





PCST 2025 Aberdeen

The Public Communication of Science and Technology Conference

Using Science Communication to effect positive change
Exploring transitions, traditions and tensions

27 – 29 May 2025

Welcome from the Chair

Dear PCST 2025 Delegate,

On behalf of the PCST Local Organising and Programme Committees, it is my great pleasure to welcome you to the PCST 2025 Conference in Aberdeen.

Your commitment to joining us here in Scotland is greatly appreciated. Whether this is your first PCST or you have been part of the community for years, your presence helps to shape the conversations and connections that make this conference so special.

Our theme, **'Using Science Communication to Effect Positive Change: Exploring Transitions, Traditions and Tensions'** invites us to reflect deeply on the role of science communication in the world today. These themes ask us to consider what we preserve, what we transform, and how we respond to disagreement and uncertainty. This is not a conference that seeks consensus; instead, we hope to create space for thoughtful challenge, genuine dialogue, and new ways of seeing.

We warmly encourage you to take part in the full programme, including our social events and pre-conference workshops on Monday. The PCST welcome session will offer a chance to meet others ahead of the main conference, and our public opening at the historic Music Hall on Monday evening will feature a panel of compelling voices exploring the realities facing scientists and communicators.

The conference is a time for science communicators and those who research science communication to come together. There will be a diversity of voices from around the world who are taking different approaches, sharing their culture and bringing new ideas.

At PCST 2025, we recognise there is no single definition of science communication and we embrace that richness. Our hope is that this conference is one where people feel welcome, differences are respected, and meaningful collaborations begin.

I want to thank all the hard work of the Conference team at the University of Aberdeen, the Local Organising Committee, the PCST Programme Committee, the staff at P&J Live and our sponsors without whom the conference could not take place.

Aberdeen is a city of granite, sea, and stories. It is a place shaped by industry, research, and resilience. It is going through a time of great change and holds deep personal meaning for me, and I hope you come to feel some of the same warmth and connection during your time here.

Thank you for being part of PCST 2025. We look forward to learning with and from you.

Warmest wishes,

Dr Heather Doran
Chair, PCST Programme Committee
PCST 2025 Organising Committee

Contents

Welcome from the Chair 2
Contents 3
Outline Programme 4
Programme 5
Visual Presentation Details 19
Sponsors 40
Committees 41
General Information 46
Abstracts 52
Keynote Speakers 53
Discussion and Debates 59
Linked Papers 84
Individual Talks 103
Visual Presentations - 3 minute talks 245
Index 545

Outline Programme

Monday 26th May

Morning	Lunchtime	Afternoon	Evening
Pre-conference Workshops		Pre-conference Workshops & Walking Tour of Old Aberdeen	Opening Ceremony Welcome Reception

Tuesday 27th May

Morning	Lunchtime	Afternoon	Evening
Keynote Speaker Parallel Sessions	Meet the Author	Keynote Speaker Parallel Sessions	Whisky Tasting

Wednesday 28th May

Morning	Lunchtime	Afternoon	Evening
Keynote Speaker Parallel Sessions	AGM	Keynote Speaker Parallel Sessions	Conference Dinner and Ceilidh

Thursday 29th May

Morning	Lunchtime	Afternoon
Keynote Speaker Parallel Sessions	Meet the Editor	Keynote Speaker Parallel Sessions

Friday 30th May

Morning	Lunchtime	Afternoon
Self Guided Tour: Stonehaven		

Programme

Monday 26th May

Morning		
8:00 am - 9:00 am	**Workshop Registration (Monday)**	
9:30 am - 11:30 pm	Big Issues in Ethics and Science Communication: an Interactive Workshop	Elphinstone Hall, Old Aberdeen Campus
9:30 am - 12:30 pm	Cutting through the Bullshit: Rhetorical AI Literacy for Communication Practitioners	Committee Room 2, University Office Old Aberdeen Campus
9:30 am - 12:30 pm	A Collaborative Method for Innovation based on Citizens Ideas	Old Senate Rooms, King's College (KC) Old Aberdeen Campus
9:30 am - 12:30 pm	How do we teach the concept of audience?	Room 310, MacRobert Building, Old Aberdeen Campus
9:30 am - 12:30 pm	Audience Personas - A Design Research Tool for Science Engagement	Room 314, MacRobert Building, Old Aberdeen Campus
9:30 am - 12:30 pm	Supporting Policy Makers for a Sound Societal Transition	Room 252, MacRobert Building, Old Aberdeen Campus
9:30 am - 12:30 pm	Communicate your Research using a Storymap	Room 266, MacRobert Building, Old Aberdeen Campus
9:30 am - 12:30 pm	Using ChatGPT to Communicate Science Effectively and Ethically	Room 224, Sir Duncan Rice Library, Old Aberdeen Campus
9:30 am - 12:30 pm	Evaluating Science Communication: From Objectives to Measurable Indicators	Multi Media Room, King's College Conference Centre (KCCC), Old Aberdeen Campus
9:30 am - 12:30 pm	AI and Science Communication Teaching	Linklater Rooms (Far), King's College (KC), Old Aberdeen Campus

Monday 26th May

Morning ctd.		
9:30 am - 12:30 pm	Tensions in Culture Change: Insights from Research and Practice	Catherine Gavin Room, King's College Conference Centre (KCCC), Old Aberdeen Campus
9:30 am - 12:30 pm	Game On for Climate Action: Hands-on Game Design Workshop	City of Aberdeen Room, King's College Conference Centre (KCCC), Old Aberdeen Campus
11:30 am - 12:30 pm	**Welcome to PCST Session**	Elphinstone Hall, Old Aberdeen Campus
12:30 pm - 2:00pm	**Break**	

Afternoon		
1:30 pm - 5:30 pm	**Scientific Committee Meeting**	
2:00 pm - 5:00 pm	ImprovSciComm - improve how you interact through improvisation	City of Aberdeen Room, King's College Conference Centre (KCCC), Old Aberdeen Campus
2:00 pm - 5:00 pm	Mapping Institutional Support Structures Against Science Hostility	Room 266, MacRobert Building, Old Aberdeen Campus
2:00 pm - 5:00 pm	Teaching science communication in different contexts: Experiences and challenges	Linklater Rooms (Near), King's College (KC), Old Aberdeen Campus
2:00 pm - 5:00 pm	Tensions and Transitions in Ethics: Building More Collective Ethical Systems	Elphinstone Hall, Old Aberdeen Campus
2:00 pm - 5:00 pm	From Pure Scientist to SciComm-Ambassador. How to design efficient Coaching-Programs	Meeting Room 1, Sir Duncan Rice Library, Old Aberdeen Campus
2:00 pm - 5:00 pm	Tackling tensions in Transdisciplinary Research: Assembling and Sharing Complex Data	Room 252, MacRobert Building, Old Aberdeen Campus
2:00 pm - 5:00 pm	Using Evidence-based Pedagogies to Create an Effective Science Communication Classroom	Catherine Gavin Room, King's College Conference Centre (KCCC), Old Aberdeen Campus

Monday 26th May

Afternoon ctd.		
2:00 pm - 5:00 pm	De-mechanizing Our Science Communication Practice: Theatre Games for Reanimating Ourselves	Multi Media Room, King's College Conference Centre (KCCC), Old Aberdeen Campus
2:00 pm - 5:00 pm	Exploring and Practicing Science-Policy Interactions	Room 107, MacRobert Building, Old Aberdeen Campus
2:00 pm - 5:00 pm	A crash course in transition science combining research and practice	Room 224, Sir Duncan Rice Library, Old Aberdeen Campus
2:00 pm - 5:00 pm	Making Theory Valuable for Daily Practice – and Vice Versa	Old Senate Rooms, King's College (KC) Old Aberdeen Campus
2:00 pm - 5:00 pm	Envisioning Engaged Futures for Research	Room 310, MacRobert Building, Old Aberdeen Campus
2:00 pm - 5:00 pm	How to Make Most of your National Science Communication Association	Committee Room 2, University Office, Old Aberdeen Campus
2:00 pm - 5:00 pm	Five Skills for Fostering Justice in SciComm Through Audience Connection	Room 268, MacRobert Building, Old Aberdeen Campus
2:00 pm - 5:00 pm	Designing Science Communication Research Methods that Support Transition	Linklater Rooms (Far), King's College (KC) Old Aberdeen Campus
2:00 pm - 5:00 pm	Climate Communication for Change - How to Communicate Constructively	Carnegie Room, KCCC, University of Aberdeen Old Aberdeen Campus
6:15 pm - 8:45 pm	**Opening Ceremony, Welcome Reception and Public Lecture**	Music Hall, Union Street, Aberdeen

Tuesday 27th May

Morning		
8:00 am - 9:00 am	**Registration (Tuesday)**	P&J Live
9:00 am - 10:00 am	**Visual Display Session & Refreshments**	P&J Live
10:00 - 10:15 am	**Welcome Session and Opening Remarks**	P&J Live
10:15 am - 11:15 am	**Keynote Speaker One** Sophie Duncan and Paul Manners Chair: Heather Doran	Conference Suite 2B P&J Live
11:15 am - 12:30pm	**Parallel Session A: 1** Chair: Heather Doran	Conference Suite 2B P&J Live
11:15 am - 12:30pm	**Parallel Session A: 2** Chair: Luisa Massarani	Conference Suite 2A P&J Live
11:15 am - 12:30pm	**Parallel Session A: 3** Chair: Michelle Riedlinger	Conference Suite 3 P&J Live
11:15 am - 12:30pm	**Parallel Session A: 4** Chair: Lars Guenther	Conference Suite 4 P&J Live
11:15 am - 12:30pm	**Parallel Session A: 5** Chair: Mohamed Daoud	Meeting Room 4 P&J Live
11:15 am - 12:30pm	**Parallel Session A: 6** Chair: Alexandra Borissova Saleh	Meeting Room 7 P&J Live
11:15 am - 12:30pm	**Parallel Session A: 7** Chair: Martin Bauer	Meeting Room 3 P&J Live
11:15 am - 12:30pm	**Parallel Session A: 8** Chair: Wael Houssen	Meeting Room 5 P&J Live
12:30 pm - 1:30 pm	**Lunch**	P&J Live
12:45 pm - 1:30pm	**Meet the Author**	P&J Live

Tuesday 27th May

Afternoon		
1:30 pm - 2:45 pm	**Parallel Session B: 1** Chair: Ana Santos-Carvalho	Conference Suite 2B P&J Live
1:30 pm - 2:45 pm	**Parallel Session B: 2** Chair: Steve Scott	Conference Suite 2A P&J Live
1:30 pm - 2:45 pm	**Parallel Session B: 3** Chair: Heather Doran	Conference Suite 3 P&J Live
1:30 pm - 2:45 pm	**Parallel Session B: 4** Chair: Siddharth Kankaria	Conference Suite 4 P&J Live
1:30 pm - 2:45 pm	**Parallel Session B: 5** Chair: Marlit Hayslett	Meeting Room 4 P&J Live
1:30 pm - 2:45 pm	**Parallel Session B: 6** Chair: Ana Claudia Nepote	Meeting Room 7 P&J Live
1:30 pm - 2:45 pm	**Parallel Session B: 7** Chair: Donna MacCallum	Meeting Room 3 P&J Live
1:30 pm - 2:45 pm	**Parallel Session B: 8** Chair: Mohamed Elsonbaty Ramadan	Meeting Room 5 P&J Live
2:45 pm - 3:45 pm	**Keynote Speaker Two** Mamoeletsi Mosia Chair: Mohamed Elsonbaty Ramadan	Conference Suite 2B P&J Live
3:45 pm - 4:15 pm	**Afternoon Break**	Not Assigned

Tuesday 27th May

Afternoon ctd.		
4:15 pm - 5:30 pm	**Parallel Session C: 1** Chair: Siddharth Kankaria	Conference Suite 2B P&J Live
4:15 pm - 5:30 pm	**Parallel Session C: 2** Chair: Sophie Duncan	Conference Suite 2A P&J Live
4:15 pm - 5:30 pm	**Parallel Session C: 3** Chair: Lars Guenther	Not Assigned
4:15 pm - 5:30 pm	**Parallel Session C: 4** Chair: Mohamed Elsonbaty Ramadan	Conference Suite 4 P&J Live
4:15 pm - 5:30 pm	**Parallel Session C: 5** Chair: Melanie Smallman	Meeting Room 4 P&J Live
4:15 pm - 5:30 pm	**Parallel Session C: 6** Chair: Anne Dijkstra	Meeting Room 7 P&J Live
4:15 pm - 5:30 pm	**Parallel Session C: 7** Chair: Ken Skeldon	Meeting Room 3 P&J Live
4:15 pm - 5:30 pm	**Parallel Session C: 8** Chair: Wael Houssen	Meeting Room 5 P&J Live

Tuesday 27th May

Afternoon ctd.		
5:30 pm - 6:30 pm	**Parallel Performances: 1**	The View P&J Live
5:30 pm - 6:30 pm	**Parallel Performances: 3**	Conference Suite 2A P&J Live
5:30 pm - 6:30 pm	**Parallel Performances: 4**	Conference Suite 4 P&J Live
5:30 pm - 6:30 pm	**Parallel Performances: 5**	Meeting Room 4 P&J Live
5:30 pm - 6:30 pm	**Parallel Performances: 6**	Meeting Room 7 P&J Live
5:30 pm - 6:30 pm	**Parallel Performances: 7**	Exhibition Hall P&J Live
7:00 pm - 8:00 pm	**Optional Whisky Tasting**	Elphinstone Hall, University of Aberdeen

Wednesday 28th May

Morning		
8:00 am - 9:00 am	**Registration (Wednesday)**	P&J Live
9:00 am - 10:00 am	**Keynote Speaker Three** Chair: Germana Barata	Conference Suite 2B P&J Live
10:00 - 10:30 am	**Morning Refreshments (Wednesday)**	P&J Live
10:30 am - 11:45 am	**Parallel Session D: 1** Chair: Feclicity Mellor	Conference Suite 2B P&J Live
10:30 am - 11:45 am	**Parallel Session D: 2** Chair: Yaela Golumbic	Conference Suite 2A P&J Live
10:30 am - 11:45 am	**Parallel Session D: 3** Chair: Melanie Smallman	Conference Suite 3 P&J Live
10:30 am - 11:45 am	**Parallel Session D: 4** Chair: Declan Fahy	Conference Suite 4 P&J Live
10:30 am - 11:45 am	**Parallel Session D: 5** Chair: Joan Leach	Meeting Room 4 P&J Live
10:30 am - 11:45 am	**Parallel Session D: 6** Chair: Guoyan Wang	Meeting Room 7 P&J Live
10:30 am - 11:45 am	**Parallel Session D: 7** Chair: Marlit Hayslett	Meeting Room 3 P&J Live
10:30 am - 11:45 am	**Parallel Session D: 8** Chair: Donna MacCallum	Meeting Room 5 P&J Live

Wednesday 28th May

Morning ctd.		
11:45 am - 1:00 pm	**Parallel Session E: 1** Chair: An Nguyen	Conference Suite 2B P&J Live
11:45 am - 1:00 pm	**Parallel Session E: 2** Chair: Catarina Chagas	Conference Suite 2A P&J Live
11:45 am - 1:00 pm	**Parallel Session E: 3** Chair: Marina Joubert	Conference Suite 3 P&J Live
11:45 am - 1:00 pm	**Parallel Session E: 4** Chair: Sandra Murriello	Conference Suite 4 P&J Live
11:45 am - 1:00 pm	**Parallel Session E: 5** Chair: Martin Bauer	Meeting Room 4 P&J Live
11:45 am - 1:00 pm	**Parallel Session E: 6** Chair: Mohamed Daoud	Meeting Room 7 P&J Live
11:45 am - 1:00 pm	**Parallel Session E: 7** Chair: Anna Dijkstra	Meeting Room 3 P&J Live
11:45 am - 1:00 pm	**Parallel Session E: 8** Chair: Marlit Hayslett	Meeting Room 5 P&J Live
1:00 pm - 2:00 pm	**Lunch**	P&J Live

Wednesday 28th May

Afternoon		
1:15 pm - 2:00 pm	**PCST AGM**	Conference Suite 2B P&J Live
2:00 pm - 3:00 pm	**Keynote Speaker Four** Chair: Fabien Medvecky	Conference Suite 2B P&J Live
3:00 pm - 4:00 pm	**Visual Display Session & Refreshments**	P&J Live
4:00 pm - 5:15 pm	**Parallel Session F: 1** Chair: Jenni Metcalfe	Conference Suite 2B P&J Live
4:00 pm - 5:15 pm	**Parallel Session F: 2** Chair: Cissi Billgren Askwall	Conference Suite 2A P&J Live
4:00 pm - 5:15 pm	**Parallel Session F: 3** Chair: Tomomi Okubo	Conference Suite 3 P&J Live
4:00 pm - 5:15 pm	**Parallel Session F: 4** Chair: Alexandra Borissova Saleh	Conference Suite 4 P&J Live
4:00 pm - 5:15 pm	**Parallel Session F: 5** Chair: Richard Holliman	Meeting Room 4 P&J Live
4:00 pm - 5:15 pm	**Parallel Session F: 6** Chair: Fabien Medvecky	Meeting Room 7 P&J Live
4:00 pm - 5:15 pm	**Parallel Session F: 7** Chair: Lloyd Davis	Meeting Room 3 P&J Live
4:00 pm - 5:15 pm	**Parallel Session F: 8** Chair: Marlit Hayslett	Meeting Room 5 P&J Live

Wednesday 28th May

Afternoon ctd.		
5:15 pm - 6:15 pm	**Parallel Performances: 2 (Wednesday)**	Conference Suite 2A P&J Live
5:15 pm - 6:15 pm	**Parallel Performances: 3 (Wednesday)**	Conference Suite 3 P&J Live
5:15 pm - 6:15 pm	**Parallel Performances: 4 (Wednesday)**	Conference Suite 4 P&J Live
5:15 pm - 6:15 pm	**Parallel Performances: 5 (Wednesday)**	Meeting Room 4 P&J Live
5:15 pm - 6:15 pm	**Parallel Performances: 7 (Wednesday)**	Exhibition Hall P&J Live
7:00 pm - 12:00 pm	**Conference Dinner**	Elphinstone Hall, University of Aberdeen

Thursday 29th May

Morning		
8:30 am - 9:00 am	**Registration**	P&J Live
9:00 am - 10:00 am	**Keynote Speaker Five** Waqas Ejaz Chair: Michelle Riedlinger	Conference Suite 2B P&J Live
10:00 - 10:30 am	**Morning Refreshments**	P&J Live
10:30 am - 11:45 am	**Parallel Session G: 1** Chair: Alice Fleerackers	Conference Suite 2B P&J Live
10:30 am - 11:45 am	**Parallel Session G: 2** Chair: Sook-kyoung Cho	Conference Suite 2A P&J Live
10:30 am - 11:45 am	**Parallel Session G: 3** Chair: Liesbeth De Bakker	Conference Suite 3 P&J Live
10:30 am - 11:45 am	**Parallel Session G: 4** Chair: Lloyd Davis	Conference Suite 4 P&J Live
10:30 am - 11:45 am	**Parallel Session G: 5** Chair: Ana Claudia Nepote	Meeting Room 4 P&J Live
10:30 am - 11:45 am	**Parallel Session G: 6** Chair: Sandra Murriello	Meeting Room 7 P&J Live
10:30 am - 11:45 am	**Parallel Session G: 7** Chair: Joan Leach	Meeting Room 3 P&J Live

Thursday 29th May

Morning ctd.		
11:45 am - 1:00 pm	**Parallel Session H: 1** Chair: Elizabeth Stevenson	Conference Suite 2B P&J Live
11:45 am - 1:00 pm	**Parallel Session H: 2** Chair: Marta Entradas	Conference Suite 2A P&J Live
11:45 am - 1:00 pm	**Parallel Session H: 3** Chair: Yael Barel-Ben David	Conference Suite 3 P&J Live
11:45 am - 1:00 pm	**Parallel Session H: 4** Chair: Germana Barata	Conference Suite 4 P&J Live
11:45 am - 1:00 pm	**Parallel Session H: 5** Chair: Heather Doran	Meeting Room 4 P&J Live
11:45 am - 1:00 pm	**Parallel Session H: 6** Chair: Ken Skeldon	Meeting Room 7 P&J Live
11:45 am - 1:00 pm	**Parallel Session H: 7** Chair: Declan Fahy	Meeting Room 3 P&J Live
1:00 pm - 2:00 pm	**Lunch**	P&J Live
1:15 pm - 2:00 pm	**Meet the Editor**	P&J Live

Thursday 29th May

Afternoon		
2:00 pm - 3:15 pm	**Parallel Session I: 1** Chair: Brian Trench	Conference Suite 2B P&J Live
2:00 pm - 3:15 pm	**Parallel Session I: 2** Chair: Julia Cramer	Conference Suite 2A P&J Live
2:00 pm - 3:15 pm	**Parallel Session I: 3** Chair: Andy Ridgeway	Conference Suite 3 P&J Live
2:00 pm - 3:15 pm	**Parallel Session I: 4** Chair: Guoyan Wang	Conference Suite 4 P&J Live
2:00 pm - 3:15 pm	**Parallel Session I: 5** Chair: Steve Tucker	Meeting Room 4 P&J Live
2:00 pm - 3:15 pm	**Parallel Session I: 6** Chair: Fabien Medvecky	Meeting Room 7 P&J Live
3:15 pm - 4:15 pm	**Keynote Speaker Six - Rajesh Tandon** **Chair: Richard Holliman**	Conference Suite 2B P&J Live
4:15 pm - 4:45 pm	**Closing Session**	P&J Live

Visual Presentation Details

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
19	Yin-Yueh	Lo	Imaged publics across disciplines: How Taiwanese scientists view their publics	1
24	Shanii	Phillips	Strategic transitions to include youth voices in science centre evaluations	2
29	Shanii	Phillips	Balancing tensions in pragmatic research: evaluating science centre impact	3
34	Diogo	de Oliveira	Science Adventure: Public Policy Program for Science Sensitazation in Brazil	4
35	Rudy	Nana	Digital cartoon video-based counselling improve treatment adherence in patients: RCT	5
39	ilse	Marschalek	Data-Start-Ups Applying Science Communication and Citizen Engagement	6
42	Jessica	Turner-Skoff	Transitioning Longwood Gardens: Integrating Science Communication for Greater Institutional Impact	7
51	Emma	Weitkamp	Science journalists use and knowledge of artificial intelligence tools: implications	8
52	Aike	Vonk	Who Frames Science? Comparing Institutional and Media Communication of Research.	9
53	Karolina	Pstross	Navigating Policymaking Through Effective Science Communication by Chief Science Advisors	10
54	Laura	Conner	Materiality as the means for science communication	11
57	Andy	Ridgway	Can science journalists continue to thrive? Inspiration from two continents	12
62	Guoyan	Wang	The Spread of Deceptive AI: Authenticity in a Simulacra Society	13

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
63	Guoyan	Wang	The Renaissance of Science Culture:The Spring of Science in China	14
72	Rose	Gregorio	Knowledge brokering at the science-industry interface	15
81	Julia	Rizzo	A SciComm Experiment: What Type of Content drives more Engagement?	16
82	Lisa	Kaspar	Disentangling Self- and Response Efficacy in Fear Appeals	17
83	Julia C.	Ahrend	Quality Criteria in Visual Science Communication – Design Experts' Perspectives	18
88	Emma	Clarke	Art or AI? A Museum of Very Modern Art	19
93	AP	Jayaraman	Localizing Science Communication: Decolonizing Scientific Literacy in India	20
98	Tullio	Rossi	Can AI Replace Scientific Illustrators and Animators?	21
101	Hepeng	Jia	Tensions and cohesions between Chinese youth's supernatural and scientific cognitions	22
102	Hepeng	Jia	Chemophobia: Examining Factors Influencing Chinese Attitudes toward Chemistry and Implications	23
107	Sarah	Behenna	Exploring engineering and the Sustainable Development Goals in Minecraft	24
115	Carolin	Enzingmüller	Designing Together: Collaborative Insights from Visual Science Communication	25
121	Erik	Arends	Monitoring climate from space: bringing the message to politics	26
124	Beatriz	Vieite	Portuguese Biological Collections and Science Communication: Where Do We Stand?	27
126	Bienvenido	León	Great Communicators of Science: from Galileo to Jane Goodall	28

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
134	Li-Hong	Liang	Communicating Cultural Heritage: Zhu Zai-Yu and Simon Stevin	29
141	Jakob	Meyer	On the role of trust in citizen science project work	30
150	Apeksha	Srivastava	Deciphering Traditions (and Language) in SciComm: Some Reflections from India	31
152	Yael	Barel-Ben David	Can Generative AI Support Writing of Better Science Communication Products?	32
155	Dayeon	Eom	Visual Literacy in the AI Age: Implications for Science Communication	33
168	Welcome	Mbokazi	Infecting Minds "Past, Present, and Future" of vaccines	34
170	Rita	Campos	The unfamiliarity of the familiar: how to communicate biotechnology-related science?	35
173	Xiaoxiao	Cheng	Differential homophily drives social sharing of GMO risk information online	36
175	Janise	Brück	Churnalism in (Science) Journalism: Insights from a Systematic Review (1999–2024)	37
178	Zhuling	Liu	Using face-swapping to motivate flood protection and climate change adaptation	38
188	Linden	Ashcroft	Does rescuing the past change future behaviour? A systematic review	39
189	Yu-Chan	Chiu	Victims, Saviors and Dramatization: Climate Change Narratives in Agricultural Media	40
190	Lingfei	Wang	Effect of narrative and frame on autism stigma and behavior	41
201	Judith	Feichtinger	Catalysing bioeconomy transitions through engagement	42
202	Hongjie	Tang	Communicating Public Trust and Acceptance of AI-Powered Autonomous Vehicles	43
208	Mark	Bos	Infographics as tools to enhance health-information leaflets	44

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
209	Rita	Campos	An educommunication approach to promoting scientific engagement and critical thinking	45
211	Xinyi	Jin	Tailoring Weight Loss Information: Gender-Specific Insights on Exercise Promotion	46
212	Giulia	Accorsi	Audience's perceptions of science and scientists in Brazilian S&T events	47
214	Denis	Naughten	Enhancing Science Communications: A Toolkit for Members of Parliament	48
220	Magalie	Debisschop	Promoting Critical Thinking : tensions in scientific mediation	49
221	Kylie	Kosulic	Redefining Success: Lessons from Co-Created Programs with Different Community Partners	50
231	Wei-Cih	Lin	Prevention as the dominant narrative on Alzheimer's disease in Taiwan	51
233	Ildeu	Moreira	Exploring the history of science in PCST activities	52
234	Yaela	Golumbic	Scientists journey to public engagement through citizen science	53
235	Monika	Taddicken	Differentiating Public Perceptions of Science Issues and Online Behavior	54
241	Soraya Weldina Ragil	Dien	Can't You See?: How photovoice Communicate Climate X Health Risks	55
244	Antoinette	Fage-Butler	Historic representations of floods in Italian and Danish newspaper articles	56
246	Iris	Geigenmueller	Cultivating Communities in Public Engagement: An International Exchange.	57
247	Iris	Geigenmueller	Crafting Germany's Public Engagement Handbook through Global Collaboration	58
250	Sharon	Tshipa	Can Open Educational Resources and AI revolutionise climate crisis education?	59

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
254	Annika	Weber	Transition towards TikTokers as novel science communicators about forever chemicals?	60
257	Hans Peter	Peters	Quality of research and peer review of journal manuscripts	61
270	Marie	Bowers	More Than Just a Game: Hook-A-Marine-Animal	62
271	Laura	Fogg Rogers	Communicating climate change and sustainability action through green jobs	63
274	Laura	Fogg Rogers	Repair and Restoration as Science Communication in Practice	64
284	Julia	Lorke	Using the SciComm rosette model to map activities & experiences	65
285	Ana	Faustino	Transitioning Research Culture: Integrating Public Engagement and Participation Strategies	66
291	Linda J	Pfeiffer	Cultivated Meat Policy in Cattle Country? A Dialogic Co-Production Experiment	67
307	Hannah	Little	The Ethics and Effectiveness of Negatively Valenced Science Communication	68
308	Liz	Coleman	Spéirscéalta // Stories of the Air from Connemara, Galway	69
313	Will	Grant	Communicating Scientific Ocean Drilling in a Time of Transition	70
316	Ayumi	Koso	Science reporter practices of non-traditional media in Japan	71
324	Charmaine	Voigt	Assessing the effectiveness of science blogs and podcasts in Germany	72
332	Siim	Lepik	Communicating the city's research history to local inhabitants and tourists.	73
335	Lucilla	Losi	Beyond deliberation: What Else Can Science (Dis)Engagement Be?	74
336	Lena	Theiler	“Let’s talk about bioeconomy”: The tensions between promotion and participation	75

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
337	Laura	de Vevey	From Theoretical to Theatrical: Engaging Audiences with Particle Physics	76
339	Jan	Ainali	Enabling science communication about climate change through open licenses	77
340	Bente	Schøning	How Influencers Shape Content About E-Cigarettes: A Visual Analysis of Frameworks Used on Instagram	78
341	Bente	Schøning	Health Researchers' Non-Obligation to Engage with Non-Academics	79
342	Daniel	Silva Luna	Enhanced Dialogic NOS Competencies for Science Communicators	80
344	Eva	Simarmata	Who held the microphone during COVID-19 in Indonesia? Stakeholder Insights	81
346	Eileen	Focke-Bakker	Exploring flooding transition and tension aspects of impaired persons.	82
347	Lena	Theiler	The Senckenberg Synthesis and Solutions Labs: A participatory communication programme	83
356	Ria	Griffiths	Exploring the dynamic between research and practice in science journalism	84
357	Jessamyn	Fairfield	"There's emotion attached to the fact": Climate Communication through Improv	85
364	Femke	van Bruggen	Metaphorical framing in news media coverage of carbon dioxide removal	86
370	Giuliana	Rubbia	Reaching the public and natural hazards: practitioners' points of view	87
378	Tobias	Tönsfeuerborn	Sociologists in Public Spheres: Public Communication and the Academic Field	88
381	Ionica	Smeets	Studying misleading graphs with vocational students – tensions and surprises	89
386	Katharina Teresa	Dürmeier	A challenge to science? Scientific experts' perceptions of participatory science	90

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
392	Sandra	Samantela	Framing geothermal energy and critical minerals: a visual media analysis	91
394	Stephan	Reiche	Evaluating uncertainty visualizations: impact on engagement and understanding	92
396	Elsa	Poupardin	Tensions in Science popularization: insights from two social media controversies	93
397	Jon	Chase	Global relevance in Science Communication: No global without the local	94
399	Gudrun	Reijnierse	Public metaphor use, acceptance and resistance in online climate-technology discussions	95
401	Vanessa	Fagundes	“Brazilian style” of climate disinformation: religious elements for spreading doubts	96
402	Konstantin S.	Kiprijanov	Eating (for) the planet: public engagement, health, and food consumption	97
404	Jane Martha	Momme	From Participation to Trust? The Potential of Participatory Science Communication	98
412	Ingmar	Rothe	Art projects as interfaces between basic science and local publics	99
417	David	Wright	Science Communication through Theatre: The Eco-Grief Initiative	100
423	Ulrika	Björkstén	Science communication training – Insights from a novel resource center	102
425	Kanta	Dihal	The Mythology of Artificial Intelligence	103
427	Eleanor	Dunn	Cruel Summer: Swift Meets Seismology, Science Communication Feels the Impact	104
428	David	Wright	Building an Undergraduate Science Communication Program	105
430	Gemma	Ralton	Media framing of AI across the UK political spectrum	106
434	Elena	Hayes	Transitions in Agricultural Education: Connecting theory with practice	107

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
447	Guillaume	Riesen	Whose Agenda? Design Research Tools for Community-Led Brain Health Engagement	108
450	Shahir	Rizk	Talking to flat-Earthers: changing minds and the power of belonging	109
453	Eimear	Ferguson	Growing Together: Connecting Tradition and Innovation in Agriculture and Food	110
456	Andrea	Geipel	Talking Hands: Communicating Marine Research Through Illustrations	111
458	Charlotte	Coales	Navigating multiple tensions in an extended public engagement training programme	112
465	Shaun	Ussher	Memories from museums: Reconstructing shared realities in free learning environments.	113
469	Yi	Mou	Counter-Hegemonic Communication in Generative AI: Grassroots Hybrid Citizen Developers as Informal Science Communicators	114
475	Sangeetha	Unnithan	(Mis)Reporting science? Exploring tensions between science journalists and their scientist sources	115
476	Camera	Ford	Added Value: Using Science Communication to Improve Emergency Response Technology	116
479	Savannah	Meier	LIVA Model's Efficacy in Depoliticizing Scientific Communication Across Diverse Hazards	117
484	Anne Charlotte	Forstmann	Narratives in German Media: Exploring the Concept of Participatory Science	118
488	John	D'Arcy	Singing to make sense: composing and improvising music from science	119
490	Katelyn	Beissert	Fantasy RPGs: A Catalyst for Environmental Change?	120
494	Harry	Jenkins	Escape the Clinic: Escape Rooms as Science Engagement	121

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
511	Carolina	Moreno-Castro	Places and Community Engagement for City Science Learning	122
513	Marie	McEntee	Pests, People and Power: Implementing New Zealand's Predator Free Vision	123
515	Melanie	Peffer	The Practitioner Perspective: Reducing research-practice tensions through new funding schemes	124
518	Alison	Sheaves	Fostering professional identity through podcasting: A regional university case study	125
520	Yi-Jung	Lee	Seeing organic: The discourse of Taiwan's agricultural policy propaganda	126
521	Yi-Jung	Lee	Bridging Tradition and Technology: Jieqi and Farmer's Calendar in Taiwan	127
525	Alexandre	Schiele	AI and Scientific Publishing: a New Challenge for Science Communication	128
526	Sohinee	Bera	Inclusive Public Engagement with U.S. Migrant Farmworkers: Criteria and Challenges	129
529	Harsh Kumar	Khatwani	Using Virtual Reality to Change Behaviour Towards Food Waste	130
535	Sandra	Murriello	The challenges of an exhibition of native languages in Patagonia	131
536	Edward	Duca	Working with changing traditions to engage communities with Nature-Based Solutions	132
546	Xi	Cheng	What Features and Mechanism of Evidence-based Science News in Emerging-technology	133
558	Julian	Fick	An Evidence-based Science Communication Training for Master's Students	134
560	Maria Georgia	Tripalitaki	Enhancing Science Literacy in Older Adults: A Pilot STEM Program	135

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
567	Ana	Vasconcelos	Co-designing infographics with and for Autoimmune Encephalitis patients	136
571	Luis	Amorim	Disinformation: studying scientific information reception and sharing with different approaches	137
573	CHI-I	LIN	Communicating Climate Change through Youth-Led Events in Local Communities	138
575	Zinaida	Vasilyeva	Models for Change: Epistemologies, Expectations, and Practices in Participatory Frameworks	139
578	Daniela	Ribeiro	Let's feel One Health	140
583	Luis	Amorim	ChatGPT: analyzing AI-generated texts about vaccines in three different languages	141
587	Alexandra	Cabrita	Popularization of racial studies during the Portuguese dictatorship	142
594	Javzmaa	Jadamba	An Ethnographic Exploration of Climate Fresk's Narrative in China	143
598	Tim	Rittig	Talkaoke: A participatory talk show as a science communication tool?	144
600	Tim	Rittig	Participatory Elements in Citizen Science Projects	145
601	Mirelly	Soares	Autism Spectrum Condition: tensions in family interactions with scientific knowledge	146
603	Cristina	Luís	Outreach activities in the history of science: the 1919 total solar eclipse	147
616	Trinity	Walls	Transforming Perspectives on Spiders Through Science and Outreach	148
619	He	Yi	Seeing the Problem: Visual Rhetoric of Greenpeace's Pictures in China	149
622	Mirelly	Soares	Transforming Narratives: Gender Equity Struggle in Latin America Science Museums	150

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
631	David	Judge	Bristol 2000: Capital development and making space for science communication	151
637	Mairéad	Hurley	Envisioning ecological futures through science, language and traditional arts	152
				153
660	Matteo	Merzagora	An annual survey and an event to monitor critical thinking	154
671	Hanifah Nisrina	Cahyaningtyas	Can Digital Talk Shows Replace Traditional Science Communication in Indonesia?	155
672	Megan	Dai	Patient consumption of novel drug information on patient support forums	156
673	Hongjie	Tang	Uplifting Public Awareness and Correction on Climate Change Misinformation Online	157
674	Todd	Newman	Public attitudes on emerging science: What do we know?	158
676	Leila	Neshat Mokadem	Our Missing Voices! Restoring the Tapestry of Representative Public Research	159
677	Kristine M.	Stifjell	Exploring Online Health Information Seeking Behavior (OHISB) among young adults	160
678	Mariana	Hafiz	Evidence synthesis on social justice at Brazilian research universities	161
680	Michelle	Reid	Workplace Core Competencies and Future Skills for Canadian Science Communicators	162
682	Hanifah Nisrina	Cahyaningtyas	How Should We Engage on Sensitive Topics Like Leprosy?	163
688	Lindsey	Middleton	New biotechnology, new opinions? Effects of climate change, naturalness messaging	164

