alcaide, Miquel Duran, Fernando Blasco, Miquel Solà, Joan Grèbol

There is a wealth of games involving science communication, especially to teach specific, rather complex concepts. This is common to all areas of knowledge, yet in the case of Chemistry it is especially relevant. For instance, the 2019 International Year of the Periodic Table of the Elements brought about all kinds of playful games involving the Table and the 118 chemical elements. Moreover, the Covid-19 pandemic has seen the emergence of online learning as a sound alternative (or complement, or blend) to traditional, onsite teaching. Since 2020 delivery of new concepts in science has also seen a fair improvement thanks to games and gamification.

This demonstration will feature various face-to-face mono- and multi-player games that we have developed lately regarding the Periodic Table of the Elements, Quantum Chemistry and Physics, and other physicochemical phenomena or concepts, e.g., entropy. DNA and amino acids/proteins will also be subject to attention. Finally, mathematical games will also be addressed. In a way, these are serious games developed by (perhaps) serious people (researchers) who just want to combine sound knowledge with joyful participation. These games all share a common trend: they try to be fun, they try to deliver a clear idea, and they try to appeal both to young people and to adult citizens.

ABSTRACT

Simon, Sílvia

When & where: Parallel session 8-H, Thursday 13 April 17:00 – 18:15, *Ruys Room*
 Title: 3. Scarcity of female eponyms in school and street names - even fewer science female eponyms
 Format: Insight talks
 Author: **Sílvia Simon**, Universitat de Girona, Spain
 Chair(s): Sook-kyoung Cho
 Co-author(s): Núria Alsina, Carles Alcaide, Miquel Duran

The presence of female names in (a) streets and other urban spaces, and (b) elementary and secondary schools, may be an indicator of the gender bias of a society. Indeed, only a fraction (small or large, depending on the area) of street and school names are named after historical people (not considering hagiotoponyms, those bearing non-historic names). In a sense, gender bias (or field of work bias) seems another type of lack of inclusiveness.

The male:female ratio in street and school names (eponyms) is thus an interesting value, which may be complemented with assessment of the field of study or work of those notable people. For instance, people may be classified in four large areas: political/leadership, culture, sports, and academic/science.

We have analyzed street and school eponyms and realized that ca. 15% of names belong to women. However, if just scientists are accounted for, the number of streets or schools having female eponyms is even lower.

It looks like women in science are discriminated against twice: first, vs. men, and second, vs. non-scientific women (writers, musicians, politicians, sportswomen, artists, ...). Of course, there should be no criticism towards non-scientific eponyms; rather, one should pledge for a higher presence of women in science in the public namespace.

We think that eponyms in streets and schools may be a powerful tool to visibilize women scientists and recognize their value. Changing names of streets may be tough, but new streets might give priority to women and to scientists. Elementary and secondary school names, at least in Catalonia, allow for ample space to include a woman scientist eponym. This contribution will deal with those ideas and provide some insightful maps on gender biases.

ABSTRACT

Smallman, Melanie

When & where: Parallel session 2-A, Wednesday, 12 April 11:30 – 12:45, *Willem Burger Room*
 Title: Is it time for an International Centre for Science Communication?
 Format: Roundtable
 Author: **Melanie Smallman**, University College London, United Kingdom
 Chair(s): Toss Gascoigne, Jenni Metcalfe
 Co-author(s): Marta Entradas, Brooke Smith, Siddarth Kankaria, Ionica Smeets

Over the past 30 or more we have made great strides in our knowledge, understanding and practice of science communication, as well as in sharing good practice and building pockets of expertise around the world.

For many, however, careers in science communication are precarious and activities typically rely on project-based funding that tends to be extra-curriculum activities for science-focused organisations. It is possible to imagine that if times get tough, science communication might be seen as an unaffordable luxury when we know it is fundamental to negotiating the relationships between science, technology and society in the 21st Century. Is there a risk that the lessons so far could be diluted, forgotten or even lost?

In this panel discussion, we reflect upon these issues and look at how science communication is being institutionalised before asking if it is time to do more to cement our knowledge and commitment by institutionalising science communication – both locally, but also globally in an International Centre for Science Communication.

Melanie Smallman is Associate Professor in Science and Technology Studies at UCL and Director of UCL's MSc and Centre for Science Communication. Previously, Melanie spent 20 years working in science communication and ran the science communication consultancy Think-Lab which she set up in 1999.

She currently advises the German Science Barometer survey and helped set up and is Jury Chair of the International Falling Walls Engage competition. She also serves on the steering group of the PCST Science Communication Teachers' Network.

Melanie will draw on her experience of working in science communication practice and research, of attracting funding to support these activities and as an institutional leader to reflect on where we are now in science communication. She will also propose some ideas for ways in which practice can be better shared, institutionalised and cemented for the future - in particular through an International Centre for Science Communication.

Marta Entradas is an Assistant Professor at the University of Lisbon.

Her research looks at the institutional structures in place for science communication. In particular, her MORE'PE project (2016-2020) has been a pioneer in contributing to our knowledge of how science communication is institutionalised, mapping communication at the level of research institutes (RIs) (meso-level) within academic institutions in 10 countries around the world. She is continuing this mapping at the central level of organisations in Portugal, the UK, Italy and Germany, through the 'OPEN - Organisational Public ENGagement' project (2018-2021), which will be the first empirical work of such type.

In her talk, Marta will draw on these projects and reflect on the lessons learned, to help us

understand current trends and lessons learned in institutionalising science communication.

Brooke Smith is the Director of Science and Society at The Kavli Foundation, where she works to strengthen science's relationship with society. Brooke is passionate about scientists engaging with various publics, and supporting those who enable scientists to communicate and engage effectively. At The Kavli Foundation, Brooke leads programs to build the field of public engagement with science, to support engagement efforts of Kavli's partners, and advance science policies that enable a thriving scientific enterprise.

In her talk, she will share insight from her experience of supporting projects that build the field of public engagement at the Kavli Foundation, highlighting what has worked well and what she sees as the key factors for the success of such projects and institution-building activities.

Siddharth Kankaria is a science communication practitioner and researcher, currently working at the National Centre for Biological Sciences, Bangalore and the Founder of the SciCommSci Club.

He spends his time exploring the research-practice continuum within science communication, contributing to mentorship, capacity-building & DEI efforts, and developing intersectional science engagement practices for the Global South.

In his talk, Siddharth will share insight from his experience of capacity building and reflect on what it means to institutionalise science communication in the Global South, what has been most effective, as well as what would be a priority from a future global initiative to institutionalise science communication.

ABSTRACT

Smeets, Ionica

When & where: Parallel session 11-F, Friday 14 April 14:15 – 15:30, *Schadee Room*
 Title: Science Communication in Mathematics
 Format: Roundtable
 Author: **Ionica Smeets**, Universiteit Leiden, Netherlands
 Chair(s): **Erin Henning**
 Co-author(s): Anna Maria Hartkopf, Julia Cramer

We would like to invigorate the discourse and exchange about science communication in sciences such as mathematics, physics, and computer science. During the roundtable, we want to discuss the unique challenges of communicating sciences with a high degree of abstraction and how we can bring together science communication researchers and practitioners in these fields. What do practitioners want from researchers? How can researchers make their findings more available to practitioners? How can we use this collaboration to develop a theoretical framework of the science of science communication in the sciences? To answer these questions, we have three panellists to share their unique perspectives and experiences as both practitioners and researchers. After the opening remarks and initial discussion, we would like to engage the audience of the workshop by forming groups and tasking them with formulating a research question and a possible research methodology to tackle it. These questions will be presented and discussed in a closing session.

Speaker perspectives:

Ionica Smeets is a professor of science communication at the Universiteit Leiden with a PhD in mathematics. She will discuss her double life as a researcher and practitioner of science communication. Particularly she will talk about the award-winning Dutch children's book *Maths & life (Rekenen voor je leven)* she made together with writer Edward van de Vendel and illustrator Floor de Goede. How did they make concepts engaging and fun for children? Where did they use results from science communication research to make this book? And where was the practical experience from making previous books and doing mathematical science communication more relevant?

Anna Maria Hartkopf is currently the head of MIP.labor, a research project for science journalism in the subjects of mathematics, computer science, and physics at Freie Universität Berlin. The mathematician completed her doctorate on "Science Communication in Mathematics" in 2020. She has more than 10 years of experience specializing in the communication of mathematics, namely as a research assistant at the Mathematisches Forschungsinstitut Oberwolfach, as a mathematics teacher at a Berlin comprehensive school, and in the Collaborative Research Center "Discretization in Geometry and Dynamics". Together with Erin Henning, she is the editor of the recently published book "Handbook of Mathematical Science Communication". During the panel, she will discuss the work being done at the MIP.labor as well as how we can begin to build a theoretical framework for the science of science communication in mathematics.

ABSTRACT

Smith, Brooke

When & where: Parallel session 3-C, Wednesday, 12 April 15:15 – 16:30, *Van Weelde Room*
 Title: Toward a unified research agenda for communicating basic science
 Format: Roundtable
 Author: **Rick Borchelt**, The U.S. Department of Energy, Office of Science, United States
 Chair(s): **Brooke Smith**
 Co-author(s): Sara Yeo, Marina Joubert, T.Y. Branch

Where would global society be without basic, curiosity-driven, discovery science? Basic research deepens our fundamental understanding of the natural and physical world from the origins of the universe to atmospheric chemistry of present-day earth. It underpins nearly every technological advancement. Yet, despite its critical importance to advancing human knowledge and capabilities, basic science (as opposed to applied sciences, medicine, and technology) is rarely the focus of communication scholarship, practice, or training.

Consequently, there are many unknowns about the needs, challenges, and approaches to communicating or engaging the public with basic science. What is the role of science communication for basic science specifically? What do different communities around the world think and feel about basic science? How do different communities globally practice and make sense of basic science communication? How well prepared are the world's basic scientists to engage the public around their work? Are there opportunities and challenges unique to basic research that should inform, and potentially change, public engagement strategies?

These questions and more led the Kavli Foundation and the U.S. Department of Energy Office of Science to form the Science Public Engagement Partnership (SciPEP) to explore what is known and what is unknown about basic science communication. In February 2022, the SciPEP partners developed a broad prospectus on critical questions that form the beginnings of a research roadmap to address the gap in scholarship. In addition, new research is emerging. This roundtable discussion will examine a proposed, preliminary research agenda and emerging evidence on basic science engagement. Speakers will give brief opening presentations to frame the conversation. A facilitated discussion with respondents and the audience will follow to address what we know, don't know, and what questions we should be asking, at both the institution level and globally.

Speaker perspectives:

Rick Borchelt (The U.S. Department of Energy, Office of Science)

Communicating about basic science is an essential part of the scientific process and is critical for engendering the public support necessary for our global innovation ecosystem and economy. However, there are few solid guidelines about how best to communicate about basic science. This talk will outline work of the Science Public Engagement Partnership (SciPEP) to catalyze a unified understanding of communicating basic science, including strategic directions

for integrating social science research with science communications practice and training. For continued scientific progress and innovation, it is important that policy makers, decision leaders, other scientists, and interested members of the public can access and engage with the whole story of scientific research, from basic research to breakthrough discoveries to technological advancement.

Sara Yeo (University of Utah, United States)

What are the strategic goals of scientists and research-supporting institutions for communicating about basic science? Are there any goals that are unique or better suited for communicating basic science than they are for applied science? This talk will highlight emerging evidence about the motivations, goals, and needs of basic scientists to communicate about their research. Dr. Yeo will give a brief overview of this new evidence, with an emphasis on whether and how basic scientists differ from applied scientists. The overview will include data from her research team's recently completed survey on U.S. scientists' use of and attitudes toward social media for public communication and its implications for science communication practice, training, and priorities for future research.

Marina Joubert (Stellenbosch University, South Africa)

Marina Joubert will reflect briefly on how and why field differences affect scientists' communication behaviours and willingness to engage with society. Scientists doing fundamental research typically perceive low public interest in their work, but high barriers to making their work publicly accessible in a meaningful way. Still, throughout history, some of the most notable science communicators have been working in fields such as chemistry, physics and astronomy. She will share some stories and examples of how and why basic science is communicated in South Africa where science policymakers prioritise research linked to the country's unique geographic position, such as its southern skies and unique fossil heritage, as well as terrestrial and marine biodiversity.

T.Y. Branch (University of Cologne, Germany)

Basic science, or research conducted without the explicit aim of creating social goods, is taken by default to be at the heart of discovery. Originating from the concept of 'pure' science, basic science has served as the foundation for how science relates to society in the Global North since the beginning of the Cold War. Dr. Branch will discuss her insights on how establishing and maintaining this privileged position for basic science requires the support of institutions that reinforce the distinction between basic from applied science. For example, emerging work on the broader implications of the value-free ideal for science is crucial to capturing how basic science has been communicated and perceived by publics. She will also share her expertise on why asking how best to communicate it, also requires, simultaneously, understanding what makes basic science different (if at all) from other sciences and examine the values that define it.

ABSTRACT

Sobane, Konosoang; Marjoleine van der Meij

When & where: Parallel session 8-B, Thursday 13 April 17:00 – 18:15, *Van der Mandele (mezzanine)*
 Title: Co-creation: What's in a buzzword?
 Format: Roundtable
 Author: **Riina Linna**, Museum of Technology, Finland
 Chair(s): **Konosoang Sobane, Marjoleine van der Meij**
 Co-author(s): Andrea Geipel, Ines Montalvao, D.A. Eva Durall

Co-creation has been a buzzword for a few years in many creative fields from museums to product design and marketing. In this roundtable session we want to discuss our varied experiences in co-creation and how co-creation can shape our practice of science communication.

Co-creation has its origin in commercial business but has become popular in the public sector. It can mean a variety of similar practices, such as collaborative governance, community involvement, participation and civic engagement.

This roundtable session will offer diverse perspectives on the topic. Speakers' opening statements will reflect their experience on co-creation. We will offer insights and experience on topic such as prototyping in exhibition design, how co-created exhibitions with hobbyists are creating new understandings, how to ensure co-creation actions strive towards fostering inclusion and diversity and how to co-create an online exhibition online.

In addition to the short contributions from the speakers, the panelists and chairs will prepare further in-depth topics on which the audience can take part in sharing their unique knowledge and asking questions. We will engage audience with the help of audience engagement tools such as the AR app *VotAR* or *Mentimeter*. In this way, we can focus the discussion to the things that arouse the most interest in the audience - and thus co-create our own discussion. Some topics for discussion may include why co-creation seems to be so relevant? What are the limits of co-creation? Is co-creation the best way of constructing common understanding?

Speaker perspectives:

Riina Linna

The Finnish Museum of Technology has dedicated a permanent space at the museum for community exhibitions. For the past two years we have been doing exhibitions (five and counting) in that space in co-creation with collectors, societies and hobbyists. Working together with non-professionals to create an exhibition is a chance for both parties to learn from each other and truly share expertise.

But as a museum/exhibition professional this new practice of co-creation has also changed me as a professional. Sharing a common bond, interest, taking part in other people's learning and also exposing my own learning to my co-creation teammates has made the process very

personal and meaningful. I have also started questioning some practices in the field and wondering whether I am a proper professional anymore.

Andrea Geipel

It was not only the pandemic that showed us that museums can also be experienced online. But how do you integrate the expanded circle of visitors into everyday museum life? Is it possible to offer co-creation services online, e.g. for the design of an (online) exhibition? How do you moderate international and heterogeneous groups and which tools help with the implementation?

This opening statement presents the online course programme Meaning Making, which tested with international participants how to co-create an online exhibition online. In addition to presenting the concept, the evaluation with the participants is presented and the resulting recipe for online co-creation is explained.

Ines Montalvao

Why is prototyping so valuable to a co-creation approach in the exhibition design process, allowing for a more accessible and welcoming outcome for diverse audiences? Prototyping is also more than a buzz word - understanding its value impacts and reflects upon the exhibition development and implementation.

A “shared experience” can be present in all stages of exhibition design if done in a sustained co-creation approach, as several examples from different contexts, people and themes will demonstrate. Topics of inclusion and emotions will be explored in the context of why “doing together” is important, and how to do it with/for your audiences, also having such topics as ultimate goals to create a meaningful, memorable and transformative experience.

D.A. Eva Durall

How to ensure co-creation actions strive towards fostering inclusion and diversity? Should we set a common ground when designing for co-creation?

Design principles are general guidelines to facilitate design activities. They are a starting point to aid and inspire practice. In the context of science education outside the classroom, design principles can help design science learning activities, triggering awareness on aspects related to inclusion and equity. But how to design such principles in a way that acknowledges the diversity of contexts in which science learning takes place?

In my talk I share insights on the participatory approach to a design principles toolkit produced with various stakeholders to co-create science learning activities outside the classroom.

ABSTRACT

Söderström, Lena

When & where: Parallel session 2-C, Wednesday, 12 April 11:30 – 12:45, *Van Weelde Room*

Title: 6. “Borrow a researcher”- a scalable science engagement activity that works

Format: Insight talks

Author: **Lena Söderström**, VA Public & Science, Sweden

Chair(s): Liesbeth de Bakker

Co-author(s):

“Borrow a researcher”, a concept through which schools are visited by a researcher, has proven to be a popular and successful Researchers’ Night activity in Sweden. Researchers visit school classes, either in person or virtually, to talk about their research, its wider societal context, as well as their daily work and career path. In 2021, a national online booking platform was developed and successfully piloted involving 80 researchers and around 100 school bookings. Researchers’ profiles and their availability are uploaded to the platform and teachers can book visits directly. The initiative is now being further developed to enable schools, organisations and researchers across the whole of the country to participate regardless of where they are located. The project is currently in its second year and has grown even bigger creating nearly 150 opportunities for researchers and citizens to engage in discussion and mutual learning. Due to the flexibility of the initiative, which enables both virtual and in person visits, schools and organisations across the whole country, which usually don’t have access to science engagement activities, are able to participate.

It is also a simple engagement activity, which an encouraging number of researchers and research performing organisations are keen to get involved in, and from which participating researchers can also gain valuable experience and insights. Researchers are given guidance and training on how to make their visit interactive and informative. The activity also helps to fulfil many of the objectives of European Researchers’ Night and is also receiving extremely positive feedback from both participating researchers and teachers.

Lena Söderström, project manager at the Swedish non-profit member organisation VA (Public & Science), will explain more about the methodology, booking facility, and learnings from expanding this growing initiative into a truly national activity that creates common ground for researchers and citizens.

ABSTRACT

Spoel, Philippa

When & where: Parallel session 9-G, Friday 14 April 09:45 – 11:00, *Van Beuningen Room*
 Title: 3. Communicating COVID-19: Characterizing risk as personal property and responsibility
 Format: Individual papers
 Author: **Philippa Spoel**, Laurentian University, Canada
 Chair(s): Carolina Llorente
 Co-author(s): Emily Cooke, Catherine Copley, Michelle Reid

This presentation forms part of a larger project investigating how risk of viral infection and transmission was characterized by Canadian public health officials during the first declared year of the pandemic (March 2020 – March 2021). Here we trace two recurring and interconnected configurations of infection/transmission risk from this discourse: 1. risk as a personal property and 2. risk as a personal responsibility. In the first case, we are especially interested in how public health officials describe risk as something that people possess, “take,” and/or “carry” with them, often using language that images risk in tangible and spatial terms; in the second case, we examine how public health discourse characterizes individual citizens as responsible for monitoring and assessing their “own” risk profile as the basis for determining what kinds of behaviours they should/should not engage in. In closing, we reflect on what these two ways of describing risk imply for commonplace understandings of viral risk in the context of COVID-19 as well as what they suggest about how Canadian public health authorities constructed the roles of citizens in managing risk of COVID-19 infection.

ABSTRACT

Spreen, Nico

When & where: Parallel session 8-G, Thursday 13 April 17:00 – 18:15, *Van Beuningen Room*

Title: 1. Busting myths of biotech: An experiment on countering consumers misperceptions of genetically modified food

Format: Individual papers

Author: **Nico Spreen**, Department of Journalism and Communication Research at Hanover University of Music, Drama and Media, Germany

Chair(s): Germana Barata

Co-author(s): Christoph Klimmt

Recent biotechnological food (BTF) technologies enable sustainable food production to combat current global problems such as climate change or a growing world population. However, because of a wide gap between scientific consensus and public belief about their food safety establishing BTF on the market is difficult. Many consumers perceive BTF to be (a) unhealthy or unsafe, (b) unsustainable, and (c) unnatural. But scientists agree that BTF is not worse than conventional food. Because of consumers' important role for bringing BTF to the markets, it is necessary to provide understandable information and to combat common misperceptions. Based on guidelines of debunking misinformation and current findings about BTF, an experimental poster campaign was developed to explore novel opportunities of countering consumers' false beliefs. This medium is chosen to test the message strategy of myth-busting. Additionally, poster campaigns address diverse populations and their distribution is seen to be highly relevant in raising public awareness because they provide an effective method for launching a campaign before further information is shared personally or online. Furthermore, there are to our best knowledge no approaches that counter misperceptions about BTF using a 'myth-busting' strategy. Experimental posters address one of the three mentioned misperceptions and present a scientific fact statement that corrects the misperception. A fictional scientific association appears as message origin. The detailed message strategy will be outlined at PCST Rotterdam.

We hypothesize that poster presenting a correction statement that (H1a) BTF is healthy and safe, (H1b) BTF is sustainable, and (c) BTF is natural will decrease corresponding misperceptions in respondents. In line with advertising research, this effect will be moderated by attitude toward the ad (H2a-c) and perceived sender credibility (H3a-c). Furthermore, we predict (H4a-c) that each poster will lead to higher intention to purchase BTF than a control condition.

A large-scale online experiment serves to test consumer reactions to the 'myth-busting' posters (September 2022), acquiring a sample that is representative by age, gender, and region for German residents (N=4.000). Preliminary results of a pretest (N=263) confirmed significant effects of each poster on countering the corresponding misperception. The 'myth-busting' strategy seems to succeed and could be appropriate as a tool for science communicators to counter myths about BTF. Thus, myth-busting posters could be a suitable way to raise public awareness and launch a myth-busting campaign before spreading further information through

other channels, such as social media. The final analysis of the large-scale online experiment will be shown at PCST Rotterdam, followed by a discussion of conceptual perspectives on science communication as 'myth-busting' and practical implications for strategic messaging about biotechnology.

ABSTRACT

Strick, Madelijn

When & where: Parallel session 3-H, Wednesday, 12 April 15:15 – 16:30, *Ruys Room*
 Title: 1. Active Ingredients of Science Communication Impact: A Quantitative Study at a Science Festival
 Format: Individual papers
 Author: **Madelijn Strick**, Utrecht University, Netherlands
 Chair(s): Julia Cramer
 Co-author(s): Stephanie Helfferich

The scientific literature offers a wealth of useful theories explaining and predicting science communication impact. Yet, the available evidence is extensive and scattered, making it difficult to identify core issues and develop concise and efficient impact assessment tools. It would therefore be useful for researchers and practitioners to condense available expertise and to distil essential ingredients.

In this research, therefore, our main was to integrate insights from different frameworks and extract broader underlying mechanisms (i.e., active ingredients). We present a quantitative survey study (N = 456) that aimed to identify active ingredients of a science festival in Utrecht, The Netherlands. The survey measured a wide set of variables that are documented in the literature as enhancing the impact of science communication (e.g., emotional appeal, clarity, social contact). Factor analyses of the data revealed two underlying types of impact: increased knowledge/insight (learning new things and becoming aware of knowledge gaps) and increased familiarity (feeling closer to science and scientists). Furthermore, the data revealed three active ingredients predicting these impacts: personal relevance (the feeling that the festival activities touch on one's emotions and personal life), interactivity (the level of active involvement and dialogue), and accessibility (experiencing clarity and safety).

The most powerful active ingredient was personal relevance. Science communicators can create personal relevance by explaining how a given topic has important consequences for the audience, or by touching on visitors' emotions and providing them opportunities to learn about and reflect upon themselves. These insights support the current trend in public engagement to communicate science via art, which is thought to facilitate visitors' emotional connection with the scientific content and to stimulate learning. Implications of these findings for researchers and practitioners in the field of science communication will be discussed.

ABSTRACT

Tan, Yihong

When & where: Parallel session 8-F, Thursday 13 April 17:00 – 18:15, *Schadee Room*
 Title: 1. Chinese scientists' view of medialization linked to leader recognition, perceived media role and past experience
 Format: Individual papers
 Author: **Yihong Tan** Chinese Academy of Sciences, China
 Chair(s): Toss Gascoigne
 Co-author(s): Hepeng Jia

Various studies examined the degree of medialization among scientists and their corresponding beliefs and behaviors, but so far, no research has explored the situation in China, the world's second-largest scientific power. Using a sample of over 600 scientists recruited from the readership of two popular science websites, we investigated the frequency of scientists' media interaction and their readiness to adapt their research to the media interests, the two major indicators of medialization. The survey found that 62.5% surveyed scientists have not contacted any type of media in the past 12 months, and only 9.7% had more than ten media contacts in the period. Chinese scientists' media interaction frequency is much lower than in Germany and even lower than in Taiwan. The actual percentage of media contacts could have been lower because our sample is primarily readers of popular science websites, who should be more media-oriented. The portion of "medialized" scientists is also lower than in other countries. More than 29.3% of surveyed scientists think media is completely unimportant or unimportant to their research decisions.

Then, using a linear regression model, we found that scientists' willingness to adapt to the media interest is positively associated with their media contacts, scientists' desire to seek leaders' recognition, their past media experience, their appreciation of the media's role in unbiased science reporting, and the perceived public interests in their research also positively predict their media adaptation.

While revealing the medialization situation in China, this study broadens our understanding of the concept by expanding the research to scientists' public science communication and supporting the claim that medialization is a result of science's politicization.

ABSTRACT

Tan, Yihong

When & where: Parallel session 10-E, Friday 14 April 11:30 – 12:45, *Hudig Room*
 Title: 7. Can media coverage really increase paper citation? — Reflections on the neglected sides of medialization of science based on Chinese sample
 Format: Individual papers
 Author: **Yihong Tan**, 1) University of Chinese Academy of Sciences (UCAS); 2) CAS Institutes of Science and Development; 3) CAS National Science Library, China
 Chair(s): Bernard Schiele
 Co-author(s): Hepeng Jia, Dapeng Wang

Amidst the so-called medialization of science which promotes journals and research institutions to “sell” their research to the mass media, researchers have examined the effect of media coverage of scientific papers on their citations. A general conclusion is that media coverage can increase the citation frequency of a reported paper.

However, utilizing data from the “Scientific Journals meet Mass Media” project (2007-2011) sponsored by the China Association for Science and Technology (CAST), the only regular media-journal exchange platform in the country, this study found a different pattern. The citations of papers recommended by science journals to the mass media were indeed statistically significantly higher than those of articles in the control group (unrecommended papers in the same issue of the same journal) two years and six years later. However, among the recommended papers, those reported by the media haven’t resulted in statistically significantly higher citation than the papers that the media didn’t report.

The result shows that media coverage may not increase the citations of the reported papers in China. The higher citation of the papers recommended by journal editors to the media may be caused by higher intrinsic quality, which attracted the attention of journal editors. In the context of China’s highly organized science communication system, this study offers a new perspective to examine the medialization of science: When science was “medialized” due to bureaucratic order, we can hardly expect any consequential impact of the so-called medialization on science as observed in the West. This may explain Chinese scientists’ passive and impassive attitude to science communication through mass media.

ABSTRACT

Tassell-Matamua, Natasha

When & where: Parallel session 5-B, Thursday 13 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: 4. Being an expert Who gets to decide?
 Format: Individual papers
 Author: **Natasha Tassell-Matamua**, Centre for Indigenous Psychologies, Massey University, New Zealand
 Chair(s): Massimiano Bucchi
 Co-author(s):

The privileging of material reductionist ontologies by the scientific paradigm means knowledge is often defined according to whether it meets the criteria of this powerful institution, and science communication, therefore, is also bound by these same parameters. Yet, there exist bodies of knowledge not readily aligned with the scientific paradigm, that may facilitate enhanced understandings about a range of phenomena for a range of audiences. These bodies of knowledge, held sacred over time by Indigenous peoples, might best be described as Indigenous knowledges. Indigenous knowledges systems by necessity have Indigenous knowledge holders. Yet, these people are often not held in the same esteem as ‘scientists’ despite their knowledge often being synonymous with scientific knowledge, and are therefore often not considered as ‘experts’. Using a recent example of a public debate in New Zealand about whether Māori knowledge is ‘science’ and providing examples where such knowledge is unparalleled by science in its ability to explain some phenomena, the presentation will argue that the term ‘expert’ and who it is applied to is often informed by uncontested assumptions and societal discourses (often perpetuated in science communication) about what knowledge is and who has the power to hold it. It will conclude by questioning whether the parameters of what constitutes an ‘expert’ and ‘expertise’ may need to be widened.

ABSTRACT

Tavecchio, Alessandro

When & where: Parallel session 6-E, Thursday 13 April 11:30 – 12:45, *Hudig Room*
 Title: 3. Communication offices: beyond strategic communication
 Format: Insight talks
 Author: **Alessandro Tavecchio**, SISSA - International School for Advanced Studies, Italy
 Chair(s): Sikke Jansma
 Co-author(s): Nico Pitrelli, Francesca de Ruvo, Donato Ramani

The need for brand positioning in an ever more competitive ecosystem has made strategic communication a central professional practice in higher education and research institutions, both to manage relationships between and within organization and to gain legitimacy towards particular stakeholders. Through the work of communication offices or departments, the academic institution truly becomes a brand, trying to promote the qualities and values of the organization to attract funding, qualified personnel and students. The specifics of these strategic communication endeavors can vary widely, implementing all kinds of practices, but the rise in the mediatization of society and organization has created an implicit model where the role of communication offices ends up almost indistinguishable from marketing. We propose that the current media ecosystem requires communication offices and institutional strategic communication to rethink their role along two main directions, with the ultimate goal of creating wide truly inclusive sense-making communities and avoiding preaching to the choir. Firstly, communication offices could act as a hub to intercept and read the current times through the co-creation of ad-hoc cultural proposals. In this sense, they would become cultural agencies, working with artists, media, local administrations and other stakeholders to reach disengaged publics, promoting equity and inclusion on their terms. Furthermore, they could become a more explicitly involved actor in science journalism, by working with the local press not (only) for media relations and marketing purposes, but as training hubs for journalists and media-engaged scientists, especially on issues relating to social justice, democratic participation and science policy.

ABSTRACT

Thomas, Jane

When & where: Parallel session 3-G, Wednesday, 12 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 2. Visual communication means we're all speaking the same language
 Format: Visual papers
 Author: **Jane Thomas**, Resilient Landscapes Hub, Australia
 Chair(s): Melanie Smallman
 Co-author(s): Michael Douglas, Stephen van Leeuwen

Effective science communication delivers research findings that are accessible and easy to understand, enhancing the successful uptake of research by users.

The Resilient Landscapes Hub is an integrated research program under the Australian Government's National Environmental Science Program. The hub is informing policy and supporting better land management by undertaking world-class research and delivering it with targeted and purposeful science communication.

A focus on visual communication brings the people and landscapes of Australia to life and creates credible and relatable engagement materials. Visual methods also facilitate cross-cultural, two-way communication in a country where dozens of Indigenous languages are spoken.

A major, ongoing communication output of the program is a free collection of more than 150 graphical symbols. The symbols – including plants, animals, people, land uses, and livelihoods – were conceived and developed to effectively deliver hub research messages to partners and research users.

Consultation with Indigenous Australians resulted in an expanded set of symbols that better represents First Nations' aspirations, including families being together, sharing knowledge, and general well-being.

After being released publicly, nearly 1,000 people registered for the symbols – mostly people in government or academia in the environmental science field using the symbols to communicate scientific information to diverse audiences in diagrams, presentations, posters and graphical abstracts. However, the symbols are also being taken up in diverse fields and exciting and unexpected ways – for example, there is a small but significant number of speech pathologists using the symbols in speech and language skills for Indigenous Australians.

The symbol library is continually being expanded, and each new set of symbols is conceived and developed by the program's Knowledge Broker and Senior Indigenous Facilitator. The range and diversity of symbols are fostering inclusive, two-way communication and better representing Australia's unique landscapes and stories.

ABSTRACT

Tönsfeuerborn, Tobias

When & where: Parallel session 5-B, Thursday 13 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: 1. Researchers' Strategic Usage of Public Communication Activities: Theoretical Reflections and Research Desiderata
 Format: Individual papers
 Author: **Tobias Tönsfeuerborn**, Bielefeld University, Germany
 Chair(s): Massimiano Bucchi
 Co-author(s):

Science, according to the concept of its medialization, can be seen as increasingly oriented towards public visibility. The reasons mentioned for this include the variety of expectations towards scientists (as well as scientific organizations and the system of science as a whole) and the competitive relations within science. Thus, researchers themselves now describe their public communication as strategic communication, in addition to the paradigms of public understanding and public engagement.

This paper sheds light on researchers' strategic usage of their public communication activities. It offers theoretical considerations as well as research perspectives on the motives, strategies, goals, and target groups of (German) researchers' public communication within the organizational structures of universities. My central assumption is that scientists use the public not only to communicate science but also strategically to deal with different expectations from inside and outside science and also competitive structures in academia.

The paper's main essence is a theoretical framework on the issue, drawing on theoretical contributions and existing research at the intersection of science, communication and media as well as organizational studies. Therefore I link the view on science communication with concepts such as public relations, strategic communication and self-presentation but also the aspect of self-observation through public communication and the relationship between intra- and extra-scientific publics. Furthermore, I consider the university as an organization that provides the structural framework for researchers' public communication activities and also addresses the role of the relevant actors including communication professionals.

Based on this, I outline a research program addressing researchers' strategic use of public communication that explores their aims and strategies as well as the organizational circumstances and public communication's repercussions on science. In this respect, the project may be fruitful both for the study of science communication and for the investigation of science itself.

ABSTRACT

Tönsfeuerborn, Tobias

When & where: Parallel session 9-G, Friday 14 April 09:45 – 11:00, *Van Beuningen Room*
 Title: 7. The Medial Construction of Scientific Experts and Their Trustworthiness A Qualitative Study of German Online Coverage of Covid-19
 Format: Individual papers
 Author: **Tobias Tönsfeuerborn**, Bielefeld University, Germany
 Chair(s): Carolina Llorente
 Co-author(s): Petra Pansegrau

Scientific expertise is an important input for decision-making in modern societies. As the most individuals are laypersons regarding scientific issues they are dependent on scientific experts, among others. Those experts' assessments are largely conveyed by media reporting. But as laypeople most are unable to evaluate these scientific claims for themselves due to their bounded understanding of science.

Thus, mediated scientific expertise becomes a matter of trust. Against this background, our paper deals with the medial construction of scientific expertise and trustworthiness. The guiding question here is: How are expertise and trustworthiness of scientific experts constructed in German online media coverage of Covid-19?