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
690	Marzia	Mazzonetto	From consumer studies to citizen engagement in knowledge valorisation	165
694	Alessandro	Strobbe	The use of GPT in science communication: First results	166
696	Alissa	Iverson	From Collections to Connections: Herbaria's Evolving Role in Outreach	167
698	Maxime	Gerber	Boundary Crossing between Art, Conservation and Science at Rijksmuseum Amsterdam	168
704	Jen	Martin	Does studying science communication get you a better job?	169
712	Cong	Wang	How Public Engage in the Review Process of Scientific Papers	170
713	Dyah Ratna	Permatasari	Cosmic-sound spheres: Visualizing Folk, Emotion, and Psychedelic Sound Waves	171
720	Florian	Schlederer	VISTA Science Experiences - Launching Austria's Science Education Flagship Program	172
722	Matheus	Barros	Quantum Mechanics Communication: Practical and Theoretical Insights in Scientific Events	173
723	Matheus	Barros	Proposal of a Theoretical-Methodological and Didactic Tool for Science Communication	174
725	Silvia	Martins	Experiences and Knowledge in the First Museum Plan of "Dica"	175
726	Silvia	Martins	Museum in Urban Park: Experience with Square and Trail Exhibitions	176
728	Chris	Croly	Explorathon 2014-2025: Tensions, Traditions and Transitions in Public Engagement Practice	177
729	Federica	Casolari	BlueRemediomics: a transition from science to policy	178

POSTER BOARD NUMBERS

Paper No.	First Name	Surname	Paper Title	Board No.
734	Seshadri	Vasan	Why patient meta-data matters during pandemics but is difficult to collect due to challenges in communication of benefits versus risks	179
735	Seshadri	Vasan	Challenges of science communication associated with a pioneering project that aims to extend vaccine trials to care home residents	180
422	Ciaran	Fairhurst	Reflections on forming an intersection between public and community audiences	181

DIGITAL DISPLAYS

Paper No.	First Name	Surname	Paper Title	Display No.
21	Ana	Matias	Coastal experts' perspectives on risk communication	Screen 1
40	Katharina	Göbel	Bridging the Gap:Integrating Science Communication into Veterinary Researchers' Professional Identity	Screen 1
58	Melanie	Keller	Exploring visualizations in science communication: Integrating theories and perspectives	Screen 1
65	MIA	Čović	Science for All: NGOs Bridging the Gap in Croatia	Screen 1
70	Zara	Gladman	Glasgow's second square: harnessing a new opportunity for public engagement	Screen 1
99	John	Besley	Preview--Science Communication: Linking Strategy with Creativity, Practice, and Respect	Screen 1
117	John	Besley	Comparing scientists' open- and close-ended responses to engagement goal questions	Screen 1
118	John	Besley	Engagement Quality Beyond Dialogue and Mutual Benefit: The "SCRREE" Criteria	Screen 1
119	Meghan	Wiesbrock	Funneling the Focus for Expanding Impact	Screen 1
120	Meghan	Wiesbrock	Scientific storytelling to translate global lessons in local spaces	Screen 2
122	Ruifen	Zhang	How dynamic contexts influence dual pathways to health message? Evidence from three national surveys in China	Screen 2
123	Ruifen	Zhang	Nationalism, collectivism, and altruism: Which value shapes Chinese health behaviours	Screen 2
145	Kei	Kano	Practice on ELSI/RRI of EdTech/AI in Education	Screen 2

DIGITAL DISPLAYS

Paper No.	First Name	Surname	Paper Title	Display No.
146	Sanna	Kivimäki	“I think this word is new to me” : University students’ reflections on science communication	Screen 2
149	Catherine	Copley	Critiquing fibromyalgia patient education about how to communicate with others	Screen 2
151	Marcela	Alvaro	Chemistry Throught The Eyes of Brazilian Teens	Screen 2
154	April	Eichmeier	To Trust for the Truth: Religion, Religiosity, and Antibiotic Resistance	Screen 2
156	Miguel	Garcia-Guerrero	Quark: analysis of a model for PCST communities of practice	Screen 3
171	Ana	Santos-Carvalho	SciComPt Network: transitions and traditions in science communication in Portugal	Screen 3
176	Chiara	Saviane	PATTERN: science communication for open and responsible research and innovation	Screen 3
184	Aquiles	Negrete	TikTok Health Science: evaluating videos effectiveness to convey cutting-edge research	Screen 3
216	Bruno	Pinto	Measuring effectiveness of communication of a podcast on food sustainability	Screen 3
226	Jen	Tuttle Parsons	Essential engagement: A roadmap for integrating public engagement in physics	Screen 3
249	Brigitte	Gschmeidler	Digital or analogous? How to improve children’s health literacy	Screen 3
251	Raquel	Branquinho	Seedling Science Engagement in rural areas through European Researchers’ Night	Screen 3
263	Petra	Pansegrau	Teaching Science Communication for and with the Climate Streetcar	Screen 3
280	Clare	Wilkinson	‘Looking at the big picture’: Ethical tensions in science communication	Screen 4
283	JEF	VAN LAER	AI Education for Digitally Vulnerable Groups	Screen 4

DIGITAL DISPLAYS

Paper No.	First Name	Surname	Paper Title	Display No.
288	Hema	Lingireddy	Advancing Stakeholder Impact: Informing a dairy feed efficiency monitoring system	Screen 4
295	Alexandra	Benitez Gonzalez	Exploring Graduate Students' Experiences in Public Engagement with Science Activities	Screen 4
297	Carmen	Koessler	Co-creating Climate Change Storymaps with Inuit Youth & Researchers	Screen 4
302	Carmen	Koessler	Carving out Climate Testimony: Inuit Youth, Wellness & Environmental Stewardship	Screen 4
304	May	Lee	Undergraduate Students' Perspectives in Communicating Science through Infographics	Screen 4
312	Yihong	Tan	WeChat accounts drive up scholarly impact of research papers	Screen 4
580	Anna	Gaul	Reflections on Planetary Health Communication Projects - Insights and Learnings	Screen 4
315	Aylon	Stahl	Sustainability meanings in science journalism on Brazil	Screen 5
321	Andrew	Scott	"Haisai/Fit Like?" - SciComm Ideas from Uchinaaguchi to Doric Scots	Screen 5
333	Rainer	Bromme	How much does ChatGPT trust in science?	Screen 5
366	Padraig	Murphy	Circling the models: traditions and transitions of controversial technology communication	Screen 5
371	Julia	Panzer	Overcoming Barriers in Evaluating Science Communication: Insights from Practitioners	Screen 5
375	Jagoda	Mytych	Sceptical hope: climate scientists and positive messaging in climate communication	Screen 5
377	Paul	Donahue	The Power of Timelapse Video to Communicate Science	Screen 5

DIGITAL DISPLAYS

Paper No.	First Name	Surname	Paper Title	Display No.
382	Ilka	Parchmann	Interweaving Science Education and Communication Research to Study Science Outreach	Screen 5
384	Ingrid	van Marion	Creating connections: evidence-based science communication for evidence-informed policy making	Screen 5
454	Nic	Bennett	Evidence-Based Content Production for the National Academy of Engineering	Screen 6
455	Gabriela	Heck	Transitioning to Better Engagement with the Deaf Community in Museums	Screen 6
464	Aline	De Oliveira Coelho	Keep It Simple: Communicating the Redefined Kilogram in the Age of Information Overload	Screen 6
483	Jessica	Remcheck	Toxic Uncertainty: A Discourse Analysis of Disaster Response Communication	Screen 6
487	Kristian H.	Nielsen	Contested Narratives: The Dual-Use Dilemma in Atomic and Quantum Technologies	Screen 6
496	Catherine	Copley	Relationship Roadmap: A Rural Research Institute's Transitional Strategic Communication Approach	Screen 6
501	Friederike	Hendriks	Surveying Public Perceptions of and Trust in Citizen Science	Screen 6
508	Soledad	Machado Corral	How do contextual factors impact visitor engagement?	Screen 6
510	Grace	Mackintosh Sim	Can't touch this? Rethinking hands-on veterinary science activities post-Covid	Screen 6
512	Sam	Clem	Balancing doom and hope in climate change communication	Screen 7
523	April	Eichmeier	Intuition, Identity, and Trust in Scientists, Influencers and Advocacy Groups	Screen 7

DIGITAL DISPLAYS

Paper No.	First Name	Surname	Paper Title	Display No.
524	Merryn	McKinnon	A professional partnership program for PCST	Screen 7
528	Tamara	Pinkerton	Inclusive communication in citizen science for people with different abilities	Screen 7
542	Moumita	Mazumdar	Taking Science Across India by Overcoming Language Barriers	Screen 7
545	Marjo	Honkaranta	Organising Temporary Research Organisations: Key to Strategic Science Communication?	Screen 7
547	Donna	MacCallum	Hands-on/hands-off: communicating science to young people	Screen 7
549	Kenneth	Skeldon	Connecting Researcher Development and Public Engagement - Solutions for Change	Screen 7
553	Elina	Uutela	Doctors On Instagram: Expert Boundary Work In The New Media	Screen 7
554	Enas	Qudeimat	Reimagining Science Communication in the ME: Balancing Tradition and Diversity	Screen 8
574	Kim Lisa	Ermler	Coverage of AI trustworthiness and how research institutions can respond	Screen 8
595	Marianne	Achiam	Mapping Science Communication	Screen 8
597	Dan	Wu	Media Transformation and Science and Technology Communication in China	Screen 8
599	Petra	Pansegrau	Communicating linguistic research. Challenges and Opportunities	Screen 8
611	Raghul	Mohanan Raji	Climate communication is different for you and me	Screen 8
614	Karina	Lupetti	Glass Science Popularization through artistic and educational activities	Screen 8
620	Holger	Wormer	Peer Review to Public: Connecting Science Studies & Science Communication	Screen 8

DIGITAL DISPLAYS

Paper No.	First Name	Surname	Paper Title	Display No.
628	Karina	Lupetti	Theater Ouroboros: 20 years communicating science and inclusive art	Screen 8
639	Tom	Carruthers	A vision for Aussie Science Communication	Screen 9
642	Lola	de la Mata	Sirens from the Cochlea's Ocean: Tinnitus, Glass Latices and Transducers	Screen 9
643	Felipe	Núñez	Climate Identities in Spain: Audience Segmentation and Information Consumption Habits	Screen 9
651	Steffi	Friedrichs	Protection instead of Promotion: Science Communication in Times of Mistrust	Screen 9
653	Lourdes	Mateos- Espejel	Transformational Leadership in the execution of Strategic Science Communication	Screen 9
656	Joana	Lobo Antunes	Putting together a science communication network - at Técnico Lisboa	Screen 9
663	Dongjing	Kang	Participatory Science Communication Education Amidst Tensions on Deep Sea-bed Mining	Screen 9
664	Anna	Petschner	Not Dead, but Seemingly Dying? Content Analysis of Scientific Blogs	Screen 9
665	Brett	Beasley	The Power of Tradition for Building Trust in Research	Screen 9
667	chenching	Cheng	On the Anti-Vaccine Sentiment in the Post-Pandemic Era	Screen 10
669	Saeed	Jafari	Navigating Conflicts: Transitioning to Effective Science Communication Through Dialogue	Screen 10
670	Mariana	Gomes	Feel,Share,Connect: Key Aspects of SciComm Training in Roving STEM Projects	Screen 10

DIGITAL DISPLAYS

Paper No.	First Name	Surname	Paper Title	Display No.
686	Kadambari	Patil	Voices of Experience: Shaping Mental Health Science Communication in India	Screen 10
691	Anushka	Banerjee	Science Communication for Change: Navigating Tensions Between Scientists & Citizens	Screen 10
692	Mariana	Gomes	Communicating and bridging society and science through museum collections' instruments	Screen 10
700	Romana	Konjevod	From Lab to Audience: Bridging Gaps Between Scientists and Communicators	Screen 10
727	Saeed	Jafari	Science Communication as Heritage: Bridging Indigenous Languages and Cultural Understanding	Screen 10
300	Alexandra	Benitez Gonzalez	Designing a tailored series of communication workshops for African scientist	Screen 10

OTHER DISPLAYS / DEMONSTRATIONS

Paper No.	First Name	Surname	Paper Title	Stand No.
424	Fiona	Travers	A creative community partnership mapping tool	182
269	Marie	Bowers	Discovering Romany Women in UK STEMM: A Case Study	183
306	Michele	Fontana	Hook Them First! Balancing Content and Mechanics in Science Games	184
329	Mhairi	Stewart	Leadership, innovation, and professional development: the Public Engagement Exchange	185
89	Emma	Clarke	The Bigger Picture	186
470	Melanie	Peffer	The Look Again Quilt: Traditional Media with an Interactive Experience	187
245	Vicky	Hall	Enabling public conversations about climate data through art	188
325	Elad	Yacobson	Can Virtual Conversational Agents Train Scientists in Dialogic Science Communication?	189

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The PCST Scientific and Programme Committees and the Local Organising Committee would like to thank all those who supported the bursary scheme – be they organisations, previous conferences or individuals – all contributions make a difference. You can find details of how we allocated the funds and details of how many people were supported in the Bursary Report.

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The European Competence Centre for Science Communication, powered by COALESCE, is now **open for user registrations**. Create a profile on our online platform and join the international network of science communication professionals.

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The European Competence Centre for Science Communication is coming to PCST 2025!



The European Competence Centre for Science Communication, powered by COALESCE, aims to develop and mainstream science communication and foster connections between society and science. Make sure to **visit our booth, located near the registration desks** of both the PCST pre-conference and main conference, to chat about how the Competence Centre can support your work!

Want to hear more about the work we are doing? COALESCE has partnered with the PCST Teaching Forum to support the following pre-conference workshops:

- AI and Science Communication Teaching
- Teaching Science Communication in Different Contexts: Experiences and Challenges

You can also join members of the COALESCE team for individual talks and debates during the conference:

- Supporting policymakers for a sound societal transition (pre-conference)
- Advancing in a science communication policy agenda
- Visuals in science communication
- Science communication officers: A survey of skills and training needs
- Self-evaluation in science communication: mapping the resources
- Bridging science communication and citizen science
- Will we ever overcome the misinformation crisis in science communication?

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P&J LIVE Green Pledge

P&J Live is the most sustainable venue of its type in the United Kingdom – it's our superpower!

Our Green Pledge raises awareness of our sustainability strategy pillars, educating our venue visitors and setting expectations for the venue team by reminding them that individually and collectively, **WE ARE ALL RESPONSIBLE FOR SUPPORTING AN ENVIRONMENTALLY SUSTAINABLE WORK ENVIRONMENT.**

EVERYONE working at the venue has signed the Green Pledge and this commits them to leading by example, actively supporting our wider sustainability initiatives and **NET ZERO GOAL**. Specifically, they have pledged to:

- Always **TURN THE LIGHTS OFF** when not in use.
- Discard waste items in the right bin, making **RECYCLING MORE EFFICIENT.**
- Actively promote the venue's main sustainability pillars – **GREENER VENUE, GUARDIANS OF GRUB, GREEN MEETINGS AND POSITIVE PLANET.**
- Commit to **DAILY USE OF REUSABLE ITEMS** such as tote bags, coffee mugs and water bottles.
- Encourage co-workers, friends and family to participate in **SUSTAINABILITY INITIATIVES.**
- Use the P&J Live **GREEN TEAM** as a resource for questions and answers.
- Follow the P&J Live **SUSTAINABILITY POLICY** in all that we do.

This pledge is designed to include everyone since protecting and sustaining our environment for future generations is **EVERYONE'S RESPONSIBILITY**. The venue has a dedicated environmental group (our Green Team) who regularly look at new ways to reduce energy usage and further motivate colleagues to put sustainability at the forefront of decision making. We similarly want to encourage our clients and venue visitors to **SUPPORT OUR SUSTAINABILITY GOALS AS WE COLLECTIVELY DRIVE TOWARDS A NET ZERO FUTURE.**

P&J LIVE Sustainability Is Our Superpower

P&J Live is the most sustainable venue of its type in the United Kingdom

COMMITMENTS

P&J Live has signed the Net Zero Carbon Events pledge to **ACHIEVE NET ZERO BY 2050** and **HALVE GREENHOUSE GAS EMISSIONS BY 2030.**

The venue is working to secure its **GREENER VENUE CERTIFICATION** which will further demonstrate independently verified green credentials to visitors and stakeholders.

AGF AGREENERFUTURE

P&J Live works closely with its Net Zero consultancy partner, Positive Planet, to **ENHANCE AND ACCELERATE THE VENUE'S CLIMATE AND SUSTAINABILITY JOURNEY.**

positive planet

The venue **LEADERSHIP TEAM IS FULLY COMMITTED** to achieving the stated sustainability goals and has introduced **CARBON LITERACY TRAINING** for staff. The venue also has its own in-house **GREEN TEAM** to consider and action new sustainability ideas.

Venue team members are part of the **ASSOCIATION OF EVENT VENUES (AEV) SUSTAINABILITY ACTION GROUP.**

AEV ASSOCIATION OF EVENT VENUES

WeTrack software monitors our sustainability efforts by setting department targets across three key areas of CSR: **PROTECTING THE ENVIRONMENT, INVESTING IN PEOPLE, AND STRENGTHENING OUR COMMUNITIES.**

ENERGY

The venue and two on site hotels are supplied by a multi-technology, **LOW CARBON ENERGY CENTRE.** The development also contains a state-of-the-art Anaerobic Digestion Plant that produces gas.

The energy centre provides **HEATING, COOLING AND POWER** via a site-wide heat network to the venue and hotels. Excess electricity generated on site is fed back to the grid.

Demand is managed with the use of energy storage in the form of **HYDROGEN PRODUCTION, HOT AND COLD THERMAL STORES, AND GRID EXPORT** for excess production.

The AD Plant processes food, distillery and agricultural wastes. This produces **BIOGAS** which is upgraded to **BIOMETHANE** before being exported to the national gas grid. The site as a whole **PRODUCES MORE GAS THAN THE ENERGY CENTRE USES** to generate the heating, cooling and electricity supply to the venue and hotels.

TRANSPORT

A fleet of **HYDROGEN BUSES POWERED BY THE VENUE SERVE THE CITY.** The venue is assisting Aberdeen Council with their efforts to export hydrogen from the venue's energy centre to fuel the bus fleet.

The venue offers EV charging and is part of a feasibility study looking at a significant **EV CHARGING PROJECT** across the north of Scotland.

LoganAir, the venue's airline partner, **OFFSETS CARBON EMISSIONS** through its GreenSkies programme.

There are 7km of footpaths across the site and more than **29,000 TREES AND SHRUBS HAVE BEEN PLANTED.**

FOOD

P&J Live is an active participant in the **'GUARDIANS OF GRUB'** initiative, championing the **REDUCTION IN FOOD WASTE FROM SPOILAGE, PRODUCTION AND PLATE WASTE.**

GUARDIANS OF GRUB

The building has separate waste segregation for recycling. **ALL FOOD WASTE IS COMPOSTED LOCALLY. ZERO WASTE IS SENT TO LANDFILL.**

Local suppliers are used wherever possible, helping to **REDUCE FOOD MILES** and menus are based on seasonality, when ingredients are at their best and readily available.

Waste collections are minimised by using **ON-SITE COMPACTORS.**

Any residual non-recyclable waste is sent to a **LOCAL WASTE-TO-ENERGY FACILITY.**

Green Meetings BRONZE

MARKETING

P&J Live is a **PAPERLESS VENUE** (digital tickets only) and no paper-based marketing materials are used on site.

In-house exhibition stock and expertise means we can offer access to **ENVIRONMENTALLY FRIENDLY DISPLAY BOARDS THAT CAN BE RECYCLED** rather than ending up in landfill, along with lower transport logistics for our conference organisers and exhibitors.

REUSABLE PLASTIC STRATEGY

From June 2024, **85%** OF THE VENUE'S F&B PLASTIC usage will be RECYCLED.

USED PLASTIC CUPS are collected to PRODUCE NEW PRODUCTS.

General Information

Conference Venues

MONDAY 26TH MAY 2025

Opening Ceremony and Welcome Reception

Music Hall, Union Street, Aberdeen, AB10 1QS

The venue is in the City Centre and can be reached by many bus services from throughout the city. The venue is fully accessible and more information can be found at: https://www.aberdeenperformingarts.com/access/music-hall-access-information/

18.15 – 19.00 Drinks reception and canapés with welcoming remarks at 19.00 and the opening ceremony from 19.30

Science on Trial - tradition & the duel challenges of change and misinformation

Science isn't only facts. It's made by scientists through experimental procedures, debate, conflicts, reviews, and the occasional U-turn. One day, a food is healthy; the next, another takes the limelight. Crime dramas make forensic science look foolproof, but what is the reality? Our oceans hold medical breakthroughs we've barely begun to explore, and history shows that what scientists think they have provisionally determined can change.
This live-podcast panel brings together Professor Niamh Nic Daeid, a forensic scientist, Professor Alex Johnstone, a nutrition expert, Professor Marcel Jaspars, a marine biotechnologist, and Professor Thomas Weber, a historian and expert in international affairs, to explore how science is tested, challenged, and reimagined. From televised crime scenes to the food you choose to prepare in your kitchen, the deep sea to history, they'll explore the differences between how they conduct and communicate their science, bust myths, influence policy and tackle the tensions between scientific and public opinion.

TUESDAY 27TH - THURSDAY 29TH MAY 2025

Conference Venue

P&J Live, East Burn Road, Stoneywood, Aberdeen AB21 9FX

Accessibility Information:
You can find information on accessibility at the venue at P&J Live – Accessibility

In General:

Toilets: there are accessible toilets on all levels

Lift and Escalators: there are lifts and escalators to all levels

Concourse (Ground Floor): Registrations, Catering, Visual Presentations and Exhibition

The View (First Floor): Help Desk, informal seating area, all conference rooms

Taxi rank: Aberdeen Taxis pick-up and drop-off point

Parking: On-site parking is available, pay on exit

No Cash Machine/ATM: in support of P&J Live's green credentials, all the bars, kiosks and restaurants accept card payments only, this is more efficient, safe and ensures a speedy transaction.

WiFi: FREE WiFi is available at the venue. No need for a code, simply connect via the landing page when prompted.

Smoking: P&J Live is a no-smoking building, this includes the use of e-cigarettes and vaping, but they do have specific outside smoking points for those wishing to smoke outside.

For more FAQs regarding the conference venue

visit the P&J Live website:

www.pandjlive.com/faq/#visiting-faq

27 MAY 2025 | Whisky Tasting | 19.00 - 20.00

28 MAY 2025 | Conference Dinner | 19.00 for 19.30 - 00.00

Elphinstone Hall, University of Aberdeen (pre booked tickets required).

Elphinstone Hall, University of Aberdeen, Regent's Walk, Old Aberdeen Campus, AB24 3FX

You can reach the University's Old Aberdeen Campus from the city centre using buses 1 and 2 or 20, it is a 30 minute walk from the city centre. You can find more information on how to get here at www.abdn.ac.uk/about/campus/maps/

The venue is accessible and we will have a team on hand to help if required.

Dress code: Smart-casual.

Bus Services

The Jet Service 727 will take you direct from Aberdeen Union Square bus station via P&J Live to Aberdeen Airport. The fleet of Jet 727 buses feature contactless payments, leather seats, free wi-fi and USB charging available onboard.

How to Pay: Cash (change given), Contactless Card Payments, Mobile tickets with Stagecoach Bus App:
www.stagecoachbus.com/promos-and-offers/national/stagecoachbusapp

Departing From	To	First Bus	Last Bus
Union Square	Aberdeen Airport	0250	2345
Bucksburn Police Station	Aberdeen Airport	0309	0006
P&J Live	Aberdeen Airport	0315	0011

www.stagecoachbus.com

Currency and Banks

The official currency of the UK is £ sterling. Commonly accepted credit cards are Visa and Mastercard. Display signs are usually visible in all restaurants and shops indicating which cards they accept.

There is a range of banks in Aberdeen City Centre with ATMs. Most banks are only open until early afternoon on Saturdays and closed all day Sunday. There is no ATM at P&J Live.

Restaurants

A selection of restaurants, eateries and bars can be found on VisitAberdeenshire's website

www.visitabdn.com/food-and-drink

But to help you chose the local organising committee have suggested some of their favourite places to eat and drink:

Restaurants	Pub	Site Seeing
Jewel in the Crown – Indian The Albyn Bar and Restaurant The Atrium Silver Darling (more expensive pricey but iconic fish restaurant) Mi Amore – great value Italian Café Bohème – excellent French food Muzo's Turkish kitchen Rishis (amazing Indian Restaurant on George Street) Rustico - Italian	The Howff Under the Hammer Ma Cameron's The Prince of Wales – very traditional Scottish pub The Grill – the most traditional pub in Aberdeen – range of whisky O'Malley's – new Irish bar on Crown Street The Globe T he Noose and Monkey	Aberdeen Science Centre (discount available for conference delegates – just show your badge) Aberdeen Art Gallery Aberdeen art tour Union Terrace Gardens Aberdeen Maritime Museum Grayhope Bay – coffee shop and seal / dolphin watching Footdee – pronounced 'Fittee' – old fishing village by the harbour Grampian Transport Museum (Alford) Stonehaven – fishing village and harbour accessible by train from Aberdeen. Aberdeen Beach – especially Don Mouth.

Smoking

The Smoking, Health and Social Care (Scotland) Act 2005 made it an offence to smoke, or permit someone else to smoke, within premises which are enclosed or substantially enclosed. All conference venues are no-smoking buildings, this includes the use of e-cigarettes and vaping, but there are specific outside smoking points for those wishing to smoke outside.

Extending your stay

If you are keen to extend your stay and see what Aberdeenshire and the rest of Scotland has to offer, you can find more information at
www.visitscotland.com and www.visitabdn.com



Abstracts

Keynote Speakers

The past, present and future of science communication and public engagement

Dr Sophie Duncan[2], Paul Manners[2]

[2]NCCPE

Sophie and Paul established the National Co-ordinating Centre for Public Engagement (NCCPE) in 2008, to help nurture a culture where engagement with members of the public is effectively is effectively supported across the UK higher education sector. In their talk, they will explore how the field has evolved: the different traditions, purposes and values which underpin the field, the key moments of transition over the last two decades, and the tensions that still remain in the relationship between science and society. They will untangle the complex weave of policy & practice which they have navigated and share the lessons learned about the enablers and barriers to change. They will end looking into the future, sharing the emerging findings from the NCCPE's Engaged Futures programme, which is building a vision for how universities might be working in 2045. Expect as many questions as answers as the conference opens: a chance to take stock of our collective journey and to acknowledge how much work still needs to be done to realise the potential of Science Communication in a turbulent and uncertain world.

Science Communication and the Gap We Dare Not Ignore

Dr Mamoeletsi Mosia[1]

[1]South African Agency for Science and Technology Advancement

Despite increased investments in science engagement, a significant gap remains between science and society – one marked by unequal access, varying levels of trust, and differing understandings of what science means in people's lives. In South Africa, this gap is shaped by a legacy of inequality, language and cultural diversity, and the coexistence of indigenous knowledge systems alongside formal scientific institutions. The 2022 South African Public Relationship with Science Survey reveals a public that is curious about science, yet often feels excluded from its processes and benefits. The tensions between science as a public good and science as a domain still perceived by many as distant or elitist persists.

These tensions are explored through the lens of national policy frameworks such as the Science Engagement Strategy and the White Paper on Science, Technology & Innovation. It makes the case for shifting from one-way communication to meaningful dialogue – where science communication becomes a tool for inclusion, not just dissemination. By listening, embracing diverse ways of knowing, and being innovative, we can transform science communication into a practice that closes the gap and builds trust in ways that truly matter.

Citizen science in new rights agendas

Dr Sarita Albagli[1]

[1]Brazilian Institute Of Information In Science And Technology

Citizen science has expanded over the last three decades. It is a polysemic term that allows for different perspectives and definitions, including a pragmatic and a democratic view. Its agendas have broadened, ranging from promoting social contributions to science to supporting environmental, cognitive, and data justice, in some cases addressing controversial and conflicting issues. On the one hand, citizen science brings new possibilities for the democratization of knowledge; on the other, it can involve asymmetrical relationships between participants and be a source of data and knowledge neo-extractivism. We must therefore ask: “Citizen science: for what, for whom, and, above all, under what conditions?”. This presentation will propose topics for debate on concepts, roles and protocols of citizen science, with special attention to lessons learned from the conceptualizations and experiences of participatory and citizen science in the Global South, particularly in Latin America.

Science communication in the face of attacks: Discussing harassment of scholars and practitioners and potential support measures.

A/Prof Fabien Medvecky[3], Dr Niels Mede[3],Dr. Jane Laura Egelhofer[3], Bernard Okebe[4], Dr Alice Fleerackers, Maaike van Zuilen[5], Dr Tom Carruthers

[1]ANU, [2]University of Zurich, [3]University of Vienna, [4]Kisumu (CEMI-K)

Chair: Fabien Medvecky

Panellists: Niels G. Mede, Jana Laura Egelhofer, Bernard Okebe, Alice Fleerackers and Tom Carruthers

The past few years have witnessed an increase in harassment, attacks, and threats against science and an increasingly violent discourse around some scientific issues, such as COVID-19, climate, and gender, both on social media and in public spaces. Victims of attacks are not only scholars, but also professional science communicators at universities or agencies – both as targets and as those who observe and support colleagues in the face of harassment. This comes at the same time as an ever growing call for more science-society dialogue and for scientists and science students to engage more with the public. Balancing the need to make science public and the wellbeing of those doing the work of making it public is one of the most pressing questions for PCST.

How can we navigate the tensions between an outreach imperative and the possibility of public backlash? How can we support victims of harassment and avoid negative consequences, such as mental distress and self-censorship? How can we transition to more consensual and constructive public discourse around science and technology issues? How much backlash should we be able tolerate in order not to silence much-needed critical voices? And how can PCST positively contribute to the well-being of those we represent and promote “positive change” along the lines of the 2025 conference theme?

This panel brings together 5 speakers from different stakeholder groups, including scholars, practitioners, and PCST representatives. They will draw on academic scholarship and practical experience to discuss those questions and identify ways to mitigate or manage harassment.

panellists:
Fabien Medvecky: Moderator
Niels G. Mede: Scholar–researching studying harassment of scientists and science

communication professionals;
Jana Laura Egelhofer: Scholars–researching harassment of scientists;
Maaike van Zuilen: Practitioner–science communication freelancer with experience of hostility
Alice Fleerackers–VP of PCST and co-chair of DEIA sub-committee

Perception Inertia: Climate Change News Consumption, Trust, and Engagement Across the Global South and North

Dr Waqas Ejaz[2]

[1]University of Oxford

Theories of mass media science communication often assume that more information and knowledge lead to greater public engagement—but climate change continues to challenge that logic. Drawing on my comparative research across countries and using varied methodologies, this talk explores how people encounter, interpret, and often set aside climate-related news and information. Although concern about climate change is widespread, prioritisation remains weak. People tend to trust scientists more than journalists or governments, yet their attention to climate news is sporadic or stagnant. Misinformation is a concern, but platform dynamics and information fatigue may play a larger role in fragmenting understanding. This presentation examines how engagement with climate information unfolds across media systems in the Global North and South – where visibility doesn't always lead to meaning, and trust doesn't guarantee impact. It asks: Is mass media still relevant for communicating this existential issue? If so, is that relevance universal across contexts? What types of climate journalism, formats, and narratives do people actually find compelling? Must climate coverage always be doom and gloom? And how, despite being a global issue, has climate communication become highly localised – bringing with it disparities in media response, messaging strategies, and approaches to countering misinformation?

Reconnecting Society & Science: Communications towards Climate Resilience

Dr Rajesh Tandon[1]

[1]Participatory Research in Asia (PRIA)

A critical challenge facing science, science establishments and science communicators is accelerating policies and practices towards global, and local, climate resilience. Questions about science and its disconnect with wider society over the past century are reflecting challenges to meanings and purposes of science in society of tomorrow.

Which science? Which knowledge? Communication what to whom? For climate resilience, local community and indigenous knowledge is showing context-specific positive results. Should this be communicated to scientists in labs? How can 'ecologies of knowledge' co-construct actionable solutions for climate resilience? What roles science communicators can play in accelerating the same?

Discussion and Debates

Parallel Session A:1

A Call to Arms: Mobilising Science Communication for the courtroom

Professor Merryn Mckinnon[3], Professor Niamh Nic Daeid[1], Dr Nina Freiberger[2], DR Heather Doran[1]

[1]Leverhulme Research Centre for Forensic Science, University of Dundee, [2]Alda Center for Communicating Science, Stony Brook University, [3]Australian National University

Chair: Heather Doran
Panellists: Merryn Mckinnon, Niamh Nic Daeid, Nina Freiberger and Laura Lindenfeld

In 2009, the National Academy of Sciences report on forensic science highlighted systemic issues with the use and communication of scientific evidence in legal contexts, emphasising the urgent need for reform. But what role does the science communication community play in supporting fair justice? As science and technology rapidly advance, science is more frequently called into the courtroom, and it's not only forensic scientists who may end up testifying. Any expert could be asked to give evidence in trials or public inquiries. However, this type of communication is rarely discussed by the science communication community, despite it being where science faces ultimate public judgement. Communicating science within the legal system poses many challenges, including misunderstandings by police, lawyers, judges, and juries.

This roundtable session will explore the science communication community's critical role in addressing these issues and ensuring that science is accurately represented in legal contexts. We will examine the intersection of law, science, and public understanding, focusing on how science communicators can bridge these worlds.

Participants will engage in discussions on how science communication can increase knowledge in this area, supporting practitioners to advise and assist scientists. We will explore the potential for integrating courtroom-specific training into science communication education and discuss professional development needs. Attendees will also be encouraged to consider how they can contribute to this effort within their own practice. By the end of the session, we hope to generate a commitment from the science communication community to advance this area and help address the ongoing challenge of effectively communicating science in legal settings.

Parellel Session A:2

Climate misinformation: how to design a study?

Dr Luisa Massarani[1], Dr Dominique Brossard[2], Monika Taddicken[3], Dr Bienvenido León[4]

[1]Brazilian Institute of Public Communication of Science and Technology; Casa de Oswaldo Cruz, Fiocruz, [2]University of Wisconsin-Madison and Madison Global Health Institute, [3]Technische Universität Braunschweig, [4]University of Navarra

Chair: Luisa Massarani
Panellists: Dominique Brossard; Fabio Henrique Pereira; and Bienvenido León

As a spoiler, this session does not aim to provide a single answer to the question raised in the title "Climate misinformation: how to design a study?". Instead, the session has as starting point the claim that we need to innovate and diversify research in science communication. We will discuss this claim addressing in particular the issue of climate change and climate misinformation looking at different approaches that have been used to study the theme.

The concern toward climate change and climate misinformation is not new. But the popularisation of social media, as well as the increase of fake news and the increased politisation of science matters during the Covid-19 pandemic, has been exacerbating the issue, creating more complexity to the theme and making researchers very often to deal with a huge amount of data. The global aspect of climate change but the specificities of local contexts bring spicy to the discussion.

The own importance of studying the social problem of climate misinformation raises some concerns about the methodological aspects of the study design. How can we identify the transnational actors involved in spreading this type of misinformation? How can we identify the international networks which are responsible for the dissemination of false content about climate change? How are audiences and public opinion from different countries consuming, reacting to and mobilising these contents in their everyday lives?

To discuss some of these questions, this session will bring four researchers from different countries (Brazil, Canada, Spain and United States), who have been studying the field using different approaches, including, but not limited to, surveys, experiments and analysis of different social media, sharing benefits and limitations of the different strategies.

Participants: Dominique Brossard (United States), Luisa Massarani (Brazil), Fabio Henrique Pereira (Canada) and Bienvenido León (Spain).

Parallel Session B:1

SciComm associations: synergies towards a positive change in the community

Ana Santos-Carvalho[1], Marcos Pérez[2], Graciele Oliveira[3], Aleida Rueda[4], Gema Revuelta[5]

[1]Portuguese Network of Science and Technology Communication, Rede SciComPt , [2]Spanish Association of Scientific Communication, AEC2, [3]Brazilian Network of Science Journalists and Communicators, RedecomCiência, [4]Mexican Network of Science Journalists, RedMPC, [5]AEC2

Chair: Ana Santos-Carvalho
Panellists: Gema Revuelta; Graciele Oliveira; and Aleida Rueda

Science communicators and journalists' professional associations aim not only to represent and strengthen their members, but also to promote ethical, democratic, rigorous, and objective science communication in all its dimensions and formats. Despite being relatively common worldwide, it is not clear if these associations collaborate sufficiently between themselves (members included) to create real synergies and help to promote positive change in their communities (promote intercultural exchange, diversity...).

In order to get to know the reality of these partnerships and how they can be strengthened in the future, this debate will bring together four associations of science communicators and science journalists from two continents and two different spoken languages: Rede SciComPt from Portugal, Brazilian Network of Science Journalists and Communicators (RedeComCiência) from Brazil, Asociación Española de Comunicacion Científica (AEC2) from Spain and the Mexican Network of Science Journalists, from Mexico.

After a short presentation of the history, achievements and challenges of each association, a discussion will be opened regarding the realities and perspectives of each one, trying to understand how the partnership development, participation in joint projects, or even the exchange of experiences and knowledge can make a difference into Scicomm reality of each country. In case of a lack of collaboration, the reasons for this will be explored: What associations are missing? What is needed to start building these links?