Building on our contribution to the 2020+1 PCST conference, we return to our assumptions and research concerns and now present the results of the completed study. We addressed our question with a qualitative content analysis of 186 online articles in German news media published between March 2020 and June 2022. The material was examined firstly in terms of the construction of epistemic trustworthiness based on the categories of expertise, integrity and benevolence proposed by the METI. Furthermore, we conducted an analysis of the representation of stereotypes and characteristics of visible scientists according to LaFollette and Goodell.

Our findings suggest a focus on the professional competence of the experts in their presentation. Our contribution will elaborate on and offer interpretations of these findings along with suggestions for further research, given the unique features of the Covid-19 pandemic and the corresponding special dealing with scientific knowledge.

ABSTRACT

Toon, Elizabeth

When & where: Parallel session 11-H, Friday 14 April 14:15 – 15:30, *Ruys Room*
 Title: 2. Pleasurable, promotional, and political? The complex engagements between professionals and viewers around YouTube ear wax removal videos
 Format: Individual papers
 Author: **Elizabeth Toon**, University of Manchester, United Kingdom
 Chair(s): Anne Dijkstra
 Co-author(s):

Science communication scholars interested in YouTube videos usually consider what makes for a 'successful' video or why videos spreading misinformation gain attention. With this project, I take a different approach, considering producer-consumer interactions around a subgenre of health content: ear wax removal (EWR) videos. Specifically, I analyse transcripts of and user comments on a sample of very popular EWR videos posted on YouTube by three UK audiologists, thereby illuminating the complexity and multiplicity of engagements around health knowledge spurred by these videos.

Obviously, many viewers find EWR videos appealing because they provide grotesque spectacle. As with the dermatology videos posted by Dr Pimple Popper and others, EWR video viewers revel in -- and video creators cater to -- the pleasure of seeing unusual kinds or quantities of bodily substances violating boundaries. Likewise, viewers confess that they find it 'therapeutic' to watch the audiologists remove offending substances. Meanwhile, the audiologists creating this content use it to introduce new techniques and instruments (some self-designed) to potential patients and other practitioners, simultaneously promoting both their own practices and their field generally.

While these might be expected, other, more surprising topics also feature. I assess how the audiologists tell stories about their patients, helping audiences understand how patients come to require intervention. In so doing, audiologists not only accessibly explain ear canal pathologies, but comment on changes in provision due to new NICE guidance and the pandemic. New modalities are technically superior, but as the audiologists and their YouTube audiences discuss, this has made it challenging for many to get EWR care, sometimes with life-altering results. EWR videos thus provide an example of the ways multiple motives, understandings, and discourses connect video creators and their audiences, allowing viewers to draw quite different 'lessons' from their encounters with expertise.

ABSTRACT

Tran, Han

When & where: Parallel session A-B – Tuesday 11 April 14:00-16:30 – *SP-2407*
 Title: The science of science communication – A practical workshop
 Format: Professional development workshop
 Author: **Han Tran**, Oxford University Clinical Research Unit, Vietnam
 Chair(s): Han Tran

With many critical topics in science such as Covid-19 vaccination and climate change, more than ever, scientists need to be able to communicate effectively with the public. In recent years, a field known as the science of science communication has grown exponentially to research & provide evidence of effective ways to share scientific concepts with the public. For the PCST 2023 conference, I'd like to propose a professional development workshop that compiles important findings from science communication research to inform good science communication practice. The workshop should be of current interest as it's a timely reminder for scientists and science communication professionals that to be effective they need to be "as scientific about communication as about the science they are communicating" (The National Academy of Sciences).

The workshop will unfold an important aspect in science communication which is understanding your audience and engaging in conversations, since the public is comprised of different groups of people, with different interests and values; thus, everyone responds to new information differently. Going beyond providing information, it's about making people care. Thus, the workshop will focus on how to make information memorable, comprehensible, relevant & engaging. This part will give insights on social information bias, comparison forms (including analogy and metaphors), emotions and stories. Finally, the workshop will have practical parts with two important tools of science communication - developing a key message with COMPASS message box and storytelling.

The science communication good practices presented in this workshop are pointers for science professionals to find a common ground in the way they communicate with the way lay audiences receive and process information. I hope following this workshop, participants will be able to apply these pointers both in their science communication work and in any daily occasion that they might get to share about their science.

ABSTRACT

Trench, Brian

When & where: Parallel session 2-E, Wednesday, 12 April 11:30 – 12:45, *Hudig Room*
 Title: A conversation about conversation in science communication
 Format: Roundtable
 Author: **Massimiano Bucchi**, University of Trento, Italy
 Chair(s): **Brian Trench**
 Co-author(s): Birte Fährnich, Noelle Aarts, Megan Halpern, Pedro Russo

There is much talk about conversation in relation to social issues. We hear about the 'national conversation' on healthcare, public transport, energy resources and the cost of living. Science communication has been discussed as "the social conversation(s) around science", a definition aimed to embrace the widest-possible range of activities and experiences.

This discussion on the uses and meanings of conversation in science communication will also draw on the uses and meanings of the term more widely. The participants will record a conversation before the event and pick up the threads of that conversation in PCST2023. As a conversation-starter each was asked to finish the phrase, When I think about conversation in science communication ...

Massimiano Bucchi, Italy: I think the concept allows us to see science communication as an open process; its rich diversity and resonance with different cultural contexts; circulation of ideas across different areas of social life and public discourse.

Birte Fährnich, Germany: I think of the concept critically. Conversation goes hand-in-hand with the idea of communicative equality. But do we have that in digital society as we would hope? And what distinguishes conversation from dialogue, exchange, discussion or discourse?

Megan Halpern, United States: I think about the ways conversations involve interpretation and meaning-making; about the ways contemporary ideas are in conversation with the past and the future; and about the ways conversations are often cumulative and formative, rather than transactional.

Pedro Russo (co-chair), Netherlands / Portugal: Frank, diverse, honest and respectful conversations are essential for democratic societies and how science communication has at times been avoiding difficult conversations. How can we expect to have meaningful and transformative conversations when we keep "screaming", not listening and not letting others be part of the conversation?

ABSTRACT

Trench, Brian

When & where: Parallel session 9-F, Friday 14 April 09:45 – 11:00, *Schadee Room*
 Title: 3. Who's afraid of public mistrust in science?
 Format: Individual papers
 Author: **Brian Trench**, Independent, Ireland
 Chair(s): Ana Claudia Nepote
 Co-author(s):

The interest in measuring, discussing and promoting public trust in science is continuing to grow, through academic research, state and institutional policies and action projects. The 'common ground' of most of this activity is that public trust in science is a good thing and public mistrust is a bad thing. On this basis, projects and programmes are dedicated to (re)building trust in science, sometimes as the primary aim of science communication actions.

This paper examines the assumptions underlying these strategies and actions, and asks: Why should citizens be expected or required to trust science? The paper argues that the science presented as worthy of this public trust is idealised, not representative of science as is really works. The paper proposes thinking about trust in science in ways that do not represent an on-off binary, but rather a range of options that reach from total trust (or faith) in science to determined distrust. It will consider how the research on trust in science might be broadened beyond analysis of types of trust and factors of trustworthiness to examination of how mistrust is integral to the workings of democracy, politics and journalism and, therefore, perhaps also to science.

The paper proposes that within the range from total trust to determined distrust individuals and communities may move between states of qualified trust or merited mistrust. From the point of view of understanding the publics for science it will be suggested that fixing whole communities as trusting or mistrusting science does not facilitate. The dynamic of trust and mistrust within populations and in the lives and experiences of individuals needs to be more fully recognised.

ABSTRACT

Trench, Brian

When & where: Parallel session 11-C, Friday 14 April 14:15 – 15:30, *Van Weelde Room*
 Title: What do emotions 'do' in science communication?
 Format: Roundtable
 Author: **Brian Trench**, Dublin City University, Ireland
 Chair(s): **Daniel Silva Luna**
 Co-author(s): Luisa Massarani, Christian Humm, Stephen Hughes, Sabrina Vitting-Seerup

Emotions are usually described as internal private feelings that people experience in response to a triggering event. However, emotions are not only experienced inwardly but their representation through communicative acts (e.g., expressions, behaviours, words, art) help structure the mental and social lives of the members of a community. From wiring brains and regulating bodies to contributing to the construction of the practices, identities, norms, and beliefs of a community, emotions 'do' many things in the world.

What do emotions 'do' in science communication? In this roundtable discussion, we present different perspectives on the many roles that emotions play in the communication of science to different audiences, and the various functions that emotions such as awe, love, fear, and hope can assume in this space. We will discuss from sociological, psychological, and cultural views which emotions are represented in science communication, who they are represented by, and how they can make our engagement with different communities more effective.

Speaker perspectives:

Brian Trench:

I will discuss love as 1. a motivating force for scientists, that they sometimes acknowledge in public communication, e.g. where it is most conversational, as in radio interviews; and 2. a feeling that science communicators invest in science to engage audiences, e.g. in IFL Science. Related to both of these is the feeling of wonder that is expressed, for example, by astronomers - professional and amateur - and by public communicators and publics engaged with astronomy. I will raise questions about the use, and over-use, of 'Wow!' exclamations in sci-comm. My reflection on these examples will be framed as a call for more attention to emotions in science communication studies.

Luisa Massarani:

I will present a study on the role of emotions during family visits to an exhibition on biodiversity in Brazil. In particular, we tried to understand: (a) which different emotions an interactive exhibition can stimulate in families that visit it; and (b) the extent to which parents/caregivers and museum explainers trigger children's emotional expressiveness. For this, we used a protocol that referenced the Core Affect Model, involving ten family groups (26 individuals) who visited the interactive exhibition (five families in free visits and the other five in visits mediated by an explainer). A team of international researchers held the study.

Christian Humm:

Emotions are not only a positive factor influencing people's relationship with science; they can also serve as a barrier for people to engage in science communication activities. These emotional barriers can be as impactful as material ones (e.g., entrance fees, lack of means of transportation, lousy infrastructure) and sometimes can be traced back to negative emotional experiences with the education system and other such interactions with science throughout a person's life. I will present insights from a study of three underrepresented groups in Germany to illustrate the many functions of emotions in excluding and including diverse audiences in science communication activities.

Stephen Hughes:

The ways in which people manage their feelings about science have an impact on public engagement. Is the truth about climate change too painful to bear? Does overwhelming guilt push us into denial about the consequences of our lifestyles? Do alienated and lonely people fantasise that someone is thinking about them, even if those people are imaginary evil scientists wishing to turn them into 'digital slaves'? My work on difficult public engagement looks at the emotional dynamics of science-society relationships in areas like climate change and conspiracy theories to try and understand the underlying conflicts and tensions between scientists and the public.

Sabrina Vitting-Seerup:

Imagine two ways of learning about the 2019-20 Australian bushfires. In one case, you directly experience smoke pollution from breathing the air; your lungs react adversely to the lack of oxygen and smoke particles. In the other scenario, you read about how the hourly fine particulate matter concentrations exceeded $25 \mu\text{g}/\text{m}^3$. Which of these scenarios calls for the most urgent response? Which will you remember? Which do you resort to when communicating the science behind climate change? In my presentation, I will argue that we need to add more pathos to our science communication, especially when communicating science that requires urgent action – like sustainability science.

ABSTRACT

Tripathi, Kapil Kumar

When & where: Session 2, Monday, 3 April 10:45-12:00, *Zoom*
 Title: India Science: A popular OTT platform for science communication (VISUAL)
 Format: Online conference
 Author: **Kapil Kumar Tripathi**, Vigyan Prasar, Department of Science and Technology, Govt of India and Doing research from AcSiR-NISCP, India
 Chair(s): Ayelet Baram-Tsabari
 Co-author(s):

Overview: This session is about the places and platforms where we acquire science communication knowledge and how that 'knowledge' is presented and interpreted in turn.

Over-the-top (OTT) platforms are emerging worldwide as a new mode of communicating and popularizing science among the masses. Prominent science television channels around the world have now started strategically using OTT platforms to stream content besides their traditional mode of telecasting. In India, the only science platform from the public sector available on the OTT is India Science (www.indiascience.in). The platform started in 2019, is an initiative of the Department of Science and Technology and is managed by Vigyan Prasar with the objectives of knowledge dissemination, and spreading scientific awareness, especially with Indian perspectives, ethos, and cultural milieu. The platform has a vast popular science video repository of more than 4000 videos in different categories of science and technology (S&T) which makes it an enviable player in the OTT space. The study carried out on this platform shows that scientists, researchers are getting a dedicated platform where they are confidently sharing their knowledge with the public and without fearing distortion in their content. During the Covid Pandemic, the platform played an important role in creating awareness of Covid. Fifty-two % of the channel's viewers are in the 18 to 34 age group. Post-pandemic, 12 % of viewers of age above 55 started seeing the content. The reach of the platform has now crossed 205 million with a dedicated subscription base of 450,000. Analytics shows that audience's average time on the OTT app is about 1 minute and 51 seconds. Videos under 10 minutes in duration generally garner the most user engagement. Age and gender wise segregation showed that male viewers (66.1%) are greater than females (33.9%). Post Covid era changed the education landscape across the globe, and the platform is being used as a learning resource through the smartphones of students and also increasing the S&T-related content in media, in India.

ABSTRACT

Tsai, Shu-Min

When & where: Parallel session 5-F, Thursday 13 April 09:45 – 11:00, *Schadee Room*
 Title: 5. Uncovering the impacts of environmental identities and worldviews (EIW), and cultural-historical contexts on adolescents' perceptions on local marine issues
 Format: Individual papers
 Author: **Shu-Min Tsai**, Oregon State University, United States
 Chair(s): Marjoleine van der Meij
 Co-author(s): Shawn Rowe

Environmental identity and worldview (EIW) are critical to promoting environmental stewardship and science learning. Yet, both remain understudied. This study targets adolescents from three countries (America, Brazil, and Taiwan) to test what factors shape one's EIW and explore how EIW affects learning regarding critical environmental issues in free-choice learning settings and adolescents' cognitive development. The EIW is analyzed by survey using existing scales, while engagement and learning are analyzed through qualitative approaches (e.g., personal meaning mapping (PMM) and interviews.)

In my pilot study, which was held in the Hatfield Marine Science Center, the interview results show that EIW could affect how the public interprets serious marine issues – ocean acidification, warming ocean, and fisheries – and their wiliness to learn. Specifically, the results show that we can categorize people into two interest orientation groups – utilitarian orientation and eco-centric orientation – and also indicates that people's awareness on local marine issues could trigger them to become volunteers to learn more and spread science messages – local marine issues related concepts and information – out to others. Also, the results show that although people have different interest orientations that could be an important factor in one's EIW construction, both groups have raised awareness on local marine issues after their visits to free-choice learning settings.

The results of the main study show that study participants in Taiwan develop their EIW in their daily life including in their neighborhoods, at school, and at family events. Free-choice learning experiences – learning that takes place outside of formal education (such as through camping and walking in national parks and visiting museums, zoos, and gardens) – have connected these adolescents with the environment in different ways. To be more specific, the PMM and the following interview results show that those who have positive nature experiences (early childhood experiences with family in particular) would be more willing to participate in pro-environmental activities and learning in free-choice learning settings. Additionally, environmental education (EE) could further refine one's EIW in different kinds of ways. The statistical results also align with the qualitative analysis of PMMs, and there is a significant difference between participants from urban and rural areas. Finally, the ways in which adolescents report connecting with the ocean demonstrate that having a higher EIW does not always equal enjoying time spent in nature or having awareness on local environmental issues, especially marine issues.

ABSTRACT

Tuma, Ana Beatriz

When & where: Session 2, Tuesday, 4 April 14:00-15:15, *Zoom*
 Title: Art to approach science in Brazilian vlogs on YouTube: Usages, advantages, and difficulties
 Format: Online conference
 Author: **Ana Beatriz Tuma**, University of São Paulo, Brazil
 Chair(s): Lars Guenther
 Co-author(s):

Overview: In this session presenters will reflect on some specific science communication resources and review the techniques used in the communication process e.g. art, storytelling, cultural relevance, accessibility.

During the conference held by the British scientist and literate Charles Percy Snow in Cambridge (England) in 1959, published as a book in the same year, he claims there is a lack of communication between the scientific and humanist cultures (the so-called “two cultures”). The discussion about this continues to the present day. Thus, we seek to transpose it to Brazil at the beginning of the 21st century with a look at some vlogs from Science Vlogs Brazil (SVBR), which brings together, for the most part, already existing Brazilian channels that make science communication on YouTube. The research presented here is a clipping of the doctoral thesis by the presenter. We conducted semi-open in-depth interviews with YouTuber scientists of five vlogs from different areas of knowledge to find out how they use art to make science communication in their channels, the advantages of this usage, and its difficulties. Unlike Snow found in England in the last century, there is a search today in Brazil for an approximation between the two cultures. Some of the different usages of art reported by interviewees to address science in vlogs are: the insertion of visual elements (such as animations and photographs) and soundtracks; the presentation of the scientific process as having an artistic nature; the elaboration of thumbnails of the videos; and its usage to disseminate information or to make comments and exemplifications. YouTuber scientists describe the advantages of using art to talk about science in their videos, such as enabling internet users to save information more easily or to understand it better. The most common difficulties found were not finding the most suitable art to put in the video or not being able to operationalize what they would like because, for example, they do not have a structured team with an artist.