The audience will also be an integral part of this conversation. At the beginning, they will share their countries associations' realities through an interactive quiz. They will also have the opportunity to give their testimony and ask questions to the speakers.

Is it possible to overcome historical tensions, remain faithful to traditions and cultural identity, bet on transitions, and increase opportunities for partnership and collaboration between science communication associations? Let's hope this debate brings us closer to the answer.

Parallel Session B:2

Open Science: beyond communicating science towards inclusive, equitable knowledge production

Dr Steve Scott[1], Dr Rajesh Tandon[2], Prof Budd Hall[3], Dr Alice Lamwaka[4], Ms Anne-Sophie Gresle[5]

[1]UK Research and Innovation, [2]Participatory Research in Asia (PRIA), [3]University of Victoria, [4]Gulu University, [5]Barcelona Institute for Global Health

Chair: Steve Scott
Panellists: Rajesh Tandon; Budd Hall; Alice Lamwaka; and Anne-Sophie Gresle

Open science often focuses on making sure that the scientific knowledge generated by academics is communicated in an accessible way to the public. The UNESCO Recommendation on Open Science states that Open Science goes beyond this and is also about making sure that the production of scientific knowledge itself is inclusive, equitable and sustainable.

So how can we better value knowledge generated by communities outside of academic institutions and communicate this to academics? What can we do to place power within communities to establish more mutually beneficial, equitable partnerships with academic researchers?

We will bring together the perspectives of practitioners from communities, academia and funders to explore these questions and share their experiences of the benefits, challenges and opportunities of research partnerships between research institutions and community groups. With contributions from South Asia, Africa, North America and Europe, this session will share examples from groups working to rebalance the power dynamics in research and establish a truly equitable and transformational research ecosystem that everyone can contribute to, explore and benefit from.

Continued on the next page →

Our session will focus on three main case studies:

- The DECODE Project (www.decodeknowledge.org/): An IDRC (International Development Research Centre) funded project looking at the evidence of impact on climate crisis by community and Indigenous led research projects.
- Bridging Knowledge Cultures project (www.unescochair-cbrsr.org/uploads/article_category/1745215099_BRIDGING_KNOWLEDGE_CULTURES_MANUAL.pdf/): An international study of the ways that communities create, validate, share and act upon locally contextualised knowledge.
- UK Research and Innovation's funding of community-led research (www.ukri.org/what-we-do/public-engagement/research-and-innovation-for-everyone/): A programme exploring different ways to fund and support communities in the UK to lead their own research into issues of importance to them.

Parallel Session C:1

Rethinking models of science-society relationships and implications for social justice

Prof Emily Dawson[1], Mr Siddharth Kankaria[2], Dr. Anwesha Chakraborty[3], Prof Sujatha Raman[4], Dr Luisa Massarani[5], Dr Mairéad Hurley[6], Dr Joseph Roche[6], Dr Ellie Armstrong[7], Prof. Simon Lock[1], Professor Sunshine Menezes[8]

[1]UCL, [2]Ashoka University, [3]University of Bologna, [4]Australian National University, [5]Instituto Nacional de Comunicação Pública da Ciência e Tecnologia, [6]Trinity College Dublin, [7]University of Leicester, [8]University of Rhode Island

Chair: Siddharth Kankaria
Panellists: Anwesha Chakraborty; Sujatha Raman; Luisa Massarani; and Joseph Roche

Science communication practice, policy and research around the world are increasingly called into question as we better understand how geo-politics and social justice affect science-society relationships. Recent scholarship has examined how science communication models and frameworks from the Global North have proliferated in colonial patterns in contexts where they make little sense (Dawson et al, 2024; Finlay et al, 2022; Orthia, 2020). As Rasekoala (2022) argued, other science-society traditions exist around the world, traditions with different affordances for social justice, participation or power practices. In the proposed discussion session we will think together about the tensions between different traditions in how science-society relationships have been understood around the world, and the transitions required if we take these perspectives seriously.

We use Kankaria and Chakraborty's (2024) research on the Indian model of scientific temper (ST) as our starting point, instead of science communication models from the Global North. Invoked within the post-Independence context of building India's technoscientific infrastructure, ST in its original incarnation conceptualised citizens as scientifically conscious critical agents rather than susceptible subjects. Seeking to recover this meaning, Kankaria and Chakraborty (2024) frame ST as a model of science-society relationship that remains distinct from Global North models such as deficit, dialogue and participation, and – importantly – serves as a potential tool for decolonising science communication practices, institutions, policies and research.

With discussants drawn from projects in six different countries, our panel will discuss how ST relates to the contexts they work in, as well as other models they use to understand science-society relationships. We hope the session will be an opportunity to find other models of science-society interactions akin to ST in other contexts (including queer, feminist and anti-racist perspectives), and engage in a broader discussion on decolonising science communication. The panel will comprise one member of each team.

Parallel Session C:2

Systems Change for Engaged Futures in Higher Education

Dr Heather Bray[2], Miss Sian Aggett[1], Miss Sophie Duncan

[1]NCCPE, [2]University of Western Australia

Chair: Sophie Duncan
Panellists: Heather Bray: Stephen Hill; Gabriela Frias Villegas; and Lewis Hou

What should higher education, research and teaching look like in 2045? How can we ensure universities of the future meet the needs of the societies they serve, promote diverse voices and positively influence the future?

The National Coordinating Centre for Public Engagement (NCCPE) is funded by UKRI, The Wellcome Trust and the four UK research funding agencies. For 16 years we have worked to 'open up' how universities engage with society and to embed more open and inclusive approaches to knowledge creation. We believe that this is critical to the future role of Universities. To this end, we have launched an 18-month national programme entitled 'Engaged Futures', following a systems change process based on the 'Three Horizons' method. The approach intends to build a movement of people and visions that step outside current paradigms and reimagine the role of universities in knowledge creation and sharing.

While the themes emerging from this process are UK-oriented, we believe we have much to learn from the expertise and experience of colleagues from around the world, in unique historical and political contexts. Identifying what is common or contrasting can shine a new light on our local situations and help to identify approaches we might not arrive at alone.

In this session, panelists, both from the UK and further afield share the challenges and visions emerging in their national context, and invite lively discussion from the floor about the futures we hope to see, the interrelatedness of our university systems, and the nature of systems change itself.

The panel will have international representation as well as including Sophie Duncan (Co-director of NCCPE), Stephen Hill (Director of Research, Research England), Professor Niamh Nic-Daéid (Director of Leverhulme Research Centre for Forensic Science, University of Dundee), and Lewis Hou (NCCPE Engage Fellow and Director of Science Ceilidh).

Parallel Session D:1

We need to talk about history

Dr Felicity Mellor[1], Professor Bruce Lewenstein[2], Professor Agustí Nieto-Galan[3], Dr Plamena Panayotova[4]

[1]Imperial College London, [2]Cornell University, [3]Universitat Autònoma de Barcelona, [4]University of Glasgow

Chair: Felicity Mellor
Panellists: Bruce Lewenstein; Agustí Nieto-Galan and Plamena Panayotova

Current concerns about, say, the circulation of misinformation, the widening gap between scientists and the public, or the status of professional science communicators are not new. They have been constant companions to science over many centuries. This long history informs the traditions, transitions and tensions that shape today's science communication. An awareness of the history of science communication can help foster reflexive practice, yet recasting historical studies in order to generate insights into contemporary debates is not easy. This session will explore what we can learn from the history of science communication through some telling moments that illustrate prominent recurring themes. These examples will include the disputed status of eighteenth-century public lecturers, the appropriation of French popularisers in nineteenth-century Latin America, the imperialist context of the first science films in the 1920s, and struggles to redefine the audience for science communication in 1980s America. After brief vignettes, the panel will draw out recurring tensions that emerge from these examples despite changing institutional, political and cultural contexts across time and space, and will debate what historiography has to say about how we conceptualise science communication.

Parallel Session D:2

Bridging Science Communication and Citizen Science

Dr Yaela Golumbic[1], Dr Joseph Roche[2], Dr Joana Magalhães[3], Prof Alice Motion[4], Mrs Rosa Arias[3]

[1]Steinhardt Museum of Natural History, Tel Aviv University, [2]Trinity College Dublin, [3]Science for Change (SFC), [4]School of Chemistry, University of Sydney

Chair: Yaela Golumbic
Panellists: Joseph Roche; Joana Magalhães; and Alice Motion

Presenting unique opportunities for the development of science in society, science communication and citizen science serve as complementary fields of research and practice, act as catalysts for scientific innovation, environmental awareness, and sustainable development. This session aims to explore the reciprocal relationship between these fields, discussing three main themes that capture the interplay between theory and practice, stakeholder involvement, and innovative. We will present key findings from around the world highlighted in the special issue "Bridging Citizen Science and Science Communication" and discuss opportunities and challenges for driving change and delivering meaningful scientific impact by bridging citizen science and science communication.

Session structure:

Synergy of Theory and Practice - Exploring the theoretical underpinnings and efforts to align science communication models with citizen science typologies. We will discuss how a range of communication practices can co-exist within one citizen science project, despite a persistent narrow focus on communication as mere dissemination.

Stakeholder - Centric Approaches - Focusing on the development of stakeholder-centric projects and communications, including interactions with quadruple-helix stakeholders (civil society, scientific community, policymakers, industry). We will present communication strategies used across the citizen science lifespan, how they can be tailored to specific audiences, and how to make them more inclusive.

Innovation, Resilience, and Expansion - This theme, explores innovation, resilience and expansion in citizen science approaches reliant on applying or interrogating best practices in science communication. It will highlight potential to grow both fields to new avenues by joining practices and mutual learning.

Summary and conclusions - Synergies between science communication and citizen science allow growth towards participatory methods of dissemination and collaboration that move beyond top-down and one-to-many approaches and seek greater community involvement. However, challenges and gaps in implementation remain, highlighting the need for developing more inclusive approaches and better sharing of experiences.

Parallel Session D:3

New Horizons in Science Communication Research

Prof Melanie Smallman[1], Prof Martin Bauer, Dr Michelle Reidlinger, Dr Bankole Falade, Prof Gouyan Wang

[1]UCL

Chair: Melanie Smallman
Panellists: Martin Bauer; Michelle Reidlinger; Bankole Falade and Gouyan Wang

In recent years, crises like climate change and the COVID-19 pandemic have put science communication in the spotlight, highlighting science communication's potential to make a difference within society. At the same time, digital and social media, as well as generative AI have changed the context we work in – creating information overload, fake news and fast moving, global communications. An increasingly divided and conflicted world, as well as ongoing threats to democracy present further new challenges to our long-term mission of democratising and fostering a public sphere for science and technology.

In this session we consider these issues for science communication research - to the kinds of questions and methods that this new world presents and enables.

Transitions: With generative AI, and as media and audiences evolve in response, science communication, the relationship between information and audiences, public trust and the shape of the public sphere and democracy are changing. How will we understand these new arrangements?

Traditions: Despite these changes, exhibitions, newspaper articles and TV programmes, as well as more participatory face-to-face activities, continue to be common. How are they adapting in response to the new world, and what new challenges and practices are they taking up?

Tensions: Does new technology offer new ways to study existing practices? How do we reconcile the importance of local and contextual knowledge as media becomes more global? What are the implications of generative AI on democracy and accessibility? And what happens to public trust in the context of social media influencers and AI generated content?

In addition to the reflections of the panel, we hope to draw on the insights of researchers and practitioners in the audience, to encourage a discussion of the future shape science communication research, so that research can continue to be valuable and embedded in practice.

Parallel Session E:1

Science journalism for development in the Global South: future directions

Professor An Nguyen[1], Dr MInh Tran, Dr Luisa Massarani, Dr Vanessa Fagundes[3], Dr Muhammad Ittefaq[2], Mr Mohamed Elsonbaty Ramadan[4]

[1]Centre for Science, Health and Data Communication Research, Bournemouth University, [2]James Madison University, [3]Brazil's National Institute of Public Communication of Science and Technology, [4]Arab Forum of Science Media and Communication (AFSMC)

Chair: An Nguyen
Panellists: Mohamed Elsonbaty Ramadan; and Vanessa Fagundes

Although the interplay between science, journalism and development in the Global South occupies a central part in the modernisation, industrialisation and globalisation of our contemporary world, research into the functions, practices and impacts of science journalism (SJ) in developing contexts remains a rarity. The limited available literature tends to focus on problems and challenges – such as heavy dependence on foreign (mostly Northern) science news sources, low status of domestic science news, uncritical and easily manipulated science reporting, tight political control of science journalism, and ineffective relationship between science and journalism (Nguyen and Tran 2019) – rather than solutions and opportunities. This panel presents an early and modest attempt to shift from this rarity and negativity bias. Following on from a recent special issue of Journalism Studies on the science–journalism–development nexus, guest-edited by this proposer (Nguyen 2024), the panel provides an opportunity for panellists and the audience to discuss future directions for both science journalism practitioners and scholars to help transform and enhance that relationship. Reflecting on common problems, four SJ scholars from various developing parts of the world (Luisa Massarani for Latin America, Muhammad Ittefaq for South Asia, Minh Tran for Vietnam, and An Nguyen for other parts of Southeast Asia and the Middle East) will respond to the following question:

How can science journalism practices be theoretically and practically improved for the sake of local and global development?

In doing so, the panellists will provide invaluable and unique insights into the diverse, largely uncharted news cultures that affect how science journalism is done and can be improved towards the achievement of the UN's Sustainable Development Goals. Normative principles and practices – such as glocalisation, decolonisation, indigenisation and dewesternisation (Nguyen 2024) – will be used as the starting points for this panel discussion.

Parallel Session E:2

What's next for science festivals?

Catarina Chagas[1], Sarah Chisnell[3], Helga Baert[4], Dr. Miguel Garcia-Guerrero[2]

[1]Queen's University, Canada , [2]Universidad Autónoma de Zacatecas, [3]Science North, Canada, [4]Vrije Universiteit Brussel, Belgium

Chair: Catarina Chagas
Panelists: Helga Baert; Sarah Chisnell; and Miguel García Guerrero

What's next for science festivals?

Science festivals have been around for decades. While many events still rely on traditional hands-on activities and models of science communication, practitioners worldwide have been looking at how to integrate new concepts and perspectives into these events. Examples include how to incorporate citizen science activities into events, how to make festivals more accessible for communities with diverse needs, and equity, diversity, and inclusion wise practices.

This panel will explore how different science outreach practitioners in Canada, Mexico and Belgium have been addressing some of these challenges towards promoting meaningful engagement in science festivals.

In Northern Ontario, Canada, Science North has been partnering with local Indigenous-led organizations, as well as retirement homes, to tailor events for specific groups. In Kingston, Ontario, Science Rendezvous Kingston has been providing a Sensory Friendly Science Zone for children with different sensory needs.

In Belgium, Vrije Universiteit Brussel leads science festivals that go find people where they are, engaging different communities to bring activities do their own neighborhoods, including citizen science projects.

In Mexico, the Universidad Autónoma de Zacatecas develops small-scale events that bring science recreation activities to rural communities without access to informal science education.

Our goal is to bring these different perspectives together to discuss new and engaging ways to organize science outreach events, encourage our audience to also share their own experiences and insights, and come up with inspiring ideas for the next chapters in science festivals.

Parallel Session E:3

Breaking barriers: Re-focussing public communication about AMR

Professor Marina Joubert[1], Dr Katharina Richter[2], Prof Paul Flowers[3], Ms Han Tran Dong Thai[4], Dr Eva Garmendia[5]

[1]Stellenbosch University, [2]The University of Adelaide, [3]The University of Strathclyde, [4]University of Oxford, [5]University of Uppsala

Chair: Marina Joubert
Panellists: Katharina Richter; Paul Flowers; Han Tran Dong Thai; and Eva Garmendia

Antimicrobial Resistance (AMR) is a top global public health and development threat that affects human, animal and environmental health. It is estimated that bacterial AMR (e.g. bacterial infections that cannot be treated with antibiotics) was directly responsible for 1.27 million deaths in 2019 and contributed to 4.95 million deaths in the same year.

Despite the situation's urgency and dire future predictions, people often perceive AMR as a distant issue and someone else's problem. The communication challenges associated with AMR, such as its invisibility and complexity, technical terminology, and lack of clear messaging, contribute to these perceptions and a lack of synergy in public communication efforts.

In this session, we bring together a diverse panel of international and interdisciplinary experts with extensive experience in AMR communication. Panel members will challenge each other (and the audience) to think critically about AMR communication. We will emphasize the crucial need for inclusive communication and social justice perspectives in any efforts to mitigate the impact of AMR worldwide. To do this, we will reconsider traditional communication approaches and messages around AMR in favour of fresh thinking about priority audiences, meaningful messages and feasible calls to action.

Note: The following scholars and science communicators also provided input on the development of this proposal and will help to facilitate the session: Sujatha Raman, Konosang Sobane, Bruno Pinto; Kim Darley Waddilove; Daniela Ribeiro; Mary Chambers; Brigitte Gschmeidler; Linka Maritz and Sharon Friedman.

Parallel Session F:2

What's next for Public Engagement with Research?

Mrs Cissi Billgren Askwall, Dr Ken Skeldon[6], Dr Ruth Freeman[7], Cordula Kleidt[4], Harald Franzen[4], Dr Tiffany Straza[5]

[1]the Swedish Research Council, [2]European Science Engagement Association, [3]Research Ireland, [4]Federal Ministry of Education and Reserch, [5]UNESCO, [6]University of Glasgow, [7]Research for Society, Research Ireland

Chair: Cissi Billgren Askwall
Panellists: Ken Skeldon; Ruth Freeman; Harald Franzen; and Tiffany Straza

Open Engagement of societal actors is one of the main pillars in UNESCO's recommendations on Open Science. Societal Engagement and Citizen Involvement are also key components of the ERA Policy Agenda, the EU Open Science Policy, as well as the Pact for Research and Innovation in Europe, contributing to excellent science.

Our session will introduce new (to be published in April 2025) major findings from a European Commission supported Mutual Learning Exercise (MLE) on Public Engagement in Research and Innovation to spark an interactive debate on how public engagement can help inform national policies on research and innovation.

Following insights from our expert panel, we will use the MLE's key recommendations to encourage round table discussions. Each table will be given a debating card containing a different MLE statement and assembled into differing viewpoints to stimulate a lively debate hallmarked by both advocacy and challenge. In this way, we will encourage scrutiny and testing of the MLE recommendations, benefitting from delegates' diverse experiences. The session will conclude with a whole-room exchange followed by closing statements from each panelist.

The session is organised by the Swedish Research Council and the European Science Engagement Association, and include some of the MLE national representatives and experts. Round table discussions will be facilitated by hosts from the global Science Engagement community and international Public Engagement networks. If possible, we would like to make the session open to online participants.

Speakers:
Cissi Askwall, Coordinator, the Swedish Research Council and Chair MLE on Public Engagement; Dr Ruth Freeman, Director Research for Society, Research Ireland; Cordula Kleidt, Head of Division Science Communication; Science Years, German Federal Ministry of Education and Research; Dr. Tiffany Straza, Open Science Consultant, UNESCO, the US

Moderator: Dr. Ken Skeldon, President, the European Science Engagement Association, and Research Engagement Manager, University of Glasgow

Parallel Session F:3

The Power of Networks - Communicating Science in Non-English-Speaking Countries

Ayumi Koso[1], Mohamed Elsonbaty Ramadan[2], Anna Maria Fleetwood[3], Aleida Rueda[4], Tomomi Okubo[1,5]

[1]Japan Science Forum, [2]Arab Forum of Science Media and Communication, [3]Swedish Forum for Science Communication, Public and Science Sweden, [4]Red Mexicana de Periodistas de Ciencia, [5]Okinawa Institute of Science and Technology

Chair: Tomomi Okubo
Panellists: Mohamed Elsonbaty Ramadan; Aleida Rueda; Anna Maria Fleetwood; and Ayumi Koso

There are many benefits to having a local network of science communicators. It can strengthen the regional science communication industry and facilitate the development of local professional capacity of science communicators. Thus, science communicators around the world have built local communities, such as Japan Scicom Forum (JSF), Arab Forum of Science Media and Communication, Swedish Forum for Science Communication and Red Mexicana de Periodistas de Ciencia. However, the motivation for building a local science communication network, the challenges faced, and the role of these networks may differ. For example, while JSF aims to build a network and professional identity, share knowledge and highlight best practices and new tools, it was founded to address, understand and develop practices that would ease the tension between the local Japanese language-oriented practices and the global English language-oriented practices of science communication.

In this session, four organizers of local science communication communities from Japan, Egypt, Sweden, and Mexico will discuss the motivation for building their regional science communication network, their activities, and the challenges they face. It will focus on 1) the role and importance of forming such a local network in each region, and its impact globally, 2) exchange views on setting up and managing these community networks, and 3) explore new research questions that may be unique to cultures that communicate science using a non-English language.

The key objective of the session is to foster the creation and growth of local science communication networks worldwide, particularly in non-English speaking countries.

Parallel Session F:8

Small businesses in science communication special session

Dr Marlit Hayslett[1], Dr Tullio Rossi

[1]Hayslett Consulting

Chair: Marlit Hayslett
Panellist: Tullio Rossi

The field of science communication evolves, a vibrant ecosystem of small businesses has emerged, driving innovation, and broadening the reach of scientific knowledge. This special session will be interactive and will explore the experiences, challenges, and strategies of science communication entrepreneurs, inviting participants to interact with each other. The discussion will address key issues such as starting up, scaling, pricing services, and sustaining operations through turbulent times. Focusing on the theme of transitions, the session will highlight how the science communication field is maturing from a fragmented landscape into a more cohesive and supportive ecosystem. This session seeks to inspire attendees to actively contribute to a supportive ecosystem where small businesses in science communication can flourish.

Parallel Session G:1

Watchdog science journalism: Tensions and opportunities for critical science engagement

Dr Alice Fleerackers[1], Dr An Nguyen[3], Dr Michelle Riedlinger[4], Graciele Almeida De Oliveira[6], Ms Meghie Rodrigues[5]

[1]University of British Columbia, School of Journalism, Writing, and Media, [2]Simon Fraser University, Scholarly Communications Lab, [3]Bournemouth University, Department of Journalism, [4]Queensland University of Technology, School of Communication, [5]State University of Campinas (UNICAMP), Departamento de Política Científica e Tecnológica (DPCT), [6]Brazilian Network of Science Journalists and Communicators

Chair: Alice Fleerackers
Panellists: An Nguyen; Michelle Riedlinger; and Graciele Almeida de Oliveira

For almost 50 years, scholars have called on science journalists to radically change how they share research with the public. These calls emphasize the need to transition from reporting new findings as isolated "breakthroughs" to embracing a more critical stance that holds science to account when its findings or practices jeopardize the public interest. These calls for watchdog science journalism have become more urgent amid ongoing scientific fraud, retractions, generative AI-related problematic publishing, and other forms of academic misconduct, as well as the increasing commercialization and politicization of science. Controversial, high-stakes science issues such as climate change, genetic editing, or AI demand rigorous journalism that puts societal interests above those of powerful scientific, political, or economic actors.

This Discussions and Debates session explores the challenges, practices, theories, and consequences of such watchdog science journalism—a topic that has received little scholarly attention but has important implications for research and practice. It brings together international perspectives of scholars and journalists to unpack what it means to be a watchdog of science and what factors enable or hinder journalists in performing this role. In doing so, it considers journalists working in traditional, legacy media outlets but also peripheral journalistic actors who may be influencing the directions of watchdog science journalism, such as research amplifier platforms (e.g., The Conversation), independent fact checkers, and alternative news sites. Panelists will discuss the tensions that may arise as these diverse journalistic actors monitor and critique science—e.g., by compromising traditionally trusting relationships between scientists and journalists or negatively impacting public trust in science. They will reflect on how to overcome these tensions to support this essential type of science media coverage. The audience will be invited to contribute to these debates by posing questions and providing insights to guide future research and journalistic practice.

Parallel Session G:2

PCST and ASIA

Prof Sook-kyoung CHO[2], Dr Wang Ting[3], Dr Jinwoong Song[4], Dr Hiromi Yaokoyama[5], Dr Ganiger Chen[6], Ms Dyah Ratina[7]

[1]KENTECH, [2]Shiga University, [3]CRISP, China, [4]SNU, [5]Tokyo University, [6]Thailand Science Museum, [7]Rabbit Science Inc.

Chair: Sook-kyoung CHO
Panellists: Wang Ting; Jinwoong Song; Hiromi Yaokoyama; Ganiger Chen; Guoyan Wang and Dyah Ratina

In a society increasingly driven by cutting-edge technologies such as artificial intelligence, and one that faces critical global challenges like climate change and energy transition, the importance of science communication has never been greater. This is particularly true in Asia, home to some of the world's fastest-growing economies, where substantial investments are being made in science, technology, and innovation. To ensure these advancements are addressed sustainably, made accessible to diverse populations, and integrated into society in a harmonious and responsible manner, effective and clear science communication is essential.

The public serves both as producers and consumers in our world. They produce new relationships—both human-to-human and human-to machine, while also consuming a vast array of products manufactured daily. Simultaneously, they are the consumers and producers, in direct or indirect ways, of government policies related to artificial intelligence, climate change, energy and water shortages, emerging diseases, and food security. Science communication is therefore crucial in equipping the public with the knowledge needed for wise and efficient decision-making and creating common ground for dialogues among stakeholders.

While the production and understanding of science within the scientific community are largely uniform across the globe, the ways in which science is communicated to and understood by society vary significantly between Western societies and Asia. Over the past century, Asia exchanged ideas with Western countries and incorporated them into its diverse cultural dimension, yet an inherent tension persists between Western scientific paradigms and Asian traditions.

In this context, scholars from China, Japan, India, Indonesia, Thailand, and South Korea will share the challenges associated with effective and clear science communication in their respective countries. Our goal is to identify strategies and methods that can be universally applied across Asia, thereby contributing to the development of a new tradition within the PCST field.

Parallel Session H:1

Critically reflecting on EDI-related science communication teaching and practice

Mrs Liesbeth De Bakker[1], Dr. Nic Bennett[2], Prof Janice Limson[3], Dr. Jessica Norberto Rocha[4], Mr Mohamed Elsonbaty Ramadan[6], Prof. Elizabeth Stevenson[5], Dr Gabriela Heck

[1]Freudenthal Institute, Utrecht University, [2]Michigan State University, [3]Rhodes University, [4]Fundação Cecierj, [5]University of Edinburgh, [6]The Arab Forum of Science Media and Communication (AFSMC)

Chair: Liesbeth De Bakker
Panellists: Janice Limson; Mohamed Elsonbaty Ramadan; and Gabriela Heck

This discussion-based workshop (1'15" total) presents four cases of science communication practice and teaching from around the world that centre/incorporate aspects of Equity, Diversity and Inclusion (EDI). After a brief introduction of the cases, participants will be divided across four tables (with one table per case). Each table has one case lead, one provocateur / critical friend and interested participants. All participants engage in a discussion about the case and its applicability in different (global) contexts. After 15 mins, two more rounds of exchange will be possible so each participant will be able to explore 3 cases. The first round is decided by drawing a card (designated table / case) to ensure uniform shuffling of participants. Final 10 mins will be used to wrap-up.

Liesbeth de Bakker: a critical conversations exercise focused on students experiencing the uncomfortableness of trying to include an EDI plan into an organization (defending your EDI-supportive initiative to a critical colleague).

Nic Bennett: The Scicomm Identities Project Fellowship is a one-year professional development opportunity for pre-tenure faculty at U.S. institutions, who identify as underrepresented racial or ethnic minorities. The project addresses a significant gap in science communication research and training by centering the motivations, experiences, and priorities of racial and ethnic minority scientists.

Janice Limson: A research environment where scientists actively engage communities at the outset of scientific research is a vital step towards equity, diversity, and inclusivity and of responsible research and innovation. What are the specific tensions at play? How to do this effectively? How far is science willing to 'merge' with society?

Jessica Norberto Rocha: How case studies and research are utilised in the teaching of the following: planning and preparation, delivery and evaluation of accessible science communication activities for people with disabilities.

Parallel Session H:2

Realities and tensions of university communication and science communication

DR Marta Entradas[1], Prof Martin Bauer[2], Dr Giuseppe Pellegrini[3], Dr./Prof. John Besley, Dr Frank Marcinkowski[4]

[1]Iscte, [2]LSE, [3]Padua University, [4]Dusseldorf University

Chair: Marta Entradas
Panellists: Martin Bauer; Giuseppe Pellegrini; John Besley and Frank Marcinkowski

There is increasing interest in studying science communication from an institutional point of view. Universities have professionalised communication structures for external relations, and science communication has been absorbed in this. What role do science communication play at universities at its different organisational levels and how is science communication managed within the institutional environment where other, more established, communication functions such as Public Relations (PR) and marketing gain greater importance.

This session aims to discuss 'realities and tensions of university communication and science communication'. In this session, science communication scholars will discuss the role of science communication within institutional environments. The participants will discuss the topic from different angles, including discussions on: PR versus science communication theoretically and empirically; the 'decentralisation hypothesis', and the 'arms race' hypothesis (for visibility) and associated tensions. The debate aims to contribute to discussions on the role of science communication at research universities.

Parallel Session H:3

Integrating GenAI into Science Communication Training: Four International Research Perspectives

Dr. Yael Barel-Ben David[1,2], Dr. Friederike Hendriks[3], Prof. Ayelet Baram-Tsabari[4], Prof. Dominique Brossard[5,7], Prof. Olaf Kramer[6]

[1]KielSCN Kiel Science Communication Network, [2]CAU, [3]Institute for Communication Science & Institute of Educational Psychology, [4]Faculty of Education in Science and Technology, [5]Department of Life Sciences Communication, [6]Department of General Rhetoric, [7]Morgridge Institute for Research

Chair: Yael Barel-Ben David
Panellists: Friederike Hendriks, Ayelet Baram-Tsabari, Dominique Brossard and Olaf Kramer

In the last three years, with the worldwide introduction of Generative Artificial Intelligence (GenAI), the potential of scientists to communicate their science is increasing. Scientists, limited by resources and academic constraints, can now more easily produce an image or text supposedly suitable for a wider audience with the assistance of their preferred GenAI tool. Most recent research focused on how science communicators and educators use GenAI to portray scientific discoveries (Schäfer, 2023) or science itself (Volk et al., 2024) and, how users perceive the produced text or image (Markowitz, 2024). However, as GenAI becomes more prevalent, discussing its implications for science communication (SciComm) training for scientists, is crucial.

We aim to explore the integration of GenAI into SciComm training programs, from four international and research perspectives:

Dr. Friederike Hendriks will examine ethical and epistemic implications of utilizing GenAI in SciComm, such as the accuracy and integrity of AI-generated information, AI's role in disseminating scientific knowledge, and its meaning for SciComm training.

Prof. Ayelet Baram-Tsabari will discuss developing and implementing scalable AI-supported SciComm training tasks to support effective SciComm.

Prof. Dominique Brossard will share her experiences incorporating AI in SciComm education and research. Introducing real-world SciComm scenarios demonstrating the benefits and challenges of using GenAI tools and their consequences for training.

Prof. Olaf Kramer will discuss the effectiveness of AI-assisted communication strategies and their impact on audience engagement and rhetorical principles that can be applied to AI-generated content to enhance persuasiveness and clarity.

GenAI technology is evolving rapidly, making it difficult to predict what new skills we will need to learn, research, and teach. However, we can start by reflecting on what good "working habits" with GenAI, might look like. Discussing the competencies scientists need when interacting with GenAI to communicate science, from four research perspectives can transform future SciComm training.

Parallel Session I:1

Reviewing science communication: 25 years of transitions, traditions and tensions

Mr Brian Trench[1], Prof Joan Leach[6], Ms Gema Revuelta[2], Dr Elsa Poupardin[3], Prof Richard Holliman[4], Dr Ana Godinho[5]

[1]DCU, [2]UPF, [3]Univ Paris, [4]OU, [5]ETH, [6]ANU

Chair: Joan Leach
Panellists: Brian Trench; Gema Revuelta; Elsa Poupardin; Richard Holliman; and Ana Godinho.

Twenty-five years ago a group of science communication scholars and teachers came together in a European Network of Science Communication Teachers (ENSCOT, 1999-2003) to develop ideas, curriculum and resources for science communication education. Many of those who took part in ENSCOT and the follow-up projects, ESCW and ESConet, which developed and piloted short training courses, have continued their connections and collaborations over the following two decades, including through contributions to PCST.

Participants in this round table were involved in one or more of the named projects, and they will revisit key themes arising in those experiences to reflect on 25 years of transitions, tensions, and traditions in science communication education and research.

Prof Joan Leach (Australia) will facilitate the discussion and the short presentations will explore:

- Changes in structures and content of science communication education and training, including implications of the digital turn (Brian Trench, Ireland)
- How calls for greater openness and transparency in the conduct and reporting of research have been applied in science communication (Elsa Poupardin, France)
- How calls for greater dialogue that became mainstream 25 years ago have been enacted since then through theories and practices of engagement (Gema Revuelta, Spain)
- New forms of work in science communication such as that of 'knowledge brokers', creating challenges for science communication education and training (Ana Godinho, Switzerland)
- How science communicators have addressed the more recent agenda of equity, inclusion and diversity (Richard Holliman, UK)

The contributors will introduce these themes, inviting participation from the audience with a view to opening up discussion of future prospects for science communication.

Continued on the next page →

Reference

ENSCOT Team (2003). The European Network of Science Communication Teachers. Public Understanding of Science, 12(2), 167–81, https://doi.org/10.1177/09636625030122003

Parallel Session I:2

Tensions in communicating discovery science - changes over time

Mr Rick Borchelt[6], Dr. T.Y. Branch[1], Dr. ir. Julia Cramer[2], Prof Marina Joubert[3], Ms Brooke Smith[4], Dr. Sara K. Yeo[5]

[1]Leibniz Universität Hannover, [2]Leiden University, [3]Stellenbosch University, [4]The Kavli Foundation, [5]LLC, Canebrake Communications, [5]University of Utah

Chair: Julia Cramer
Panellists: Rick Borchelt; T.Y. Branch; Marina Joubert; Brooke Smith and Sara K. Yeo.

Discovery science is continuously in transition. Open questions on life and the universe, building blocks for applied sciences and innovative methodologies evolve to eventually impact society. However, discovery science often lacks direct or obvious applications and relations to society. In the same way science evolves, science communication is continuously in transition. How can we effectively engage with diverse publics, especially concerning discovery science?

In this discussion session, we aim to exchange insights about best practices, lessons learned, remaining challenges, and emerging opportunities in the effective public engagement of discovery science – also known as basic or foundational science. We particularly draw from the recent activities in Science Communication Public Engagement Partnership (SciPEP), the outline of the JCOM Special Issue on Communicating Discovery Science and the Stellenbosch International Symposium on Communicating Discovery Science. We address the tension of public engagement in discovery science with the communication landscape increasingly being dominated by applied science, contested science, and technology.

The discussion session is chaired by Julia Cramer (Leiden University), and the panel consists of Rick Borchelt (guest editor of the JCOM special issue), T.Y. Branch (SOCRATES, Leibniz Universitat Hannover), Marina Joubert (organiser of the International Symposium, Stellenbosch University), Brooke Smith (Kavli, SciPEP) and Sara K. Yeo (STEM Ambassador Program, University of Utah).

After sharing and discussing their recent insights, we will have an open discussion with the panel and the audience. The focus of the discussion will be on challenges in communicating discovery science in comparison to applied sciences. We will particularly address the interaction between research and practices, a public dialogue and effective engagement with diverse audiences. We will focus on the communication mechanisms in the scientific, communication and philosophical sphere and we aim to reflect on these effects in changing times.

Parallel Session I:3

Will we ever overcome the misinformation crisis in science communication?

Dr Andy Ridgway[1], Ms Kaelin De Long[2], Dr Willemine Willems[2], Prof Carolina Moreno Castro[3], Dr Isabel Mendoza Poudereux[3], Dr Jason Pridmore[4], Dr Ana Claudia Nepote[5], Dr Vanessa Fagundes[6]

[1]University of the West of England, [2]Vrije Universiteit Amsterdam, [3]University of Valencia, [4]Erasmus University Rotterdam, [5]National Autonomous University of Mexico, [6]Brazilian Institute of Public Communication of Science and Technology

The proliferation of actors and platforms online has democratized science communication at the same time as exacerbating challenges such as misinformation. Crises such as the Covid-19 pandemic and climate change illustrate the scale of the challenge science communicators face in being heard over a cacophony of half truths and distortions. Is this an insurmountable problem? If not, what transitions are required in science communication practice and wider society to address misinformation?

The European Competence Centre for Science Communication, being developed within the EU-funded COALESCE project, will curate know-how about how to fight misinformation informed by research. During this interactive session, members of the COALESCE team in Europe and speakers from North and South America will present insights from research illuminating what underlies the misinformation challenge and suggesting solutions. These insights will act as a catalyst for a discussion involving session attendees attempting to characterise the misinformation problem and offer solutions. The discussion will be stimulated by polls and idea generation on Mentimeter.

The discussions will aim to explore national differences in problems generated by misinformation, as well as differences in the approaches to tackling it.

Initial presentation themes: (7 minutes each):

* Debunking won't work - approaches to tackling misinformation need to factor in who people listen to
* The impact of intercultural perspectives on how misinformation is interpreted
* The solution to misinformation is strong governmental or public information
* Tacking misinformation at times of crisis - insights from the COALESCE crisis navigator

Prompts for the discussion will include: (45 minutes) - What impact has misinformation had on efforts to tackle wicked problems in your country, such as antibiotic resistance and climate change? What's the most impactful thing that could be done to tackle misinformation in your country? What role can science communicators play? Is misinformation actually the problem?

Linked Papers

Parellel Session B:3

Science communication in court - bringing theory and practice together

DR Heather Doran[1], Professor Niamh Nic Daeid[1], Professor Merryn McKinnon[2], Dr Nina Freiberger[3]

[1]Leverhulme Research Centre for Forensic Science, University of Dundee, [2]Australian National University, [3]Alda Center for Communicating Science, Stony Brook University

Communicating science in court rooms has garnered increasing attention in the last two decades, and has been highlighted by prominent cases (e.g. in the UK and Australia) in the last two years. As our scientific knowledge and ability has increased, so too has the volume, type and complexity of evidence which is used to argue innocence or guilt. Poor science communication practice in legal settings can have life-changing consequences for individuals. The challenges of communicating complex science to non-specialist audiences, and the factors that influence the perception and acceptance of scientific information and ideas are well established in science communication theory and practice, but not well explored in a legal context. Despite the high stakes, very little time and attention has been devoted to science communication in courtrooms by academics and practitioners. As science communication increasingly engages with notions of equity, fairness and justice, this session argues that we cannot ignore the context of science communication in legal proceedings. This session brings together the familiar aspects of science communication theory and practice and demonstrates how they can be applied in legal and public settings. Where we sit as a discipline now is contrasted against where we need to be, and this session aims to set an agenda for science communicators around the world to enable equitable and just use of science in courtrooms.

The challenge within the justice system

Prof Niamh NicDaeid[1]

[1]Leverhulme Research Centre for Forensic Science University of Dundee

Linked Paper for submission 277

Forensic science has increasing importance within the criminal justice process. The use of forensic science starts at the crime scene, where a scientific approach is critical to recover traces, remnants of an activity or set of activities whether physical or digital, then progresses through the laboratory where data informs the investigation and finally into the Court room where data is evaluated within the context off case circumstances and presented to the trier of fact (the jury or Judges). Essential in these processes are the interactions between the different audiences (crime scene, police, scientists, lawyers, public) so that correct decisions can be made and fair justice outcomes achieved. There are currently 396,798 routine cases and 70,921 serious cases (those most likely to involve forensic science) awaiting trial in the UK illustrating the potential scale of the challenge in communicating about science across the different audiences. We have contributed to a range of tools for one of the critical audiences in the crime scene to court process. These are a series of judicial primers - bench books for the UK Judiciary and which are created with the Royal Society, Royal Society of Edinburgh and the senior Judiciary of England, Wales and Scotland. The Judicial primers explain the science underpinning forensic science disciplines as well as the way in which scientific tests are used in a forensic science context and the limitations that these test have. The primers provide guidance and assistance to judges in admissibility decisions and in asking question of the witnesses so that the jury can better understand the evidence presented to them.

Science communication theory and the courts

Merryn McKinnon[1]

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Linked Paper for submission 277

Communicating science in court rooms exemplifies some of the key challenges we face in science communication. There are diverse audiences with varying degrees of scientific understanding, (mis)perceptions of what forensic science can do, and personal biases which preference some sources and information over others. This is in addition to the influences of persuasion and the difficulty with communicating and comprehending conflicting, and sometimes complicated, scientific information. As a discipline, science communication has grappled with these issues in theory, and practice, in a range of contexts. Yet we have largely ignored the impact of these issues in court room settings where, arguably, the effectiveness of the science communication can have life changing consequences. This paper will outline how science communication could contribute to ensuring that misunderstanding, misrepresentation or misuse of science is minimised in courts. Drawing from real life examples, this paper will show how some common science communication theories and understandings relate to processes and outcomes in criminal trials. Further developing our theories and understandings within a court room context could contribute to preventing miscarriages of justice. Scientific evidence and its communication are key to ensuring people's right to a fair trial. When it comes to justice, science communication has a far greater role to play than we have acknowledged as a discipline.

Avoiding Courtroom Chaos: Training to Improv(e) Forensic Science Communication

Dr. Julie Burrill, Dr. Nina Freiberger[1]

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Linked Paper for submission 277

Translating science communication research and theory into practice can often be a challenge, and this is particularly true in the courtroom context due to both structural restrictions and content complexity. The Alan Alda Center for Communicating Science at Stony Brook University utilizes social science research and applied improvisation to train scientists from a wide range of disciplines to effectively communicate their research, data and message to a non-expert audience. By partnering with the LRCFS at the University of Dundee, we have developed best practices specifically for use in investigative, legal and courtroom exchanges, based on established communication theories. The Alda Center has investigated factors impacting courtroom communication in order to isolate the core competencies needed for successful forensic testimony and then mapped out the targeted learning objectives. The Alda Method is a unique communication training technique that blends improvisational theater exercises with audience-focused message-design strategies. Driven by the adaptability and active listening at the core of improvisation and the empathy and connection prescribed by social science research, the Alda Method training uses context-specific improv exercises to improve forensic scientists' communication skills. We have created and implemented a training curriculum for forensic experts and are developing additional material for communication of statistics and legal report writing. Alda Center curricula provides strategic approaches for communicating science to target audiences by prioritizing their engagement and comprehension experience. The forensic science project includes addressing challenges of the formal adversarial court system as well as techniques to engender trust and credibility in a jury to facilitate clear and accurate testimony. In this paper we will review the training development and delivery process and discuss practitioner reflections, participant feedback and future directions.

Leveraging Science Comics To Aid Comprehension Of Forensic Science

Miss Isabelle Baxter[1], Heather Doran[2]

[1]University of the West of England , [2]University of Dundee

Linked Paper for submission 277

Forensic science plays a critical role in criminal trials, yet its complex nature often poses significant challenges for lay audiences, particularly juries, to fully grasp the presented evidence. Traditional courtroom communication methods, primarily verbal expert testimonies, may fail to convey scientific intricacies effectively, leading to potential misunderstandings and miscarriages of justice. This study explores the innovative use of science comics within The Evidence Chamber—an interactive mock trial experience—to assess their effectiveness in enhancing non-expert comprehension of forensic evidence. Focusing on the dual coding theory, which integrates visual and textual information, the research investigates how the narrative and visual elements of comics might aid in making forensic concepts more accessible and engaging.

The study's findings suggest that science comics can significantly improve lay audience understanding of forensic science, making complex information more digestible and relatable. This research not only contributes to the growing body of literature on science communication but also highlights a novel approach to addressing the tensions between traditional courtroom practices and the need for clear, effective communication of forensic evidence. By bridging the gap between scientific expertise and public understanding, science comics offer a promising tool to support fairer judicial processes and foster greater confidence in forensic science's role within the legal system. As we navigate the evolving landscape of forensic communication, this study lays the groundwork for future exploration into the broader application of comics in real-world legal settings.

Parallel Session C:3

Public Trust in Science in Digital Media Environments

Prof. Dr. Lars Guenther[1], Dr Anne Reif[6], Prof Hiromi Yokoyama[7], Prof Thaiane Oliveira[2], Dr Roberta Lima[2], Prof André Belém[3], Prof Diógenes Lycarião[4], Prof Simone Evangelista[5], Prof Marcelo Alves[5], Dr Luisa Massarani[5], Mr. Markus Schug[8], Prof Helena Bilandzic[8], Prof Susanne Kinnebrock[8], Prof Zheng Yang[9], Ms Yuanting Huang[9], Ms Tao Yang[9], Mr Taoran Yu[9], Dr Jana Laura Egelhofer[1], Prof Christina Seeger[10], Dr Alice Binder[11]

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The fact that many people obtain information about science online has often been linked to negative consequences for public trust in science. However, empirical evidence of decreased public trust in science is lacking, and online environments can also benefit public trust in science by facilitating access to scientific information. This session brings together and discusses four individual papers, selected from an upcoming Special Issue in JCOM, exploring public trust in science in digital media environments from different (international) angles and perspectives.

The first talk investigates climate change discourse in posts from Facebook, Instagram, and Twitter in Brazil (2014–2022). Contrary to expectations, explicit climate denialism has not increased. Instead, uncertainty is subtly used to undermine public trust in scientific discourse.

The second study, a cross-sectional survey in Germany (N = 1,007), examines whether scientists in controversial fields are perceived as equally trustworthy as those in less controversial fields or without a specific field, and how science-related (digital) media consumption shapes these perceptions.

The third talk focuses on identity strategies in online science communication in China, which vary depending on the type of science communicator. The authors show that different identity strategies affect public trust in science, depending on whether the topic of communication is controversial or non-controversial.

In the fourth talk, findings from a preregistered experiment (N = 1,246) in Germany show that exposure to online harassment against scientists—on the rise in digital media environments—reduces trust in the targeted scientists, but not in scientists in general or in scientific information.

Overall, the four papers highlight the conditions under which public trust in science may decrease: uncertainty, controversy, identity strategies, and harassment appear to be conditional factors. We will discuss this updated perspective the studies offer on the nuanced nature of public trust in science in digital media environments.

Trustworthiness and authenticity perceptions towards scientists in controversial scientific fields

MR Markus Schug[1], Prof. Dr. Helena Bilandzic[1], Prof. Dr. Susanne Kinnebrock[1]

[1]University of Augsburg

This paper is part of the linked paper session “Public Trust in Science in Digital Media Environments” (first submitted as a Discussion&Debate Proposal).

In a cross-sectional survey in Germany (N = 1007 respondents; age: M = 47.00, SD = 18.66; sex: 51.24% female; education: 50.8% with German degree for higher education), this paper investigates whether scientists in controversial fields (e.g., COVID-19, climate change) are perceived as equally trustworthy and authentic as scientists in less controversial fields or scientists without a specified field, and how science-related (digital) media consumption shapes these perceptions. Our analysis highlights how public perceptions of scientists vary when these scientists research controversial areas.

The effects of online harassment against scientists on science trust

In digital media environments, harassment against scientists is on the rise. While initial research highlights the detrimental consequences for affected scientists, the increased visibility of harassment through social media might also negatively affect public trust in scientists. Using a preregistered 2×2 between-subjects experiment with a representative sample of German citizens (N = 1,246), this study shows that exposure to uncivil comments harassing female or male scientists negatively affects citizens' trust in the attacked scientists but not trust in scientists in general or scientific information. Furthermore, some of the effects are moderated by gender and science-related populist attitudes.

How different science communicators use strategies to gain public trust?

Dr. Zheng Yang[1], Ms. Yuanting Huang[1], Ms. Tao Yang[1], Mr. Taoran Yu[1]

[1]Soochow University

Science communication is experiencing a trend of diversified communicators in the recent decades. Different science communicators may adopt completely different strategies to gain audience trust. These strategies and preferences have also been found to have a profound impact on the audience's trust in the scientific content they communicate. But how do different communicators utilize their identity characteristics to acquire the audiences' trust? And do the audiences also have different trust bias toward different science communicators with different identity strategies? These questions have not been fully studied yet. In this regard, this study focuses on the differences in the use of identity strategies among different science communicators, namely scientist science communicators, citizen science communicators and institution science communicators, as well as the potential trust effects that may arise from different identity strategies adopted by those science communicators on Zhihu, the China's largest digital knowledge sharing network. The preliminary results indicate that scientist science communicators and organizational science communicators are more inclined to use 'authoritative identity strategies', while citizen science communicators are more inclined to use 'similarity identity strategies'. However, when using 'authoritative identity strategies', scientist science communicators received more trust feedback than organizational science communicators, but its efficiency is still lower than that of citizen science communicators using 'similar identity strategies'. Therefore, unlike traditional science communication research that emphasizes the effectiveness of the professional identity of communicators in gaining trust, this study finds that in the context of the diversity of science communicator, special identity strategies in line with the identity of the communicators may be more effective in gaining trust, rather than emphasizing the unified professional identity.

This abstract belongs to the linked paper session on public trust in science in digital media environments.

Parallel Session F:1

The PCST Network: transitioning over 35 years

Dr Jennifer Metcalfe[1,2], Professor Bernard Schiele[3], Mr Toss Gascoigne[2], Dr Elaine Reynosa Haynes[4], Dr Heather Doran[5]

[1]Econnect Communication, [2]Australian National University, [3]L'Université du Québec à Montréal (UQAM), [4]Universidad Nacional Autónoma de México, [5]Leverhulme Research Centre for Forensic Science, University of Dundee

The PCST Network: Transitioning over 35 years

This linked paper series will examine the 35-year history of the PCST Network from its beginning in Poitier France to the current conference in Aberdeen Scotland. It will examine the cultural and social drivers that initiated the Network in Europe, and its spread via Canada and Australia to the rest of the world: South Africa, China, Korea, then South and Central America. It will look at how the Network both mirrored and influenced science communication practice, research and teaching around the world.

As the Network transitioned to being a more democratic organisation and embraced and encouraged the bridging of academia, research and practice tensions arose as traditions were tested and explored. The series of papers in this session will explore these transitions, traditions and tensions as:

- the PCST Network expanded across diverse participants, cultures and geographies
- some science communicators became more visible on the world scene, and others did not
- the PCST became a democratic organisation, with a constitution, elections for the scientific committee and formally incorporated
- the field of 'science communication' became more established with increasing academic research and teaching, and the professionalisation of practitioners.

Developments in the field of science communication and the PCST Network are inter-linked: they have changed and influenced each other. By mapping these changes, this proposal will help explain how our field is maturing.

The PCST Netork's transition over three epochs

Dr Jennifer Metcalfe[1]

[1]Econnect Communication

For Linked Paper submission 199

The PCST Network has run a series of conferences about every two years since 1989. These conferences have included plenary speakers as well as parallel sessions where delegates can submit abstracts for review. The conference themes and speakers have evolved over time.

Early analysis of PCST conference programs indicates that there are three broad epochs to this PCST's transitions since 1989:

1. Bringing together PCST theory and practice (Poiters, Madrid, Montreal. Melbourne, Berlin, Geneva) 1989-2001
1. Establishing PCST as a recognised field (Cape Town, Barcelona, Seoul, Malmo, Delhi, Florence) 2002-2012
2. Building a diverse and inclusive PCST (Salvador, Istanbul, Dunedin, online, Rotterdam) 2014-2012.

This paper will report on a more detailed analysis of PCST conference programs about these proposed epochs as well as examining, where possible, their themes, topics, research approaches and research methods. This analysis will show what transitions have occurred within PCST from both research and practice perspectives, and whether these match the proposed three epochs.

The analysis of PCST conference programs will be compared with similar research examining science communication journal articles (Gerber et. al., 2020; Guenther and Joubert, 2017) to determine similarities and differences. For example, Guenther and Joubert (2017) found that science communication research was becoming "increasingly institutionalised and internationalised" with a greater diversity of authors. This is likely also to be the case for PCST conference abstracts.

The paper will conclude by discussing and raising questions about the influence of PCST conferences on the development of science communication more broadly, and whether such influences are obvious and reciprocal. The implications for the PCST Network from such influences will also be explored.

How and why PCST became a democratic organisation

Mr Toss Gascoigne[1], Professor Bernard Schiele, Dr Jennifer Metcalfe, Ms Heather Doran, Professor Elaine Reynoso Haynes

[1]Australian National University

Linked papers number 199

In 2014 the Network for the Public Communication of Science and Technology (PCST) became a democratic organisation. It adopted a formal constitution and invited anyone interested in science communication to become a member, and pay a membership fee. The first task of the new members was to elect the Scientific Committee.

The debate began several years earlier at the Delhi Conference when the President pointed out that Committee members were getting older, and if we did not find fresh new voices, our organisation was doomed to disappear. New members of the Committee were decided by canvassing the current members: would anyone like to suggest other people to join us? This had its advantages: members knew each other, were comfortable working with each other. But it made it hard for new ideas and new people to break into the organisation: it was a closed club.

There were practical difficulties. We could not open a bank account, because we were not incorporated. Members of the Committee were personally liable if anything went wrong. To incorporate we needed a written constitution and elections. We had no funds and no realistic way of raising money. Our websites were run by volunteers in their spare time, but we needed a professionally designed website. How would we collect membership fees from around the world, and create a system which allowed members across 50 countries to log in to vote in elections?

This presentation will discuss the debates, the reasons and the arguments as this process worked its way through.

It will conclude with an assessment of how democratisation is changing PCST. Has it broadened involvement and introduced new ideas and fresh voices? What effect has it had on PCST as an organisation? Have these fresh new voices introduced new ideas?

The PCST Network: transitioning over 35 years

Prof Bernard Schiele[1]

[1]University of Quebec at Montreal

For Linked Paper submission 199

The genesis of the PCST network is rooted in a specific historical context, which warrants examination to elucidate its evolution into the organization it has become today. It is noteworthy that the acronym PCST, proposed by Pierre Fayard, was only adopted subsequent to the Barcelona conference. Initially, the network lacked a formal designation but coalesced around researchers and practitioners united by their shared interest in critically examining the science mediation dynamics in which they were actively engaged. This movement encompassed both the dissemination of scientific knowledge to the lay public and a concurrent interrogation of the underlying motivations and ramifications of this endeavor.

This dual approach has remained a defining characteristic and distinguishing feature of the PCST network since its inception. To comprehend the catalytic forces that precipitated the network's emergence, it is imperative to consider several key factors: (1) the pivotal role of the OECD at the cusp of the 1990s, with the inaugural PCST convocation occurring in Poitiers in 1989; (2) the burgeoning discourse, particularly prevalent in Anglophone nations, regarding the necessity and scope of science mediation; (3) the French government's initiative to foster interdisciplinary and intercultural dialogue between science communication professionals and researchers; (4) the establishment of diverse research programs in information science, encompassing science communication; and (5) the inception of university-level educational and research programs focused on communication and science communication.

This panel will scrutinize how this confluence of circumstances facilitated the convergence and federation of researchers and science communicators across various nations, all of whom shared a vested interest in these multifaceted issues, ultimately culminating in the establishment of the PCST network. We aim to illuminate the network's foundational principles and its trajectory towards becoming a significant entity in the field of science communication and public engagement with science.

Transitions for the PCST Network membership

DR Heather Doran[1]

[1]Leverhulme Research Centre for Forensic Science, University of Dundee, [2]PCST Scientific Committee member

Linked paper for session 199

The PCST Network has established a global presence through its conferences, symposia, and membership. As it continues to grow, the network must adapt to the evolving landscape of science communication to better support its members. This presentation will explore how the network can evolve in response to these changes.

As the field of science communication evolves, how can the PCST Network best support its members? Can it advocate for the development and support of science communication education? Could it provide career support for practitioners or initiate projects to advance research in the field?

Additionally, the network faces several challenges. Although science communication is inherently global, the PCST Network primarily operates in English. It must consider how to include other languages and cultural perspectives to ensure diversity in its conversations. How can the network maintain ongoing dialogues that are inclusive and incorporate global viewpoints?

The urgency of the climate crisis and other global challenges underscores the need for effective science communication. This raises the question: should the PCST Network engage in mobilising activism on this and other topics, or should it focus solely on facilitating information and networking for its members?

Furthermore, the term "science communication" lacks a universal definition, leaving the network with a decision: should it aim to define this term or continue to be a platform for diverse perspectives on the subject?

In summary, the PCST Network must address the complexities of cultural and linguistic diversity, evaluate its role in activism, and navigate the broad and evolving nature of science communication. Balancing these factors will be crucial for its continued success and relevance in the global science communication landscape.

(created with the support of Chat GTP for clarity and word limit)

The Role of PCST in professionalization of science communication.

Dr. Elaine Reynoso-haynes[1], Dr. Jenni Metcalf

[1]Universidad Nacional Autónoma de México

Part of Linked Paper 199

The PCST Network: transitioning over 35 years

The PCST Network has played a crucial role in establishing science communication as a professional field academically and in practice, bridging the gap between both. A constant ingredient in the PCST conferences, seminars and workshops is that of professional training for science communicators and what it takes to become a professional in the field. Discussions such as the core ingredients that every science communicator should have in terms of knowledge and skills as well as the prerequisites and the desired profiles for science communicators are central in designing training programs. A wide variety of proposals have been presented in terms of curricula, structure, what is taught and to whom; the duration, the certification or degree that is offered. The conclusion is that there is no unique formula for such programs. It is a complex problem which depends on many factors such as the different images that exist about the role and importance of science communication in society and the different approaches about how and why we should communicate science; the national and institutional contexts; the resources and interests of the institutions offering these programs and the potential teachers and students, just to mention a few. PCST has provided an excellent forum for analyzing all these concepts and ideas and in bringing together professionals with this common interest. In this session we will share the discussions, ideas of consensus that have been achieved as well as interesting proposals for such programs.

Parallel Session G:3

Acquiring an EDI-prone mindset in science communication through transformative learning

Mrs Liesbeth De Bakker[1]

[1]Freudenthal Institute, Utrecht University

The past decade the world has woken up to issues of inclusion and diversity. As a science communication lecturer I strongly felt a need to pay attention to these issues in my teaching. So in 2019 at Utrecht University in the Netherlands I designed a master's course aimed at fostering a generation of more equity, diversity and inclusion (EDI) aware and skilled science communication professionals.

Over the past five years I came to realise that this kind of course wasn't about skills development - if you write like this, you will be more inclusive - but rather about achieving a change of mindset in the students. Students have to realise that even though they are now mastering science communication skills at an adequate level to reach the dominant group, that this does not necessarily mean that they are inclusive science communicators. There is still so much to learn and to discover if you want to reach those who are not included yet. As EDI in the context of science communication is a very complex, challenging and multi-faceted concept, transformative learning is chosen as the pedagogical approach of choice. Often learning about and reflecting on EDI issues generates a measure of discomfort, albeit physically or mentally. To properly deal with these educational challenges the pedagogy of transformative learning was first launched by the American professor of adult education, Jack Mezirow, in 1978, and has been developed ever since.

In this presentation I will explain what this pedagogical approach of transformative learning is about and how I think it is a suitable approach to achieve a change in mindset in master students eager to become more inclusive science communicators.

How do we do inclusion rapidly?

Mrs Emma Gill[1], Dr Heather Bray[1], Dr Ann Grand[1,2]

[1]The University of Western Australia, [2]National Coordinating Centre for Public Engagement

How can we share and encourage inclusive practices and understandings in structures that were not designed to support, encourage, or value them?

Inclusive science communication centres practices of intentionality, reflexivity, and reciprocity, linked throughout by equity and social justice. In Australia, our National Science and Research Priorities (2024) include "Elevate Aboriginal and Torres Strait Islander knowledge systems," responding to the need to recognise, include, and respect our First Nations' ways of knowing in science and science communication. However, First Nations ontologies and epistemologies often differ from Western systems. Activating epistemic plurality/parallelism in mainstream science communication is key to effectively achieving our national priority goals – and reflexivity is key to appropriately, inclusively achieving this.

Science communication is diverse and inter/transdisciplinary; epistemically plural itself. Its practices and understandings are disparate and dispersed, with a theory-practice gap obscuring moves towards inclusion. For example, we've found that Inclusive Science Communication reflections, practices, and evaluations are infrequent and often siloed in Australian peer-reviewed literature. We will share these findings and initial insights about Australian Inclusive Science Communication practitioner identities that Emma is investigating. We then ask, where do we go from here, noting that inclusion is neither easy nor rapid? We need to share transformative learnings across academic structures and disciplines – and we need to do it now, embedding inclusive tenets in, for, and with current projects and practitioners, through to training of science communicators.

We offer provocations to encourage and facilitate the sharing of transformative practices, framing, and principles:

How do we value plurality?

How do we convene knowledges across and among ways of knowing?

How can we embed reflection and inclusion in engaged research?

What are the implications of inclusive practice for training practitioners and researchers?

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"They have my back": Experiences of Queer Australian Science Communicators

Ms Clare Boon[1], Dr Heather Bray[1]

[1]The University of Western Australia

With recognition of the need for diversity, equity, and inclusion, science communication scholarship has begun to look at the needs and experiences of queer audiences and practitioners.

Queer theory examines the impacts of heteronormative privilege that may be unspoken or inherent in specific cultures and experiences, leading queer folk to feel othered and unwelcome. Queer theory suggests that by highlighting the invisible privilege of the heteronormative, binary thinking can begin to be broken down with spectrum thinking taking its place.

Queering is the operationalization of diminishing heteronormativity and elevating queer worldviews, voices, and experiences. Queering is an emerging area of study in science communication research.

As such, our research (led by CB) aims to highlight the experiences of queer science communication practitioners in Australia.

With little previous research to draw on, we began with an attempt to locate our queer science communication community using a survey. Our respondents were mostly aged between 25 and 35 (50%) and were diverse in terms of sexuality, gender, and whether they were “out” at work.

We then interviewed a sample of queer science communicators who responded to the survey about their experiences in and perceptions of the field of science communication.

Included in the themes arising from the interviews were the need for community amongst queer science communicators, the impact of the COVID-19 pandemic on the coming out process, and the importance of intersectional thinking when it comes to science communication practice.

Although our results indicate that the culture of science communication in Australia is welcoming of queer identities, our participants did not feel supported to produce queer content in their workplaces, and tended to produce this content independently and “on their own time”.

In this presentation, I will be discussing the results and implications of this research for queer science communication practitioners.

What is inclusive science communication? An international study

Dr Karina Judd[1]

[1]Australian National University

Inclusive science communication, variously encompassing ideas of inclusivity, diversity, accessibility, equity, decolonisation and justice, has been gaining increased attention in recent years in both science communication practice and research. What has rarely been explored so far, however, is whether – and how – inclusive science communication is conceptualised and practiced in different contexts around the world, and particularly in non-Western and Global South countries. In other words, what does inclusive science communication mean in a globalised space?

This research asked what inclusive science communication is, in a qualitatively led mixed methods study which interviewed and surveyed science communicators from diverse cultural and professional backgrounds. Study participants expressed diverse attitudes towards, and contributors to, (in)equity in science communication practice and research as well as a range of potential interventions.

Some science communicators do not see a need for a new approach to science communication, while others have good intentions to create change but lack appropriate resources or mentorship to be able to do so. Others still have sophisticated goals and tangible plans for change to the foundations of science communication as a discipline. This research demonstrates that inclusive science communication is not yet well developed theoretically, and is inconsistently accessible in many regions and contexts. As some study participants noted inclusive science communication, as it is currently advocated for in some spaces, risks leaving behind audiences, practitioners and researchers who have needs not yet imagined in the existing literature, potentially perpetuating the very injustices it seeks to redress. This research offers both practitioners and researchers an appreciation of how inclusive science communication can conceptually and practically play out in different ways in diverse contexts around the world.



Parallel Sessions



Parallel Sessions
A:3

Between transitions and traditions: Public Communication of Energy in Mexico.

PROF ANA NEPOTE, Carlos A. Sanchez, Dr. Carlos Garcia-Bustamante, Prof Rosa M. Gallardo

[1]Universidad Nacional Autónoma de México

Faced with climate emergencies, the energy transition and the need for less polluting usage patterns are central to international agendas. Since 2018, the Mexican Government promoted the National Strategic Program on Energy and Climate Change through the National Council of Humanities, Sciences, and Technologies. This program supports a fair and sustainable energy transition, prioritizing the country's most vulnerable sectors. As part of this effort, we developed a multidisciplinary project to Investigate how to build sustainable rural energy systems in Michoacán state. We adopted a participatory public science communication approach in a rural and indigenous community to co-produce knowledge and collaborative experiences around energy issues. Our case study site was San Francisco Pichátaro, located southwest of the Patzcuaro Lake basin in Michoacan. Pichátaro is a community of 5,600 inhabitants that maintains indigenous structures and traditions. Our contribution is significant for public communication in science as it highlights the tensions between narratives of zero carbon emissions and energy poverty. Our project focuses on identifying the conditions required to build rural energy systems in a participatory way where communication plays a central role. This invites a deeper analysis of energy use, sociocultural meanings, and environmental impacts. Through public communication, we established collaborations with the community, engaging in local radio, workshops, scientific talks, and a podcast series with a sociocultural lens on energy. Developing research and communication processes on energy transitions allows us to contribute to constructing fairer and more sustainable possible futures from a local and self-managed approach.

Framing Beyond Text: Multimodal News Portrayal of China's Climate Issues

DR Xiaoxiao Cheng[1], Ms Ning Jiang[2], Ms Lanlan Hai[1]

[1]Zhejiang University, [2]The University of Hong Kong

Given China's status as one of the world's largest energy consumers and carbon emitters, understanding its portrayal in global climate discourse is crucial. This study examines how international media construct and represent China's climate change issues, focusing on multimodal news frames that integrate both text and images. The research analyzes 384 China-related climate change reports from the news aggregator platform Reddit, spanning 2010 to 2022. It employs manual content analysis to code three frame elements: textual frames (both thematic and generic), visual frames (including political figures, cityscapes, green technology, and other denotative meanings), and text-image relationships (e.g., anchorage, independence, illustration).

The findings reveal that political and economic themes dominate international media coverage of China's climate issues. These reports frequently adopt conflict and responsibility frames, emphasizing China's role and actions in the global climate arena. Additionally, visual elements predominantly feature ordinary citizens, political figures, and symbols of economic and environmental change, such as the transformation of urban infrastructure and the adoption of green technology. These images illustrate the human impact of climate change and portray the roles of Chinese officials alongside other international leaders in addressing these challenges.

Hierarchical clustering using Ward's method was applied to all the frame elements, identifying six key multimodal frames: (1) Victims of Global Warming—depicting the adverse effects of climate change on China's population and environment; (2) Sustainable Energy—highlighting China's efforts in adopting clean energy and technological innovations; (3) Diverse Political Disputes—focusing on political conflicts related to climate change; (4) Political Negotiations—centering on intergovernmental dialogues and the roles of leaders; (5) Leadership Responsibility—showcasing China's contributions to global climate governance; and (6) Civil Society Demands—reflecting public concerns and China's environmental actions.

In an era where media content is increasingly multimodal, this study holds theoretical and practical significance for understanding how international media portray China's climate issues.

Sparking renewed climate communication on Green AI in East Asia

Ms. Yunbin Cho, Prof Shotaro Kinoshita, Prof Yuko Ikkatai, Ph.D candidate Shuo Wang, Ph.D candidate Yasushi Ando, Prof Hiromi M Yokoyama

[1]Graduate School of Interdisciplinary Information Studies, The University of Tokyo, [2]Hills Joint Research Laboratory for Future Preventive Medicine and Wellness, Keio University School of Medicine, [3]Faculty of Social Sciences, Kanazawa University, [4]School of Social Sciences, Tsinghua University, [5]Graduate School of Interdisciplinary Information Studies, The University of Tokyo, [6]Center for Data-Driven Discovery(CD3), Kavli Institute for the Physics and Mathematics of the Universe(Kavli IPMU), University of Tokyo

We are entering a new era where climate communication converges with AI ethics, involving the concept of "Green Artificial Intelligence (Green AI)". Green AI refers to the practices that use AI to combat environmental problems or reduce its own ecological footprint, such as mitigating carbon emissions and considering water consumption for cooling data centers. While the shift toward Green AI is crucial, it may face challenges due to the complex societal discourses surrounding AI. How can we effectively engage the public in discussions about Green AI practices during this period of transition?

To explore this question, we investigated public attitudes toward Green AI policies, focusing on Japan and South Korea—two countries underrepresented in previous research despite the absence of climate change polarization. We collected nationally representative samples of 700 participants each from Japan and South Korea through an online survey. Green AI policies for dependent variables were categorized into three types—subsidies, taxes, and bans—based on the level of government intervention. The survey first explained the background and dual-edged nature of government regulations targeting AI companies. It then addressed key issues, including (1) the potential for polarization related to climate change beliefs, (2) the influence of nationalism and market-free ideologies, and (3) trust in stakeholders for independent variables. The data will be analyzed using regression analysis.

By adopting an interdisciplinary approach to public engagement in East Asia, where such efforts have been limited compared to Western countries, we aim to broaden Western-centric discussions and renew a perspective on East Asian citizens. This research provides insights into enhancing public communication strategies that engage citizens in Japan and South Korea in the discourse on Green AI, moving beyond traditional climate communication to foster deeper social movement.

Game Changers: exploring climate action through online gaming

Dr Lynda Dunlop[1]

[1]University of York

The climate emergency requires societies to rapidly reduce greenhouse gas emissions to secure a planet viable for human habitation. The planetary boundary for climate change has been transgressed, with large, irreversible changes becoming unavoidable (Stockholm Resilience Centre, n.d.). Social movements have increased public awareness, and helped accelerate political commitment and global action on climate change (IPCC, 2023). However activism is a contested term (Peterson et al., 2020), with tensions within and between social movements and broader society.

Games are a means by which players can develop an understanding of climate change and activism through active engagement, knowledge construction (Ouariachi et al., 2018), emotional engagement, simulated decision making and envisioning consequences over time (Wu et al., 2015).

This paper reports on the design and broadcast of an online live action narrative game where players collectively interact with the characters in a climate action collective and decide what they do (Megaverse, 2023). The game's aim was to engage audiences with near future climate change effects in England, and create a stimulus for discussing different forms of climate action. Research evidence informed the environment, plot and character development, showing the causes (e.g. fossil fuel consumption) and impacts (flooding, migration,..) of climate change, as well as responses (spongy cities, transition to renewables, low consumption cultures), presenting some of the realities of climate change as well as identifying where there is room for optimism. Interviews and focus groups with 26 climate actors were used to inform the development of the story. Insights on how to stimulate climate dialogue based on the analysis of online dialogue involving >100 participants during game play will be shared. The concept of worldbuilding will be used to describe both the creation of the game world, and the way in which climate actors respond to climate change.

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Communicating Climate Change: Role perception among environmental journalists in Nigeria

Mr. Damilola Oduolowu[1], Mr. Olasunkanmi Arowolo[2]

[1]University of Missouri, [2]University of Kent

Environmental issues like climate change are at the forefront of global concerns, and the media plays a vital role in shaping public awareness and perceptions surrounding them. Research on science communication demonstrates the way climate-related information is communicated and portrayed in the media is influenced by both professional journalism standards and the complex ethical nature of journalism, which are crucial to news production. Factors that influence journalistic decisions in covering the environment and climate change have been widely studied in the United States and the Global North. Scholars have argued that environmental reporting is instrumental in disseminating information to the public and setting the tone for public discussions and debates on climate change issues. Traditionally, environmental journalists face challenges in addressing the seemingly competing needs of journalistic objectivity and advocacy while reporting. This tension stems from balancing established professional norms and the need for social change and climate action through communicating complex issues to the public. However, whether these journalistic practices are applied to the same extent in directing reporters' decisions related to environmental reporting, and in turn whether this reporting influences public responses and policy decisions on climate change issues in Africa remains unclear. This study, through a survey of environmental journalists in Nigeria (N=200), explores the reporting styles and techniques used by journalists to cover climate change and analyzes the effectiveness of these approaches in engaging the public. To capture regional variations in reporting, a representative sample will be drawn from a diverse group of journalists from different regions of Nigeria who have reported on environmental and climate change issues. We discuss the Nigerian context of how journalists perceive their role and how this role is shifting due to factors like story choice, reporting style, and journalistic norms for reporting on environmental and climate change issues.



Parallel Sessions
A:4

How to improve media impact on 'global boiling'

Mr Andrew Extance[1], Ms Deborah Cohen[1]

[1]Association of British Science Writers

In 2023, global temperatures reached an all-time high, exceeding the 1.5C threshold governments committed to avoid passing in 2015. The US had 28 weather and climate disasters in 2023, surpassing the previous record of 22 in 2020, costing at least $92.9 billion. A record hot summer caused almost 62,000 deaths in Europe in 2022; extreme floods affected 33 million people in Pakistan and 3.2 million people in Nigeria. These impacts are happening faster than IPCC scientists predicted. UN chief Antonio Gutierres has therefore called the crisis 'global boiling'.

Yet our societies remain less concerned than they should be, and often critics point their finger at the media for not reflecting the severity of the situation. Some say that scientists have been too cautious in their predictions of the severity of what we're facing, and that journalists aren't calling them out. Others highlight that we hear little about dramatic tipping points that we are likely to pass in the next few years, whose impacts will last for centuries if not millennia.

Should science writers be leaving our comfort zones on these critical issues? Ought we to challenge whether predictions, bleak as they are, are going far enough? Or are the problems too complicated to be solved by greater courage? Is it helpful to make clear how alarming the situation is, or not? Can or should we seek to be neutral on the topic? This session will invite a group of expert science writers and journalists to work with attendees to offer ways of covering the crisis and dealing with media culture that might improve the situation.

The Role of Science Communication in Fostering Trust in Science

DR. Tine Ravn, Professor Hub Zwart, Dr. Agata Gurzawska

[1]Danish Centre for Studies in Research and Research Policy, Department of Political Science, Aarhus University

Public trust in science and technology is not a given; it is a complex, relational, and multifaceted issue shaped by various individual, institutional, and societal factors. While current research does not indicate a distinct 'crisis of trust,' several emerging challenges, or 'cracks in trust,' can be identified. These include rising polarization, concerns over government interference in research, disruptive technologies, social media disinformation, and growing inequality in democratic participation in determining the agenda and impact of science.