ABSTRACT

Turner-Skoff, Jessica

When & where: Parallel session 10-B, Friday 14 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: 5. Trees are the solution: How to leverage your science and make your expertise work for you
 Format: Insight talks
 Author: **Jessica Turner-Skoff**, The Morton Arboretum, United States
 Chair(s): Erik van Sebille
 Co-author(s): Nicole Cavender

Informal learning centers, like museums and arboreta, are trusted sources of scientific knowledge with an imperative to communicate their expertise to a broader audience to generate real-world change. Scientists at The Morton Arboretum, outside of Chicago USA, are asked for information about the benefit of trees by different stakeholders, largely to support urban/suburban greening. These stakeholders have different types of expertise and authority (social, political, ethical) than the scientists have alone. As part of a larger communication strategy to put evidence-based knowledge in the hands of experts and non-experts, we wrote a literature review on the benefits of trees, published it in an academic journal to support credibility and authority, and promoted it extensively. In order to make the material accessible and relevant, the paper was largely jargon-free and written using the universal framework of the United Nations Sustainable Development Goals. This framework allows readers to easily identify the benefit categories that interest them the most (for example, improving human health, environment, or education), and link content to their particular agenda. To increase the reach of this paper, we selected an open-access, interdisciplinary journal. We continue to promote it through podcasts, interviews, symposiums, and social media, leading to this article being the top downloaded publication for the journal (~100,000 downloads in >180 countries). These actions allowed the paper to 'escape the ivory tower.' Many audiences use this paper to promote trees' planting and protection, including municipalities and cities, practitioners, homeowners associations, schools, and religious communities. Further, the messaging we generated is embedded throughout our communications as an institution. In this insight talk, participants will engage with one of the authors about their process of creating and implementing a science communication strategy, and learn how they increased the reach of their expertise, promoted their work, and evaluated success.

ABSTRACT

Turner-Skoff, Jessica

When & where: Parallel session 10-B, Friday 14 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: 9. Creating webs of impact within learning ecosystems: Use collaboration to advance your mission and extend your networks
 Format: Insight talks
 Author: **Jessica Turner-Skoff**, The Morton Arboretum, United States
 Chair(s): Erik van Sebille
 Co-author(s): Meghan Wiesbrock

Expertise in plant science and horticulture is vital for the future, especially as it relates to environmental issues such as food security and climate change. However, there is an emerging gap in students pursuing career opportunities in this space. There is also a need to build and support a diverse STEM workforce to promote innovation and creativity. Current professionals in plant science and horticulture must engage the next generation by providing advice, highlighting opportunities, promoting authentic and inclusive representation to support diversity, and illustrating how science can help address environmental challenges. This requires a platform, collaboration, and the creation of common ground between key stakeholders. Recognizing this fundamental need, in 2018 an interdepartmental team at The Morton Arboretum (outside Chicago, USA) developed 'Planted: Finding Your Roots in STEM Careers,' a podcast highlighting diverse professionals with a variety of plant-focused careers for students, teachers, and beyond. Over the past four years, the podcast's creators forged and leveraged partnerships to increase their network. Further, they interacted with key audiences to promote, evolve, and grow this project. This collaborative project created new webs within the learning ecosystem, and resulted in increased reach and new ventures with an afterschool program, a community college, an association of environmental educators, an academic journal, other podcasters and STEM professionals, and many more. This insight talk will provide participants with an understanding of how to incorporate audience feedback into a project, find meaningful and mutually beneficial diverse partnerships, and identify and leverage the places where different stakeholders' goals overlap. The presenter will discuss the challenges and benefits of collaboration and explore how continuous project evaluation can be a useful tool for measuring impact and creating a stronger and more impactful product.

ABSTRACT

Unterfrauner, Elisabeth

When & where: Parallel session 6-G, Thursday 13 April 11:30 – 12:45, *Van Beuningen Room*
 Title: 5. Is everyone an energy citizen? – A co-constructive definition seeking beyond disciplinary boundaries
 Format: Individual papers
 Author: **Elisabeth Unterfrauner**, Centre for Social Innovation, Austria
 Chair(s): Alice Fleerackers
 Co-author(s): Judith Feichtinger, Maria Schrammel

Science communication has various forms and degrees of including citizens and different stakeholder groups- from passive recipients of scientific information to active engagement and co-construction of knowledge. Rarely, however, are (scientific) terms co-constructed with people outside of academia.

In attempt to do so, the process of defining 'energy citizenship' has been opened up in a workshop setting in three different European countries, Austria, Germany and Poland, with as diverse as possible groups.

In energy transition, a key role is ascribed to the individual. Even more important is that the notion is shaped not only by disciplinary experts. What does energy citizenship entail and where are the boundaries of the notion? Who is an energy citizen and who is not? Which dimensions need to be considered to understand the different forms and degrees of energy citizenship? What are the trajectories of energy citizenship and which facilitators and barriers support or stand in the way to energy citizenship? These questions were at the core of our co-creative workshops.

In our paper, we will shed light on both the process and the results, the co-constructed definition and the obstacles on the way on the one hand, and the resulting added value on the other. The conceptualisation of energy citizenship and energy citizen shows not only the complexity of notions in interdisciplinary and transdisciplinary collaborations but also its importance to open up the process of defining terms and notions, from a top-down conceptualisation to a bottom-up definition.

ABSTRACT

Uutela, Elina

When & where: Parallel session 1-B, Wednesday, 12 April 09:45 – 11:00, *Van der Mandele (mezzanine)*

Title: 3. Journalists and experts: relationships shaping the public discourse of the pandemic

Format: Individual papers

Author: **Elina Uutela**, University of Helsinki, Finland

Chair(s): Hans Peter Peters

Co-author(s): Esa Väliverronen

The relationship between journalists and experts has long been a topic of interest in science communication. Journalists use experts to add credibility and facts to their news stories, and many scientific experts see public commentary as a duty. During the COVID-19 pandemic, the relationship between the two parties has grown stronger. They have shaped the public discourse of the epidemic, making decisions on the perspectives to emphasize, the information to rely on, and the stances to take regarding policy decisions.

While research on expertise and COVID-19 often focuses on (new) media representations and data, our research goes behind the scenes, focusing on how the public discourse of a crisis is built. Our research provides a qualitative analysis of the relationship between journalists and experts during the pandemic in Finland. By interviewing 14 key experts and 4 journalists, we have explored how they view their role in communicating the pandemic and what motivations and tensions occur between them. The interviewees were selected among the experts repeatedly visible in the media and journalists among active writers around COVID-19. Our research offers interesting frameworks and questions for future research in other contexts.

Our findings indicate that the relationship between journalists and experts proceeded from crisis mode to public disputes, which was reflected in the public discourse of the pandemic. In March and April 2020, experts and journalists were in unison with government officials, avoiding challenging them. This left, for example, the perspective of the elderly underrepresented, as the strong measurements of isolating the older population and nursing homes stayed uncontested in the public discourse. Control of the discourse during the crisis mode was in the hands of government officials, as both the news media and experts selected not to voice their critical viewpoints to avoid causing panic or communicational confusion. Unified communication was valued as one of the most important tools in pandemic prevention and control measures.

This stage was followed by several waves of public disputes, reflecting not only actual expert disagreement but also aggravations and inadequate background by the news media. This was partly caused by the self-criticism of journalists who felt that they had failed to serve the public during the seemingly unanimous crisis mode. At the same time, news media was also competing for public attention with forms of new media, where critical voices had been vocal already during the crisis mode. Most experts saw social media as a platform of disinformation

considering the pandemic and avoided using it. They saw that news media had done their job of informing the public quite well, even though they criticized the confrontation built into many news stories. Some of them also seized the opportunity to gain visibility and research funding, serving as an example of both experts and journalists benefiting from their relationship.

Our findings suggest that the experts and journalists intensely collaborated, but concurrently with public disputes, tensions and different premises surfaced. They started to focus more on their own professional purposes and motivations, but also personal preferences on who to work with. News media renounced some of their definitional power during the crisis mode stage, taking it back during the public disputes. There were tensions both between experts and journalists, but also among their professions. For example, experts criticized other experts for epistemic trespassing and journalists criticized their managers for guidelines leading to sensational news stories. Despite the tensions between the institutions and ideals journalists and experts represented, the collaboration between individual journalists and experts stayed strong throughout the pandemic.

From our viewpoint, future research has two interesting directions to take from these results. The first is comparing the relationship between journalists and experts in different language areas, political systems, and media environments. The second is more . Our research points out that these groups have tensions on two levels: individual and institutional. It would be interesting to see a more in-depth analysis of the similarities and differences in the tensions on these levels.

ABSTRACT

Valenca, Manuel

When & where: Parallel session 10-L – 14 April, 11:30 – *Mees Room*
 Title: Public communication of research universities: the activity of central communication offices compared across countries
 Format: Linked papers
 Author:
 Chair(s): Manuel Valenca
 Co-author(s):

The role of research universities and other scientific organisations in communicating and engaging the public more broadly in science has more than ever been brought to the attention of institutions and their publics, particularly after the Covid-19 event. The OPEN project ‘Organisational Public Communication with Science’ (2019-2023) looks at the practices of science communication at universities’ central communication offices in different countries. In this linked session, a group of science communication researchers will present first hand empirical evidence on the communication function of universities by examining the activity of central communication offices and their relations with other levels of the organisation. In one of the papers we will look at the response of these universities to communicate with the public during the Covid-19 pandemic. The findings presented here provide a mapping of science communication activities in universities in Portugal, Germany, the UK, and Italy and contribute to our understanding of the role of science communication within the university communication system. This will be the first presentation of the results of this project.

ABSTRACT

Valença, Manuel

When & where: Parallel session 4-E, Wednesday, 12 April 17:00 – 18:15, *Hudig Room*
 Title: 6. The identity and latent professional profiles of communicators in Portuguese scientific research and outreach organisations
 Format: Individual papers
 Author: **Manuel Valença**, ISCTE-IUL, Portugal
 Chair(s): Michelle Riedlinger
 Co-author(s): Marta Entradas, Martin W. Bauer

Extensive research in Social Psychology shows that the higher a person's identification with an identity (e.g. professional, religious, political), the higher the frequency of identity-related behaviours. In a younger field such as Science Communication, which needs to consolidate its community of practitioners and the practice-research connection, the concept of professional identity assumes particular relevance.

Faced with a highly diverse community, we focused on practitioners working in communication and education units of research organisations (research centres, etc.) and outreach organisations (science museums, etc.). A position based on the Portuguese-specific context, the importance of the organisations in our conceptual model and the scarcity of research on these practitioners' professional identity (press and communication officers, science educators and explainers, etc.).

Addressing this gap, we aimed to 1) identify the factors contributing to the science communication professional identity; 2) identify and characterise these practitioners' latent professional profiles; 3) develop a short survey profile identification tool. To achieve these goals, we implemented an online survey (N = 231 professionals) based on a representative sample of 143 Portuguese organisations. After data analysis, we validated the results through 30 semi-structured interviews and confirmatory data analysis.

According to our results, the combined contextual factors contribute more to this identity's intensity than the combined individual factors. Confirming this community heterogeneity, we also identified four latent profiles: the Pragmatic, the Hybrid, the Craftsperson, and the Advocate. Each profile represents a different relationship with the science communication practice, built on the specific connections (27 variables) that each professional establishes with the organisation and the science communication field.

These study findings can inform future strategies to enhance, for instance, these practitioners' connection to science communication research or the organisations' professional development programs. The developed profile identification tool can also be used to compare these results in different national or organisations contexts.

ABSTRACT

Valinciute, Auste

When & where: Parallel session 1-B, Wednesday, 12 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
 Title: 1. What happens to news articles when the scientific publications they covered are retracted?
 Format: Individual papers
 Author: **Auste Valinciute**, Radboud University, The Netherlands
 Chair(s): Hans Peter Peters
 Co-author(s): Willem Halffman

Retractions are an important tool for correcting the scientific record and preventing the circulation of false knowledge within the scientific community. However, increasing interconnectedness between science and the media means that (false) scientific claims often spread to the wider public before retractions take place. While retraction notices correct the scientific record, does the public record remain unchanged? This question is particularly important in the context of scientific information and medical advice, where lingering misinformation can be detrimental to policy decisions and public beliefs about science, health and technology.

This issue motivated us to perform a mixed-methods content analysis of English language media coverage featuring retracted scientific publications on COVID-19 (n=945), to explore if and how media platforms correct news stories in which the retracted papers previously appeared.

Preliminary findings show that some media platforms (8%, n=74) do update or edit news stories, once the scientific publications they featured are retracted, but correction practices are still rare. Majority of media platforms that correct published news stories are widely known mainstream news organisations, their affiliates, and popular specialty sites, suggesting that correction of news stories may constitute a new indicator of quality journalism in the misinformation era. Yet even among these media platforms, the practice is not consistent. The most common presentation of corrections are top-line statements, notifying readers that the scientific publication featured in a news article has been retracted. Corrections usually inform readers why a retraction took place, but don't always provide clear explanations how exactly the retraction influences the claims presented in the news article.

This study highlights the challenges that increasing rates of retraction pose to the public science communication process and public understanding of science, requiring awareness among the science journalism community. The challenges, however, also present an opportunity for researchers and practitioners to collaborate in rethinking and co-creating new science journalism practices.

ABSTRACT

Väliaverronen, Esa

When & where: Parallel session 9-G, Friday 14 April 09:45 – 11:00, *Van Beuningen Room*
 Title: 2. Evaluating expertise during the COVID-19 pandemic
 Format: Individual papers
 Author: **Esa Väliaverronen**, University of Helsinki, Finland
 Chair(s): Carolina Llorente
 Co-author(s): Elina Uutela

Opinion surveys across Europe show that citizens strongly trust scientists and experts. Still, we know very little about how people make sense of and assess experts in various contexts. A recent study based on the 2019 and 2020 German Science Barometer surveys showed that public trust in science increased at the beginning of the pandemic. However, it should be noted that the rally-around-the-flag phenomenon increased trust in institutions more generally during the first year of the pandemic across Europe.

This paper is based on representative surveys of public attitudes towards experts, institutions and pandemic politics between April 2020 and March 2022 in Finland. We focus on public attitudes towards expert institutions and expert qualifications. In addition to quantitative data, we will analyse responses to the following open-ended question: “Has the COVID-19 pandemic affected the way you relate to experts and evaluate their reliability?”.

We analyse our data in relation to the recent research on the expansion of a “crisis of expertise” in the social studies of science. At first glance, our results show that in a Scandinavian high-trust country like Finland, the pandemic has increased, rather than decreased, public trust in experts and expert institutions. However, a closer look at the data reveals an emerging polarization of public attitudes. In particular, the supporters of the populist Finns Party trust science and experts much less than the supporters of the other major political parties.

ABSTRACT

van Burgsteden, Lotte

When & where: Parallel session 3-E, Wednesday, 12 April 15:15 – 16:30, *Hudig Room*
 Title: 6. When science meets society: "getting personal" in first encounters
 Format: Individual papers
 Author: **Lotte van Burgsteden**, Vrije Universiteit Amsterdam, Netherlands
 Chair(s): Brian Trench
 Co-author(s): Hedwig te Molder, Elliott Hoey, Hanneke Hulst

The past few decades have shown that science can be a source of acrimonious debate. Whereas many societal disagreements appear to center on scientific facts, most disputes over 'facts' are profoundly ideological battles over what people find important (their values), such as governments' role or meaningful democratic participation, rather than scientific facts. Values will therefore influence how people think, behave, and react to research findings. To establish trustworthiness and create common ground in contemporary society, scientists must therefore engage in dialogue where the relationship between morality and science is examined and questioned.

Whereas dialogue on science is often advocated, what scientist-citizen conversations look like in real life is underinvestigated. Such an approach, however, is pivotal in determining how dialogue can be established. The current study analyzes 20 recorded scientist-citizen conversations held in Dutch community centers. We use conversation analysis, a detailed approach to the study of conversation, in examining the ways scientists inquire about how science affects citizens' lives.

We found that when scientists directly asked citizens about their thoughts about science, citizens mostly gave an "I don't know"-type of response (e.g., "I notice that my answers remain superficial, I eh don't know"). Nonetheless, we also discovered a specific question format scientists used which did result in citizens' self-disclosure. These questions are formatted with "you said..."-prefacing, building on something citizens had said earlier, by which scientists showed to connect to citizens' lifeworlds.

We discuss the implications of these queries, revealing how citizens engage in self-disclosure and the interactional consequences of this. Our analysis of how participants solicit and disclose personal information sheds more light on science-society dialogues, identifying some of the ways scientists and citizens orient to maintaining, negotiating and enhancing their relationships in conversation.

ABSTRACT

van der Meij, Marjoleine

When & where: Parallel session 6-D, Thursday 13 April 11:30 – 12:45, *Zeelenberg Room*
 Title: The tragicomedy of Athena: training and reflection tool for working towards more rewarding and recognised science communication
 Format: Mini-workshop
 Author: **Marjoleine van der Meij**, Athena Institute - Vrije Universiteit Amsterdam, Netherlands, Netherlands
 Chair(s):
 Co-author(s): Sem Barendse, Anna Aris

In this mini-workshop, participants help to further co-create the ‘Tragicomedy of Athena’, a story about a female climate change researcher who is active in science communication in the public sphere. The tragicomedy is an artistic interpretation of real-world science communication experiences, which we gathered through interviews and workshops with publicly communicating researchers. These researchers shared that they feel responsible to provide scientific perspectives on complex societal issues in the public sphere and generally find societal engagement fulfilling. However, they also struggle with their position in public debates and their approaches to communication: they face harsh criticism or threats from science and non-science opponents; they feel restricted in their academic freedom by the increasing public attention; researchers are attributed little time, money, appreciation or recognition to communicate; and, they long for knowledge and expertise exchange on science communication with others.

Athena Institute (VU University, Amsterdam) and the Royal Netherlands Academy of Arts and Sciences used the (draft version of the) Tragicomedy of Athena in workshops to build science communication expertise, by making researchers exchange and reflect on the science communication strategies that the tragicomedy sketches. But in order to improve recognition and appreciation of researchers’ efforts in science communication, changes are needed within academic cultures and policies. This could be achieved, amongst others, through training and reflection workshops with managers and communication departments of research institutes, or with research and innovation policy makers, to address the relevance and challenges of (building more expertise on) science communication. Moreover, collective reflection on roles and responsibilities of researchers in society is long overdue. We believe that the Tragicomedy of Athena can be a tool for such training and reflection.

Would you like to help in furthering this artistic tool for expertise-building on science communication? During this session we introduce you to the tragicomedy immersively, reflect on its development and storyline together, and discuss possible adjustments to improve the tragicomedy and convert it into a tool for various target groups.

ABSTRACT

VanDyke, Matthew

When & where: Session 4, Monday, 3 April 17:00-18:15, *Zoom*
 Title: Debating openness: The evolution of #OpenScience discourse on Twitter
 Format: Online conference
 Author: **Matthew VanDyke**, The University of Alabama, United States
 Chair(s): Marina Joubert
 Co-author(s): Brian Britt

Overview: How do science communication and the dissemination of science communication play out in different contexts? What can we learn from different strategies and viewpoints?

Because science exists in society, its applications and implications are often political endeavors that give rise to issues: contestable matters of fact, value, and policy that are debated and reconciled in the public sphere. Scholars have argued that complementary conceptual and theoretical overlap in the science communication and public relations disciplines permit research that not only analyses controversial science issues, but also provides managerial guidance for practitioners. Issues management, a conceptual tool used in public relations to identify, prioritize, and monitor issues affecting organizations like the scientific enterprise, is helpful for understanding how public science issues may evolve and consequential implications for practice. This was the goal of this individual research paper. The Twitter API was used to collect a population of 1.55 million English-language tweets containing at least one of eight open science-related hashtags (e.g., #openscience; #registeredreport) from Twitter's inception through Aug. 31, 2022. A latent factor Dirichlet multinomial mixture model was used to analyze the textual data from each tweet, ultimately providing qualitative representations of major topics that emerged from the data. The evolution of the relative representation of those topics was examined using stepwise segmented regression, highlighting revolutionary shifts in open science discourse over time. The results demonstrate important evolutionary dynamics in the discussion about open science—including the qualitative and quantitative amplification and attenuation of prominent open science topics manifested through online discourse—illustrating key moments of inflection in the public discourse. Implications for science communication theory and practice will be discussed.

ABSTRACT

van Gils, Marthe

When & where: Parallel session 2-C, Wednesday, 12 April 11:30 – 12:45, *Van Weelde Room*
 Title: 8. Beyond the formula: Engaging art to research complex systems
 Format: Insight talks
 Author: **Marthe van Gils**, Delft University of Technology, Netherlands
 Chair(s): Liesbeth de Bakker
 Co-author(s):

The arts are becoming a favoured medium for conveying complex information to the public. At the same time, more holistic approaches are needed for researchers to understand the complexity of systems, such as urban ecosystems. This Insight Talk highlights the opportunity to apply art and visualization techniques in early phases of research to support mutual understanding of complex systems and facilitate transdisciplinary collaboration accordingly. More specifically, this Insight Talk shows how art and visualization tools are used to support research and collaboration in the context of developing a resilient neighbourhood in Rotterdam, the Netherlands. Visualizing social networks and resilient action in the neighbourhood drives a more holistic approach to the research and supports collaboration between multiple stakeholders.

Public communication of science is more complex than filling the knowledge gap. Art has the potential to develop and convey complex information. However, when it is used only to communicate results, it does not live up to its potential. It is only downstream transmission. When researchers collaborate with artists and designers during early phases of the research they allow for more upstream movement of knowledge. In this way science does not only communicate, but also develop itself in an integrated way. This is supported by the fact that art and visualization both are exploratory processes as well as communication avenues. Using the potential of arts and visualization as science communicators in early phases of (research) projects fosters collaboration and understanding of science and may contribute to discovering solutions to significant problems of our time.

ABSTRACT

van Seville, Erik

When & where: Parallel session 7-H, Thursday 13 April 15:15 – 16:30, *Ruys Room*
 Title: 8. How to do meaningful public engagement in the context of open science?
 Format: Insight talks
 Author: **Erik van Seville**, Utrecht University, Netherlands
 Chair(s): Marlit Hayslett
 Co-author(s): Maud Radstake, Madelijn Strick, Marc van Mil

Why is public engagement essential for open science? Based on interviews with academic and non-academic staff who are active in public engagement in the context of Utrecht University's Open Science Programme in the Netherlands, we identify four ways in which public engagement, contributes to opening up science for society. Interaction between academics and societal actors can 1) better align scientific questions and societal needs; 2) secure a relationship of trust between science and society; 3) increase the quality and impact of academic research and teaching; and 4) support the impact of open access and FAIR data practices. For such public engagement to be successful and sustainable, academics need access to public engagement skills training, practical support, and financial resources, which are aspects of the institutionalization of public engagement in a university-wide system fit for open science. These reflections suggest that in order to make public engagement an integral part of open science, universities should invest in institutional support, create awareness, and stimulate dialogue amongst staff members on how to 'do' good public engagement. Furthermore, most interviewees express the importance of a formal and informal recognition and rewards system.

ABSTRACT

Vásquez-Guevara, Denisse

When & where: Session 4, Monday, 3 April 17:00-18:15, *Zoom*
 Title: NASA's IGTV and key lessons for audience management (VISUAL)
 Format: Online conference
 Author: **Denisse Vásquez-Guevara**, University of Cuenca, Ecuador
 Chair(s): Marina Joubert
 Co-author(s): Ivana Cvetkovic

Overview: How do science communication and the dissemination of science communication play out in different contexts? What can we learn from different strategies and viewpoints?

Social media have risen in popularity as a useful tool for science communication. Increasingly social media have been considered a useful tool for public engagement under the notion of dialogic communication. Although, research evidence that scientific institutions and universities mostly use social media to communicate achievements, research projects, and publications. However, this commonly used strategy tends to develop unilateral dissemination, which, in return, causes the audience's lack of interest and even negative engagement with the scientific content on social media.

For this reason, this study explored through qualitative content analysis the audience's engagement with NASA content on Instagram's IGTV (now known as Instagram Video).

To find common ground in science communication for social media's meaningful interactions in science-society, we interpreted data through the theoretical lens of science communication for public engagement dialogic models. Moreover, to suggest practice-based guidelines for audience interactions, we used online strategic communication to propose key practices for managing audience interaction through social listening strategies.

Results evidence that NASA's science communication strategy focused on developing high-quality content around its work by using IGTV. Data evidence numerous video views, positive and negative audience comments, and user interactions. However, NASA missed the opportunity to take advantage of audiences' interest since it failed to respond to user comments. Therefore, deficit-model practices were reproduced by not dialoguing with its followers. Based on these findings, this study aims to contribute with guidelines for communication researchers and practitioners that will improve public engagement strategies in social media that focus on attending to audiences' needs and interactions.

ABSTRACT

Verkest, Sofie

When & where: Parallel session 7-F, Thursday 13 April 15:15 – 16:30, *Schadee Room*
 Title: 3. Anticipating the audience: a linguistic ethnographic study into a citizen science project on air quality
 Format: Individual papers
 Author: **Sofie Verkest**, Ghent University, Belgium
 Chair(s): Mohamed Elsonbaty Ramadan
 Co-author(s):

At the height of COVID-19, Funtowicz and Ravetz published a foreword to their 30-year-old essay on Post-Normal Science (PNS) claiming that “we are now truly in a Post-Normal age”. PNS implies science is challenged by post-normal situations in which uncertainties are prevalent, values cannot always be distinguished from facts, stakes are high, and political decision-making is urgent. Brüggenmann et al. transformed the PNS concept into an analytical framework for analysing science communication in post-normal situations. In their outline of a PNS communication model, they note that new norms - such as transparency, interpretation, advocacy, and participation - are emerging in science communication and call for a closer inspection of how norms, roles, and communicative practices are challenged or affirmed in PNS communication.

The researcher uses a PNS communication lens in a linguistic ethnographic study of an intense year-long collaboration between a Flemish newspaper, university, and government agency. They set up a citizen science project on air quality and published news items on the project. In my fieldwork, I observed and recorded meetings, conducted newsroom observations, and interviewed key actors in the project. In this paper, I focus on two meetings in which government and university scientists met separately to discuss the scientific results, but also how the results would be mediated to the journalists in the project, the public, policymakers, and politicians. I explore how scientists interpret scientific results and anticipate the interpretation of their various audiences. In doing so, I intend to answer Brüggenmann et al.’s call and investigate how norms, roles, and communicative practices within the fields of science and journalism are being challenged or affirmed in these meetings. Finally, the researcher shows that PNS communication can provide a useful framework to study how participation and collaboration shape how science is mediated in society.

ABSTRACT

Verploegen, Helen

When & where: Parallel session 4-L, Wednesday, 12 April 17:00 – 18:15, *Mees Room*
 Title: 4. Tensions in digital citizen science: Dealing with data sharing, hierarchies and expectations on digital platforms for bird observations
 Format: Individual papers
 Author: **Helen Verploegen**, Radboud University - Institute for Science in Society, Netherlands
 Chair(s): Anne Land
 Co-author(s): Wessel Ganzevoort, Riyan van den Born

Scientists and citizens are increasingly collaborating through citizen science projects. Such projects differ greatly in their goals, designs, and type of collaborations. Many citizen science projects use digital platforms for data submission, in part thanks to their ability to share information quickly and the sensory abilities of mobile devices, such as GPS and cameras. However, the design of such platforms (including functionalities like submission fields and supportive texts) is not a mere technical matter but also related to power. Design choices reflect the aims of organisers and influence how users make use of and understand the aims of a platform.

To investigate the effects of these design choices, this paper explores two digital platforms for bird observations in the Netherlands (Waarneming.nl and Sovon's Avimap). We carried out ethnographic interviews with users and coordinators of these platforms, as well as an analysis of the platforms' functionalities. The study shows how the design of these platforms, the experiences of users, and the aims of coordinators in citizen science projects differ and lead to tensions related to data sharing, community hierarchies and communicated expectations.

What can we learn from these tensions and how can common ground between those involved in citizen science projects help to improve collaborations? Discussing these questions is meant to inform new scholarly work on (digital) citizen science. At the same time, this paper offers concrete advice to practitioners in citizen science projects on how to navigate such tensions.

ABSTRACT

Villanueva, Isabel

When & where: Parallel session 6-G, Thursday 13 April 11:30 – 12:45, *Van Beuningen Room*
 Title: 3. Prompting reflection on visual art mitigates political division on the perceived relevance of climate change
 Format: Individual papers
 Author: **Isabel Villanueva**, University of Wisconsin-Madison, United States
 Chair(s): Alice Fleerackers
 Co-author(s): Nan Li, Dominique Brossard, Thomas Jilk, Brianna Van Matre

Despite the passing of the Inflation Reduction Act that aims to curb carbon emissions, the U.S. public is still divided over how to address the challenges posed by climate change. Opinion gap has been widening between liberals and conservatives regarding the urgency to act and the policy direction that the country should be taking. Numerous calls have been made to infuse climate change communication with emotions, shared experience, and a message of hope to unite the constituents that are otherwise disagreeing. In response to this, some artists and scientists have combined visual art and scientific data to convey the climate crisis. The global #ShowYourStrips campaign, for instance, turns conventional data charts into an artistic visualization of “warming strips” that help residents of various areas in the U.S. and beyond attach local relevance to the changing climate.

This study examines the effects of artistic visualizations on individuals’ perceived relevance of climate change information. Using a national sample of U.S. adults (N = 319), we fielded a 2 (artistic visualization vs. data graph) * 2 (detailed vs. simplified data) online experiment in early 2022. Respondents were randomly assigned to four groups where they first viewed a visual stimulus and then reported perceived relevance of an Instagram post that contained the same visual and facts about climate change.

Results showed that the relationship between political leaning and perceived relevance of the post was significantly stronger among those who viewed data visualizations than among those who viewed artistic representations of the same data. In other words, respondents appeared less polarized after viewing artistic visualizations than data graphs. A follow-up study (N=352) showed that such effects were more significant when respondents were prompted to reflect on the emotions elicited and meaning of the provided visuals. Although the findings may not be generalizable to all climate change arts, the study offers seminal empirical evidence into the potential role of visual art in mitigating the political division on climate change.

ABSTRACT

Villanueva, Isabel Iruani

When & where: Parallel session 8-E, Thursday 13 April 17:00 – 18:15, *Hudig Room*
 Title: 1. Seeing COVID-19 through Art: Examining the Potential Effects of Visual Art on Social Media Engagement and Information Recall
 Format: Individual papers
 Author: **Isabel Iruani Villanueva**, University of Wisconsin - Madison, United States
 Chair(s): Luisa Massarani
 Co-author(s): Nan Li, Dominique Brossard, Thomas Jilk, Brianna Van Matre

The COVID-19 pandemic required public health officials to relate mass quantities of rapidly changing information to the public. Individuals' varying levels of willingness and ability to engage with updates required communication practitioners to adopt new, visually-grounded strategies of information dissemination. These methods – such as infographics, comics, and art – can potentially create more engaging, relatable, and accessible information for audiences. While comics and infographics have been studied in the context of COVID-19, there is a scarcity of empirical research examining the influence of visual art. For some science topics (e.g., climate change), using visual art can reduce the psychological distance of the issue, raise self-efficacy, and increase policy support among lay audiences. Visual art has been praised as “transcend[ing] linguistic and geographical barriers” allowing individuals of diverse backgrounds to find common ground.

This study examined how exposure to an Instagram post containing a COVID-19 painting by an artist specializing in environmental art influenced individuals' engagement, information-seeking intentions, and information recall, compared to individuals exposed to data graphs. Using an online survey of U.S adults (N=330), we conducted a 2 (visual art vs. data graph) * 2 (trend line vs. detailed data) experiment in which participants were randomly assigned to one of four groups, were exposed to a visual stimulus, and then reported engagement, information seeking intentions, and information recall.

Our results show individuals exposed to graphs recalled numeric information more accurately from the post than individuals exposed to art with the same caption. Information modality (i.e., visual art vs. data graph) did not have a significant effect on engagement or information seeking. Rather, perceived credibility of the post, interest in Instagram art, perceived ability to understand art, and COVID-19 concern were more significant predictors of engagement and information seeking. Implications are discussed.

ABSTRACT

Vitting-Seerup, Sabrina

When & where: Parallel session 5-G, Thursday 13 April 09:45 – 11:00, *Van Beuningen Room*
 Title: Dialogical training in a post-truth era
 Format: Forum theatre
 Author: **Sabrina Vitting-Seerup**, Department of Science Education, University of Copenhagen, Denmark
 Chair(s): Marjoleine van der Meij
 Co-author(s): Marianna Achiam

Anti-vaxxers, flat earthers and other science sceptic groupings are symptoms of the post-truth era we are experiencing as a global society. Unfortunately, authoritative stances towards such scepticism have been proven counterproductive. In this workshop, we will discuss post-truth science communication; that is, science communication that addresses the legitimate concerns of sceptics and identifies common ground on which to make new and less sceptical meanings of science and its role in addressing the many wicked problems we face. We will engage participants in experiencing the dilemmas and conflicts of encounters between science sceptics and scientific authority figures through the medium of forum theatre.

Pioneered by Brazilian Augusto Boal, forum theatre in its original form is designed to break the barrier between performers and audience by enabling participants to test courses of action that could be applicable to their everyday lives. While Boal used forum theatre as a political tool, it has been adapted numerous times for educational purposes.

In this workshop, members of the audience will engage a 'science denier' in dialogue through forum theatre. The science denier is embodied by Sabrina Vitting-Seerup who has researched the arguments science deniers usually tend to use on social media. Marianne Achiam will facilitate the play, making sure everyone can add their perspective from the audience or on stage.

We conclude by contextualising the participants' experiences in terms of science communication theory and practice. We will also question the format's applicability by asking: Is this version of forum theatre suitable to train science communication professionals? And could we imagine engaging an audience in e.g. a science center with something similar?

ABSTRACT

Vonk, Aike

When & where: Parallel session 11-G, Friday 14 April 14:15 – 15:30, *Van Beuningen Room*
 Title: 4. The difference in framing between ocean climate change and ocean plastic, a content analysis of press releases.
 Format: Visual papers
 Author: **Aike Vonk**, University of Utrecht, Netherlands
 Chair(s): Jenni Metcalfe
 Co-author(s): Erik van Sebille, Mark Bos, Ionica Smeets

Research organizations send out press releases to communicate the importance of their findings to the public. By doing this, they can place their research in a framework that provides context for the scientific findings and is recognizable to the general public. Nevertheless, some scientists have expressed concerns about the representation of for example ocean science once it reached the media.

It is thought that ocean science is framed too negatively. In addition, controversies around the topic of ocean climate change are still present, despite its established research field. On the contrary, ocean plastic is a relatively new domain within the science field, where plastic has plummeted from its superhero status in 1950 to one of the biggest villains of the "plastic age", overflowing not only the world's ocean but also the media landscape. Creating the fear that plastic is 'pushing the climate debate off the table'.

To examine how scientific organizations themselves present research on ocean climate change and ocean plastic to the public, we analyzed the content of 266 press releases on ocean climate change and 88 on ocean plastic for framing. All press releases were published on EurekAlert! in the period between 2017 and 2021 and are based on peer-reviewed studies. To make comparison between the two topics possible, an inductive-qualitative approach was used to determine textual framing. Subsequently, a clustering analysis identifying four frames for ocean climate change and five frames for ocean plastic.