Responsible public communication of science and technology, along with public engagement, is essential in the "ecosystem of trust in science" and in addressing societal mistrust. The COVID-19 pandemic and the current climate crisis underscore the importance of science communication in bridging the gap between science and society, while also highlighting the challenges of disseminating science amid uncertainty, misrepresentation, and polarized perceptions.

In this discussion session, we will examine the impact of science mediation, public engagement, and responsible research on public trust. We will explore how science communication and chains of mediation can be cultivated to foster citizen trust in science by becoming more responsive to societal concerns, abstain from overpromising and maintain full transparency and meaningful collaborations with societal actors. The discussion will draw on final results and recommendations from three Horizon Europe-funded projects on trust in science, VERITY, IANUS, and POIESIS (3x15 min). Each project explores diverse drivers of trust and how trust can be cultivated. A key focus is developing evidence-based recommendations for institutional and non-institutional actors to foster trust and co-create research and innovation with society, particularly in the context of a shift from institutional trust to a distributed form of trust.

Integrity in Science and impact on Public Trust

DR Marta Entradas[1], Dr Ines Sousa[1], Dr Feng Yan[1]

[1]Iscte

Despite the belief that research integrity is important for public trust in science, this has rarely been tested. We set to investigate this question by analysing public views about the way science is communicated when cases of research integrity arise and become public, and how those views are formed. Are people's views affected by the content of the messages and the sources they get information from? Based on seven public deliberative workshops (PDWs) carried out in 2023 in Denmark, France, Germany, Greece, Portugal, Spain, and the United Kingdom, with 169 members of the public, we investigate how communication about (bad) research practices and research integrity might impact on (dis) trust in science, with a focus on country comparisons. Participants were given integrity cases to discuss, and we tested how people trusted the messages according to the means of communication through which they received the information. The results show that the consistency of the discourse and transparency of the information are important communication characteristics for trusting science, and that these are often associated to scientific sources. We find that, regardless of the content of the message being the same, participants were less likely to trust messages in social media channels than in traditional media, suggesting that online sources of information work as a barrier to trust in scientific information, becoming more relevant than the content of the message when accessing scientific information.

The backlash of communicating science. Experiences shared by experts

Maider Eizmendi Iraola, Simon Peña Fernández, Ainara Larrondo Ureta, Pampa García Molina

[1]University of the Basque Country, [2]University of the Basque Country , [3]University of the Basque Country (UPV/EHU), [4]Science Media Centre. FECYT, Spanish Foundation for Science and Technology.

Science communication activities are gaining increasing relevance both because they promote social knowledge of science and because they support the academic careers of researchers. Therefore, it is necessary to analyze the environment in which the scientific community carries out this work.

The study, conducted through a survey of experts (N=237) from the Science Media Centre Spain database, examines the frequency of attacks and negative comments they receive after communicating about science, as well as the consequences of these incidents.

The results show that 51.06% of the scientists have experienced some type of harassment or attack in the last five years, mainly through social media and digital platforms. Therefore, the incidence is high, even more so in the case of women. The type of attacks also varies by gender. Men face more insults and comments about their professional integrity, while women receive more negative messages about their physical appearance or scientific ability. Additionally, the data indicates that these attacks affect both the productivity and the health of the research community. However, most opt not to report these incidents to the institutions where they work.

The study demonstrates, therefore, that researchers encounter a hostile environment when communicating about science and highlights the need for scientific institutions to take measures to prevent such aggressions and protect researchers.

Gender Differences in the Context of Trust in Science

Justin T. Schröder[1]

[1]Ludwig-Maximilians-Universität Munich

Female scientists are significantly involved in scientific progress, innovation development, and crisis management. However, female scientists do not receive the same recognition as their male counterparts. In science media coverage, women are presented differently compared to men, both quantitatively (e.g., general visibility) and qualitatively (e.g., through gender stereotypes).

Moreover, public trust is a key variable for the public's acceptance of scientific information, and media mediate public trust by using trust cues— linguistic markers that help the public evaluate whether scientists can be trusted. These cues address dimensions of trust in science: expertise, integrity, benevolence, transparency, and dialogue. Consequently, gender biases in science media coverage may influence the acceptance of scientific information based on the scientist's gender. This highlights the need for a shift in science communication to ensure scientific information fully benefits society. Therefore, this research asks: How is trust in female and male scientists mediated differently in content about science?

To identify trust cues and compare their use between female and male scientists, a qualitative content analysis using a deductive and inductive approach is applied to a sample (n=158) of science media content (e.g., journalistic and social media). The trust cues identified (n=1,329) aligned with the dimensions of trust. Comparing female and male scientists, similarities (e.g., emphasis on expertise when referencing a scientist's qualifications) and differences (e.g., personal biography highlighted only for female scientists, scientific advice given predominantly by male scientists) in trust cues were revealed. Indeed, women more often face stereotypes in the context of public trust, potentially undermining the acceptance of their research.

The presentation at PCST 2025 will discuss these gender differences in more detail, provide implications for scientists and communication professionals aiming to address gender biases, and foster a discussion on personal experiences of the audience tackling the transition in science communication.

Does research integrity and societal integration affect trust in science?

Dr Simon Fuglsang[1]

[1]Aarhus University

Research integrity and societal integration in the scientific process is high on the science policy agenda. The motivation for this is not only that these might improve scientific quality, but also that communicating these efforts might improve legitimacy of research and through this public trust in science and technology.

To deepen our understanding of these crucial dynamics, this study (which is a part of the EU funded POIESIS project) provides evidence on the relative importance of different aspects of research integrity and societal integration, as well as the interaction between these. Moreover, in contrast to prior studies which overwhelmingly investigate the behavior of (individual or groups of) researchers, this study turns to the practice of research organizations. It does so, as these organizations are the central actors in implementing and enforcing policies and procedures that ensure good research practice.

We study these dynamics in a survey experiment employing a conjoint design. In the experiment participants rate the trustworthiness of a series of fictional universities assigned random values on attributes pertaining to research integrity, societal integration, and organizational prestige. On research integrity it varies policies that improve "honesty, transparency, and responsibility", the degree to which they safeguard against special interests, and their commitment to ensuring diversity and inclusion. On societal inclusion it varies institutional integration of public concerns, and commitment to public communication of science. Finally, it varies the prestige of the institution to investigate whether the effects of integrity and integration differ on the basis of universities having higher or lower prestige.

The study is implemented in seven European countries and enables us to gauge the effect of institutional efforts. In doing so, the study furthers our knowledge on whether some efforts are more relevant in maintaining trust, and how they combine to form trustworthiness assessments among the public.

Beyond Tradition: the Dynamics of Communication in Stem Cell Research

Professor Joan Leach[1]

[1]ANU

Stem Cell research has changed markedly from the 1990s to the 2020s; how much has science communication research, advice, and practice changed too? This paper builds on empirical research of the EOAR project (Engaging Openness in Australian Stem Cell Research) to reflect on the dynamics of science communication as a field of scholarship and practice. Should it worry members of the field of science communication that radical changes in science are met with what we might call 'traditional' communication advice? The talk will outline, based on a systematic review, the science communication scholarship on Stem Cells over the past 35 years. It will also point to moments where both the findings and the context of scientific scholarship has changed. In lining up the research from both fields, the talk will draw out tensions between the scientific research trajectories and science communication research, articulate what might be called a traditional science communication approach toward stem cell research, and argue for a transition to a more dynamic understanding of science communication and practice in stem cell science. Finally, the talk will ask the audience to reflect on how dynamic science communication is, as a field. Are there other examples where science communication research and practice shows dynamism or is the field at risk of a static tradition?



Parallel Sessions
A:5

Bridging Gaps – Academy-Industry Collaborations from a Science Communication Perspective

Dr Anne-Sophie Behm-Bahtat[1], Liliann Fischer[1]

[1]Wissenschaft im Dialog

Academy-industry collaborations are often seen as essential for driving innovation in the research sector. Indeed, in Germany, two-thirds of research and development (R&D) investments occur in the private sector and academic institutions declare to be eager to enhance collaborations. However, the success of these collaborations depends heavily on sustainable communication between collaboration partners on the one and to the outside on the other hand.

This talk presents the findings of a multi-stakeholder dialogue aimed at addressing key challenges and opportunities in academy-industry collaborations from a science communication perspective. The dialogue, that took place in September 2024 in Berlin, brought together 20 representatives from academia, industry, and society to explore three central dimensions of cooperative research:

1. Societal Expectations and Concerns: What positive and negative expectations do society and external stakeholders have of collaborations between academic and industrial research? How to handle these?
2. Common Language: What mutual expectations and prejudices do collaboration partners have and how can these be dealt with? What opportunities arise from the identification of differences and similarities between the collaboration partners?
3. Structural Frameworks: What institutional and regulatory frameworks are necessary to support successful long-term collaborations, and how can they be effectively implemented?

Based on the insights gained from these discussions, the authors have developed a set of recommendations to improve the sustainability of academy-industry collaborations. These recommendations emphasise the need for transparent communication, spaces of exchange for researchers from 'both worlds', and the simplification of administrative procedures. They further underline the necessity to perceive academy-industry collaborations as part of the discourse on science communication in Germany and beyond.

The dialogue took place in the framework of a broader project that sheds light on different aspects of internal and external science communication by researchers in companies.

‘Keep or toss?’ Reflections on journalistic traditions during COVID-19

Anna-Lena Oltersdorf[1]

[1]University of Hamburg

During the COVID-19 pandemic, journalists faced various challenges when reporting on science-related issues: an uncertain and rapidly evolving evidence base, an increased public need for information and a demand for fast political decisions. From early on in the pandemic, media-related actors in Germany – including science journalists, media journalists and media researchers – reflected on how this affected journalistic practice. I therefore assume that the pandemic also facilitated reconsiderations of journalistic traditions, such as professional roles and norms.

To explore this empirically, I used a snowball tactic to sample reflections published in journalistic as well as trade publications (n=219). Additionally, I qualitatively interviewed journalists (n=9) and, finally, applied qualitative content analysis to both types of material.

The analysis reveals how the different actors perceive journalistic traditions in the COVID-19 context. For example, they reaffirm the traditional understanding that it is the journalists’ main duty to appropriately inform the public about relevant science-related issues during a crisis (#180[1]). This means to not only announce but to contextualise scientific information (#109) and to openly address its uncertainty (#23). Observing actors point out deviations from such traditions in practice (#95).

At the same time, traditional narratives about the journalistic science department are challenged: As one journalist argues, the pandemic turned its relationship with other departments, e.g. politics, upside down and left a rift between them (#54). For the future, another journalist suggests reconsidering the prioritisation of the departments and assigning cross-departmental teams to certain issues (#1).

In my talk, I will explain this dynamic of reaffirming and questioning journalistic traditions during COVID-19. Since PCST brings together actors from journalism research and practice, I hope to facilitate discussions among them regarding their own reflexive take on the pandemic.

[1]Using unique numbers, the references point to exemplary quotes in the sample of the content analysis.

Who Speaks for Whom? Tensions between scientists and their organizations

PROF MASSIMIANO BUCCHI[1], Prof. Mike S. Schäfer[2]

[1]Università di Trento, [2]University of Zurich

Who Speaks for Whom? Tensions between scientists and their organizations in the public communication of science: sources, dimensions and ways forward

Massimiano Bucchi & Mike S. Schäfer

During the past years and around issues like the COVID-19 pandemic, the Fukushima disaster and accident, genetically modified organisms, nuclear power or climate change, considerable tensions have emerged between scientific organizations and their conceptions and demands regarding public communication on the one hand, and the public communication of individual scientists on the other hand.

Such tensions are likely to increase in the future due to the rising importance of science communication in general, the professionalization of organisational science communication and the increasing politicization of many issues, among other factors. This raises concerns and present challenges for different actors of science communication: scientists, communication officers, leaders of academic and research organisations, funding agencies, public audiences.

In this paper we present prominent cases of such tensions from different international contexts, identify their sources and key dimensions as well as ways that are employed to (attempt to) resolve the tensions.

Embedding science communication in research: a practitioner's perspective

Rachel Mason[1], James Piercy

[1]Science Made Simple

Sometimes research groups and science communicators create partnerships with a light touch (a specific piece of training, or to support development of a particular initiative, for example). And sometimes groups enter into a deeper relationship where science communicators are an integral part of the research process from project start to end. With a stronger drive in research for wider impact, this latter partnership approach is on the increase.

But it comes with tensions. There can be mismatches on both sides in terms of expectations, effort, business models, scheduling and outputs to name a few. And it can be hard to formulate initial relationships for partnership at the proposal stage.

Rachel and James make the case for overcoming these tensions by creating meaningful friendships to embed communication and engagement in research.

Rachel Mason is a UK-based science communicator and business director working with Science Made Simple. The company works on collaborative projects with research groups in a range of STEM subjects, from compound semiconductor manufacture to global health.

James Piercy is Public Patient Involvement and Engagement lead for the Cambridge-based NIHR Brain Injury Healthtech Research Centre. He brings together researchers, innovators and those with lived experience to design and develop innovative technologies for diagnosis, treatment and rehabilitation of brain and spinal injury and develops science communication projects to raise awareness of the centre's work.

Visualizing Measurement Uncertainty: Enhancing Public Understanding in Smart Cities

Mona Wehming[1,2], Dr. Esther Greussing[2], Prof. Dr. Monika Taddicken[2], Dr. Barbara Jung[1]

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Citizen understanding and engagement are crucial for transforming urban infrastructures. Similarly, measurement data, with their inherent uncertainties, are central to smart cities, supporting data-driven decision-making and technological adjustments. For example, a temperature sensor reading 25.0°C ± 0.5°C shows such uncertainty, yet these measurements influence citizens resource-related decisions.

Science communication offers approaches for making measurement uncertainties more accessible to non-experts (Tak et al., 2014). However, non-experts still struggle to accurately perceive and understand communications of uncertainty, with a high risk of misunderstanding (Padilla et al., 2022). Additionally, research on evaluating visualizations of data from a communication perspective is lacking (Schulze et al., 2023).

This study therefore aims to explore how non-experts perceive and interpret visual representations of measurement data and the uncertainties involved. Three research questions are addressed: (RQ1) How do non-experts perceive diagrams that display measurement data and measurement uncertainty? (RQ2) How do perception processes vary based on the type of visualization used? (RQ3) How do non-experts evaluate different types of visualizations?

To address these research questions, 30 participants are invited to a German university, where they are presented with three distinct types of visualizations. Each visualization depicts measurement uncertainty differently, using transparency and decreasing color saturation, adding error bars, or using a hybrid approach which combines both. During their interaction with the visualizations, gaze behavior is tracked using a stationary eye-tracking device (RQ1, RQ2). Afterwards, participants take part in semi-structured interviews (RQ3). The eye-tracking data is analyzed descriptively, focusing on visual attention. For the interviews, a qualitative content analysis is conducted to identify key themes and arguments.

The study offers insights into the communication of measurement data and uncertainties, highlighting the potential for public understanding through visual presentation. It suggests ways to enhance engagement between scientists and citizens, addressing potential tensions arising between them, particularly in data-driven decision-making contexts.

Conspiratorial science? How uncertainty and conspiracy impact U.S. scientific trust

Dr. Kathleen Rose[1]

[1]University Of Missouri

Public misinformation about scientific issues, whether spread intentionally or unintentionally, is not new. Recent developments in our information environment have contributed to the increased dissemination of misinformation and given rise to concerns over scientific misinformation, especially regarding controversies that have emerged around issues such as COVID-19, climate change, vaccines, and GMOs. Concerns have addressed both the spread of seemingly scientific misinformation that contribute to scientific uncertainty, such as sharing retracted scientific studies, and the emergence of compelling conspiracy theories that can take hold, especially in the absence of timely and credible information during crises.

Additionally, the process of rapidly producing research addressing emerging scientific developments can generate a seemingly high degree of uncertainty that may lead people to attend to other sources of information that offer consistent or validating messages, even if incorrect, including conspiracy theories. Conspiracy theories can fulfill information needs by offering "tidy" explanations of the world, characterized by their compelling internal logic that people take comfort in during uncertain conditions as they make sense of the world.

While studies of conspiracy theories exist, especially in political science, it is important to understand their role as alternative explanations, or proposed courses of action, for modern scientific and technological issues. To that end, this study employs a nationally representative survey of U.S. adults (N=2,000). Using regression analyses, we explore the relationship between respondents' epistemological views, predispositions toward conspiratorial thinking, and uncertainty around scientific issues on their trust in science, reliance on scientific information, and information seeking intentions, while controlling for other common predictors. Our results offer insights into the interplay between scientific uncertainty, understanding of the scientific process, and conspiratorial ideation. We will discuss implications for addressing misinformation, conspiracy theories, and scientific uncertainty in ways that balance concerns about trust and credibility while engaging in open scientific communication.



Parallel Sessions
B:4

Citizen Science: a new chapter in the Science-Society collaboration?

DR Noemi Crescentini[1]

[1]University of Naples Federico II

In the last decade, the concept of Citizen Science has developed significantly, redefining how scientific knowledge is produced, disseminated and understood. The inclusion of the public in various stages of the scientific process, ranging from data collection to analysis and, in some cases, even the formulation of research questions, offers the opportunity to develop a more inclusive and collaborative approach to scientific discovery (West & Pateman, 2016). In this way, Citizen Science enables scientists and citizens to become co-producers and co-discursors, working synergistically to deepen understanding of complex problems, seek viable solutions and actively participate in decision-making (Kythreotis et al., 2019). Therefore, Citizen Science represents an innovative phenomenon that, while rooted in the long tradition of global amateur science, has the potential to generate significant discoveries and influence the course of numerous lines of research (Chari et al., 2019). Moreover, with the advancement of digital technologies, the online dissemination of scientific data and the use of specific digital tools, Citizen Science lends itself not only to exploration by different disciplines, both inside and outside academia, but also to the promotion of active citizenship skills among youth and adults. The aim of this study is to examine the phenomenon of Citizen Science in Italy, analysing the motivations that guide and sustain participation and the contribution that the various actors involved can make to the relationship/interaction between science and society. Through empirical research the main innovations and challenges related to Citizen Science will be identified, highlighting its role in improving scientific communication and its potential to catalyse a new era of scientific exploration and discovery.

What's stopping citizen science in China?

Mr Toss Gascoigne[1]

[1]Australian National University

One of the ideas behind citizen science is that there is no singular universal knowledge but a plurality of knowledges. The formal learning of science at institutions is one way, but there are others: the knowledge of farmers acquire after years of observation and experience on their land, for example.

Citizen science is an emerging field in China, still in its infancy (Acxel, 2022; Fu, 2022). Most projects are environmental: checking pollution in rivers, monitoring bird movements, the effect of pollution on rural towns.

But citizen science does not sit naturally in China for cultural reasons and poses a range of communication challenges. 'Citizen science' does not appear in any official documents and translates literally as 'volunteer work' (志愿者) or 'public science' (公众科学).

The roots of citizen science lie in a western tradition of individualism and analytic thinking, whereas Chinese culture promotes interdependence and holistic thinking. The term the term 'citizen' in China carries connotations of individualism, and consequently it may be unpopular.

The top-down system of government and restrictions on who can collect and use data are further difficulties.

Researchers have identified three broad areas to be addressed if the power of citizen science is to be unlocked: access to data, establishing and funding a national program, and attracting and training volunteers. Each of these presents a significant communication challenge.

China will find its way when it works out how to adapt the idea of citizen science to suit the nature and culture of its people.

The issues China faces in adapting a concept with roots in western democratic system will be faced by other countries. The challenges may vary but solutions will always have a strong foundation in communication.

Where to Reach Different Audiences for Science: An Audience Segmentation

Dr. Isabelle Freiling[1], Dr. Sara K. Yeo[1], Dr. Michael A. Cacciatore[2], Mr. Henry W. Allen, Ms. Jennifer Shiyue Zhang[4]

[1]University of Utah, [2]University of Georgia, [3]University of Alabama, [4]University of Illinois Urbana-Champaign

Not all potential audiences get science news through the same channel. To effectively reach certain audiences through the right channel, it is crucial to know where they pay attention to science. To segment U.S. publics into different audiences, we examined several media types where people may get their science content: traditional (newspapers, television, radio) and social media (Facebook, Instagram, YouTube, TikTok, Twitter). We conducted an online survey with a nationally representative sample of adult Americans (N = 1,085) with oversamples of Black (N = 508) and Hispanic (N = 511) individuals (total N = 2,104). The oversamples allow for a nuanced prediction of membership in audience segments with enough variance for two large minorities in the U.S. To determine clusters from our sample based on the eight attention to science media items, we conducted hierarchical clustering on principal components. Contrary to previous research examining science media attention in other countries, we found four instead of five clusters to be the most distinct solution. Those four clusters can be described as traditional attentives (preferring traditional media), high attentives (high attention across all media), social attentives (preferring social media), and inattentives (paying almost no attention). We used a multinomial logistic regression model to predict belonging to one of the science media attention clusters based on demographic and individual characteristics (e.g., age, gender, race/ethnicity, political ideology, and religiosity), STEM identity, science news interest, deference to scientific authority, and trust in various sources of science information as independent variables. Example results include Black and Hispanic Americans being more likely to be social attentives than White individuals. Practically, our results can be used to effectively communicate science with target audiences, enabling reach beyond the proverbial choir of those who are already interested in science.

Community led engagement with research

Mrs Gill Riches[1], Mr Chris Manion[1], Ms Kate Orchard[1]

[1]British Science Association

There are significant opportunities for more community-led engagement with research in the UK, ensuring that research is more meaningful and relevant to communities. This talk explores key themes such as: community ownership and leadership, co-creation of research that values community-based knowledge and experience as well as academic expertise, inclusive representation that supports involvement of marginalized groups, how to address barriers such as ethics and funding processes and long-term commitment and sustainability.

The British Science Association (BSA) has explored models of funding which flip the traditional model of researcher led public engagement and instead fund community groups directly to build relationships with researchers on their own terms and develop and deliver with them projects that are of relevance and benefit to the groups. We've seen how the delivery of the projects within the community can be significantly enhanced by the reflective skills and critical thinking of the researchers, while the development of reciprocal and trusting relationships with communities is leading to changes in researcher practice and new ideas for research projects.

Two such BSA initiatives include The Ideas Fund, a grants programme funded by Wellcome, which enables the UK public to develop and try out ideas related to mental wellbeing by working with researchers, and the Community Led Research Pilot, delivered in partnership with the University of Reading, funded by UKRI. This talk will explore what conditions are needed for successful community led engagement with research, with a particular focus on the practical steps we are taking to support marginalized communities who are often overlooked by these opportunities. We will also share specific examples of the different types of impact (from a community and research organisation point of view) that we are seeing as a result.

More Involvement, More Trust? Citizens' Views on Participation across Europe

Dr Anne-Sophie Behm-Bahtat[1], Dr Marta Entradas[2]

[1]Wissenschaft im Dialog, [2]ISCTE-IUL, Lisbon University Institute

It is generally assumed that citizens desire increased public participation in the scientific process and that this would generate more public trust in science. But is this really the case? Do people want to participate in discussions about science? And if so, in which topical areas do citizens feel that public participation makes sense? When might public participation even have negative effects on citizens' trust in the scientific process and its results?

This paper presents answers to these questions examining one of the most crucial current tensions in the discourse surrounding public involvement in the scientific process.

Through empirical data gathered from seven public deliberative workshops across Germany, Portugal, France, the UK, Greece, Spain, and Denmark in 2023, this study explores the nuanced perspectives citizens hold regarding their involvement in the scientific process. Aimed at investigating the interrelation of different forms of public involvement and trust in science, participants in each country spent an afternoon discussing cases of scientific projects and the role citizens played in it.

The analysis highlights the tension between the ideal of broad public engagement and the practical realities of citizens' preferences, identifying specific contexts where participation is viewed positively or negatively. The results show the existence of a wide range of public perceptions of participation suggesting that the call for always more public participation does not always align with citizens' preferences or enhance trust. These insights contribute to understanding the complex relationship between public participation, trust, and science communication.

The public deliberative workshops were organised as part of the POIESIS project (**https://poiesis-project.eu/**). POIESIS is a European collaborative project funded by Horizon Europe examining how trust in science is influenced by issues of research integrity and public participation in the scientific process, particularly in the contexts of climate change and the covid-19 pandemic.

Mitti Matters: Co-creating a proposal to research enhanced ecosystem services

Professor Richard Holliman[1], Professor David Gowing[1], Ms. Emma Rothero[1], Dr Vicky Bowskill[2], Dr Yoseph Araya[1], Dr Sarah Davies[1]

[1]The Open University, [2]Inklusive Nature (https://inklusivenature.com)

'Mitti'[1] Matters was a collaborative project involving selected professionals (e.g., green-space managers, teachers, and inclusive communicators), community groups with varying interests in nature and the environment (e.g., minoritised community walking groups and nature-conservation volunteers), and citizens (high-school students), engaging with Open University staff. Together, we were funded to co-create a research proposal, informed by scientific and public needs, to jointly explore the potential of habitat restoration to supply 'ecosystem services' from green spaces. In this paper, we will explore how we addressed the tension between the need to be responsive to 'scientific and public needs', whilst also building capacity in science, communication, and engagement among diverse constituencies in ways that promoted 'fairness in knowing' (Medvecky, 2018).

1. 'Mitti' Matters built on previous partnership working, including with minoritised community walking groups, where respect, humility and intentionality were identified as important factors for equitable engagement (Holliman et al. 2024). 'Mitti' (मट्टी) is the Panjabi word for soil, evoking ancestral land memories for many first and second-generation British South Asians. 'Mitti' was selected to represent our project as it connected a minoritised constituency, British South Asians, to the habitat we sought to restore, floodplain meadows.

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Parallel Sessions
B:5

The Visual Culture of Met Éireann: Exploring Irish meteorological communication

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Visualisations such as graphs, diagrams, maps, and models provide scientists with the means to communicate critical patterns and relationships that emerge from the data. They also can be involved in the earlier process of knowledge generation, particularly in meteorology and climate science. Therefore, this work proposes scientific visualisations might be organised into two categories: internal and external.

Internal visualisations are those that are created and shared within expert communities. One primary example is weather forecasting models that integrate environmental parameters and algorithms to provide a mathematical understanding of the weather. Forecasting models are a crucial component of the knowledge generation step in this field, as scientists use them to understand current global conditions, as well as those of the future. External visualisations are those that are used to communicate science to broader audiences. These would be the graphs, diagrams, maps, and other images used in external communications such as journal publications, seminars and conferences, newspapers, popular science magazines, and any other media intended for so-called “non-expert audiences”.

In their creation, utilisation, and dissemination they present the opportunity for further interrogation. In choosing which data to portray, scientists inevitably must place limitations and make rhetorical decisions to exclude certain details. Additionally, the translation from internal communication to external presentation to communicate with and educate the public will highlight how meteorological knowledge was prepared for broad audiences.

Through the close study of weather visualisations used in Ireland in the communications of Met Éireann, in addition to the historical and political contextualisation of these images, this work will seek to explore the usage, reception, rhetorical value, and political agency of these visuals.

Exploring public engagement gratification in science videos

Dr Shupei Yuan[1], Dr Luye Bao

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The proliferation of science videos on social media platforms has significantly altered the landscape of science communication, offering new avenues for public engagement. This research explores the specific gratifications that drive public interaction with science videos on social media, moving beyond the traditional focus on information acquisition. By examining a range of motivations—including education, entertainment, social interaction, and personal relevance—this study provides a comprehensive understanding of how and why the public engages with science content in the digital age.

The research comprises several studies conducted in the United States, employing both qualitative coding and quantitative survey methods to analyze user engagement with science videos across various social media platforms. The findings reveal a complex interplay between informational and non-informational gratifications, highlighting the diverse ways in which science content is consumed and shared. For instance, while some users are motivated by a desire to learn and stay informed, others are driven by the entertainment value or the social connections fostered through sharing science videos. Additionally, we explored how different gratifications may affect individuals' future engagement in science.

This study offers significant contributions to science communication research by shedding light on the multifaceted nature of public engagement with science informally. The results have important implications for practitioners, suggesting that effective science communication strategies must consider the broader spectrum of public gratifications to enhance engagement. By understanding these motivations, science communicators can craft content that resonates more deeply with diverse audiences, ensuring that scientific knowledge is both accessible and appealing in the dynamic media environment.

The effect of climate change video news frames on audiences

Zhiting Zhang[1], Dr Kathleen Rose[2]

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As climate change continues to represent a critical challenge for countries worldwide, news coverage remains an important platform to sound the alarm of various future threats. Decades of scholarly research have both demonstrated the role that news frames play in selecting and emphasizing particular aspects of scientific issues and outlined challenges faced by climate news coverage, including the politicization of news content, news avoidance, and declining trust. Considerable past scholarship on climate news framing has studied thematic framing, often in the context of text-based frames. Less studied is the effects of generic frames (apocalyptic, health, and solution frames) and non-text-based frames, such as videos. Further, the effect of visual information in video news lacks clear definition in current scholarship. The frames commonly employed in current media coverage have likewise evolved from highlighting the destruction of nature to focusing on adapting to climate change impacts, meriting additional study. Accordingly, exploring how climate news framing can facilitate public intentions to act has become essential for science journalists and science communication scholars, benefiting transitions in climate change movements.

To explore the psychological effect of climate change news frames on audiences, we employ a national-wide survey of U.S. adults (N=400), and embedded a 3x2 experiment to investigate the effect of three frames (apocalyptic, problem-solution, and health frame) and two psychological distances (higher and lower level psychological constructing of the issues) using short news videos.

Using ANOVA analyses, we examine differences across the three news frames and construal levels to understand how they affect participants' views of climate change and their behavior intentions, regarding waste, transportation, and online engagement for climate change. We discuss insights into the ongoing debate about how traditional media outlets can act as activists to effectively communicate the urgency of climate change and engage the public in meaningful collective actions.

Sound (in) science communication: From effective transmission to transformative listening

Martin Grünfeld[1]

[1]University of Copenhagen

Why is science communication silent when it comes to sound? Searching for studies on the role of sound in science communication across the major journals in science communication reveals a surprising lack of interest in sound as a medium. This is surprising because sound has become increasingly important in natural scientific studies of e.g. ecology and biodiversity. Meanwhile, science communication has only sporadically focused on audio quality and sound arguments. In this talk, I wish to propose that science communication needs to pay attention to sound in order to become more sound as a discipline. In the talk, I draw on recent examples from scientific research as well as art-science collaborations to discuss how sound can be used as an arts-based method that engages listeners in messy and unseen parts of the world. Through a case-study based on sound artist Maria Brænder's work with zooplankton, the talk explores how sound recording and listening can connect us to the awkward and unknown modes of existence of other organisms. However, beyond just focusing on the products – the recordings – in the talk, I also consider the processes of recording and listening as durational transformative experiences that can be turned into alternative practices for science communication. This leads to a broader discussion of how arts-based methods can redistribute the sensible and multiply our senses of the world in other ways that go beyond questions of effective transmission and points towards their transformative potentials. Consequently, the talk unfolds an argument on two levels: We need listening as an alternate sensorial modality to complement the dominance of the visible and discursive in contemporary science communication, but we also need more than listening to multiply our senses of the world in embodied and affective ways.

Communicative genres of visuals in science communication

Dr Charlotte Bruns[1]

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Linked to submission 144: 'Visuals in Science Communication'

Visuals are used in manifold ways to communicate scientific findings.This presentation focuses on a typology of communicative genres of visuals used in science communication. Drawing on Thomas Luckmann's sociological theoretical concept of communicative genres, visuals in science communication are understood to be used for various purposes, such as making science more attractive to various audiences, simplifying complexities, or serving as evidence. Different communicative genres each have a specific structure that dictates how communication is organized, including its format, style, and tone. Originally conceptualized to interpret verbal communication, here, the concept is transferred to analyze visual communication. Communicative genres are socially created patterns that evolve over time and are embedded in cultural and social practices, thereby reflecting society's norms, expectations, traditions, conventions, and tensions.

Through an analysis of 250 visuals across a variety of science communication formats and projects, the presentation identifies the structures underlying the use of visuals in science communication. The resulting typology contributes to our knowledge in science communication research about the interplay between verbal and visual communication. Simultaneously, it informs practitioners about reflective and effective ways of using visuals in their science communication practices.

Communication of Science in US National Parks: interpretive signage analysed

PROF Lloyd Davis[1], Dr Lei Zhu, Dr Wiebke Finkler

[1]University of Otago

Potentially, national parks represent excellent opportunities to communicate science to millions of visitors about the flora, fauna and features of those parks. Interpretive signage is the traditional means used to communicate science in national parks but, surprisingly, there has been little research analysing the effectiveness of existing signage, even though textual complexity of such signs has been suggested as a factor limiting the understanding and enjoyment of visitors. To address this, we conducted the first systematic study of interpretive signage in national parks by analysing the textual content of 129 signs within 11 US national parks. Science subjects covered varied significantly across the national parks, as did the amount of science and depth of information given in their signs, with those communicating the most science having the lowest readability scores for their signs. Overall, the amount of science in the interpretative signs of the national parks was remarkably high, but their readability scores were also decidedly low, meaning that many visitors are likely to struggle to make sense of them. Our finding that the amount of science in the signs is inversely related to their readability fits with education studies that show science is perceived as intractable for many people. Great Sand Dunes National Park, however, had the highest readability score while having amongst the most science in their signs too, due mainly to using shorter words and less jargon. This suggests improvements to the readability and attractiveness of signage should be made by reducing textual complexity and – as derived from our complementary research – adding attractive imagery and using storytelling to show the relevance of the science to the lives of the visitors. This study can provide a benchmark against which to measure progress towards making the design of traditional interpretive signs better for the communication of science.



Parallel Sessions
C:4

Expert selection for journalism and policy advice: tensions and transitions

Anna-Lena Oltersdorf[1], Prof Dr Simone Rödder[1]

[1]University of Hamburg

At PCST 2023, we argued conceptually that science communication can be understood as a 'wicked problem' and suggested organisations as central 'problem managers' during the COVID-19 pandemic. To PCST 2025, we wish to contribute empirical insights from our case studies: the German National Academy of Sciences Leopoldina and the Science Media Center (SMC) Germany, which provides expert quotes for science-intensive news issues.

In a qualitative content analysis of how major German news outlets covered the Leopoldina (n=513), as well as through qualitative interviews with journalists, publicly visible scientists and employees of both organisations (n=39), we explored how tensions between the social worlds of science, politics and the media unfolded in COVID-19 science communication. The analysis shows that the selection of experts for scientific policy advice, respectively for media coverage, is one of the main tensions that the organisations have to manage. We find attributions of authority and representations of unity in the media coverage so that it seems that the Leopoldina's mission to serve as the 'voice of science' in Germany in the pandemic was successful. However, the media also reported on harsh criticism – for example, the impression that the working groups were composed based on a normative consensus, which possibly narrowed the range of their policy recommendations.

For the case of the SMC Germany, the interviews showed that its services, such as online press briefings with selected experts, are highly valued. However, the SMC's steering potential in the selection of 'appropriate' experts can cause tensions because it potentially impacts media coverage, often based on journalists' trust instead of full awareness of the selection criteria applied by the SMC.

In our talk, we present these and further findings, discuss implications for transitions in the practice of science communication, including science journalism, and invite conference participants to share their experiences.

What can press releases of news-agencies inform about science coverage?

Dr Germana Barata[1], Dr Monique Oliveira[1], Ms Thaís Peixoto[1]

[1]The State University of Campinas

Science news agencies (SNAs) play an important role in science coverage and to open the access of papers to society. During the pandemic, they were even more strategic to support journalists who have begun to cover science, a period when open access papers surpassed the number of closed access ones. This paper investigates how these agencies can open science content to society and be key players promoting Equity, Diversity, and Inclusion (EDI) in science communication. We assembled a total of 265,653 press releases shared from 2018 to 2023 by Eurekalert! (USA), AlphaGalileo (Europe) and the national Agência BORI (Brazil). The data was collected by web scraping process carried out on the websites of science news agencies using MySQL database, organized and analyzed. We used 154,085 releases citing papers with DOIs (Digital Object Identifier) to collect and cross information across different databases as fields covered, countries or geographical regions, gender of authors, journals and, types of paper access. Our investigation reveals that while the international agencies mainly communicate about male authors from the USA (Eurekalert!) and Europe (AlphaGalileo), the national one presents gender equity and focus on Brazilian science. Therefore, they are largely communicating about national science. Surprisingly, the majority of papers were gold open access (immediate free access), with an increase from 2020 onward, and which top journals are Nature Communications, Scientific Reports, PLoS One, JAMA Network, BMJ Group, the American Chemical Society and SciELO' journals, an indexing including Brazil and other 14 countries. Press releases focus on Health, Medicine and, Life Sciences. SNAs can potentially communicate a more diverse and inclusive science, although they have shown a transition from covering closed and hybrid journals to open access which democratize knowledge and can potentially shift attention to other journals, fields and countries.

Tension Between Hype and Caution: Analyzing AI in Science News

Prof Chun Ju Huang[1], Prof Miao-Ju Jian[2]

[1]National Chung Cheng University, General Education Center, [2]National Chung Cheng University, Department of Communication

The rapid advancement of digital technologies, particularly AI, big data, algorithms, and robotics, has made technological issues increasingly complex and central to modern society. The media plays a pivotal role in shaping public perceptions of these technologies. The tone of news reporting—whether hype or caution—can significantly influence public attitudes and foster polarized views on digital technologies.