The results reveal a clear difference in type of frames used to describe ocean climate change compared to ocean plastic. A point for discussion and further research is to explore why these two topics are differently contextualized by press officers, the role a scientist plays within the framing process of press releases and the influence this different contextualization has on audiences.

ABSTRACT

Waddilove, Kim

When & where: Parallel session A-D – Tuesday 11 April 14:00-17:00 – *ErasmusMC SP-3417*

Title: How to get ahead in your career and make friends: SciComm networks and their vital role in practice & research ecosystems

Format: Professional development workshop

Author: **Kim Waddilove**, Sub-Saharan African Network for TB/HIV Research Excellence (SANTHE) – Secretariat site in the Africa Health Research institute (AHRI), South Africa

Chair(s): Kim Waddilove

Co-author(s): Hannah Keal, Fabien Medvecky, Danielle Farrugia, Mohamed Ramadan, Roselyne Namayi, Alexandra Borissova

Networks play an important role in building skills, capacity, and resilience within their members. And in strengthening collaboration and resource- and knowledge-sharing between stakeholders. In this workshop we explore the opportunities and challenges of setting up and running professional SciComm networks. With representation from Russia, Nigeria, Malta, Egypt, Kenya, South Africa, India, and New Zealand - countries that are all at different stages of growth in terms of SciComm - we will learn briefly on six topics (chosen in advance by our team and based on some informal research); presented by four experienced role players who have run established networks for science communicators/journalists, as well as from two academics who have published on scicomm networks (A comparative analysis of scicomm networks worldwide; and PCST 2018 Roundtable: the role of professional communication associations in supporting science communicators and legitimising communication practices). Thereafter, we will split into six groups to workshop the topics, which might include, for example, the role of SciComm networks; how to get funded; different models which have, or haven't, worked; sustainability; effective governance; diversity and inclusion; and how to evaluate impact.

Our learning objectives are practical and speak to PCST 2023's themes of creating common ground, collaboration and expertise: how can we learn from best practices globally to jointly establish and run effective science communication networks?

From this session, we hope to gather enough material to compile a collaborative report of our learnings, a draft terms of reference (ToR) for anyone wanting to join or form an effective SciComm network/forum/hub of their own; and the beginnings of a global SciComm Networks directory.

Networks represented at the workshop will include:

- Africa/Asia Communications Forum (AACF)
- Arab Forum of Science Media and Communications (AFSMC)
- Russia Association of Science Communication (AKSON)
- Science Communicators Association of New Zealand (SCANZ)

ABSTRACT

Wang, Guoyan

When & where: Parallel session 3-A, Wednesday, 12 April 15:15 – 16:30, *Willem Burger Room*
 Title: 6. The construction of civil scientific literacy in China from the perspective of science education
 Format: Individual papers
 Author: **Guoyan Wang**, Soochow University, China
 Chair(s): Emma Weitkamp
 Co-author(s): Lingfei Wang

On 25 June 2021, the State Council issued the new Outline of the National Action Scheme for Scientific Literacy for All Chinese Citizens (2020-2035) (Outline of Scientific Literacy). In order to provide reference for its implementation, this study analyzes the achievements and obstacles in the implementation of the old Outline of Scientific Literacy (2006-2010-2020) based on the results of all previous surveys on civic scientific literacy (CSL) in China, and from the perspective of science education. The results showed continued steady growth in CSL, from 1.6% in 2005 to 10.56% in 2020. Specifically, male, urban, and younger adults were more likely to qualify as possessing CSL. Moreover, education level was found to be positively related to CSL. The study also found that in China, the effectiveness of formal science education has been hampered by the long-term division of the arts and sciences, examination-oriented education, the urban-rural gap, and the aging population. In terms of informal education, 37.2% of Chinese citizens visited science museums in 2020, and the Internet plays an increasingly important role. Nowadays, Chinese science popularization lacks interaction, with limited opportunities for public engagement. There are deficiencies in both the country's formal and informal science education, meaning that there is still much room for improvement in the promotion of CSL in China.

ABSTRACT

Wang, Zimu

When & where: Session 1, Wednesday, 5 April 10:45-12:00, Zoom
 Title: Chinese science has no past unless it is patriotic: How is the future of science different from the past? A comparative study of biographies of scientists and science news
 Format: Online conference
 Author: **Zimu Wang**, China University of Labor Relations, China
 Chair(s): Jenni Metcalfe
 Co-author(s): Qing Xiao

Overview: In this session presenters will explore connections between science communication, politics and social themes.

The Chinese government is considered to be representative of authoritarianism, and the technological route is the key to this authoritarianism, i.e., the technocratic-bureaucratic system. Thus, the perception and judgment of technology constitutes the key to China's national development. Deng Xiaoping's famous statement, "science and technology is the first productive force," made a mild reversal of Mao's line and moved China from a class-driven economic development line to seemingly neoliberalism.

Some studies focus on Chinese science videos and articles, yet they have ignored the temporal structure of them - which we see here as key to the content of science, as this would complete the process of embedding science in the national sphere. Specifically, we conducted a textual analysis of biographies of scientists and science news, and a thematic analysis of the relationship between science and the state.

Overall, two types of temporal dimensions, namely past and future, exist here in these two types of texts. In biographies of scientists, scientists as historical and contemporary figures connect the revolutionary history and the contemporary, that is, the pre-Maoist, Maoist, and post-Maoist eras. Scientists here are not only over-politicized, but over-ordered, compared to an unorganized history of individual lives in reality. And in science news, technology, especially new and in line with national policies, such as the dual carbon policy and related technological breakthroughs, is always described as an important driver of the country's future, or the key to leading the country to a better future.

We find the emergence of two views of time, similar to the line between Deng and Mao, in which science is patriotic and thus connects the past and the present in the category of the past, while technology is neutral and de-revolutionary in the category of the future, as a decisive force for economic and ecological development.

Interestingly, in the dimension of time as the past, over-politicization and over-ordering were not only found in China, but they were widely found in the coverage of scientists on both sides of the Cold War. However, since the end of the Cold War, both the Western and the Eastern blocs have taken a different path from China when it comes to reporting news about scientists, in the context of a future in which science and technology are not only about the future of

nations and peoples, but also about how humanity as a whole will move towards a better future.

ABSTRACT

Webber, Amanda

When & where: Parallel session 6-B, Thursday 13 April 11:30 – 12:45, *Van der Mandele (mezzanine)*
 Title: Seeing through the fog – stories of social shocks to empower youth voice and leadership
 Format: Linked papers
 Author: **Amanda Webber**, University of the West of England, United Kingdom
 Chair(s): Andy Ridgeway
 Co-author(s):

Climate change education can allow the voices of young people to be heard and help young people imagine desirable futures and develop agency to address the steps, both personal and policy based, that are needed to achieve this. In this presentation we draw on research conducted by the VIP-CLEAR project (Voices in a Pandemic – Children’s Lockdown Experiences Applied to Recovery) with 44 7–11-year-olds from Bristol, UK. The project partnered with six schools and used arts-based methods to gather experiences of children living in socially disadvantaged areas. Whilst the research was initially designed to capture children’s experiences of COVID-19, their voices and artwork revealed a multitude of social, environmental, and economic pressures and associated emotional responses that have to be negotiated beyond the pandemic. This led to the development of a book (*Learning to Live with Fog Monsters*) to support children during social shocks or intangible risks including climate change. Here we will present the book and outline how the story follows the children’s narrative arc from feeling helpless to having a sense of agency. Through the book we will explore how children’s literature can enable discussion and engagement with the important social issues and crises. We suggest that within the context of climate related education, books informed by, and amplifying children’s lived experiences could enable educators to address climate change without provoking eco-anxiety and provide a way that decision makers in industry and government can listen to young people’s voices.

ABSTRACT

Webber, Amanda

When & where: Parallel session 8-E, Thursday 13 April 17:00 – 18:15, *Hudig Room*
 Title: 3. 'Make sure to stay safe': using art and trust to navigate research collaborations through an evolving social crisis
 Format: Individual papers
 Author: **Amanda Webber**, University of the West of England (UWE), United Kingdom
 Chair(s): Luisa Massarani
 Co-author(s): Verity Jones, Luci Gorell Barnes, Laura Fogg-Rogers, Sara Williams

Effective communication and engagement around a global pandemic require a thorough understanding of perceptions and experiences of affected groups. Children were significantly impacted by mitigation measures during COVID-19, yet their voices were seldom heard. The VIP-CLEAR project (Voices in a Pandemic – Children's Lockdown Experiences Applied to Recovery) worked with six schools using arts-based methods to gather experiences of children living in socially disadvantaged areas in Bristol, UK. Their voices led to the development of a book (*Learning to Live with Fog Monsters*) to support children during future social shocks or intangible hidden risks, e.g., pandemics and climate change.

This paper shares learnings of finding common ground during COVID-19, an evolving social crisis where researchers, parents, teachers, and children were navigating their own diverse lived experiences and understanding of risk. There were also competing priorities to find and manage their own safety and what 'safe' meant to them. This resulted in practical and emotional challenges for all involved, and differing views and needs around engagement across the interdisciplinary project team. We explore the significance of using a flexible creative approach to allow children, researchers, teaching staff and parents, time and space to engage with their experiences as UK schools were under pressure to "get back to normal". Creative interventions also encouraged access to personal experiences in a non-threatening way which was important when working with children from disadvantaged areas who were facing multiple uncertainties. Building relationships and trust between all collaborators was key, and was negotiated and re-negotiated through open communication, empathy, and repeat engagement.

Effective science communication and engagement, cognizant of a range of publics, will be crucial in supporting understanding and navigation of future events. We reflect on the notion of 'staying safe' through the unknown territory of a global pandemic and its impact on research collaboration and practice.

ABSTRACT

Wedderburn, Anna

When & where: Parallel session 2-F, Wednesday, 12 April 11:30 – 12:45, *Schadee Room*
 Title: 6. CuriosiTY: Broadening participation in a transition year STEM placement programme
 Format: Insight talks
 Author: **Anna Wedderburn**, University College Dublin, Ireland
 Chair(s): Sarah Davies
 Co-author(s):

Transition year (TY) is an optional 1-year programme offered by 75% of secondary schools in Ireland that acts as a bridge between junior and senior cycle. Pupils have an opportunity to gain insights and experiences that prepare them for the demands of working life or further education.

I will describe the evaluation of a pilot project to deliver equity of access to a STEM placement programme co-created with pupils, teachers, and professionals from the university access office. It included targeted measures to enable participation by TY pupils (aged 15/16) from areas of socio-economic and geographical disadvantage. The immersive week-long programme comprised practical laboratory activities, accessible research seminars, career talks, facility tours and a postgraduate ‘buddy system’ that facilitated informal mentorship.

The initiative-built capacity for education and public engagement among postgraduates by providing training to enable them to deliver programme activities, and further supporting them to deliver an engagement activity in a community setting through links developed with participating schools.

The researcher will discuss insights from the mixed-methods evaluation of the project that included 3 separate TY placement weeks with a reach of 72 pupils during 2020/2021. 71% pupils were from DEIS schools (Delivering Equality of Opportunity In Schools), a designation by the Department of Education.

TY students reported increased confidence in their scientific ability, greater likelihood of studying science in college or attending UCD, a better understanding of the different career paths in science, and an appreciation for the fact that there are many different routes to studying and working in science. Postgraduate researchers reported increased confidence in carrying out EPE activities and improved ability to communicate with young audiences. This insight talk will highlight tips and pitfalls for scientists and science communicators considering co-creating a valuable STEM learning experience with equity of access.

ABSTRACT

Wehrmann, Caroline

When & where: Parallel session 9-K, Friday 14 April 09:45 – 11:00, *Van der Vorm Room*
 Title: Bringing Living Labs to Life: Fulfilling the promise of open, active, and innovative public science engagement
 Format: Roundtable
 Author: **Ingmar Rothe**, Leipzig University, Germany
 Chair(s): **Caroline Wehrmann**
 Co-author(s): Christian Pentzold, Loes Witteveen, Caroline Wehrmann

Living Labs galore. Involving citizens and other stakeholders in science endeavors and integrating them in the design of new technologies and scientific inquiry is a core aim of contemporary research and development. Living Labs are prime places in the quest of science to be more inclusive and to open up to people from all walks of life, including politics, design, and culture. Promising to foster participation, collaboration and co-creation around science, Living Labs have been mushrooming across the academe, from STEM subjects to the humanities. In fact, they have become the token for up-to-date science communication. Despite the keen interest and heavy investments into Living Labs, their epistemic underpinnings and conceptual grounding remain shaky. The many approaches and initiatives do not follow a common idea or design, except the ambition to venture into the “real world” outside of labs and libraries. Moreover, little is known about the communicative and social processes happening at these sites and the ways participation is being configured. What is further missing is a critical view on the political schemes and ambitions around public engagement and Living Labs.

The roundtable addresses this lack of conceptualization and rigorous analysis of the paradigmatic foundations and practical frameworks of living labs. Its four paper contributions examine the ways living labs are constructed and operated to fulfil the promise of open, active, and innovative public science engagement. They query the underlying theories and normative assumptions of living labs, for instance regarding the varying notions of what makes for “productive” participation and “good” participants; this involves thinking about other factors such as trust, agency, and expertise that come to bear upon the living lab experience. The roundtable thus provides a space to interrogate the key moments in the life of living labs.

ABSTRACT

Wehrmann, Caroline

When & where: Parallel session 7-J, Thursday 13 April 15:15 – 16:30, *Plate Room*
 Title: Developing a language to communicate about the unique role of the academic researcher in societal transformations
 Format: Problem-solving workshop
 Author: **Caroline Wehrmann**, Delft University of Technology, Netherlands
 Chair(s):
 Co-author(s): Joran Buwalda

In the face of complex societal problems, collaborations between academics and societal actors are becoming increasingly common. Anyone engaged in academia-society collaboration will agree that this is a fuzzy and complex landscape. Academics, communicators and societal change-makers can help each other by sharing experiences. But, when sharing ideas about something like "transdisciplinary collaboration" between people with different cultural and professional backgrounds - how do we know we are talking about the same? We need a common language to communicate about our practices. In this workshop, we will make a step in developing this language, by answering the question: Which roles can academics and societal change-makers assume in transdisciplinary collaborations?

Transdisciplinary collaboration has a long history. Consequently, several role-frameworks already exist. For instance, Pielke put forward the "honest broker". Pohl and Whittmayer & Schapke suggested roles in knowledge co-production processes like the "change agent" and the "knowledge broker". But as our experience with transdisciplinary and transformative settings grows, so does the width of roles we assume in those settings. Moreover, only little research has been done on the roles of societal actors in transdisciplinary collaborations.

We will discuss different ways to collaborate across the borders of academia and society. Two speakers with experience with transdisciplinary collaborative settings first share their perspectives based on both personal experience and research on roles in transdisciplinary research (about 20 minutes). After that, the audience is invited to discuss in groups which of the discussed forms of collaboration they recognize and which they think are missing. What are common challenges in these collaborations and what do these challenges require from the participants to the collaboration? Which roles can the participants adopt? Finally, the perspectives are brought together in a final discussion.

ABSTRACT

Weiner, Roberta

When & where: Parallel session 10-E, Friday 14 April 11:30 – 12:45, *Hudig Room*
 Title: 6. The Price We Pay for Progress: Autonomy, exploitation, and risk in US publics' technology narratives
 Format: Individual papers
 Author: **Roberta Weiner**, Purdue University, United States
 Chair(s): Bernard Schiele
 Co-author(s): Lauren Murfree, Mark Tucker, Linda Pfeiffer

In the United States, new technologies are developed and implemented before risks are regulated or even fully realized, transforming society into a “public laboratory,” where the public becomes part of a social experiment in which they have little ability to decline participation. Much of the U.S. research on public perceptions of new technology is quantitative, focusing on instrumental adoption of technology with little focus on in-depth qualitative research elucidating public concerns.

To interrogate the overarching cultural narratives cutting across multiple emerging technologies (e.g. big data, precision agricultural technology, the Internet, and plant genetics technology) in rural America, 19 semi structured interviews were conducted with residents of south-eastern Indiana. Coding reliability thematic analysis followed by a latent analysis of sub-themes revealed several novel findings.

Participants recognized technological risk as a “double edged sword” - both an unavoidable part of modern life, and the “price [we] pay for progress”. Social dimensions of technological risks were particularly concerning to participants; specifically, fears of a loss of individual freedom and choice in which “we can’t opt out”; concerns about inequities and technology-driven exploitation of individuals and communities (“the rich get richer”); and concerns about unequal distribution of costs and benefits. Participants valued the preservation of personal autonomy and individual ability to control their own interactions with technology; however, they articulated dissatisfaction with the current status quo. While the public is not averse to all technological risks, the implications of this research point to the need for public inclusion in technology development and governance to better reflect individual and community values. Thus, effective science communication and responsible development of technology must involve transparency about risks and engagement of the public upstream in the design process.