This study explores how AI, as a prominent digital technology, is portrayed in the media. Using content analysis as the research methodology, three coders were employed to ensure inter-coder reliability before analyzing 1,851 news articles from four major Taiwanese newspapers, published between January 1, 2009, and August 31, 2019. A coding framework was developed to evaluate the nature and tone of the coverage, focusing on key themes such as industrial applications, governance, and technical aspects.

The findings reveal several key trends. First, among digital technologies, AI, big data, and robotics have received the most media attention over the past decade, with AI coverage experiencing significant growth since 2016. Second, media reports have predominantly focused on the industrial and application aspects of AI, with governance and technical discussions receiving comparatively little attention—just 1.84% and 14.96% of coverage, respectively. Third, value judgments regarding AI have been overwhelmingly positive: 86.55% of reports expressed a supportive and optimistic view, while only a small fraction raised concerns or emphasized the need for caution.

By analyzing these patterns, this study sheds light on the media's role in shaping public discourse on digital technologies, especially AI. The findings highlight both the societal significance of these technologies and the need for more balanced coverage that addresses their complex implications.

How are forever chemicals framed in traditional news?

Prof. Dr. Simone Rödder, Annika Weber[1]

[1]University of Hamburg

This contribution explores the case of per- and polyfluorinated alkyl compounds (PFAS), also known as 'forever chemicals' due to their non-degradability. These chemicals are used in products from pans to outdoor gear exactly because of their properties of being dirt-, oil- and water-repellent. However, two specific PFAS have already been banned due to their toxicity for humans and the environment, and the European Union (EU) is currently examining a restriction for all of the approximately 10.000 PFAS.

As this regulation can be expected to be contested not least because of the economic interest in the use of forever chemicals, we are interested in how the traditional news media frame PFAS in general and PFAS regulation in particular. Different framings put forward by relevant speakers from journalism (e.g., Forever Pollution Project), politics (e.g., Federal Environment Agencies), law (e.g., courts), economy (e.g., PFAS industry), science (e.g., universities) and civil society (e.g., NGOs) shape this media coverage. We assume that the up-coming EU decision on PFAS regulation will intensify the issue's debate and highlight some tensions in the speakers' science communication.

Considering the relevance of traditional media for public debates about the environmental risks of large-scale technical products such as PFAS, the question of how forever chemicals are established as a public issue is methodically examined through qualitative media content analyses of relevant actors, the handling of scientific (non-)knowledge and the temporal dynamics of the debate in a country comparison. Using a multimodal approach to textual and visual elements, we study, in a first step, German online and print media. By analysing the issue attention for PFAS across arenas and countries, we aim to get insights on the strategic science communication on chemicals and their environmental impacts. The talk addresses participants from theory and practice to reflect on science communication in traditional news.

"The rocky shores of choice": Tensions navigating Long COVID information

Dr Alice Fleerackers[1], Ms Kayli Jamieson[2], Ms Stacey Dawes[3], Ms Esther Khor[4], Dr Kiffer Card[5], Dr Anne-Marie Nicol[5], Dr Rackeb Tesfaye[6], Dr Kaylee Byers[5]

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Long COVID is a debilitating condition with no known cure affecting millions of people all over the world. It is often dismissed and overlooked by doctors, science communicators, and the public. As a result, "longhaulers" who suffer from Long COVID are left on their own to navigate a complex information environment rife with mis- and disinformation, anecdotal evidence, and rapidly evolving science. This talk sheds light on the strategies and sources longhaulers use to understand and cope with their condition within this challenging environment, pointing to the tensions and barriers that affect their ability to find personally relevant, evidence-based answers to their questions. Our findings draw on a qualitative thematic analysis of in-depth, semi-structured interviews with 30 longhaulers based in British Columbia Canada, which we contextualize and triangulate using interviews with nine care providers and eight unpaid caregivers who support patients with Long COVID.

Our analysis suggests that longhaulers draw on a diverse range of information sources, including journalism, social media, public health/government websites, health providers, academic research papers, and personal relationships. Many struggle to assess the credibility of the information they find or apply it to their own lives due to a lack of training or scientific knowledge, the uncertain and often conflicting nature of the available evidence, and the wealth of pseudoscientific content online. Long haulers' conditions cause further challenges, as symptoms such as chronic fatigue and cognitive impairments hinder their ability to engage with, and make sense of, complex and highly technical scientific information.

Our findings point to the problematic nature of how and what scientists, journalists, doctors, and other health and science communicators communicate about Long COVID.

Advancing in a science communication policy agenda

Dr Joana Magalhaes[1], Marzia Mazzonetto[2], Dr Isabel Mendoza[3]

[1]Science for Change, [2]Stickydot, [3]University of Valencia (UVEG)

There has never been a more significant moment to ensure the effectiveness of science communication. Responses to pandemic, the climate emergency or misinformation, show a world that remains at such a distance from scientists, scientific practice and understanding, which is undermining policy responses and amplifying distrust among citizens. One of the aspirations for the European Competence Centre for Science Communication, under the COALESCE project, is to connect and spur the science communication policy agenda at the European and national levels, in connection to other organisations, projects and stakeholders, through a network of national and regional hubs. We will reflect on key findings of past and ongoing Mutual Learning (ML) Exercises run by the European Commission with member states, COALESCE policy recommendations for science communication and its professionalization and how these will shape an ML-inspired exercise in science communication run within COALESCE.



Parallel Sessions
C:5

Cogito Ergo Sum: keep curious and cautious about generative AI

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With the advent of powerful computing infrastructures and big data, generative AI systems have come on stage that discover statistical regularities in huge amounts of training data, like the popular chatbots ChatGPT and Gemini. Therefore, if training data are biased and unbalanced, statistic models reflect disparities. Nevertheless, if users are aware that chatbots are “mirrors” of training data, they can take advantage of using chatbots by regarding the answers as the “opinion” or “knowledge” of the “crowd”, where the term “crowd” is intended as the set of all authors of the training data. In this sense generative systems can be useful to investigate social opinions and common sense views on various topics. ChatGPT is “aware” that the data and patterns it learned from can reflect existing biases in the sources, as we could infer by investigating the reasons of its answers in dialoguing directly with it. Anyway, to properly use it what should users do? Be cautious: investigate the rationale behind ChatGPT answers, query other Chatbots (e.g. Gemini) to find agreements with ChatGPT answers, and use a search engine, like Google, to possibly retrieve documents that might support the information in ChatGPT answers. We can never trust the responses as they are since reliability is a main issue. Such systems are rapidly evolving and improving. ICT companies and developers should work to convey a degree of confidence with results and provide sources of information; government directives should demand companies to open the training data. In the meanwhile, communication scientists and practitioners should always doubt ChatGPT answers. The contribution intends to raise awareness in the audience on biases in generative AI, with a particular emphasis on gender biases, and commit to understand their origin. At the same time it will show how such tool can be useful for societal studies.

Good practice principles on science communication and artificial intelligence.

Dr Gema Revuelta[1], Ms Núria Saladié[1], Dr Carolina Llorente[1]

[1]Universitat Pompeu Fabra

In science communication, Generative Artificial Intelligence (GAI) opens up new possibilities but also creates new challenges. Science communicators have a key role to play, not only in how they use GAI, but also because, as content creators, people look to them for information on the matter.

Science communicators should take a stance in promoting a development and use of GAI that is responsible (meaning, that takes into account society's needs, not just commercial benefit). We hereby present the "Good practice principles on science communication and artificial intelligence", a collaborative document to help navigate the use and dissemination of GAI for science communication professionals.

This document was created by Spanish-speaking science communicators in an iterative co-creation process facilitated by the Science, Communication, and Society Studies Centre of Universitat Pompeu Fabra (SCS-UPF).

This initiative started at a science communication conference in 2023 (Campus Gutenberg - CosmoCaixa Science Museum), more specifically, at a participatory workshop where 30 science communicators discussed and categorized a set of self-proposed commitments related to AI in science communication. At the end of the workshop, 16 participants signed up as volunteers to continue working on the good practices document. The next step was for the SCS-UPF team to analyse and integrate the workshop results into a first proposal of principles. The proposal was evaluated by the volunteers from the workshop via an online survey. These results were integrated into a second proposal, which was widely and openly distributed among Spanish-speaking science communicators.

A total of 125 science communication professionals responded to the survey. The title of the document was also decided collaboratively. The resulting document is now available online at the open repository Zenodo.

Bridging the Digital Divide: AI and Robotics in West Lothian

Miss Camilla Irvine-Fortescue[1], Dr Laura Wicks, Dr Amanda Littlewood, Professor Alan Gow

[1]Heriot-Watt University

As AI technology becomes more mainstream, media fuelled scepticism may flounder its acceptance in wider society. The public engagement team at Heriot-Watt University set out to explore public perceptions of Artificial Intelligence (AI) and Robotics within the West Lothian region as part of a deliberative engagement programme in October 2023. Whilst there has been some national consultation around AI themes through institutions such as the Alan Turing Institute, West Lothian as a semi urban region, is at risk of digital exclusion. As part of their place-based engagement initiatives, HW Engage collaborated with local libraries to transform library venues into points of exchange between university research and community voices. West Lothian Libraries have been a vital entry point into local communities and since 2018 we have built an ongoing partnership with them. Within these AI/Robotics themed focus groups, we explored themes around trust in AI, aging populations, digitised healthcare and the future of medical technology. The outcomes from the sessions showed there were many challenges and barriers. The history of science fiction in the public conscious has created a negative narrative for emerging technology. There was broad concern around ethical data, robots and equity, the language of technology and public agency around this. As universities, it is vital that we promote transparency and accessibility in technological developments, while empowering people through education, culture, and multi-disciplinary approaches to manage their digital wellbeing. As public engagement practitioners, we have the capacity to break down barriers and bring more voices into research processes. In this talk, I will share call to actions for universities and wider institutions to consider when tackling emerging technology themes, and reflect on the outcomes from the focus groups which showcase parallel themes of concern for local communities and the evolution of technology.

Navigating the Transition to ComAI-Driven Science Communication: A Quality Framework

Dr Daniel Silva Luna[1], Dr Irene Broer[2], Prof Helena Bilanzic[1], Prof Monika Taddicken[2]

[1]University of Augsburg, [2]Technische Universität Braunschweig

The rapid advancement of communicative artificial intelligence (ComAI) tools such as ChatGPT, Gemini, and Claude is revolutionizing science communication, offering unprecedented opportunities for accessibility and engagement while posing significant challenges. This transition demands a reimagining of quality standards for our field to ensure responsible and effective use of these powerful tools. Our research addresses this crucial need by developing a comprehensive framework of quality principles for science communication with ComAI. Through a narrative review of literature on science communication and ComAI quality, we identify five key principles: scientific integrity, human-centricity, ethical responsiveness, inclusive impact, and governance. These principles, we argue, can serve as reflexive heuristics, guiding stakeholders in navigating the complexities of AI-driven science communication.

Our framework offers insights for various applications, including informing the development of ComAI tools that uphold high standards of accuracy, effectiveness, and inclusivity. It can also contribute towards shaping professional guidelines and competencies for science communicators in the AI era, and in establishing quality evaluation indicators for ComAI-driven science communication.

By providing a foundation for critical discussions, our goal is to invite ongoing collaboration among researchers, practitioners, and policymakers to refine and implement these principles. This work aims to ensure that the transition to AI-enhanced science communication maximizes its benefits while mitigating potential risks, ultimately contributing to more effective, ethical, and inclusive scientific discourse in the digital age.

Impacts of genAI on the future of science communication education

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The rapid advancement of generative AI (genAI) is changing the field of science communication. Universities that offer science communication courses must take these transitions into account to ensure their graduates enter the workforce with a relevant and cutting-edge skillset. GenAI is here, and educators must consider its impact on the relevancy of certain skills, learning goals, and assessment tools used in their courses. However, course (re)design is time-consuming and requires insights into how genAI is changing the field, practice, AND teaching of science communication. How can science communication educators adjust their curriculum to reflect the theoretical and practical changes to the field, in light of genAI?

This presentation will discuss the outcomes and recommendations from an Education Innovation Grant project at a Dutch university that redesigned a master's level science communication course, with particular attention to the impacts of genAI. We start from a point of pragmatism; GenAI is developing rapidly, it is changing our field, and both students and teachers are using it (although with different motivations). We recommend embracing technological innovations that impact the field of science communication, and facilitating open conversations with students about how to use these innovations ethically and responsibly.

Our methods include a literature review, informational interviews conducted at conferences about genAI and science communication, a full course redesign and implementation, and comprehensive evaluations of the course changes from both the student and teacher perspective. Our findings can: 1) accelerate and set an example for the (re)design of science communication courses, 2) provide direction regarding skill development for science communicators of the future, and 3) offer inspiration for future research directions. Whether you are a science communication educator, practitioner, or researcher, the insights from this project are relevant to your work.

(No AI tools were used for the creation of this abstract.)

Using gen-AI to search for a shared language

Mark Bos[1]

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Generative AI is all around us. We, as science communication researchers and practitioners use it, as do others. Of course there are many risks and limitations to the use of gen-AI in science communication contexts, but there are also obvious benefits and potential future uses worth exploring. During this session I want to address these tensions and will briefly explain our work in our project Brainshadows: Talking about Overstimulation in which we work together with people who experience overstimulation (e.g., after brain damage), friends and family around them (who need to cope with the change this brings), experts (e.g., scientists, researchers, doctors), and science communicators, to explore how each group communicates about this issue and the tensions they experience in this information exchange. Some of the obvious problems, of course, are the use of jargon by experts, the lack of experience by people who are not affected by overstimulation directly, and the difficulty to enhance information with visuals for something unseen by communicators. This while research shows visual science communication can be very helpful in attracting attention, enhancing understanding, and stimulating behaviors. During the project we will ask people to formulate prompts (unaided and aided) to have gen-AI develop visuals that visualize what they mean to say. Next, we have mixed groups compare prompts formulations and visuals to see what different words are used and how these influence the sense-making process. We hope to be able to establish not only a shared language that can be used to address the issue in future communication, but also to experience if, and if so, to what extent, gen-AI can in fact be used to create useful science communication visuals. During this session, I would like to discuss the opportunities and limitations of gen-AI in science communication and experience our “experiment” first hand.



Parallel Sessions
C:6

From correction to connection: Training scientists to address climate misinformation

Dr. Alexandra Lau[1], Mr. Zachary Pruett[1], Dr. Jennifer Tuttle Parsons[1], Dr. Kathryn Williamson[2], Dr. Claudia Fracchiolla[1]

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Advancements in science and emerging technologies offer potential solutions for pressing global challenges like the climate crisis, yet misinformation about science abounds in the current information landscape. Complicating this challenge, scientists are ill-prepared to communicate about contentious and cutting edge science topics. The Science Trust Project (STP) is an initiative of the American Physical Society launched in 2022 with the mission of promoting trusting relationships between scientists and their communities to meaningfully address misinformation about science. Given the relevance and urgency of climate change, the STP focuses on climate misinformation, but the techniques we teach are broadly applicable to other areas of science misinformation. With an approach of humility, empathy, curiosity, and fact, STP aims to support scientists in transitioning from a correction-only mindset to a connection-inclusive approach. Scientists face a tension between how they are traditionally taught to communicate– stating or explaining the facts, and how people actually make decisions, where social dynamics and identity are important factors. Simply correcting misinformation, an approach aligned with the Information Deficit Model, is insufficient for changing behavior. Through various training formats, STP teaches scientists how to listen reflectively, navigating multiple tensions between wanting to correct and being willing to change one's mind; between being an expert in science, but not in someone else's values, priorities, and experience; and between multiple ways of knowing.

In this talk, we will discuss the Science Trust Project approach, reflect on lessons learned from three years of implementing and iterating on our training materials, and share results from program evaluation. We will engage the audience with the same polling questions we pose during our training. We invite feedback from the audience on our approach to navigating the transitions, traditions, and tensions involved in addressing science misinformation.

Current uses of virtual conversational agents for teaching communication skills

Dr. Elad Yacobson[1], Prof. Ofra Amir[1], Prof. Ayelet Baram-Tsabari[1]

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Since the introduction of large language models (LLMs) such as ChatGPT, they have been widely applied across various fields, including recommender systems, healthcare, business, education, academic research, and more. A particularly promising application is the development of conversational agents (CAs) – LLM-based systems capable of conducting multi-turn dialogues with human users, assuming different personalities and conversational styles, and serving a range of purposes. One such use is leveraging CAs to simulate conversations with human interlocutors, providing a valuable tool for training professionals to enhance their communication skills.

Our presentation will review the current applications of CAs in teaching communication skills across various domains, including vocational training, education, and healthcare. We will discuss the design, objectives, and outcomes of various studies where CAs have been developed and tested for purposes such as training professionals to follow strict communication protocols (e.g., commercial pilots in aviation communication or nurses in interactions with physicians), enhancing trainees' confidence in conducting effective dialogues (e.g, helping autistic individuals prepare for job interviews), and fostering empathy during sensitive conversations (e.g., guiding doctors in discussions with terminally ill patients). While these studies report positive user experiences and high levels of satisfaction, they often lack objective measures or robust assessment tools to evaluate actual learning gains and improvements in participants' communication proficiency. Additionally, these studies highlight significant technical challenges in creating immersive and realistic experiences and in tailoring dialogue to the specific context and needs of each audience. Therefore, while promising, implementing these tools still requires caution and human supervision to ensure that training aligns with intended outcomes.

Notably, similar advancements have not yet been realized in science communication. Our work aims to bridge this gap by inspiring the science communication research community with new ideas and directions for leveraging these powerful tools.

"Lecturers chose such weird papers": supporting scicomm students' learning transitions

Dr Amanda D Webber[1], Professor Clare Wilkinson[1]

[1]University of the West of England (UWE)

Threshold concepts (TCs) have been described as 'a transformed way of understanding, or interpreting, or viewing something without which the learner cannot progress' (Meyer & Land 2003, p.1). They are transformative and uncomfortable but lead to deeper and, often, irreversible understanding. In 2022, Lewenstein and Baram-Tsarabi highlighted the need for science communication training to achieve key competencies and proposed four TCs, as well as associated learning progressions and communities of practice, which could be of relevance to training. This presentation focusses on research conducted with MSc Science Communication students at the University of the West of England (UWE Bristol), UK to identify and verify relevant TCs for our discipline.

Data were gathered in two focus groups and fourteen reflective learning journals. Thematic analysis was conducted, and all four proposed TCs were represented. Students demonstrated a developing critical awareness of science communication models and the need to recognise and engage with multiple publics including acknowledging and incorporating different ways of knowing. They explored challenges and uncomfortable realities when considering how this could be achieved if not part of lived experience. Trust was key and further discussion is needed to understand if this is a separate TC or a part of others. A potential fifth TC for science communication was identified around inclusivity and accessibility.

Learning progressions were identified as an important approach to teaching TCs, with fundamental learning being reinforced throughout the programme. Collaborative approaches encouraged the development of a community of practice as students transitioned from recognising science communication as a way to "share science" to its own discipline. The MSc empowered students by supporting the development of their own identity as a science communicator.

Feeding into the theme of transitions, this presentation will conclude by considering how we can support science communication students navigate through their learning journey.

Science Communication Officers: A survey of skills and training needs

Professor Emma Weitkamp[1], Dr Ilda Mannino, Dr Alessandra Fornetti

[1]UWE Bristol

Science communication officers working in universities, research institutes and other research organisations play a key role in the wider communication of research findings. In addition, science communication officers may work as agency staff, offering their communication expertise to a wide range of organisations that produce research (including commercial organisations). These staff often act as a bridge between scientists and other groups, including journalists and policy makers, as well as wider publics. As part of our work to develop a Science Communication Academy, under the auspices of a European Competence Centre for Science Communication, we undertook a mapping of the training needs for this community. This was done through an initial workshop (8 participants) and follow up survey (45 respondents), and 2 in person validation workshops (20 participants) with science communication officers working across Europe. We sought to understand the science communication skills needed by this community identifying a wide range of skills required, demonstrating the breadth of these roles (beyond media liaison or public information provision). These skills include: diplomacy, supporting engaged research and creating dialogue, awareness of audiences and storytelling skills. In addition, emerging skill needs include: illustration, tackling the infodemic and working with artificial intelligence tools. Through the workshop and survey we also explored emerging challenges faced by these professionals; these include: assessing the impact of their work, addressing misinformation, particularly at an organisational level, and creating positive and productive relationships with researchers. The findings of the workshop and survey point to areas where training provision is required.

Seeing is Engaging?The Mediating Role of Visual Appeal in Science-Communication

Sha Luo[1], Lindsey Middleton[2], Dayeon Eom[3], Dr. Nan Li[4]

[1]University of Wisconsin Madison, [2]University of Wisconsin Madison, [3]University of Wisconsin Madison, [4]University of Wisconsin Madison

Understanding the role of visual metaphors in science communication is crucial, as they are often used to attract attention and persuade audiences regarding emerging sciences and technologies. However, little is known regarding how visual metaphors influence individuals' cognitive processing of the message, especially the indirect pathway through a third variables. This study investigates the impact of different types of metaphorical images on message elaboration in persuasion mediated by visual appeal, using the CRISPR technology as a case study.

An online experiment using 2x3 factorial design was conducted in March 2024 with participants (N=509) randomly assigned to one of the six conditions. Participants were shown a mock-up Instagram post containing either a metaphorical image (replacement, juxtaposition, or fusion metaphor) or an image with only texts. Following exposure, participants rated their perceptions of visual appeal and their level of message elaboration using Likert scale items.

Mediation analyses for each comparison pair (i.e., metaphoric image vs. text image only) were performed on valid data points (N=362) to examine the pathways from visual metaphors to message elaboration, with visual appeal as a mediator.

The results revealed that none of treatment conditions had direct impact on message elaboration. However, visual appeal significantly mediated the indirect relationship between all visual metaphors and message elaboration ($\beta_{replacement} = -0.24$, $p_{replacement} = .00$; $\beta_{juxtaposition} = -0.17$, $p_{juxtaposition} = .01$; $\beta_{fusion} = -0.40$, $p_{fusion} = .00$). These findings suggest that posts with visual metaphors did not directly boost deeper cognitive processing of messages but only participants who found the metaphor being visually appealing had higher level of message engagement with the content. These insights have practical implications for marketers, advertisers, and communicators who aim to employ visual metaphors to communicate CRISPR and deliver persuasive outcomes.

Changing Evaluation Strategies for the Changing Science-Information Landscape of GenAI

MRS Shakked Dabran-Zivan, Dr. Inbal Klein-Avraham[1], Prof. Ayelet Baram-Tsabari[1]

[1]Faculty of Education in Science & Technology, Technion-Israel Institute of Technology

The changing media landscape saw a rapid deterioration in the role of professional gatekeepers in communicating science to diverse publics, culminating in flattening expertise on social media platforms. Yet the emergence of GenAI is another game changer, evolving from channels for scientific content to creators of such content. It is unclear how well key evaluation strategies, such as first-hand evaluation of correctness, second-hand evaluation of expertise and sources, and corroborating, apply to science information provided by GenAI.

To fill this gap, we examine how individuals with varying levels of science literacy and algorithmic knowledge employ evaluation strategies when engaging with Bing Chat (now Copilot) compared to Google Search in everyday science-related dilemmas.

Thirty participants were presented with two socio-scientific dilemmas in a lab setting. Half used Bing Chat first and then Google Search, while the other half started their journey the other way around. Observations of their information evaluation strategies were followed by hour-long semi-structured interviews.

The most dramatic difference between the technologies was found regarding source evaluation: When using Google search, people spend time evaluating the expertise and integrity of the specific sites and their authors. However, with Bing Chat, participants used a meta-source evaluation strategy, evaluating the AI as a source based on the appropriateness of the sources it listed. While Google users evaluated the sources' expertise as they clicked them to find the content, AI users did not click these links. They only evaluated the sources based on the domain. Even when they clicked those links as part of the corroboration process, they did so to evaluate the content and not the source. This highlights the need to adapt evaluation strategies for AI-generated information.



Parallel Sessions
D:4

Balancing values and evidence in policymaking for a democratic society

Dr Ulrika Björkstén[1], Dr Asa Johansson Palmkvist[1]

[1]Public & Science Sweden

In order for societies to find democratically sound as well as evidenced informed solutions to the great challenges of our time, scientists need to meet citizens and politicians in an open exchange of evidence and ideas. To meet this need Public & Science Sweden has recently launched a new arena for conversations around evidence and policy-making, where researchers from different disciplines engage in discussions with politicians and civil society. This new conference will become an annually recurring event, each year dealing with concrete contemporary societal challenges and topics such as the needs and consequences of electrification or how to mitigate organized crime.

As part of our preparation for this new arena we have surveyed Swedish citizens' perceptions on questions such as trust in politicians and researchers, as well as if – and why – they think that researchers should or should not express political opinions in topics that are related to their research. We also investigate people's perception of the extent that politicians take research into consideration when forming their opinions, and whether this perception is influenced by the citizens' own political sympathies. The questions have been asked as part of our yearly Barometer, which is a nationally representative telephone-based survey with approximately 1,000 respondents.

How can the relations and connections between researchers and policy-makers be strengthened? How can conflicts of interest in science and in the intersection between science and policy be mitigated? How can researchers more effectively reach out to, and engage in dialogue with, politicians? What measures could be taken to ensure more research-informed and evidence-based decisions on local, national and global levels?

In the session, we will share insights from our survey and both practical and strategic experiences from hosting the first edition of the annual event, which will be held a few weeks before PCST.

Science communication for greater impact - from policy to practise

Mrs Anna Maria Fleetwood[1], Mr Thomas Evensen[1], Mrs Gillian Markey[1], Mr Didier Goossens[1]

[1]Science Europe, [2]Science Europe, [3]Science Europe, [4]Science Europe

In a world increasingly challenged by the spread of disinformation and the erosion of democratic values, effective science communication is essential. Enhancing communication about research is therefore imperative for organisations, researchers, and policymakers.

This presentation will discuss how we can work jointly towards a transition where science communication is an incontestable part of the research culture and contributes to excellent science.

- How can science communication become a fully integrated part of research and innovation systems?
- How can we develop, fund and integrate institutional tools to empower researchers to communicate more effectively?
- How can communication efforts become more integrated and acknowledged within research career structures?
- How can science communicators' efforts to support researchers in communicating be more recognised and valued?
- How can collaborations between researchers and communicators be promoted?
- How do we encourage policymakers to use science communication to help addressing societal challenges and engaging citizens?

The session will explore and discuss key recommendations from Science Europe* and a position paper endorsed by major funding bodies across Europe (members of Science Europe). All participants will be invited to discuss how best to promote science communication at both national and local levels.

The session is organised by the Swedish Research Council together with Research Council of Norway, Health Research Board, Ireland and Luxembourg National Research Fund.

*Science Europe is the organisation representing major public organisations that fund or perform excellent, ground-breaking research in Europe. It brings together the expertise of some of the largest and most respected European research organisations to jointly push the frontiers of how scientific research is produced and delivers benefits to society. Science Europe is a member of Global Research Council.

www.scienceeurope.org/our-resources/science-communication-statement/
www.scienceeurope.org/our-resources/science-communications-conference-strategic-conclusions/

Learning from LUNZ: Co-developing science communication with UK policy makers

Prof Lee-Ann Sutherland[1]

[1]The James Hutton Institute

In 2023, UKRI, Defra and the Scottish Government launched the 'Land Use for Net Zero' (LUNZ) programme: an ambitious new £30 million research programme aimed at supporting the achievement of net zero, biodiversity and other national targets in the land use, soils and agricultural sectors. The programme comprised a call for a 'coordination and translation hub', and a set of empirical research projects. The LUNZ programme represents an important transition in the science/policy interface, whereby policy makers are actively co-developing research calls with UK research councils. The outcome is a unique collaboration between research and government funding bodies, demonstrating the increasing interest of policy makers in engaging directly with scientific research. In this paper, I reflect on my experience as LUNZ hub coordinator, illustrating the opportunities, tensions, and skills which bridge participatory and expert-led communication channels. I identify the specific characteristics of effective communication between scientists and policy makers, including attuning to the policy cycle, co-production of research questions, and clarity of expression (particularly the known knowns, and known unknowns). I discuss the challenges of transdisciplinary working and achieving appropriate levels of confidentiality, while documenting scientific impact standards, and provide some illustrations of successful approaches for engaging scientists in creative communication strategies.

SciPolNavigator: A Tool for Science Communicators to Navigate Policy Disputes

Nils Bienzeisler[1]

[1]Karlsruhe Institute of Technology (KIT)

Socio-scientific issues, such as the loss of biodiversity and the COVID-19 pandemic, demonstrate how difficult it is to align science with politics (Brüggemann et al., 2020). A central claim is that science communication has even transformed into political communication (Scheufele, 2014). In public, however, science communicators seem to exhibit diverse approaches when it comes to policy disputes: those who actively advocate for specific policy solutions in their work not only display a high level of political involvement but also emphasize their epistemic authority. Conversely, communicators who avoid policy disputes show minimal political engagement, yet often maintain a more neutral stance. The varying aspirations of science communicators can be viewed as different scopes of science communication, each defined by their approaches to policy disputes. We suggest that these scopes of science communication are characterized by three key dimensions: political involvement, scientific neutrality, and epistemic authority. To encourage deeper introspection, we have developed an online tool to help science communicators reflect on their aspirations regarding policy disputes. Our tool has been validated against three distinct populations: medical, biodiversity, and energy researchers.

Literature

Brüggemann, M., Lörcher, I., & Walter, S. (2020). Post-normal science communication: exploring the blurring boundaries of science and journalism. Journal of Science Communication, 19(3). https://doi.org/10.22323/2.19030202

Scheufele, D. A. (2014). Science communication as political communication. Proceedings of the National Academy of Sciences of the United States of America, 111, 13585–13592. https://doi.org/10.1073/pnas.1317516111

Emergent engagement: the nexus of transdisciplinary practice and complexity science

Dr Rhian Salmon[1,2], Dr Jo Bailey[1,3], Prof Anna Brown[1,3], Jonathan Burgess[1,5], McKayla Holloway[1,4]

[1]Te Pūnaha Matatini, [2]Te Herenga Waka - Victoria University of Wellington, [3]Massey University, [4]Cawthron Institute, [5]University of Auckland

Te Pūnaha Matatini (TPM) is a Research Centre in Aotearoa New Zealand focused on complex systems and transdisciplinary research. Climate change, biodiversity, infectious diseases, health and education policy and language acquisition are just some of the topics explored by TPM, all of which interface, connect or work with communities beyond the research system. The inherent complexity of engagement within mission-led, transdisciplinary and co-produced research requires highly-skilled ongoing engagement in order to be successful. Engagement is therefore intentionally placed at the heart of the research, and research culture, in TPM.

Over the past decade of engagement research and practice in TPM, we have experienced a profound transition in the degree of transdisciplinarity embedded or aspired-for within research projects, and desire by researchers, publics and policy-makers for more authentic and meaningful engagement. In response, we have developed a range of emergent engagement tools and processes designed not to replicate experience, but to catalyse new insights and be adaptable to varying cultural, physical and social contexts.

In this paper we will critically explore a collection of experiences, processes and tools that we have developed over the past decade of engagement research and practice to help facilitate authentic engagement and culturally-responsive communication. We will also suggest how they can be used or adapted in future, real-world, messy, engagement contexts. We will draw on case studies from a series of Engagement Incubators, Science Policy engagement workshops, the Science Communication Laundromat (released at PCST 2023), a Co-production Project, Engagement Community of Inquiry, Storytelling Cluster and Complexity Blog.

Finally, we will share how we are building on these successes by more formally observing, interrogating and evaluating best-practice case studies in engagement as well as continuing to walk alongside TPM researchers and projects in exploring profound approaches for engagement, embedding engagement theory and developing communication capacity and capability.

A Novel Approach to Promoting Academic Research through Parliamentary Committees

Mr Denis Naughten[1]

[1]Dáil Éireann, Parliament of Ireland, [2]Inter-Parliamentary Union

The Irish Parliamentary Committee on Social Protection, Community & Rural Development, and the Islands has made a concerted effort to incorporate academic research into policy formulation, including public hearings and submissions from academic institutions. However, the Committee piloted an innovative approach in its work on island policy, which involved direct evidence from islanders who were impacted by the academic research rather than the traditional expert testimonies.

The pilot aimed to incorporate applied academic research into public policy by engaging directly with community members and researchers through a live parliamentary broadcast on Árainn Mhór island off the west coast of Ireland. This resulted in discussions shifting from theoretical discourse to actionable insights that resonated directly with the Members of Parliament. This method underscored the importance of integrating scientific input into policy development, particularly in addressing the specific needs of island and rural communities.

The scientific research provided the foundational knowledge needed to develop effective solutions, with researchers from University College Cork and the University of Galway providing significant insights into areas such as climate neutrality, biodiversity, community sustainability, and eHealth. These contributions involved direct collaboration with islanders to ensure that research findings were relevant and actionable.

By engaging directly with community members the discussions shifted from theoretical discourse to actionable insights, bridging the “usability gap” between academic research and its practical application in decision-making. This method enhanced evidence-informed policymaking and fostered collaboration between the academic community and MPs.

This approach led to more effective and equitable solutions, ultimately strengthening public trust and engagement in the democratic process. By providing a public platform for applied academic research, policymakers could develop solutions that were both scientifically sound and practically relevant.

Link to report: https://data.oireachtas.ie/ie/oireachtas/committee/dail/33/joint_committee_on_social_protection_community_and_rural_development_and_the_islands/reports/2024/2024-04-09_report-on-the-operation-and-effect-of-national-and-local-policy-on-island-communities-as-discussed-on-oilean-arainn-mhor_en.pdf



Parallel Sessions
D:5

Self-evaluation in science communication: mapping the resources

Arko Olesk[1], Esta Kaal[1], Joseph Roche[2], Aoife Rose Taylor[2], Giovanna de Moura Rocha Lima[2]

[1]Tallinn University, [2]Trinity College Dublin

Considerations around quality, effectiveness and impact of science communication have led to the development of a wide range of resources (handbooks, toolkits, platforms etc.) available to science communication practitioners, from researchers to communication professionals. Among the resources, those supporting (self-)evaluation have become an important sub-section.

Similarly, researchers are increasingly called to evaluate and increase their research impact, especially by universities and research funders. This trend has, too, led to the production of a number of impact frameworks and guides.

We explore in this paper the main characteristics resources aimed for evaluating science communication activities or research impact to understand and analyse the prevailing patterns. The main questions are: How is science communication conceptualised as part of research impact and what are considered the metrics of impact? In self-evaluation resources, what is defined as the objective of evaluation and what methods are recommended?

The analysis is based on document analysis. Both evaluation and impact resources were gathered as part of the COALESCE project, preparing the European Competence Centre for Science Communication. We collected both academic papers and grey literature, e.g., outputs from various EU-funded projects.

The preliminary analysis suggests that self-evaluation resources use two main approaches: one presents a list of core principles and are meant for self-reflection, others offer a more rigorous (and resource-intense) assessment framework with the objective of collective evidence of effectiveness.

The analysis will also now include impact frameworks that consider public or stakeholder communication a vital part of research impact or impact pathways. Some evaluation frameworks tend to assess outputs, rather than impact. Others focus on productive interactions, flows of knowledge or proximity of collaborations.

Science communication evaluation to support equity: Moving beyond diversity metrics

Dr Jennifer DeWitt[1], Dr Sophie Bartlett

[1]JDW Research

Promoting equality, diversity, and inclusion (EDI) is crucial for cultivating a diverse Science, Technology, Engineering and Maths (STEM) workforce with varied skills and expertise, as well as for empowering individuals to recognise their potential in STEM, and for supporting engagement with STEM throughout the lifespan, however they may encounter and engage with it. Despite the increasing prevalence of EDI initiatives and widening participation efforts, the assessment of their impact remains a challenge, with current evaluations often focusing solely on demographic reach without delving into the actual experiences of individuals.

Rather than limiting impact reports to numerical data and diversity metrics, it is important we challenge the assumption that attendance indicates a positive experience and instead, move towards measures that capture and demonstrate the depth of meaningful and inclusive experiences across diverse audiences. However, such a shift is not easy and requires a nuanced understanding of the experiences diverse groups have during engagement, outreach, and educational initiatives.

This talk will focus on a UK programme led by the Association for Science and Discovery Centres in partnership with a funder, the Science and Technology Facilities Council, which aimed to tackle this evaluation challenge. The Valuing Inclusion programme has been co-developing a theory of change that defines, guides, supports, and evidences meaningful and inclusive practice. Our presentation explains the process involved in creating the theory of change and our approach to developing an evaluation tool. We will then describe the implementation of the tool to measure participants' experience and outcomes. We also focus on the tensions involved in efforts to use quantitative indicators to understand and enhance the quality of experiences within diverse communities engaged in STEM activities, as well as next steps.

Standards for the Evaluation of Science Communication

Julia Panzer[1], Liliann Fischer[1], Mike Schäfer[2], Arko Olesk[3], Julia Rizzo[4], Mikkel Bohm[5]

[1]Wissenschaft im Dialog, [2]University of Zurich , [3]Tallinn University, Baltic Film, Media and Arts School, [4]Laimburg Research Center , [5]Astra National Centre for Science Education

Science communication is becoming increasingly important and widespread around the world as science plays a major role in addressing current societal challenges. This makes it all the more important for science communication to be of good quality and to have an impact. Therefore, evaluation has become a key topic of discussion in science communication. While everyone agrees that evaluation is important to ensure good quality science communication, there is disagreement about what constitutes meaningful evaluation.

In a multi-stage consultation process organized by the Impact Unit (a German project on impact and evaluation in science communication), experts from research, practice, funding agencies and external evaluators discussed fields of action for the future of science communication evaluation. One central field of action concerned the standardization of science communication. The experts discussed whether evaluation can be standardized at all, who should define the standards, and what should happen if an evaluation does not meet these standards.

Based on the results of this discussion, we want to address this issue internationally.

Key Discussion Points will be:

1. Necessity and design: Should the standard be an idealistic guideline or a realistic, achievable one?
2. Contextuality: Is a single standard feasible, or are context-specific standards needed for different projects to ensure flexibility and adaptability? Can there be an international standard for evaluation?
3. Implementation and monitoring: How can compliance with a standard be ensured and who should monitor this process?
4. Stakeholders and processes: Which stakeholders - from researchers to practitioners - should be involved in the development of a standard?

Together with the audience, international perspectives from research and practice will be discussed.

Facilitating Museum Transition: Evaluating Impact for Institutional Change

Dr Zinaida Vasilyeva[1]

[1]Museum für Naturkunde Berlin (MfN)

Natural history museums across Europe are evolving from traditional repositories of knowledge to open, participatory institutions. This shift requires new frameworks for evaluating their impact on both external publics and internal stakeholders. The IETI project (Impact-oriented Public Engagement) at the Museum für Naturkunde Berlin (MfN) addresses this challenge by critically evaluating current science communication practices at the MfN and proposing strategies for fostering effective institutional culture change.

Using MfN as a case study, my talk addresses strategies and tactics for evaluating institutional impact, focusing on how museums understand their public roles and enact them through different forms of science communication and public engagement. Using the Theory of Change as a starting point, I demonstrate how qualitative methods - including interviews, ethnographic observation, and document analysis - can be integrated into the evaluation process to capture nuanced data about the institution and inform the design of participatory formats that enable reflexive conversations and redefine impact goals.

The novelty of my approach lies in the integration of "active interviewing" (Holstein & Gubrium 2003) as a co-productive method that transforms interviews into settings for generating new insights and shaping impact strategies. This approach not only helps to provide evidence of impact to external stakeholders such as funders, but also promotes internal cultural change and reflexivity within institutions.

The talk is intended for researchers and practitioners involved in evaluation and writing impact case studies, as well as institutional leaders who want to drive cultural change within their organisations. Key lessons from my research include: 1) navigating trust building in intra-institutional evaluations, 2) developing interview tactics that focus on value transformation and desired outcomes, and 3) leveraging evaluation research not only to demonstrate achievements but also to foster reflexivity and culture change within institutions.

An AI tool was used to check grammar and spelling.

What are we aiming for? Identifying science show aims

Miss Ruadh Duggan[1,2], Prof. dr. Erik van Sebille[2], Dr Sascha Schmeling[1], Dr Anja Kranjc Horvat[3]

[1]CERN, [2]Utrecht University, [3]EPFL

Overarching submission: 337

Science shows are dynamic live performances that communicate science in an engaging and entertaining way. They appeal to diverse audiences, and, unlike traditional exhibitions, they are easy to adapt and update. Therefore, they are traditionally included in science centres and science festivals around the world. However, despite their widespread use and the investment of substantial resources, their effectiveness is unknown.

At CERN's new education and outreach facility, CERN Science Gateway, daily science shows are used in the effort to make complex and abstract particle physics accessible and relevant to international audiences. This study examined the main aims of science shows, both in general and at CERN Science Gateway, based on interviews with 20 experts from two relevant groups: (1) science show developers, and (2) CERN representatives with links to education and outreach. While there is a consensus on the importance of affective outcomes like curiosity and engagement over cognitive learning, a notable tension exists. The CERN stakeholders prioritise audience entertainment and wish to evoke a sense of awe, wonder and amazement, whereas the science show developers highlight the practical challenges in achieving these emotional responses. In contrast, they emphasise the importance of engaging the audience and showing them how the scientific content relates to their everyday lives.

This study explores the priorities and expectations of different stakeholder groups, the tensions that exist between what is desired and what can be achieved in a single science show experience, and the challenge of creating engaging experiences while retaining scientific integrity. By defining these aims and finding the balance between different stakeholder groups, this study contributes to a better understanding of science show effectiveness and paves the way for better science show evaluation in the future.

Using an Evalution Framework to Direct Public Engagement Work

Dr Amy Cameron[1], Ms Erin Hardee[1], Professor Nicola Stanley-Wall[1], Mr Ali Floyd[2], Ms Ailsa Mackintosh[2]

[1]School of Life Sciences, University of Dundee, [2]Wellcome Centre for Anti-Infectives Research, School of Life Sciences, University of Dundee

Evaluation is a critical part of measuring the success of public engagement work and to ensure you can make any necessary improvements for the future. But how do you develop an evaluation framework that delivers meaningful information?

In 2018 the School of Life Sciences Public Engagement Team at the University of Dundee worked with Evaluation Support Scotland to create an evaluation framework aligned to our then-recently developed Public Engagement with Research Strategy. The result was a framework that helped us to transition our evaluation practice to be more purposeful.

Over the following 5 years, we produced reports each year to look in detail at our PE work and if it helped the School of Life Sciences community achieve our 'indicators of success'. Each annual reflection gave us confidence in some areas but also pushed us to re-examine some of our long-standing practices and assumptions and refine the framework to meet our changing needs.

In 2023 we revisited the evaluation strategy, looking at the areas where the evaluation work had influenced our practice. The result was "Using An Evaluation Framework to Direct Public Engagement Work", a report with case studies highlighting our learning and reflection. This provided the springboard to revise our evaluation framework to the one we use today.

In this session, we will share our key learning from these 5 years which will allow you to create your own more robust evaluation and embed it in practice.



Parallel Sessions
E:4

Personalization in science communication: Double-edged effects on trust in science

Dr Marlene S. Altenmüller[1]

[1]Leibniz Institute for Psychology

The rising use of social media for science communication has brought a change in distance and immediacy between scientists and the public. More and more, scientists communicate directly via personal accounts. Even beyond social media, scientists are increasingly expected to engage with the public in a direct manner. Often, they are advised to appear approachable and relatable, maybe even share a personal anecdote in such communication. At first glance, showing their warm and personable side might seem like a good way to counter stereotypical perceptions of scientists as "smart, but evil" or, at least, as rather cold and distant, yet highly competent "nerds in the ivory tower". However, these stereotypes might also present a challenge for personalization in science communication: Expectations of high objectivity and professionalism might clash with sharing personal stories.

Taking on a psychological perspective, I will delve into this tension between warmth- and competence-related aspects inherent to personalization in science communication and how they translate to trust in science. I will present a series of online studies and a field study in a large science museum (n = 2,911), experimentally testing the effects of sharing personal details in science communication. Findings indeed suggest small increases in perceptions of closeness and warmth-related trustworthiness (i.e., benevolence and integrity) – but coming at the cost of losses in perceived expertise. Then, I will enrich these insights on direct communication between researchers and the public with recent experimental data (n = 379) on effects of researchers' personalization as employed by science journalists (i.e., the use of direct and indirect quotations). Here, results indicate no effects on closeness and trustworthiness perceptions at all. Taking this together, I will discuss the tension between benefits and pitfalls of personalization in science communication for public trust in science and reflect on its practical relevance.

Science Communication as Sustainability: On the terroirization of science communication

Dr Marianne Achiam[1], Dr Martin Grünfeld[1], Dr Louise Whiteley[1], Mr Jacob Thorek Jensen[1]

[1]University of Copenhagen

To address problems such as climate change, the biodiversity crisis, or the threat of zoonotic pandemics, new models of critical, post-normal sustainability science have emerged. These models demand a democratisation of the research process which, in turn, points to a new role for science communication. Recently, the scholarship on sustainability communication has emerged to address such issues bringing with it a morass of approaches that shape how sustainability communication takes place either as a mono-directional transmission of sustainability issues or as a horizontal dialogical exchange of issues about sustainability. However, communicating sustainability issues can also (and most often does) involve a normative dimension – communicating for sustainability. While science communication for sustainability is often described as drawing on existing models of sustainability communication, our contention is that it is not enough to draw on the preexisting communication models such as the deficit and dialogue models. We must attempt to cultivate a culture of sustainability, by developing a new science communication assustainability. This involves a double move that takes sustainability as its main topic (it is about sustainability issues) but allows itself, indeed seeks, to be shaped by what it communicates (it is enacted as a form of sustainability). Our proposition is to think science communication as shaped by or embodying sustainability and move from understanding the communication model as a neutral and passive mediator for the content and take seriously the fact that the model becomes (part of) the message. To make this change, we consider the basic working metaphor, terroir, to describe the conditions (space, participants, content, format) that co-determine how science communication can manifest itself and unfold. With the notion of terroir, we offer an ecological perspective for imagining science communication as sustainability within coupled living systems.

Anthropomorphising ecology: investigating social information bias with non-human characters

Dr Hannah Little[1]

[1]University of Liverpool

Storytelling is at the core of effective science communication. Findings from cultural evolution research have shown that when asked to recall the events of a story, people have a "social information bias": they remember more information from a story when it contains social information involving 2 or more human characters (Mesoudi et al., 2006). However, in an interview study (Little & Dunstone, in review), science communicators reported utilising social aspects in their storytelling, but sometimes used non-human characters: either animals or other anthropomorphised entities. But does social information bias work when the characters are not human? In this paper, I will present research funded by the British Academy that explores how social information affects the transmission of science communication stories with different types of characters. The work uses iterated learning experiments where chains of participants transmit stories from one person to another. 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 are remembered and passed on, and how this process is affected by social information. The "seed" stories centred on climate change and had characters who were either human, non-human animals, or anthropomorphised plants. The results show a slight advantage for using human characters, but the stories with non-human characters had similar levels of retention. The presentation will also consider some potential risks of over-using anthropomorphisation in ecology communication, considering the tension between implementing research findings on what makes information memorable and the other types of objectives science communicators have.

Communication strategies for biodiversity recording in Portugal. Digging the past

Dr. Cristina Luís[1], Dr. Esther Marín-González[2]

[1]CIUHCT, Faculdade de Ciências, Universidade de Lisboa, [2]CIUHCT, cE3c & CHANGE, Faculdade de Ciências, Universidade de Lisboa

In the Anthropocene era, human impact on the environment poses significant risks to life on Earth. Environmental concerns have persisted throughout history and monitoring the state of the environment is a fundamental aspect of human existence. Currently, there is a growing trend in environmental monitoring involving citizen science initiatives for biodiversity monitoring, which involve various participants, including those with no scientific expertise. Nevertheless, challenges such as the participants initial and continued engagement prevent some of these efforts from being more effective. The lack of effective communication strategies is one of the main obstacles to sustained engagement in citizen science initiatives related to monitoring practices. However, this process of engagement and need of effective communication is not new as the famous Christmas Bird Count initiative, that occurs since 1900 in North America, shows. But were these practices also common in the 19th and beginning of the 20th century in countries where biodiversity monitoring by non-experts is still residual nowadays, as is the case of Portugal? The analysis of historical documents, such as biological collections and catalogues in museums, old field notebooks and manuscripts, can provide valuable information about past communication and engagement strategies in biodiversity recording and monitoring initiatives to help inform current practices. This presentation will demonstrate that by analysing historical materials, particularly focusing on the establishment of zoological collections in natural history museums in Portugal in the 19th century, we can discern effective engaging communication strategies used in the past. These strategies range from writing clear collection instructions to keep continued communication with the collectors and collaborators. This presentation highlights the importance of integrating historical analysis into contemporary science communication studies to enrich our understanding and enhance current practices, thus contributing to more sustained and effective environmental research.

Co-constructing 'third spaces' for engaged environmental science involving minoritized groups

Professor Richard Holliman[1], Dr Geeta Ludhra[2], Professor Clare Warren[1], Dr Anjana Khatwa[3], Dr Yoseph Araya[1], Ms. Kelly Smith[4], Ms. Janice Ansine[1], Dr Marcus Badger[1]

[1]The Open University, [2]Brunel University, [3]Wessex Museum, [4]Black Tri Tribe

The demographics of environmental and Earth scientists are not representative of the UK's multicultural society. We sought to widen diversity through two related engaged research projects, 'Walking the Walk' and 'Landscape Stories'. In this paper, we will offer a critically reflexive account, based on the methodology of duoethnography, of how we co-constructed a 'third space' with and for minoritized community groups and environmental scientists (Holliman et al. 2024). We sought to create the conditions for inclusive leadership informed by connectedness, respect, humility and intentionality. We argue that for environmental and Earth science research to be more equitable and inclusive, members of project teams should be engaged and more representative of wider society. Following this, the work to create third spaces requires: respect for diversity and different forms of expertise, knowledge starting points, power dynamics and esteem; a willingness to make connections across disciplines and sub-cultures, actively listening and learning from different (knowledge) cultures; and a commitment to be respectful of hidden and manifest difference, exploring objectives and gaps in knowledge in more holistic ways.

Reference

Holliman, R., Ludhra, G., Warren, C.J., Khatwa, A., Araya, Y., Smith, K., Ansine, J. and Badger, M.P.S. (2024). Co-Constructing "Third Spaces" for Engagement with and for Minoritized Community Groups and Environmental Scientists. Earth Sci. Syst. Soc. 4:10119, https://doi.org/10.3389/esss.2024.10119.



Parallel Sessions
E:5

Does public engagement make science better?

Prof Bruce Lewenstein[1]

[1]Cornell University

Advocates claim that “public engagement with science” makes science itself better. According to these perspectives, more democratic input to the process of science will lead to better decisions – better allocation of resources (for example, more attention to diseases affecting women), more careful developments of lines of research that conflict with widespread social values (for example, GMOs), more attention to the perspectives of people outside the elites (for example, addressing concerns about environmental justice), more integration of traditional or indigenous knowledges. But these claims face at least two challenges. First, what do we mean by “better”? Who gets to decide what counts as better, and by what criteria? Second, how would we even know? We can’t run two identical scientific research projects, one with public engagement, one without, and compare them. In this paper, I will describe the use of public engagement activities in a large, multi-institutional research center focused on plant physiology, assessing the ways in which project leaders used attention to public engagement as a tool in overall project management. We were explicitly testing the hypothesis that if you build public engagement into a project from the beginning, better outcomes will result. The paper will describe how different “visions” were identified and used as a reflective tool to help guide the overall research agenda. The paper will also explore some of the methodological issues for testing a hypothesis about impact of public engagement when no control is available. The paper will suggest avenues for future research to assess whether public engagement can, in fact, lead to better science – whatever that might mean.

Public Engagement with Science Across 68 Countries

Dr Niels G. Mede[1], Dr Viktoria Cologna[1,2], Mr Damiano Lombardi[1]

[1]University of Zurich, [2]ETH Zurich

For science communication to promote positive change toward more informed citizenries and engagement with science, it is essential to study how people inform themselves and communicate about science. However, the existing evidence focuses on Western countries and barely assesses cross-national differences against the backdrop of sociopolitical, economic, and cultural factors—albeit these shape local science communication traditions, e.g. specific types of scientific knowledge, information sources, and discourse norms. The present study addresses these limitations.

Our global, preregistered, nationally representative survey provides unique evidence on where 71,922 respondents from 68 countries across all continents encounter information about science, how they communicate about it with others, and how often they participate in public protests on science issues. We find that social media are the most important source of science information particularly in South East Asia and Africa, whereas news media do not rank far behind in Scandinavian and German-speaking countries. Especially in countries with low Internet adoption, conversations with peers and museum visits are alternative routes of exposure to science information. Further country-level factors, such as press freedom and freedom of academic exchange and dissemination, do not have global effects on people's science information diets—but we find regional patterns in Sub-Sahara Africa, former Soviet republics, and East Asia. We also show that citizens of societies with communitarian value systems talk less often about science with others. Engaging in political protests on science-related issues like climate change also varies globally, depending on whether people are socialized to hold civic engagement in high regard, as in Latin America.

These results can support positive change toward a more culturally sensitive understanding of science communication. For example, they provide context-specific evidence for political decisions on where to allocate expenditures for education and public engagement and may stimulate efforts to achieve more academic and press freedom.

Reflexive science communication for more deliberative engagement

Dr Jennifer Metcalfe[1]

[1]Econnect Communication

This talk will focus on the emerging science communicator who takes a more reflexive approach to science communication. In taking such an approach, science communication scholars and practitioners understand the diverse cultures (social, institutional, epistemological, pedagogical) in which they are operating, including the traditions and contexts by which science communication takes place within these cultures.

Understanding traditions and contexts means researching and understanding the cultural drivers that shape how science can be applied to decision-making. The reflexive science communicator understands the contexts surrounding traditional knowledge, scientific uncertainty, publics' value systems, and the historical relationships between science institutions and their publics, including those with political power. Understanding and negotiating these drivers requires all forms of engagement, from framing the problem, disseminating science-based messages and maintaining dialogue between stakeholders, through to deliberatively producing and assessing evidence for decision-making.

Reflexive science communicators play a critical role in implementing a new approach to communicating science across cultures by helping scientists and technology developers to understand the traditions and contexts in which they operate and how it might affect responses to their work.

This paper will use case studies from Australia and Saudi Arabia to explore the crucial role of the reflective science communicator in bringing together local knowledge and traditions with the best available scientific knowledge to engage communities in environmental stewardship.

Science Museums in Transition: The Evolving Concept of Reality

Prof Bernard Schiele[1]

[1]University of Quebec at Montreal

Traditionally, science museums have presented reality to their visitors (Wagensberg 2006) by exhibiting artifacts (such as Denis Papin's authentic machine), specimens (genuine dinosaur fossils), or by reproducing actual experiments for their benefit (as seen at the Palais de la découverte). The museum's mission has been to convey truth and attest to its veracity (Davallon 1999). This is the very essence of the communicative contract that binds science museums to their visitors.

However, science is evolving towards increasingly abstract forms (quantum mechanics, modeling, big data, etc.), necessitating a redefinition of our conception of reality. It can no longer be presented solely through direct observation or simple modeling techniques (diagrams or animations). How, then, are museums addressing this transition towards a "Reality 2.0" - one that reveals itself to the visitor only through cognitive detours, demanding a decentering from the commonly accepted notion of reality?

This discourse presents the findings of a study examining the utilization of communication technologies labeled as "virtual reality" or equivalent, including artificial intelligence, by select science museums (OSC, MSC, CSTM) to facilitate the comprehension of reality as constructed by contemporary scientific paradigms. The approach is comparative, as museums and science centers are engaged in a dual process. To present this "Reality 2.0," they are experimenting to uncover the potentialities of these communication tools and how they can enable the figuration, visualization, and representation of this new reality.

In essence, science museums have augmented their repertoire with these tools because they enable them to provide their visitors with interactive, immersive experiences. These experiences have the potential to modify visitors' perception and understanding of the reality that surrounds them, thereby bringing them closer to the worldview constructed by modern scientific thought.

Cultivating communicative identities? Implications from an ego-network-study with PhD students

Lennart Banse[1], Fenja Heinke[1], Dr Friederike Hendriks[1]

[1]TU Braunschweig

Expectations regarding science communication (scicomm) by individual researchers are growing, for instance from policymakers, funding agencies, and research organizations. Despite recognizing scicomm's social value, scientists often exhibit low identification with communicative roles. Since professional identification is closely linked to intrinsic motivation (Deci et al., 2017) and professional identity formation occurs more strongly at the beginning of a career (McAllister et al., 2022), this study examines social factors influencing the internalization of communicative identities (CI) among early-career scientists who communicate about science actively.

We recruited STEM PhD-students who had received prizes for their scicomm efforts, or held active social media accounts and conducted 24 qualitative ego-network-interviews (Hollstein, 2019) to identify structure and quality of their social relationships relevant to internalizing a CI. Based on identity theory (Burke & Stets, 2022), participants listed all entities that a) appreciate their communicative efforts, b) actively support those, and c) express expectations regarding the activities. Each relationship was then described using relationship descriptors (Crossley et al., 2015) to detail the type of support, appreciation, or expectations conveyed, the characteristics of the relationship partners, and the perceived impact on participant's CIs.

Qualitative content analysis revealed patterns linking relationships in professional and private contexts to the CIs. While those participants who's CI was supported in their professional environments were more likely to see scicomm as part of their profession, they engaged in fewer communication activities compared to those who located their CI rather as part of their private lives. The latter often privately run high-reach podcasts or social media accounts and receive support and appreciation primarily from family, friends, people from scicomm-communities, and especially from listeners/followers.

This study highlights the potential to better integrate and support communication-savvy early career researchers within research organizations. We invite discussion on the implications for training and support structures in academic contexts.

Co-creation and Dialogue: The Road STEAMer Engagement Approach

MR Menelaos Sotiriou[1], Mr Pavlos Koulouris[2], Mr Vasileios Liakopoulos[2]

[1]Science View, [2]Research and Development Department, Ellinogermaniki Agogi

In this talk we will present the results of the knowledge gained through stakeholder engagement as well as the participatory approaches that were used, namely co-creation and dialogue, during the Road STEAMer project (Horizon Europe). The overall aim of this project is to develop a STEAM roadmap that will be founded on the triangulation of the knowledge gained through stakeholder engagement, the analysis of STEAM practices, and the analysis of current educational policies, contexts and frameworks.

The participatory methodology defined appropriate means for this engagement, i.e. concrete ways in which stakeholder community members were enabled and facilitated to work together and exchange knowledge and views.

The overall purpose of the participatory approach adopted by Road-STEAMer was to ensure that the STEAM roadmap which the project is developing is grounded on shared knowledge and understanding among stakeholders of the relevant concepts, contexts, conditions, needs, and policy gaps in Europe's science education landscape, as well as of the opportunities arising through STEAM for integrated science learning approaches and synergies between school education, higher education, informal and non-formal science education, and the world of business, which will bring students and citizens in closer contact with Europe's big challenges.

To this end, the participatory methodology paved the road for the development of the Road-STEAMer Stakeholder Community, which consists of individuals, groups and organisations from different parts of Europe active in the worlds of school education, higher education, informal and non-formal science education, communication, research, innovation, creativity, the arts, business, as well as the civil society, citizens and policy makers.

Results from all these activities will be presented in order to demonstrate the impact that this approach could have and how it could contribute to the better understanding of specific challenges in order to deploy specific solutions that will be communicated to the target audiences.



Parallel Sessions
E:6

What are the core concepts of science communication?

Dr Todd Newman, Dr Declan Fahy

[1]University of Wisconsin-Madison, [2]Dublin City University

This talk seeks to answer the question: What are the core concepts in science communication? It examines how this question has been addressed and answered by the editors of a forthcoming volume, Essential Concepts in Science Communication, which aims to provide a rigorous theoretical introduction to more than 50 of the field's core ideas. In exploring the core concepts in the field, the talk will discuss the foundational ideas that have endured since the field emerged primarily in Western contexts some four decades ago. It will detail the emerging concepts that have expanded, complemented, or challenged such traditional ideas. The talk will set out these core concepts, reflect on their histories, and examine the different ways we understand their relevance in today's many global contexts for science communication. With its examination of how concepts emerged from traditions in the field and how new concepts are emerging at a time of transition, the talk hopes to encourage wider reflection on the distinct contributions that the field of public communication of science and technology can offer the wider understanding of science and society.

From Concern to Action: Mobilizing Diverse Communities for Climate Action

Dr. Cristina Olivotto[1], Dr Kris De Meyer[4], Mrs Dee Halligan[3], Mrs Marzia Mazzonetto[2], Dr. Mairéad Hurley[5]

[1]Onl'fait, [2]University College of London, [3]Forth, [4]StickyDot, [5]Trinity College of Dublin

Too often, climate change is framed as an issue to be concerned about, rather something that society knows how to act on. Coupled with conventional wisdom indicating that action happens as a direct result of efforts to raise awareness, the net result is an excess of climate communication narratives and approaches that aim to provoke concern, and a dearth of stories that showcase and promote citizen agency in the face of the climate crisis (De Meyer, 2021).

Furthermore, within our increasingly unequal, fragmented and polarised society, citizens hold a range of beliefs, values and worldviews in relation to climate and environmental issues (Hornsey, 2021; Pender, 2023). Stories of tangible climate action that may appeal to one segment of society may seem unattainable to others.

Our proposed session introduces ongoing efforts by science communicators and educators to tackle these interlinked issues. We use as as our starting point seven key insights drawn from research in neuroscience and psychology led by University College London's Climate Action Unit (Roberts et al., 2021), which reveal the "human factors" driving attitudes and behaviours relating to climate action. In line with the invitation to shift the conceptualisation of climate change from ‘issue-based’ to ‘action-based’, our discussants are drawn from science communication organisations in Belgium, Ireland, UK and Switzerland, who will share their learnings from efforts to embed these insights into their ongoing climate-related initiatives. They include examples from programmes developed in collaboration with schools and communities, NGOs, arts and cultural organisations and local governments. In this discussion, speakers will reflect on the tensions as well as successes they have encountered in their attempts to unite those with diverse viewpoints around shared goals for a sustainable future. Finally, we invite audience members to consider ways they may embed these insights into their own work.

Public sphere of science: Breaking the hegemony and shifting paradigms

Dr Danielle Martine Farrugia, Prof. Paul Pace, Dr Edward Duca

[1]University of Malta

This talk will explore a new model based on empirical data from the primary author's doctoral thesis, which sheds light on societal tensions and systemic patterns. This was done through a mixed-method approach to understand the landscape of public engagement with science (PES) in the Maltese Islands. The talk will delve into a philosophical critical lens using Habermas's public sphere applied to science and Bourdieu's lens of the capital in science. The study stresses the need to address the tensions between different publics. Entities need to be inclusive by making PES initiatives accessible and addressing power dynamics in science communication to empower publics to participate.

Empirical research included a scoping literature review of international documents mentioning PES, two questionnaires and two sets of interviews. One questionnaire gathered insights from Maltese residents over 18 about their participation in science activities, and another questionnaire for members of public engagement with science networks (PENs) to understand their engagement with these networks. Interviews were also conducted with senior management in Maltese entities that conduct PES and senior management of PENs. The talk will focus on the power dynamics in accessing science within the Maltese public sphere of science (PSS). Furthermore, a model will be presented to showcase how publics, the elites who are at the centre and gained enough capital, primarily social, have the most authority in affecting change in PES. In contrast, those on the outskirts have minimal power. Access to the centre, and higher levels of engagement are determined by gaining influence through economic, cultural, symbolic and social capital, as stated by Bourdieu. This model has implications beyond the Maltese Islands and can be applied to microcosm societies in larger countries, such as regions and states.

Keywords: Public engagement with science, public sphere of science, professional networks, capital of science, science communication

Stigmatizing and Ableist Languat

Dr Chris Gunter[1], Dr Nicola Sugden[2], Ms Koko Hall[3]
[1]Emory University , [2]University of Edinburgh, [3]Johns Hopkins University

Many critiques of genetic and genomic autism research hinge on the idea that such research is often ableist: that it values abled over disabled and nonautistic over autistic life, and assumes that autistic children and adults require interventions in order to meet societal expectations rather than vice versa. One form this ongoing tension takes is the language of research, with word choice also serving as an indicator of the scientific community's evolving priorities and ethics. The presence of widespread or egregious ableist language in research formats may indicate structural and institutionalized ableism, and we believe that evaluating the language of research can prompt researchers and research institutions to reflect on their communication choices and lead to changes that promote greater inclusion and equity.

We conducted multiple mixed-methods analyses of abstracts associated with US National Institutes of Health (NIH)-funded genetic and genomic autism research to reveal the prevalence of ableist or stigmatizing language and discourse. First, we examined a subset of abstracts from 1985-2022, and found that 97% of the sample contained ableist language or discourse, including ideas about deficits and risk. Over this timeframe and sample, autism was constructed as a mostly or entirely negative condition.

Second, we analyzed 51,539 genetics or genomics related NIH-funded abstracts from 2023 using natural language processing and review of contextual examples to look for 25 specific stigmatizing adjectives. We found that those projects related to intellectual and developmental disabilities used stigmatizing adjectives at higher frequencies than the group as a whole.

We aim to (1) encourage scientists to change their language to be more inclusive and better reflect the community they are studying; (2) help science communicators advocate for and use inclusive language around autism genetics/genomics; and (3) petition funding agencies to reconsider their guidance to grantees on appropriate language.

Teaching "Science Communication" in the Mathematics Department.

Prof. Dr. Anna Maria Hartkopf[1]

[1]Freie Universität Berlin

In this talk, I would like to present my experience with a lecture on science communication on mathematics. Mathematics is at the core of most modern technologies that shape our societies. Knowing how to communicate their science is important for the next generation of scholars and academically trained professionals.

Establishing a course on science communication in a mathematics department, breaks some traditions and also involved navigating some tension. However, the "T" it to most closely relates to is “Transition”.

On the one hand, it is the transition at the content level that is at the heart of all efforts to communicate science: The transition between the scientific knowledge into a less formalized language that is understandable outside of this scientific field. I would argue that this transition holds specific challenges for the sciences that have a mathematical core as they are set in a highly formalized language.

On the other hand, it is the transition for students studying mathematics or another mathematical science. Science communication is a social activity and communication science is a social science. Thus, the methods and approaches are fundamentally different from the mathematical thinking that the participants learn in their studies.

The design of the course is informed by Lewenstein and Baram-Tsabari’s paper [1] and applied it to the science communication on mathematics. It teaches the students content knowledge and methods on science communication in mathematics as well as the ability to reflect on and classify them. The two-hour lecture, which takes place weekly over a 14-week semester, is a prerequisite for the practical seminar, which deals with the development of formats for science communication in mathematics. The new working group “Science Communication in Mathematics”, which establishes at the Department of Mathematics at Freie Universität Berlin in October 2024, is responsible for these courses.



Parallel Sessions
F:4

Scientific Temper: Learnings from an Indian model of science-society relationships

Mr. Siddharth Kankaria[1], Dr Anwesha Chakraborty[2]

[1]Ashoka University, [2]University of Bologna

Scientific temper (ST) – a term attributed to India's first Prime Minister, Jawaharlal Nehru – gained prominence in post-independence India as a sociotechnical imaginary and a tool for solving societal problems with a rational and scientific approach, instead of taking refuge in religious and pseudoscientific worldviews. Originally invoked within contexts of building India's technoscientific infrastructure, ST has over the decades become a routinely cited concept within India's education, policy and STS circles, and conceptualises citizens as scientifically conscious critical agents rather than susceptible subjects.

Our talk will briefly trace the tradition and history of ST as an idea, framing it as an alternate model of science-society relationships that despite sharing commonalities, remains distinct from Global North models such as deficit, dialogue and participation. Not only will we compare and contrast these models with ST, but also collate various learnings that ST can offer as a science communication model developed within Global South contexts.

Our talk will demonstrate how ST fosters process-based thinking, instils reflexivity, enables the democratisation of scientific expertise, subverts the binaries of scientist vs. public, and serves as a potential tool for decolonising not only scientific expertise and knowledge but also the institutions and actors behind them. We also discuss how ST can be used as a tool for democratising knowledge-making and -sharing, building an engaged deliberative citizenry, and studying science-society relationships from a Global South lens.

Ideas described in this proposal have been previously published here: Kankaria, S. and Chakraborty, A. (2024). Scientific temper: towards an alternate model of science-society relationships JCOM 23(04), Y03. https://doi.org/10.22323/2.23040403

Whose Agenda? Brain Health Programs Driven by Community Needs

Kylie Kosulic[1], Guillaume Riesen[2], Juli Sherry[2], Nicole Bucio[1]

[1]Chicago Council on Science and Technology (C2ST), [2]Worldview Studio

One of the goals of science communication programming is to engage people with science topics in ways that create meaningful and relevant connections to folks' daily lives. However, the framings and approaches we use are often fundamentally derived from agendas set by academic or clinical interests. As science communicators, we tend to start from these more scholarly frameworks - whether intentionally or implicitly. We then rely on our intuition, past experiences, and best guesses as to what will be the most meaningful way to connect them with our audiences. In 2024, Worldview Studios and the Chicago Council on Science and Technology set out to do the opposite. This collaborative effort involved surveying our target communities in Chicago about their feelings and experiences with Brain Health and using that data to create community programs specific to their needs and interests. Join us as we share the results and key learnings from this year-long project. If you are interested in learning more about how to work with a local community to gather data and plan meaningful events, we are excited to share what we discovered and answer any questions.

Citizen (eco)linguistics: “Returning language study to the people”?

Gavin Lamb[1], Bente Svendsen[2]

[1]NHH Norwegian School of Economics, [2]University of Oslo

This paper explores how everyday people, particularly youth, can contribute to creating and sharing environmental knowledge alongside scientists as citizen language scientists in a time of immense environmental challenges. Traditionally, linguists have treated their field as politically neutral and language as an isolated system with its own internal logic. One consequence of this view is that it has kept their findings confined to a small group of experts. As Bauer and Trudgill (1998) note, “Linguists have not been good about informing the general public about language.” New "citizen linguistics" approaches are seeking to address this challenge by involving everyday language users or ‘citizen linguists’ in research, following Pennycook's (2024) call for “returning language study to the people.” Taking inspiration from citizen science projects seeking to address climate action through more democratic communication about environmental challenges, citizen linguistics (Svendsen 2018) highlights how young people contribute valuable knowledge about environmental issues in both urban and rural settings despite the voices of youth often remaining under-examined in sustainability research. This has left largely unexplored the everyday language practices that youth use to express themselves and engage with the environment as a meaningful space for belonging, well-being and social and political engagement. Through several recent citizen linguistic studies conducted in Norway that draw on innovative citizen linguistics methods, we present emerging findings from our on-going research that co-creates research with youth at every stage of the research process to explore how they communicate about environmental citizenship.

Engaging Through Empathy

Dr Sarah Gundy[1], Dr Natalie Walsh[2,3], Ms Martha Killilea[3], Prof Abhay Pandit[1]

[1]CÚRAM Research Centre for Medical Devices, [2]IdeasLab, University of Galway, [3]PPI Ignite Network @ University of Galway

As we contemplate the future and what is required to optimise technology to advance human healthcare, we must focus on the person at the centre. Only by working in collaboration with people with lived experiences will we achieve impactful and relevant advancements/improvements. This is also true in science communications research, where Public Patient Involvement (PPI) can be applied to help develop priorities based on public/patient-identified needs rather than assumptions. PPI requires empathy, i.e., the ability to understand the patient's personal experience. Although research has shown that empathy is important for positive youth development, recent evidence suggests that empathy levels are declining among younger generations and that levels of apathy and individualism are rising. 'Empathy experiences' are a non-traditional approach that can introduce science in a way that students and young adults might not have experienced and change participants' perspectives of science, particularly in a healthcare context.

The 'Empathy Detectives' project is a collaborative effort involving key partners, including CÚRAM Research Centre for Medical Devices, Ideas Lab and the PPI Ignite Network at University of Galway, and funded by the Science Foundation Ireland Discover Programme. With the input from a PPI panel (a group of diverse people with lived experience working with researchers), a series of short empathy experiences in the form of kits were developed to foster a deeper understanding of the lived experience of Diabetes. The kits were tested with early secondary students at Galway City Museum, through CÚRAM's public exhibit 'SUPERHUMAN', which is housed there. The results of the evaluation contribute towards establishing a model for the co-creation of further empathy kits with PPI panels representing other health conditions. This versatile model can be shared with science communications practitioners to create meaningful educational resources that encourage and develop empathy alongside innovation, to better understand lived experiences.



Parallel Sessions
F:5

#OverlyHonestMethods reveals animal agency in scientific process

To understand breaks within nature-culture division, we studied how non-human agency is negotiated in scientific process. Scientific research rely on much more than what is accounted for in a typical research paper. Indeed, ambiguous findings, institutional boundaries and limitations are negotiated between scientists and written out of the scientific paper before publication to construct seemingly rigid results. Latour argues that this strategy is rooted in fundamental distinction between nature and culture within modern worldview.

We will present study on hashtag #OverlyHonestMethods that caught viral fame 2013 in social media then known as Twitter. The idea of #overlyhonestmethods was to outline events during the research process that were not accounted in the methods of scientific papers as they were "overly honest". The humor was seen in explicitly acknowledging the messy details of scientific process. We screened all 21 182 tweets and selected 594 tweets that referred to non-human species' agency. We categorized the type of the non-human agency and outcomes for these study species. Agency within research process could be seen as escaping, invading, fighting back, sabotaging, occupying, being difficult, causing affect, collecting samples, helping and inspiring. The outcomes of agential interference were targeted towards study species (choosing, thanking or retaliating), research process (modifying, losing time or samples, benefitting or scuppering) or researcher (pain or pleasure).

In contrast to previous studies on mess that animals create in research, tweets represent researchers' public communications. Thus, they offer examples on how animal agency is, is not, and can be verbalized. There exists the obvious choice of maximizing the animal agency and representing these acts as resistance, and some tweets definitely do represent (perceived/imagined/reconceptualized) resistance. Nevertheless, most tweets could more aptly be called as noise with unclear interpretations. This suggests that the nature-culture division - even when studying animals - is difficult to break.