ABSTRACT

Weitkamp, Emma

When & where: Parallel session 4-C, Wednesday, 12 April 17:00 – 18:15, *Van Weelde Room*
 Title: Science-Theatre in the Context of Science Communication: Opportunities and Challenges
 Format: Roundtable
 Author: **Emma Weitkamp**, UWE, United Kingdom
 Chair(s): **Carla Almeida**
 Co-author(s): Mário Montenegro, Simon Parry

Science and theatre may have been in dialogue since ancient times, but interest from the science communication community increased sharply following the success of Michael Frayn's play *Copenhagen* (1998). Much of the interest in theatre exploring scientists or scientific themes has come from disciplines traditionally associated with theatre, such as literary studies or applied theatre. This round table seeks to explore the field from the distinct perspective of science communication scholarship, specifically encompassing theatrical productions which address science communication objectives. We consider what science-theatre has to offer those working in science communication and some of the reasons that practitioners have for combining science and theatre in their work. We invite the audience to consider both the opportunities and challenges presented when bringing together science and theatre in a science communication context. The panellists are each invited to present a short provocation drawing from their experience as researchers and practitioners in this area, offering insights to those interested in including science-theatre within their research or practice. Initial questions from the chair will be used to initiate a discussion between the panellists, after which we will invite questions from the audience.

Speaker perspectives:

Emma Weitkamp will present findings from a global survey of science-theatre practitioners, exploring the diversity of professionals involved, who range from actors to historians, ethicists, scientists and science communicators, and their motivations for working with science and theatre, which comprise pragmatic, personal and fundamental goals. Her short provocation will raise questions about the roles and values of science-theatre and addressing the benefits and challenges practitioners see to combining these two grammars. Emma is co-author (with Carla Almeida) of *Science & Theatre: Communicating Science and Technology with Performing Arts* (Emerald Publishing). Her research explores the intersections of science and arts, including performative and visual media.

Mário Montenegro will focus on the collaborative dramaturgical work with scientists, which he has been developing with Marionet theatre company, at the University of Coimbra. From an audience's perspective, the resulting theatre plays are gateways to the hidden functioning of the scientific endeavour, revealing the structure and work relationships behind scientific development. From the participant scientists' perspectives, this kind of work expands their communication and interrelationship abilities, and constitutes a forum where they talk publicly

about matters related to their profession that they might not state elsewhere. As a theatre director, actor, playwright, professor of Performance and Theatre Studies at the University of Coimbra and senior researcher at the Centre for Interdisciplinary Studies, Mario will draw on a range of practice perspectives. He is the Artistic Director of Marionet (www.marioneteatro.com), a theatre company focused on the interplay between theatre and science.

Simon Parry draws our attention specifically to theatre engaging with health themes. He will discuss implications for contemporary theatre and performance practices of the increasing politicisation of health in the UK and elsewhere. He will explore case studies of theatre companies and reflect on how they have attempted to incorporate health themes and expertise in their programming and producing processes. Simon is Senior Lecturer in Drama and Arts Management at the University of Manchester. His research explores the politics and aesthetics of creative practice at the intersection of science, health and performance. He is the author of *Science in performance: theatre and the politics of engagement* (Manchester: MUP, 2020) and is currently co-editing a new Routledge Companion to Performance and Science with Adele Senior and Paul Johnson.

ABSTRACT

Weitkamp, Emma

When & where: Parallel session 9-G, Friday 14 April 09:45 – 11:00, *Van Beuningen Room*
 Title: 1. Covid-19 editorial cartoons in Australia, South Africa and the UK: mixing politics, science and scientists
 Format: Individual papers
 Author: **Emma Weitkamp**, UWE, United Kingdom
 Chair(s): Carolina Llorente
 Co-author(s): Michelle Riedlinger, Marina Joubert, Elena Milani

Covid-19 has affected all corners of the globe, but the effects and timing of these impacts has varied. This gives Covid-19 both a global and a local dimension which we sought to explore by comparing political cartoon coverage of the pandemic in Australia, South Africa and the United Kingdom. Research demonstrates that media coverage of the pandemic varied according to the cultural context, political decisions and approaches to the pandemic. However, little research has explored how editorial cartoonists with Covid-19 content interpreted and presented the pandemic for their readers. Cartoons have an established role in supporting publics to make sense of contemporary (scientific) issues.

In this study, we adopted a qualitative approach, to investigate how editorial cartoonists portrayed the pandemic. We focus on the politicisation of both science and scientists, highlighting the way the cartoonists situated the pandemic within wider national discourses. We collected 466 cartoons during the 18 months study period (January 2020 – June 2021). Editorial cartoons were collected from two Sunday newspapers from each country. 226 cartoons mentioned the pandemic. Scientists were present in 7% of Australian, 2% of South African and 5% of British cartoons. When present, scientists were portrayed as: the cause of the pandemic, as representatives of institutions opposed to individual freedom (e.g. supporting lockdown) or as failing to act (e.g. vaccine rollout). Politicisation of science had distinct national characteristics. In the UK, the pandemic was linked prominently with Brexit and the UK's relationship with the EU. Long running issues for Australia included a difficult relationship with China and attitudes towards refugees, while in South Africa attention turned to the poor socio-economic conditions in the country and government corruption.

ABSTRACT

Wendler, Jana

When & where: Parallel session A-F – Tuesday 11 April 14:00-17:00 – *Natuurhistorisch museum*

Title: We'll take you on a journey: Audience-focused storytelling in public engagement

Format: Professional development workshop

Author: **Jana Wendler**, Berlin School of Public Engagement, Germany

Chair(s): Jana Wendler

Co-author(s): Victoria Shennan, Anna-Zoë Herr

Stories are the most fundamental form of human communication. They connect, move and motivate us. As a consequence, the practice of storytelling holds great value for Public Engagement and Science Communication, as both an approach to our public dialogue and a framework for delivery. In this workshop, we will explore how narrative techniques can make us better, more empathetic and open engagers, with the opportunity to put these tools into practice.

The workshop draws on the audience and value-centric approach that guides all our trainings at the Berlin School of Public Engagement and Open Science. Before we tell a story, we need to know who it is we are speaking with, and why. We therefore start the session by mapping different stakeholders and their motivation for engaging with research stories. We then dive into the tools of narrative design, and investigate how characters, story arcs, visual metaphors and audience agency align with science and research practices. Exercises from interactive theatre, writing and human-centered design will allow us to try out these ideas in a fun and safe environment.

The final part of the workshop takes the form of a narrative jam: a design session that explores the possibilities of applying storytelling in different creative channels. Using visual communication, oral presentations or game design, small teams will respond to a thematic prompt and share their creations with the group. Overall, participants will take away a set of narrative tools for their own engagement work, gain confidence in taking creative approaches to research communication, and develop their capacity to create a mutually supportive environment for experimentation and learning.

ABSTRACT

Wenqi, Tan

When & where: Session 1, Monday, 3 April 09:00-10:15, *Zoom*
 Title: Communication for Inclusion: How can communication practices include people with ambulatory disabilities and older adults in autonomous public transport development?
 Format: Online conference
 Author: **Tan Wenqi**, Nanyang Technological University, Singapore
 Chair(s): Michelle Riedlinger
 Co-author(s): Shirley Ho

Overview: In this session, presenters will explore how important (potentially life-saving) information is communicated to different audiences and how practices are adapted and developed to account for differences in perspectives.

A burgeoning demand for inclusive science communication has encouraged researchers and practitioners to assess how their practices are addressing issues of (in)equity. Scholars contend there is still an unequal distribution of access to information and opportunities for engagement with science across numerous marginalized communities. However, within the study of inclusive science communication, there has been a disproportionate focus on gender as a point of inequity; other excluded communities have received comparatively little attention.

In Singapore, autonomous vehicles will be integrated into the country's public transport system, in part to improve the accessibility of travel for commuters who face barriers to mobility, like people with ambulatory disabilities and older adults. Yet, current communication practices appear to be inadequate for (i) addressing how autonomous public transport (APT) will benefit these communities and (ii) allowing them to meaningfully engage with APT development. For APT to be useful for these marginalized communities, there must be adequate channels for dialogue or participation through which they can incorporate their interests into the technology.

As past research has highlighted that there is no universally appropriate “gold standard” for optimal forms of dialogue or participation, this study seeks to collate how such communication practices could manifest alongside APT development, asking: How can communication practices facilitate people with ambulatory disabilities and older adults’ inclusion in the development of autonomous public transport?

We conducted three focus groups with people with ambulatory disabilities (n=20) and three focus groups with older adults (n=21). Initial findings suggest that people with ambulatory disabilities and older adults valued inclusion in APT communication but were sceptical of the efficacy of current practices. Furthermore, while older participants focused on unidirectional feedback channels to transport authorities during pilot trials, participants with ambulatory disabilities desired to participate in APT design through involvement in private consultations or committee boards.

ABSTRACT

White, Judith

When & where: Session 4, Monday, 3 April 17:00-18:15, *Zoom*
 Title: Creating common ground around university scientific research: A
 demi-autoethnography of the agony and the ecstasy of a public
 information officer
 Format: Online conference
 Author: **Judith White**, University of New Mexico-Main Campus, United States
 Chair(s): Marina Joubert
 Co-author(s): Jeffrey White

Overview: How do science communication and the dissemination of science communication play out in different contexts? What can we learn from different strategies and viewpoints?

In 1999, at the age of 50, I enrolled in a science and technology masters' program at Texas A&M University. As a student intern and later as a newly minted public information officer, I covered TAMU's medical center, the College of Geosciences, and the College of Science's departments of physics, chemistry, and mathematics for seven years. I enjoyed great mentors and deep relationships with university scientists. This paper, however, touches on my struggles to successfully transfer the knowledge gained by the scientific researchers from my university into a vibrant and enduring public sphere. I will examine my journey of personal and professional growth, my relationships with other PIOs around the country, and the absolute uninterest of the media and, consequently, the public in entering into dialogues about science research. I will explore the conclusions to which my experiences led me and my decision to pursue a doctorate and begin my own research into the public sphere.

ABSTRACT

Wilkinson, Clare

When & where: Parallel session 1-I, Wednesday, 12 April 09:45 – 11:00, *Van Rijckenvorsel Room*

Title: Workshop your book pitch: Contemporary Issues in Science Communication

Format: Problem-solving workshop

Author: **Clare Wilkinson**, University of the West of England, United Kingdom

Chair(s):

Co-author(s):

Contemporary Issues in Science Communication is a new book series, published by Bristol University Press. As science communication continues to establish itself as a discipline in the 21st century, there has never been a better time to consider contemporary science communication and its practices. Books in this peer-reviewed series will cover a range of topics relevant to contemporary science communication, including, but not limited to:

Disciplinary insights: Definitions, history and ethics of science communication; the role of science and technology studies; expertise, replication and trust; interdisciplinary knowledge and ideologies.

Science communication mechanisms and techniques: Citizen science; the role of public relations; knowledge and new forms of media; public policy; gaming, Sci-art and visual communication.

Inclusivity in science communication: Gender, class, disability, ethnicity and other 'intersectional' perspectives; casualisation of science communication labour.

This workshop will provide an opportunity to meet the series editor, as well as at least two authors who have been involved in the first two titles that the series will be publishing in 2023. These titles are 'Queering Science Communication: Representations, Theory and Practice' edited by Lindy Orthia and Tara Roberson and 'Race & Socio-cultural Inclusion in Science Communication: Innovation, Decolonisation & Transformation' edited by Elizabeth Rasekoala.

Participants can find out what goes into a book proposal, how to pitch a book idea, and gain top tips from the authors and editor. There will also be time to work up a book pitch with suggested prompts and activities. The workshop will be interactive, but attendees are under no pressure to pitch to the series, authors considering publishing via other routes are also very welcome to attend. Participants can utilise their ideas to submit to other publishers, or arrange for a follow up conversation with the series editor, with a view to developing a proposal.

ABSTRACT

Wilkinson, Clare

When & where: Parallel session 5-B, Thursday 13 April 09:45 – 11:00, *Van der Mandele (mezzanine)*
Title: 3. Communicator, expert, role-model, carer, other? Sex, gender and science communication
Format: Individual papers
Author: **Clare Wilkinson**, Science Communication Unit, UWE Bristol, United Kingdom
Chair(s): Massimiano Bucchi
Co-author(s): Elena Milani, Emma Weitkamp, Andy Ridgway

Presenting data from a questionnaire survey distributed across seven European countries; Italy, the Netherlands, Poland, Portugal, Serbia, Sweden and the U.K., this presentation will examine women science communicators' perspectives on their professional roles, aims, training, motivations and deterrents for science communication. Anecdotally, in science communication and in surveys, women are frequently reported to be more engaged in science communication and this may be perceived as a positive step, given that under 30% of those working in STEM (science, technology, engineering and mathematics) globally are recorded as female. Whilst the participation of women, and increased gender diversity in science communication may then suggest benefits in regards to equity, diversity, inclusion, more recently authors have suggested it could point to a more worrying trend, whereby the comparably low status, pay and instability of careers in science communication has created a 'ghetto' for women. Science communication may subtly and implicitly come to be perceived or performed as 'women's work', whilst others pursue more privileged professional and academic pursuits. Presenting data from 459 science communicators we empirically explore these issues, including consideration of the challenges (and mistakes we made) in framing survey work focussed on gender and sex. We also highlight the increasing need to advance understanding of representation and science communication around LGBTIQ+ people and a wider range of cultural and social experiences beyond our European focus.

ABSTRACT

Willems, Sanne

When & where: Parallel session 5-H, Thursday 13 April 09:45 – 11:00, *Ruys Room*
 Title: 3. Effectively debunking misleading graphs
 Format: Individual papers
 Author: **Sanne Willems**, Universiteit Leiden, Netherlands
 Chair(s): Toss Gascoigne
 Co-author(s): Ionica Smeets, Winnifred Wijnker, Peter Burger

How to correct misleading charts? Research on how to effectively debunk text-based misinformation has already resulted in some practical guidelines for fact-checkers. However, little is known about debunking misleading graphs and we present the results of a study that looked at different strategies for doing this, and their short and long-term effects. Graphs are useful to communicate concisely about complex issues to a broad public. Although they facilitate intuitive reading of data, trends and predictions, there is a great drawback to graphs: the ease to mislead. Many misleading graphs pop-up on social media feeds and users take little time to read them. These hasty readers often draw the wrong conclusions if graphs are misleading due to violated design conventions. Even highly educated people are susceptible to this. For example, omitting the baseline of the vertical axis of a bar chart results in an overestimation of differences between the bars, and is a common trick to exaggerate differences between groups.

In our two-survey experimental study, we investigated and compared the effectiveness of four correction methods as debunking strategies to correct bar charts with manipulated vertical axes. The correction methods focus on different phases of graph reading, either correcting the misleading initial perception or stimulating accurate reading.

Additionally, we investigated whether the correction effects last for at least a week and explore whether there are any differences between people with various levels of graph literacy and education.

In this presentation, we will check how easily the audience is misled by the bar charts, and then show the set-up, results, and conclusions of our study, and discuss how science communicators can use these. This experiment is part of a larger project aimed at providing guidelines for fact-checkers, science communicators, and (data) journalists on how to effectively combat misleading graphs.

ABSTRACT

Wu, Leon Yufeng

When & where: Parallel session 3-H, Wednesday, 12 April 15:15 – 16:30, *Ruys Room*
 Title: 2. Development and Validation of Scale for Reception of Science Communication
 Format: Individual papers
 Author: **Leon Yufeng Wu**, Chung Yuan Christian University, Taiwan
 Chair(s): Julia Cramer
 Co-author(s):

Immense science communication/popularization activities (e.g., science news, video, museum exhibitions, etc.) have been conducted recently for promoting public engagement of science. However, it hasn't been easy to evaluate the effectiveness of these activities. The current study developed a Reception of Science Communication (RSC) scale to measure levels of the public's perspectives toward the 5 dimensions: A: Awareness, E: Enjoyment, I: Interest, O: Opinion-formation, and U: Understanding when they encounter daily lives science communication activities. The RSC survey was established upon definitions of science communication by Burns et al. and distributed among a Taiwanese group of science TV program fans club on Facebook. This Facebook group of audience is around 5000 who are following and sharing on the social network a science short video series broadcasted on the Taiwanese largest cable TV channel (i.e., TVBS). As a result, 340 participant responses were collected. A standard statistical process of exploratory factor analysis and confirmative factor analysis was utilized to determine the effectiveness of the RSC scale. In the end, the RSC scale shows good reliability and validity. Some further analyses were also conducted concerning the related demographic data among the Taiwanese participants. It is suggested that the RSC (Reception of Science Communication) scale is a good tool for evaluating the effectiveness of science popularization's activity to host, teachable moments for public science communication, science edu-communication, science museum TV programs, and meanwhile extending the possibility for further research.

ABSTRACT

Yael Barel-Ben David, Yael Barel-Ben David

When & where: Parallel session 6-I, Thursday 13 April 11:30 – 12:45, *Van Rijckenvorsel Room*
Title: Science in and out – Creating common ground for community science events - The Citizen lab model for public engagement
Format: Demonstration
Author: **Yael Barel-Ben David Yael Barel-Ben David**, Technion, Israel
Chair(s):
Co-author(s): Hani Swirski, Keren Dalyot

The Citizen-Lab is a collaboration between the Faculty of Education in Science and Technology at the Technion and MadaTech - Israel National Museum of Science, Technology and Space. Established in 2020, the Citizen-Lab aims to strengthen the local community's sense of belonging to the museum and increase their engagement with science through science communication activities.

MadaTech is located in the heart of the "Hadar" neighborhood, the most crowded neighborhood in Haifa. It's a mosaic of Israeli populations (Jews, Christians, Muslims, seculars, Orthodox, etc.). However, many residents have never visited MadaTech, and no scientific activities for the community take place outside the museum's doors.

Engaging the public phase 1 - Starting our activity in 2020 under the COVID-19 restriction gave us the opportunity to get acquainted with local communities and facilitate their connections with MadaTech. On MadaTech's re-opening, we held free science events for the public at the museum and in the museum's backyard, organized special visits, and launched a new after-school activity for low-income children. Our reformed connections with local leaders exposed us to community events held by various parties in the neighborhood (e.g., at the community center, Torah Core, etc.). This led to the co-creation of our new model for community events. Phase 2 - Our outreach work has borne fruit, and in this second phase we developed activities with local organizations. We follow the community calendar and add science content (demonstration or activity) that fits the theme of the event (holidays, special events, etc.). In this way, we take science beyond the walls of MadaTech and become part of the local neighborhood event. Meanwhile, we continued opening MadaTech to the public in our events from Phase 1.

Here we present our experience-based model, share our insights and discuss other ideas and models for future events or cultural comparisons.

ABSTRACT

Yang, Jiye

When & where: Session 1, Monday, 3 April 09:00-10:15, Zoom
 Title: Good riddance, we are still in the old world! Please don't be so precise about science: The deliberate ambiguity of the dissemination of maternal-infant knowledge in China (1941-1950)
 Format: Online conference
 Author: **Jiye Yang**, Xiangtan University, China
 Chair(s): Michelle Riedlinger
 Co-author(s): Qing Xiao

Overview: In this session, presenters will explore how important (potentially life-saving) information is communicated to different audiences and how practices are adapted and developed to account for differences in perspectives.

Already, some studies have focused on the spread of science in the Republican period, which will reveal the face of science to the populace in early China. However, only a small part of attention has been paid to the dissemination of maternal and infant knowledge, an area in which folk medicine occupies an important part, as midwives (Jieshengpo, 接生婆) have played an efficient role in the long history of China. In other words, at the beginning of the 20th century, China had an internal system of maternal-infant knowledge that had been handed down for thousands of years, while facing the impact of Western early childhood medicine and care. Many progressivists started to actively handle medical journals, therefore spreading advanced medical knowledge to a wider public.

Existing studies have focused on the history of these medical journals, yet have ignored the patterns of dissemination of maternal-infant knowledge. Is it scientifically accurate, such as being filled with a lot of data and terminology? Or is it feudal, such as utilizing a plethora of myths and folklore fables? Or is it a mixed state? This study develops a qualitative content analysis of infant and child medical journals from this period. Ultimately, we find that these medical journals are a complex representation of a mixture of feudal and scientific knowledge. Specifically, these medical journals (1) actively translate excellent scientific research from abroad; (2) utilize and adapt folklore stories; (3) invite contributions from prominent Chinese medical practitioners; and (4) actively use photographs. In short, this model of scientific communication contains a kind of storytelling, i.e., the mass communication of modern medicine is accomplished by means of the characteristics of folk medicine, where although the latter is always egregiously denied by the former.

ABSTRACT

Yang, Zheng

When & where: Parallel session 8-G, Thursday 13 April 17:00 – 18:15, *Van Beuningen Room*
 Title: 4. As special public: occupational literacy and its effects on GMOs attitude of Chinese civil servants
 Format: Individual papers
 Author: **Zheng Yang**, Soochow University, China
 Chair(s): Germana Barata
 Co-author(s):

Many studies have already pointed out that the public is not a fixed and homogeneous entity but many diverse and dynamic groups, whereas the difference and similarity between subdivided public groups and 'general public' is limitedly studied with empirical cases in science communication, especially in the Chinese context, where most studies focused on 'general public and their scientific literacy or science communication acceptance'. To address this gap, this study examines the Chinese civil servants' attitudes toward GMOs and its influence factors as a special public group, mainly focusing on their occupational literacy- as the representation of their special group characteristics-, genetic scientific literacy and GMOs conspiracy theories beliefs via a national survey of 3,018 Chinese civil servants. Combined with many studies focused on the general public and their attitudes toward GMOs in China. The findings show that the Chinese civil servants hold a more positive GMOs attitude than the whole Chinese 'general public', with a similar level of genetic scientific literacy and GMOs conspiracy theories belief and their influence mechanism, which means that there must be some other factors that belong to this group are affecting their GMOs attitude. The survey results show that their occupational literacy (administrative literacy), as their special group attributes, can not only directly positively affect the Chinese civil servants' GMOs attitude, but also through moderation effects, amplify the positive effect of genetic scientific literacy and reduce the negative effect of conspiracy theory beliefs on their GMOs attitudes. The findings indicate that the civil servant group is not equal to the general public group in GMOs science communication and also GMOs cognition. This study not only verifies the conclusion that the public is not homogeneous in science communication through empirical research, but also provide a new mindset for studying some specific groups' attitude toward GMOs or other specific scientific topics.

ABSTRACT

Yeo, Sara

When & where: Parallel session 3-C, Wednesday, 12 April 15:15 – 16:30, *Van Weelde Room*
 Title: Toward a unified research agenda for communicating basic science
 Format: Roundtable
 Author: **Sara Yeo**
 Chair(s): **Brooke Smith**
 Co-author(s): Marina Joubert, T.Y. Branch

Where would global society be without basic, curiosity-driven, discovery science? Basic research deepens our fundamental understanding of the natural and physical world from the origins of the universe to atmospheric chemistry of present-day earth. It underpins nearly every technological advancement. Yet, despite its critical importance to advancing human knowledge and capabilities, basic science (as opposed to applied sciences, medicine, and technology) is rarely the focus of communication scholarship, practice, or training.

Consequently, there are many unknowns about the needs, challenges, and approaches to communicating or engaging the public with basic science. What is the role of science communication for basic science specifically? What do different communities around the world think and feel about basic science? How do different communities globally practice and make sense of basic science communication? How well prepared are the world's basic scientists to engage the public around their work? Are there opportunities and challenges unique to basic research that should inform, and potentially change, public engagement strategies?

These questions and more led the Kavli Foundation and the U.S. Department of Energy Office of Science to form the Science Public Engagement Partnership (SciPEP) to explore what is known and what is unknown about basic science communication. In February 2022, the SciPEP partners developed a broad prospectus on critical questions that form the beginnings of a research roadmap to address the gap in scholarship. In addition, new research is emerging. This roundtable discussion will examine a proposed, preliminary research agenda and emerging evidence on basic science engagement. Speakers will give brief opening presentations to frame the conversation. A facilitated discussion with respondents and the audience will follow to address what we know, don't know, and what questions we should be asking, at both the institution level and globally.

Speaker perspectives:

Rick Borchelt (The U.S. Department of Energy, Office of Science)

Communicating about basic science is an essential part of the scientific process and is critical for engendering the public support necessary for our global innovation ecosystem and economy. However, there are few solid guidelines about how best to communicate about basic science. This talk will outline work of the Science Public Engagement Partnership (SciPEP) to catalyze a unified understanding of communicating basic science, including strategic directions for integrating social science research with science communications practice and training. For

continued scientific progress and innovation, it is important that policy makers, decision leaders, other scientists, and interested members of the public can access and engage with the whole story of scientific research, from basic research to breakthrough discoveries to technological advancement.

Sara Yeo (University of Utah, United States)

What are the strategic goals of scientists and research-supporting institutions for communicating about basic science? Are there any goals that are unique or better suited for communicating basic science than they are for applied science? This talk will highlight emerging evidence about the motivations, goals, and needs of basic scientists to communicate about their research. Dr. Yeo will give a brief overview of this new evidence, with an emphasis on whether and how basic scientists differ from applied scientists. The overview will include data from her research team's recently completed survey on U.S. scientists' use of and attitudes toward social media for public communication and its implications for science communication practice, training, and priorities for future research.

Marina Joubert (Stellenbosch University, South Africa)

Marina Joubert will reflect briefly on how and why field differences affect scientists' communication behaviours and willingness to engage with society. Scientists doing fundamental research typically perceive low public interest in their work, but high barriers to making their work publicly accessible in a meaningful way. Still, throughout history, some of the most notable science communicators have been working in fields such as chemistry, physics and astronomy. She will share some stories and examples of how and why basic science is communicated in South Africa where science policymakers prioritise research linked to the country's unique geographic position, such as its southern skies and unique fossil heritage, as well as terrestrial and marine biodiversity.

T.Y. Branch (University of Cologne, Germany)

Basic science, or research conducted without the explicit aim of creating social goods, is taken by default to be at the heart of discovery. Originating from the concept of 'pure' science, basic science has served as the foundation for how science relates to society in the Global North since the beginning of the Cold War. Dr. Branch will discuss her insights on how establishing and maintaining this privileged position for basic science requires the support of institutions that reinforce the distinction between basic from applied science. For example, emerging work on the broader implications of the value-free ideal for science is crucial to capturing how basic science has been communicated and perceived by publics. She will also share her expertise on why asking how best to communicate it, also requires, simultaneously, understanding what makes basic science different (if at all) from other sciences and examine the values that define it.

ABSTRACT

Young, Heather

When & where: Parallel session 3-G, Wednesday, 12 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 7. More Than Words: Using Images of Science to Reach Broader Audiences
 Format: Visual papers
 Author: **Heather Young**, Okinawa Institute of Science and Technology Graduate University, Japan
 Chair(s): Melanie Smallman
 Co-author(s): Iliana Mendoza-Villafuerte

The core challenge of science communication is making or complex ideas understandable to non-experts. Scientific imagery, or images taken as part of the scientific process, can be powerful communication tools when they illustrate knowledge in unexpected ways and inspire viewers to explore new areas.

How can communicators find, evaluate, and display compelling images without being confusing? How can scientific imagery, formerly confined to journals, be sourced and used for public domains such as museums, news media, and social media?

The OIST Images of Science exhibition project is bringing previously unseen images of science to audiences throughout Japan. Scientists from the Okinawa Institute of Science and Technology submitted images that were evaluated by science, arts, and media professionals for scientific content (what was shown and why it is relevant to the field) and aesthetic characteristics. The result is a collection of 50+ scientific images, such as a 3D stamen of a grain of rice, a collection of multi-colored dots that are neurons in a mouse's brain, and a shot from inside a Pharaoh Ant's head—where its biting muscles fill most of the space!

This artistic display of the hidden world around us is astounding to diverse audiences, from tourists to business owners, media professionals to policymakers, and teachers to schoolchildren in our community.

ABSTRACT

Zhou, Yuanyuan

When & where: Parallel session 11-G, Friday 14 April 14:15 – 15:30, *Van Beuningen Room*
 Title: 5. Impact of the research field and time periods on the relationship between scientific impact and social media influence of scientific papers
 Format: Visual papers
 Author: **Yuanyuan Zhou**, University of Science and Technology of China, China
 Chair(s): Jenni Metcalfe
 Co-author(s): Jiaojiao Ji

Scholars have not yet concluded how the relationship between scientific impact and social media influence of scientific papers compares. For instance, the relationship is very strong in field of ecology and sport science, but very weak in the biomedical field. Therefore, comparative research on the relationship between the scientific impact and social media influence by research field and time needs to be further studied. The factors that affect the social media influence of scientific papers also remain unclear. So, we aim to explore the factors that affect social media influence from the aspect of "tipping point".

Our research questions were:

1. How do research fields and time affect the relationship between scientific impact and social media influence of scientific papers?
2. What are the factors that affect the social media influence of scientific papers?

As data source all posts of the Chinese Academy of Sciences's account on Weibo were collected between May 21, 2013, and June 6, 2022. Then posts related to scientific papers were screened out, and the numbers of citations were obtained from the Web of Science.

The social media influence was calculated by weighting the number of likes, reposts, and comments based on the entropy weight method (EWM). The scientific impact was measured by the number of citations. We employed multiple linear regression to explore factors affecting social media influence.

Results show that the relationship between scientific impact and social media influence of scientific paper is strong in the field of theory and technology. Also, the relationship keeps changing over time. Moreover, posting time, information quality and information trustworthiness can affect social media influence.

This research could contribute to understanding the relationship between the scientific impact and social media influence. Strategies to improve the social media influence of scientific papers in China are provided

ABSTRACT

Zimmerman, Ifat

When & where: Session 2, Monday, 3 April 10:45-12:00, *Zoom*
 Title: Science communication objectives and practices of science news websites as a showcase of gaps between theory and practice
 Format: Online conference
 Author: **Ifat Zimmerman**, Technion – Israel Institute of Technology, Israel
 Chair(s): Ayelet Baram-Tsabari
 Co-author(s): Ayalet Baram-Tsabari, Tali Tal

Overview: This session is about the places and platforms where we acquire science communication knowledge and how that ‘knowledge’ is presented and interpreted in turn.

Different formats of science engagement activities reflect different models of science communication, such as Deficit, Dialogue, and Participation, each of which prioritizes different goals for communicating science. Science News Websites (SNWs), understudied to date, provide the public with science engagement activities by publishing popular science articles written by scientists but in journalistic style and allowing users to comment. Here we analyze the objectives and practices of four Israeli SNWs against these three science communication models using a concurrent parallel mixed method. It addressed the operators’ and users’ perspectives using multiple tools, including interviews with the websites’ operators (n=8), content analysis of their publications (n=298) and discussion threads (n=507), interviews with the websites’ readers (n=20), and reader questionnaires (n=89). Findings indicate that the four news sites hold similar objectives and perceive their significance in roughly the same order. Most of the objectives reflect the deficit and dialogue models, though the former was found to be more fundamental: informing the public and making scientific content accessible. The practices to achieve the dialogue model objectives are lagging as the websites fail to engage non-experts in meaningful science-related conversations. Furthermore, the websites hardly hold objectives that reflect the participation model. Apparently, their role perception discourages collaboration and co-creation of knowledge, as well as dialogue, debate, and critique about how science is applied in society. The primary contribution of this study is by providing the science communication scholarly knowledge with additional evidence of the apparent gap between rhetoric and practice, especially regarding the dialogue model, which despite the wide acknowledgment regarding its advantages in communicating science with the public, is not consistently implemented; thus, the promises it carries are not fully realized.

ABSTRACT

Zimmerman, Ifat

When & where: Session 4, Monday, 3 April 17:00-18:15, *Zoom*
 Title: Reader engagement expressions to popular science articles predicted by the use of accessibility strategies
 Format: Online conference
 Author: **Ifat Zimmerman**, Technion – Israel Institute of Technology, Israel
 Chair(s): Marina Joubert
 Co-author(s): Ayalet Baram-Tsabari, Tali Tal

Overview: How do science communication and the dissemination of science communication play out in different contexts? What can we learn from different strategies and viewpoints?

Accessibility strategies are elements of design incorporated into the text to make it more understandable and appealing, particularly for non-expert readers; some contribute to clarity (e.g., minimizing jargon use and providing explanations), while others to visualization (e.g., diagrams), relevance (e.g., addressing socio-scientific issues (SSIs) and local aspects), or, style (e.g., narrative). The digital public sphere enables active user interactions with science news coverage; however, to date, little is known about how elements of the text might foster or hinder public engagement with science. Specifically, how does the use of accessibility strategies and the content itself relate to this practice? Here we explore public engagement with online popular science articles (n=298) using a content analysis of the articles and their discussion threads. A coding scheme was developed to identify Cognitive, Affective, and Behavioral engagement expressions in reader comments (n=5852) to examine their relationships with the accessibility strategies employed in the articles. We did so in two types of settings, comparing a science enthusiast audience with a general audience. Findings indicate that the higher the jargon level, the less cognitive engagement expressions were found in user comments, but surprisingly, it arose more positive emotions. The opposite, however, when addressing SSIs and local aspects. These associations were more apparent among the general public. Moreover, several accessibility strategies were found to be predictors of affective engagement expressions among the general public readers but not among science-minded readers; specifically, a high level of jargon and narrative style positively predict positive emotions, while addressing local aspects, negative ones. SSIs, however, predict cognitive engagement expressions in both audiences. This exploratory study suggests that user engagement is associated with characteristics of the text adding to our understanding of what might foster or hinder it, implying that they might benefit disparate types of audiences differently.

ABSTRACT

Zuma, Luthando

When & where: Parallel session 7-G, Thursday 13 April 15:15 – 16:30, *Van Beuningen Room*
 Title: 4. COVID-19 Myth Busters project
 Format: Visual papers
 Author: **Luthando Zuma**, Africa Health Research Institute, South Africa
 Chair(s): Heather Doran
 Co-author(s): Welcome Mbokazi

Myths around COVID-19 have been circulating since the emergence of coronavirus global pandemic in 2019. Prior to the emergence of the first case and detection of a new incidence of COVID-19 in South Africa, myths developed rapidly including identifying a specific racial group being immune to the virus without any proven scientific data. This myth-based belief came with challenges to public health system including certain populations not heeding professional advice on facts about COVID-19.

We designed a research communication and public engagement-oriented project in Mtubatuba KwaZulu-Natal South Africa (1 May 2021 to July 2021) with the main objective to create public health messaging to dispel misinformation and reduce the harm of COVID-19. We used a participatory approach working with communities and peer navigators for public engagement practice to develop and design educational materials (animations and posters) for disseminating information. Posters presenting factual information about COVID-19 were displayed in 1 taxi rank, 2 clinics, 1 school, and social media platforms WhatsApp, Facebook, and Twitter to post different versions of animations. Mixed methods were used to collect both qualitative and quantitative data using focus group discussions, questionnaires, surveys, and reviewing of social media results.

More than 51% of participants in the school survey had seen and learned from the posters, 98% in clinics had seen and understood the posters, Taxi ranks (67%) had seen and learned from posters, (33%) responded have not seen the posters but seem to have certain perceptions about COVID-19. Social media platforms aimed to increase COVID-19 awareness, and analyses were based on the emoticon reactions which showed most visitors reacted with 'likes and 'love'. Results clearly indicate that myth-based beliefs pose a great danger to public health. Myths can be corrected using social media platforms, posters and campaigns in public spaces by engaging with the public and significantly improving communication.