Cosmic conversations: Exploring astronomy and space technology communication

MS Tina Ibsen[1], Dr Marianne Achiam[2], Dr Thilina Heenatigala[3], Dr Pedro Russo[4]

[1]Tina Ibsen Formidling, [2]Department of Science Education, [3]Earth-Life Science Institute (ELSI), [4]Leiden Observatory

Knowledge of the stars has always held power. From ancient times, there has been a divide between those close to the sky, and those far from it. This uneven distribution of power has persisted from early astronomy to its modern Western forms. Today, astronomy and space technology remain entangled with discourses of hierarchy, masculinity and colonisation - and these inequitable discourses are often transferred to communication and education contexts.

This session will introduce topical challenges for astronomy and space technology communication and discuss constructive and evidence-based perspectives on how to address that challenge.

The four topics are dominant discourses in astrophysics, Democratic and ethical aspects of space exploration and technology, Decolonising astronomy, Arts-based approaches to astronomy communication.

The presentation will contextualise the challenges of astronomy and space technology communication against the broader backdrop of science communication and education. This discussion will include the audience to submit questions throughout the session.

The take-home message from this session is that the benefits of astronomy research and space exploration should be accessible and shared by all of humanity. It will specifically address how to work to tackle these issues and include more people through science communication and engagement activities.

The interplay of values in shaping attitudes on brain organoids

Isabel Villanueva[1], Dayeon Eom[1], Ashley Cate[1], Dr Nicole Krause[2], Dr Dietram Scheufele[1,2], Dr Dominique Brossard[1,2]

[1]University of Wisconsin-Madison, [2]Morgridge Institute for Research

Human brain organoids (HBOs) represent a burgeoning frontier in scientific progress. First developed in 2013, HBOs are created from human pluripotent stem cells to form tiny cell clusters resembling the structure of the human brain. Accompanying a wave of promise, however, are myriad ethical considerations whose disruptive potential remains uncertain. The rapid pace of development leaves limited time for thorough ethical and moral reflection, though the implications are significant for how we communicate about this technology. Understanding the role of stable value predispositions and variable cognitive dispositions in shaping individuals' attitudes toward HBOs can help foster productive dialogue and further research.

We conducted a national survey of U.S. adults (N = 964) to explore how various value predispositions and cognitive dispositions work together to shape attitudes towards HBOs. After reading a brief description of HBOs, participants reported their support for the funding, research, and use of HBOs, as well as their moral opposition to it. Additionally, participants rated their perceptions of the risks/benefits of HBOs to both themselves and society, and reported their political ideology, religiosity, and deference to science.

Our results show individuals' predispositions (i.e., political ideology, deference to science, and religiosity) and cognitive dispositions (i.e., risk/benefit perceptions) meaningfully shape attitudes regarding HBOs. Deference moderates the effect of religiosity on moral opposition to HBOs. Individuals with low religiosity are more morally opposed to HBOs if they also have low deference to scientific authority, compared to those with high deference. However, for highly religious individuals, deference to science has little impact on moral opposition. Gauging attitudes at an early stage in the development of HBOs will lead to productive societal debates around this potentially wicked technology, allowing scientists to work collaboratively with the public and other important stakeholders to anticipate the publics' needs for ethical research on HBOs.

UniVerse - A Space to Think: Physical Activity

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[1]UiT The Arctic University of Norway

UniVerse - A Novel Science Communication Pilot

Introduction: UniVers, developed by UiT The Arctic University of Norway, explores an innovative approach to science communication. This project employs performing artists from diverse backgrounds to convey research on physical activity, aiming to stimulate reflection, interest, and action among young adults. Three artists collect inspiration from researchers and the target audience to create a work-in-progress performance for high school students in Tromsø, Norway.

Methodology: The pilot involves preliminary workshops and data collection with the target audience, followed by a seminar for researchers, artists, and students. Over three intensive days, each artist develops an individual work-in-progress performance. These are presented to the students, followed by a panel discussion with researchers, artists, and students. The evaluation includes surveys conducted before, during, and after the performances, analyzing engagement, knowledge gain, and inspiration to engage in physical activity.

Preliminary Findings: The pilot was carried out in May 2024. Findings will be presented at the conference. Initial results indicate that certain performances and expressions increased participants' interest in and knowledge of physical activity. Insights, including photos and video clips from the performances, will be shown.

Future Development: The project has contributed to developing a new form of health communication at the Department of Community Medicine at UiT, adaptable to other topics and audiences. The performances are documented and analyzed to develop UniVers 2.0, and aim to target a new audience.

Conclusion: UniVers demonstrates the potential of performing arts to engage and inform young people about important health issues. This project lays the groundwork for further research and communication efforts.

The abstract is written by PI/first author, and abbreviated to word limit by chat.uit.no.

Framing Scientists: Technopolitical Narratives in China's People's Daily, 1949-1966

MR Jiahong FU[1]

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This study seeks to investigate how the People's Daily constructed the image of scientists during the "Seventeen Years" period (1949–1966), a formative era for socialist China. In this period, the Chinese government's urgent demand for scientific and technological development was reflected in the media's portrayal of scientists, who were positioned as central to national progress. As the mouthpiece of the Chinese Communist Party, People's Daily had a broad reach and influence, making it a key source for understanding the public image of scientists at the time.

To address the gaps in previous studies, which often rely on selective case studies or qualitative methods, this research will apply state-of-the-art quantitative techniques. Using Python, web scraping will be employed to collect data from the People's Daily database, followed by advanced natural language processing techniques, such as Latent Dirichlet Allocation for topic modeling, and deep learning models like BERT for sentiment analysis. These methods will reveal both the thematic content and emotional tone of the reports on scientists over time.

By integrating quantitative and qualitative analyses, this study will uncover how evolving social, political, and international contexts influenced the portrayal of scientists in state media. It will explore key questions such as how specific political events, technological milestones, and government policies impacted scientists' public image. The findings will shed light on the broader relationship between science, politics, and public perception, offering insights into how official narratives were crafted and adapted in response to China's domestic and global challenges during this transformative period.

Questioning systemic paradigms and ideologies through critical science communication

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While the uncritical and predominantly popularizing understanding of science communication of the PUS years is by now widely reappraised and problematized in academic discourse (however not far beyond: Simis et al. 2016), science communication still mainly affirms the systemic environment it operates in. This contribution argues that an academic field and a professional practice concerned with the transfer of the best knowledge available to mankind at a certain point in time must not ignore the dominant social absolutisations of knowledge in the form of "ideologies" (Mannheim 1929).

The history of science (communication) has shown that economic and political players have a strong interest in spreading and strengthening dominant ideologies in society (Oreskes & Conway, 2010, 2023). These ideologies actively prevent positive change in areas such as health, climate and environment and social policy. A science communication seriously committed to such change and aware of the social embeddedness of all research needs to continuously address and question such paradigmatic ideologies and their underlying power relations.

In practice, such critical science communication would include such diverse aspects as explicating ideological basic assumptions and worldviews in academic schools and research cultures as well as questioning alleged necessities in science-informed public discourse.

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Parallel Sessions
G:4

Leaning into tensions in dialogues on complicated and contentious technologies

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[1]University of Otago

The potential use of genetic technologies to support New Zealand's natural environment, while complicated and contentious, is an area ripe for citizen engagement to support responsible decision making. NZ is, at the same time, a country much in need of new technologies to support its environmental ambitions, and a country that, for over 20 years, has been GE free. In this setting, we ran a broad national dialogue on gene technology for the environment. Such a dialogue, however, requires a careful methodological approach so that tensions can be used to open up, rather than scuttle, dialogue.

Here we present the methodology we developed for this large-scale national dialogue because it is also well suited to other dialogues and deliberations on a wider range of socially inflected science and technology issues.

The process has 3 phases: Explore, Refine and Deliberate (ERD). Throughout, this methodology works as an iterative process that is inherently responsive to both public perspectives and realistic ecological and technological possibilities. In this paper, we present the ERD method for deliberative dialogues by explaining the rationale for the process, describing how it was used, and discussing some of the challenges and opportunities this process offers for broad, large-scale dialogue and deliberation projects.

Public engagement around controversial research: the case of non-human primates

Dr Nicolas Brard[1]

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Over the last 15 years, research involving animals has evolved considerably in Europe, mainly because of increasingly strict regulations and major technological developments. At the same time, the perception of animals has also shifted towards increased attention to animal welfare. Undoubtedly, this double evolution has consequences for the scientific communication of such topics. While the public engagement of scientists is increasingly expected, the situation might differ for sensitive topics, such as non-human primate research. As this population has little public profile and is often reluctant to speak out, we do not know much about their attitudes toward public engagement, willingness to participate, or perception of the public.

Through semi-structured interviews (n = 11) with scientists working in cognitive neurosciences with non-human primates, we highlight the role of institutions in researchers' engagement and the dichotomy between the perception of the public and its expectations and communication objectives, which we link to the controversial dimension of this research field.

We suggest that a change in institutional strategy, both in public relations and towards researchers, could be useful in advancing communication about research on non-human primates. The communication practices of the respondents indicated that certain formats allow for more peaceful and fruitful exchanges with the public, particularly small-group events, from which institutional communication bodies can draw inspiration. This highlights the importance of a scientific communication model based on dialogue in this type of sensitive context. Finally, the communication objectives expressed by researchers emphasise the ongoing challenging situation of animal experimentation, particularly with primates, in public opinion, and the perceived and sometimes endured necessity to position themselves as defenders of the practice.

Navigating Tensions: HPV Vaccine Communication and Underserved Populations in Vietnam

Ms. Huyen Chi Ngo[1,2], Associate Professor Jennifer van Nuil[1,3]

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Human papillomavirus (HPV) is a highly prevalent sexually transmitted infection (STI) that can be transmitted by individuals of any sex to partners of the same or different sexes. Strong evidence links HPV infection, particularly types 16 and 18, to cervical and other anogenital cancers, head and neck cancers, as well as genital warts.

The HPV vaccine, introduced in 2006, can protect people of all genders against HPV-associated cancers and genital warts, yet public health campaigns promoting the HPV vaccine in most countries have predominantly targeted women and parents of young girls, emphasizing cervical cancer prevention. As a result, its broader impact on high-risk demographics, including men who have sex with men and transgender individuals, are often neglected. In Vietnam, the HPV vaccine has been recommended for people of all genders ages 9 – 45 since 2024, but gendered approach to public health messaging has resulted in misinformation that can prevent these underserved populations from accessing health information and making informed vaccination decisions.

This paper examines the communication strategies to promote the HPV vaccine in Vietnam, focusing on the tensions arising from the need for targeted messaging and the needs of underserved populations who are often at higher risk of HPV-related diseases. It critically evaluates the extent to which these campaigns address the specific needs and concerns of MSM and transgender communities, considering factors such as cultural sensitivity, accessibility, and representation.

The findings suggest that the current emphasis on women, while crucial, inadvertently perpetuates the stigma against STIs and neglect the needs of vulnerable groups, hindering their access to the vaccine. By highlighting this tension between targeted communication and inclusivity, this paper aims to contribute to a more nuanced understanding of effective health communication strategies and advocates for a shift towards more inclusive messaging.

A Tale of Two Transitions: Framing Abortion Discussions

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[1]University of Pittsburgh School of Medicine, [2]Dublin City University

Objective: Our qualitative study assesses the themes and frameworks used to discuss abortion in the U.S. – where abortion restrictions have increased since the 2022 Dobbs decision – and Ireland – where abortion became accessible following the 2018 repeal of the Eighth Amendment.

Methods: Articles from widely circulated liberal and conservative publications were analyzed from 4 historically relevant timeframes: (1) the 2012 death of Savita Halappanavar, (2) the 2018 Repeal of the Irish Eighth Amendment, (3) the 2022 Dobbs v. Jackson decision, and (4) a year after the Dobbs v. Jackson decision. Articles were analyzed by their orientation, legitimating authority, themes, stance, and which subjects were given agency to decide on abortion.

Results: Preliminary review of 245 articles identified three major themes: Maternal Health, Call for Legislation, and International Abortion Legacy. Each respectively described the importance of protecting maternal health, highlighting urgent need for legislation, and the impact of Ireland's abortion bans on the international community. 28 articles also specifically highlighted the parallels between the Irish abortion ban's impact on maternal health and the dire state of reproductive safety in U.S. states with abortion restrictions.

Significance: In the wake of the Dobbs decision, many Americans lost access to abortion care. Ireland's history serves as a cautionary tale of the consequences of abortion bans. Our project highlights the vital role of the media in enabling cross-cultural discussions about abortion and how it can be utilized to further shape perceptions about abortion as a right that must either be secured or weighed against the right to life of the unborn.

Engagement: We will display quotes highlighting personal anecdotes and the spectrum of public opinion portrayed in salient articles. We will also pose questions designed to physically mobilize delegates and spark discussion about how abortion in media can be improved.

Survey Fatigue and Public Trust: Methodological Challenges in Science Communication

Dr Asa Johansson Palmkvist[1], Dr Ulrika Bjorksten[1]

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Surveys on public attitudes toward science and innovation have been conducted regularly in Europe and globally for many years. These surveys are often promoted with claims that understanding the public's knowledge, interest, and trust in science is essential for securing broad support and sufficient funding for research and innovation. Additionally, such surveys are said to form an important evidence base for developing relevant science communication and engagement initiatives.

However, with changing communication habits through the last decades (for example in how mobile phones are used) combined with an increased volume of surveys in our everyday life — asking us to evaluate everything from our latest restaurant visit to healthcare services — survey response rates are decreasing. Samples may also be skewed depending on the media that is used for data collection. This trend raises both ethical and methodological challenges. Unreflectively recruiting participants for surveys can be seen as exploiting their patience, potentially leading to even lower response rates in (more vital) surveys. The use of consistent methods in times that are rapidly changing also makes comparisons over years less robust. Furthermore, it becomes increasingly uncertain whether survey results can be trusted when participation is limited. Ultimately, the fundamental question will be to what extent the results from these surveys help us inform our work on bringing society and science closer together.

Building on experiences from the ongoing restructuring of an annual Swedish public science survey, this session aims to explore more purposeful ways of approaching public attitudes towards science and innovation. The session will feature an interactive format, encouraging participants to share experiences and perspectives from their respective contexts.

(An artificial intelligence tool (ChatGPT) has been used to improve the language and generate the title of the abstract.)



Parallel Sessions
G:5

Re-imagining Science Communication:The Role of Cultural Humility in Ethical Practices

Dr Faranak Hardcastle[1,2,3], Associate Prof Fabien Medvecky[1]

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A recent move in science communication is to conceptualize it as a cultural practice, which emphasizes meaning-making and identity formation within diverse cultural contexts (Davies & Horst, 2016). In parallel, there is a growing acknowledgment that attention is needed to address broader social and ethical challenges, such as cultural relevance, inclusivity, and social justice (Baxter, 2021; Dawson et al., 2024). Bringing these two strands together leads us to ask how to act ethically and justly with relation to culture in science communication. While a standard approach has been to call on cultural competence, we build on others to argue that we need to go beyond that and that the integration of cultural humility—achieved through continuous self-reflection and the addressing of power imbalances (Tervalon & Garcia 1998, pp.118)—is essential for reimagining science communication through the lens of social justice, and ensuring that it not only informs but also empowers diverse global communities. In this talk, we advocate for the systematic integration of cultural humility into all facets of science communication, arguing it is a crucial step for ethically engaging with and reflecting the complexities of the societies it aims to serve.

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Academic Saviourism – The pitfalls of well-intentioned science communication

Mrs Miriam Welz[1]

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In recent years, science communication has gained prominence as a key tool for bridging the gap between academia and the public. However, it has become evident that the typical audience for science communication is predominantly male, white, and academically educated (Judd et al., 2021; Scheufele, 2018). This is problematic because scientific knowledge should be accessible to all, as recognized by the UN General Assemblys' Universal Declaration of Human Rights (1948). Consequently, communicators are increasingly tasked with reaching the so-called “unreached” (Bevan et al., 2020).

While these efforts to democratize knowledge and promote inclusivity are commendable, they are not without their pitfalls. Drawing on Bourdieu's concept of academic habitus (2011) in line with Louise Archer et al. (2015) and Emily Dawson (2019), this presentation argues that the cultural and social capital inherent in academic institutions often shapes science communication in a paternalistic way. Consequently, well-intentioned efforts to engage marginalized groups can sometimes seem condescending or uninvited. The desire to be inclusive, while noble, can inadvertently lead to practices that prioritize affirming the status of the institution rather than genuinely engaging with diverse audiences on their own terms.

This theoretical presentation introduces the concept of ‘academic saviorism,’ inspired by the ‘white savior complex.’ Academic saviorism highlights the paternalistic and classist tendencies in science communication, where efforts to ‘engage with everyone’ may reinforce power imbalances and perpetuate exclusionary practices. It will conclude with best practice recommendations based on reviewed case studies, proposing strategies for truly inclusive science communication. The aim is to encourage reflection on current practices and demonstrate that there is no one-size-fits-all approach to achieving diversity, equity, and inclusion.

Navigating AI Futures: Research Perspectives for Constructive Science Communication

Prof. Dr. Annette Leßmöllmann[1], Dr. Anne Burkhardt[1], Prof Christina Elmer[3], Prof. Dr.-Ing. Christian Herzog[2]

[1]RHET AI Center, [2]Ethical Innovation Hub, [3]TU Dortmund

Science communicators face a variety of challenges related to artificial intelligence (AI). On the one hand, they must avoid misleading narratives about AI and navigate conflicting perspectives in public discourse, which range from technological and economic optimism to more critical or dismissive viewpoints. On the other hand, the use of AI as a tool for science communication introduces new complexities, requiring a careful balance between its potential benefits and inherent risks—both of which remain severely underexplored.

This problem pitch addresses these challenges by initiating a discussion among science communicators and researchers about the need for a balanced and constructive communication about and with AI that acknowledges both the transformative potential of AI tools but also recognizes the importance of carefully considering if and how they should be implemented: What should constructive and balanced science communication about AI look like? What potential transitions does AI (as a tool) bring to the communication landscape, and how can science communicators address them constructively?

Challenges to be discussed include epistemic and structural injustices which affect not only specific demographic groups but also the Global South; the divide between AI pragmatists and critics that has been reinforced by one-sided techno-optimistic incentives and the increasing self-interest and epistemic opacity of the scientific (funding) system; the unbalanced attention to target audiences by science communicators who privilege high-level policy actors over more basic democratic contributors, such as worker's councils or trade unionists; the unresolved issue of suitable guidelines for the use of AI tools in science communication and appropriate labeling of their deployment; and the risk of depersonalization of science communication due to diminished relational and caring attention between science communicators and their respective addressees.

By addressing the conference theme "Transitions", our discussion aims to highlight the competencies needed for effective science communication in this changing field.

Navigating GenAI in Science Communication: Promise and Peril

Mrs Liliann Fischer[1], Mr Bastian Kremer[1], Maja Kohler[1]

[1]Wissenschaft im Dialog gGmbH

The advent and more widespread use of GenAI has the potential to bring about one of the most fundamental transitions in science communication yet. GenAI is poised to transform the way we communicate, who communicates and how science is perceived in the public.

We have tackled this development in a new project by Wissenschaft im Dialog, called WiD-perspectives, which combines quantitative data from the German science barometer with expert opinions. The German science barometer has been collecting data on public attitudes towards science and research since 2014 and thus provides a unique opportunity in assessing public opinion. In 2023, we included questions on the use of GenAI for the communication of scientific insights to the public. In August 2024 we had the opportunity to contextualise these results with a group of diverse stakeholders from research, politics, civil society and science communication. Our quantitative data as well as the expert opinions show that there is a big potential to use GenAI as a support for communication, e.g. in simplifying content, providing a feedback channel or lowering the barriers to gain access to scientific topics. However, our results also show that there is a series of risks such as an increase in fake news, pseudo-simplification or the exclusion of less technologically knowledgeable citizens.

On the basis of these results, we have started to work on formulating recommendations for science communication. In our talk, we will dwell on the potentials but also the pitfalls of using GenAI in science communication and highlight our main recommendations hoping they will prove inspiring for science communication worldwide.

Thinking Strategically About Identity Gaps In Science Communication

Dr. Nic Bennett[1], Iasmim Amiden dos Santos[2], Dr. Sooyoung Shin[3], Dr. Bruno Takahashi[1], Dr. Sunshine Menezes[2]

[1]Michigan State University, [2]University of Rhode Island, [3]University of Alabama

Scholars and practitioners increasingly recognize the role of culture in science communication. However, existing research and practice have not fully explored the impact of culture and identity in their approaches. The Scicomm Identities Project (SCIP) aims to shift the paradigm of science communication training by incorporating intercultural communication theory into existing communication scholarship. Research arising from this project offers insights into how tenure-track faculty from historically marginalized groups in environmental sciences in the United States navigate science communication.

SCIP's research programs examine identity in science communication. A first qualitative study utilized the Communication Theory of Identity and Border-Crossing Theory to explore the interplay between marginalized scientists' identities and communication practices. Findings revealed the fluid and fragmented consciousness scientists experience concerning their self-identity and communication strategies. Notably, many scientists (especially immigrants) experienced personal-ascribed identity gaps, indicating a misalignment between how they view themselves and how others perceive them.

A follow-up quantitative study further examined how environmental scientists experience their multi-layered identities. This survey included measures from the Communication Theory of Identity to explore personal, social, professional, and ethnic dimensions of identity. Analysis revealed how these identity layers influence communication satisfaction, feelings of being understood, social media engagement, and interactions with journalists and media. The results challenge reductive approaches that limit identity considerations to simplistic racial or ethnic categories.

Subsequent studies will explore the experiences of Black and Hispanic scientists in the US. Marginalized groups can integrate their identities in science communication differently based on historical legacies (e.g., slavery, colonialism) and the intercultural communication practices unique to each group.

Traditional science communication often reflects the dominant culture. By broadening the scope to include diverse cultural and identity perspectives, science communication can become more inclusive and reflective of varied ways of knowing, ultimately enhancing its impact and effectiveness.

Tensions in Science Education: Insights from an Air Quality Study

Dr Elisabeth Unterfrauner[1], Dr Claudia M. Fabian[1], Mrs Teresa Schäfer[1], Dr Barbara Kieslinger[1]

[1]Centre for Social Innovation

The InChildHealth project focuses on improving indoor air quality in schools, targeting children aged 6-13 in seven European cities. Utilizing science education and citizen science, the project engaged students in collecting air quality data, measuring pollutants such as chemicals, particulate matter, and biological contaminants. This data collection was conducted with the assistance of external scientists and teachers. Post-project interviews with teachers revealed a generally positive reception but highlighted several tensions. The primary challenge was balancing theoretical instruction with practical application. Students exhibited varying preferences, with some benefitting more from hands-on activities and others needing more theoretical background to engage meaningfully in practical tasks. This necessitates flexible teaching strategies tailored to diverse student needs. The involvement of external scientists through lectures, seminars, and workshops enriched the curriculum by providing fresh perspectives and practical insights. However, it also posed challenges, particularly if the scientists lacked the pedagogical skills necessary for effective student interaction. Therefore, it is crucial that these experts are well-prepared and trained in educational methods. Another issue involved the technical devices used for air quality measurements. While these devices served as practical tools linking students directly to scientific studies, proper introduction and integration were vital to prevent misuse and ensure student trust. Data collection posed additional challenges, as there was a tension between the extensive data required by scientists and the willingness of students and parents to complete lengthy questionnaires. Designing concise surveys and clearly communicating the importance of the data were essential to address this issue. Overcoming these challenges requires meticulous planning, adaptable teaching methods, and effective collaboration between educators and external scientists to enhance science education sustainably.



Parallel Sessions
H:4

Transitioning into the future of STEM education- a case study

Dr Yashka Smith[1], Dr Martha Gavan, Mrs Yvonne McLellan, Miss Sarah Chew, Ms Wendy Findlay

[1]TechFest

Challenges in contextualising science and mathematics concepts taught in Scottish schools are not unique; however, Aberdeen based STEM charity TechFest is pioneering innovative projects locally and across Scotland, sharing good practice, industry linked projects and true project based learning (PBL) opportunities.

TechFest's team of Science Communicators, collaborating with professionals in a range of industries, can support schools in resolving the tensions between embedding interactive, engaging STEM learning alongside critical meta-skills whilst reflecting the fast pace of change in career opportunities.

Flexibility is key when working with schools, teachers and pupils; find out how TechFest is piloting different delivery methods to reduce common barriers to engagement. We provide a case study of a one-day PBL programme adapted for delivery in a 'career pathway' model, in partnership with a local secondary school. This delivery model promotes sustained contact with industry partners and, in collaboration with teaching staff, ensures the young people are exposed to current knowledge and information about the evolving careers market, leaving them better prepared for the transition from education to the workplace.

Science Communication Education for Undergraduates: Student Interest and Institution-Level Implementation

DR Mark Sarvary[1], Kitty Gifford[1]

[1]Cornell University

The landscape of undergraduate education went through a recent transition due to a growing interest in student research in STEM fields. Undergraduates are no longer just consumers but also producers of scientific information and eager to develop their skills in communicating their research findings to the publics. For example, at Cornell University, the percentage of undergraduates involved in research with faculty members increased from 21.3% in 1998 to 52.2% in 2018, with 16.8% of graduating seniors presenting their research outside the university. A 2019 survey of STEM undergraduates showed that 93% wanted to receive science communication training, but only 55% found the current education adequate (n=358). It is crucial to recognize science communication as an integral part of the scientific process. Rather than being an afterthought in postgraduate studies, it should form a foundation of undergraduate science education. Science communication training can help undergraduates understand the scientific process, become information-literate, identify the role of science in their everyday lives, and shape their interdisciplinary perspectives. The authors will present the findings of multi-semester student surveys to highlight the necessity and interest of undergraduates in science communication education. They will use examples from Cornell University to illustrate how STEM education can evolve to support undergraduates' science communication skills. Student-led approaches can help integrate science communication training into STEM courses, prompt instructors to develop new, independent science communication classes, and aid undergraduate clubs in establishing science communication training as an extracurricular activity. Furthermore, institutional efforts can create opportunities for community engagement among undergraduates, as demonstrated by the development of Cornell's Science Communication and Public Engagement undergraduate minor. The authors will discuss how undergraduates engage with science communication training through these opportunities and provide examples and evidence to demonstrate how this multi-tier implementation of science communication training can be effectively incorporated into undergraduate curricula.

Science education for migrant communities: a decade of impact

Joana Bordalo[1], Dr Joana Moscoso[1], Dr Ana Isabel Catarino[2], Dr Jessika Golle[3], Dr Afonso Bento[1], Beatriz Amado[1], Jana Caspari[4], Professor Julia Schiefer[5], Professor Patrick Rebuschat[6], Pedro Miranda Afonso[7]

[1]Native Scientists, [2] Flanders Marine Institute, [3]University of Tubingen, [4]Institute for Educational Analysis Baden-Württemberg (IBBW), [5]University in Ludwigsburg, [6]Lancaster University, [7]Erasmus Medical Center

Native Scientists' Same Migrant Community Programme (https://www.nativescientists.org/smc) connects migrant children with scientists with a common background (e.g., same country of origin, same mother tongue), to share scientific knowledge in their heritage language. As the programme completes a decade, it has established 25.000 connections, involving 6.000 children and 1.500 scientists, reaching communities in 10 different languages across 9 European countries.

In this talk, we showcase the programme's journey and share the highlights of impact evaluation data gathered over ten years of implementation. This includes findings from three recently published scientific articles (An exploratory study of the motivations, expectations and impact for scientists coordinating science engagement activities; How science outreach with children can promote equity and diversity; Science and Heritage Language Integrated Learning (SHLIL): Evidence of the effectiveness of an innovative science outreach program for migrant students.) that testify to the programme's effectiveness in engaging scientists in outreach and boosting children's motivation for science.

We will further discuss key findings from these studies conducted based on the programme and from experience gathered in implementing the programme. We will explore how science outreach activities focusing on migrant communities can shift the scientific culture in Europe toward a more inclusive and inspirational paradigm. Our innovative educational methodology is making a difference, and driving social change by promoting both science and heritage language literacy. We will also discuss what motivates scientists to participate in outreach activities, especially in migrant communities, where cultural connection and desire to give back play a major role.

Altogether, this talk will address how traditions and heritage can be integrated into science communication to drive positive change and celebrate diversity as a strength in the scientific community.

Students as fact-checkers: Empowering young minds through the News-Know-It-Alls initiative

Mr Jef Van Laer[1], Mrs Charlotte Hens[1]

[1]Scivil - Citizen Science Centre Flanders (BE)

The project 'NieuwsWijsNeuzen' ('News-Know-It-Alls') (https://www.scivil.be/en/project/nieuwswijsneuzen) builds on the recent transition from the traditional forms of media (literacy) to contemporary digital engagement of young children. Because in a rapidly changing society, marked by an unprecedented digitization of information, the imperative to equip children and adolescents with the necessary tools to engage actively in this evolving landscape becomes increasingly apparent. 'News-Know-It-Alls' contributed to this by making children (8-12 years old) more resilient against disinformation by focusing on news literacy, both on the side of (youth) journalists and on the side of children.

The project included designing a child policy and conversation guide on how to make news for young children, for and in co-creation with journalists. The project also developed innovative educational materials that introduce young children to journalism, debunking disinformation and learning to think critically about media. Scivil (https://www.scivil.be/en), the Flemish Knowledge Centre for Citizen Science, was involved in designing a checkpoint for disinformation on social media. This checkpoint, taking the form of a TikTok channel (https://www.tiktok.com/@nieuwswijsneus), facilitated children's reporting of potentially dubious messages encountered on TikTok, fostering a fact-checking process that culminates in the dissemination of validated information through succinct video responses on the TikTok channel.

During the project, we implemented pilot programs where students acted as citizen fact-checkers. Concurrently, we encouraged young children to submit posts (videos on tiktok or other social media platforms) that they suspected might be false. In that way we're empowering young minds to become critical thinkers in a world with lots of dubious news. And of course, in this battle against fake news, the importance of authentic and clear (also for a young public if convenient for them!) science communication increases. The presentation will cover the project's process, its results and practical reflections.

Institutionalisation and promotion of scientific literacy through effective monitoring and evaluations in South Africa

Ms Joyce Mabale[1]

[1]NRF-SAASTA

NRF-SAASTA collaborates with stakeholders, such as universities, government, businesses, media houses, science centres, among others to implement scientific literacy initiatives. These interventions target youth, adults for increased pool of a scientifically literate society that is science aware, understands science to can make informed decisions about science, share knowledge and contribute towards the knowledge enterprise across the NSI. This paper provides for evaluation practices applied to promote scientific literacy in South Africa. Evaluations adopted methods such as, qualitative & quantitative; measure of central tendencies; standard deviation; and results chain & DAC of the OECD. For accreditation process, evaluation findings and recommendations revealed challenges and strengths in certain key performance areas, these provided for evidence based development interventions for science centre support. The media monitoring tool showed an increase in science publications, from average of 10 to 30 monthly while use of indigenous languages in mainstream media and community radio stations gained momentum.



Parallel Sessions
H:5

Public's role perceptions of scientific experts on social media

Mrs Kaija Biermann[1], Prof Monika Taddicken[1]

[1]Tu Braunschweig, Institute For Communication Science

In response to societal challenges, there is a growing demand for scientists to engage in (online) public discussions, taking on "new" roles influenced by factors beyond the scientific realm (Brüggemann et al., 2020). Although typologies exist regarding scientists' roles in public and political interactions (e.g., Pielke Jr., 2007), we know little about what the public actually expects from their communications online.

To address this gap, we conducted 33 semi-structured qualitative interviews with laypeople in Germany to explore public's expectations and role perceptions of scientific experts on social media. We analysed our material using a deductive-inductive approach based on Mayring's (2015) content-structuring qualitative content analysis.

Our findings indicate diverse expectations regarding scientific experts' roles on social media. Most interviewees stated that scientific experts should, above all, communicate factually, refrain from expressing opinions, and avoid political entanglements. However, many recognised that, on social media, scientific experts engage at the intersection of science and politics and share not only knowledge but have an opinion-forming power.

We identified six overarching roles attributed to scientific experts on social media: While some interviewees viewed them solely as pure information providers, most ascribed to them a mediator role between science and society, fostering public interest and making science accessible. Additionally, they were seen as contextualisers, clarifying socio-scientific issues and their impacts, or as role models of "good scientists". As voices of rational argument, scientific experts should emphasize evidence-based information and counteract non-factual online discussions. Some ascribed a watchdog role, including exposing pseudoscience and debunking politicized information and misinformation.

Overall, our findings indicate complex and varied expectations placed on scientific experts on social media, revealing a tension between the desire for pure information provision and their engagement in politicised discussions. This underscores the need for a comprehensive examination of their roles in online public debates from various perspectives.

Limited but Complex Effects of Science Entertainment in Science Communication

Dr. Zheng Yang[1]

[1]Soochow University

Abstract: As a method and means of information processing and communication, entertainment has become an increasingly prominent topic in science communication/ public understanding of science research (Kirby, 2008; Dahlstrom, 2014; Kaplan & Dahlstrom, 2017; Tiffany et al., 2022). Many studies have shown that traditionally serious science communication led by scientists does not result in good interactions with audiences (Welbourne & Grant, 2015; Kaplan & Dahlstrom, 2017; Bourk et al., 2018; Llewellyn & Rose, 2021). But what role can entertainment methods actually play in science communication? Scholars have not yet agreed on an answer to this question. To explore further, this study analysed 215,020 user comments on a popular science entertainment post, 'Cells at Work', on Bilibili.com using the GPT-2 language processing model and semantic network analysis. The results show that when faced with a science entertainment text, audiences are more likely to be attracted by the entertainment content and mobilize more feedback and comments on it, compared with scientific parts. This is in line with the audience's response to content with different psychological distances proposed by many studies, as well as the 'relative entertainment preferences' theory proposed by Prior (2003). This finding encourages a rethink about the use of science entertainment as a means of science communication or public engagement with science, and to delve deeper into the potential role of science entertainment in science communication or public engagement with science.

Audiences' perceptions and relevance of trust cues in science content

Public trust in scientists is often mediated by intermediaries, such as journalistic and social media. These media use trust cues—i.e., linguistic markers presenting reasons to trust that help public audiences in their trust assessments. These cues address established dimensions of trust in science: expertise, integrity, and benevolence. Moreover, there are two additional dimensions rooted in the concept of public engagement with science: transparency and dialogue. For instance, a trust cue highlighting the qualification of a scientist is linked to the dimension of expertise.

While trust cues have been identified and compared across various media outlets in our previous content analyses, their perception by and relevance for public audiences remain unexplored. Thus, this research targets this issue by asking: How do public audiences perceive trust cues and how do they evaluate their relevance?

Using mock articles featuring trust cues linked to each dimension of trust as stimuli, the study engaged four online focus groups (with 23 individuals in Germany) to explore perceptions of these trust cues. Participants discussed the trust cues' influence on their trust in scientists and ranked the dimensions of trust by relevance—this way, we developed a heat map visualizing the results.

The findings reveal that all trust cues were recognized in the stimuli and deemed important, validating the previously identified cues. Rankings indicate that public audiences consider all five dimensions relevant, with expertise and integrity ranked highest, and benevolence's importance tied to certain conditions.

Hence, this research provides implications for science communication research and practice. Practitioners can use these trust cues to foster trust in science, such as in public relations materials or on social media, while researchers gain insights into a potential shift in audience priorities from three to five dimensions of trust in science, paying tribute to the concept of public engagement with science.

Science Communication on Social Media: Are Users Confused Who's Speaking?

Eva Rudholzer[1], Prof. Dr. Sonja Utz[1,2]

[1]Leibniz Institute for Knowledge Media, [2]University of Tübingen

The traditional unidirectional communication from scientists to the public, once mediated by journalists as gatekeepers, has evolved into a dialogue format where anyone can contribute to scientific discourse online. Particularly on social media, scientists can interact directly with others, sharing research and discussing findings, while the public can now easily engage with science.

A further defining feature of social media use is the way users perceive and process information. The platform's design encourages rapid scrolling and skimming, where users may not seek additional information on the sender. Consequently, this behaviour can make it challenging for users to identify the sender's background. As both experts and laypeople can share content on social media, we posit that this behaviour increases the likelihood of confusing the roles of the senders.

We conducted a preregistered online experiment to investigate how role confusion occurs on social media in science communication. Given that the platform designs do not provide complete profile information visible at first glance, we hypothesised that this prevents users from seeking additional information on the source and distinguishing scientists from laypersons, thus confusing the senders. We expected higher role confusion when individuals do not have immediate profile information about a communicator.

For the experiment, we adapted the "Who Said What?" paradigm, a paradigm for social categorisation, to reveal whether social media users are not able to implicitly categorise the senders (scientists and laypeople) communicating about science. Our findings give a first indication that people might confuse the roles of the sender of the posts if they have no additional profile information. These results have important implications for science communication: When social media users confuse the roles of different senders, they may become prone to trusting content from questionable sources, which could lead them to doubt scientists' findings.

The COVID Pandemic and the Public Perception of Genetics

Prof Jonathan Pettitt[1], Dr Cristina Fonseca[2], Prof Alison Woollard[3], Prof Laurence Hurst[4]

[1]University of Aberdeen, [2]The Genetics Society, [3]University of Oxford, [4]University of Bath

The COVID-19 pandemic created an opportunity to investigate how the public perception of genetics was influenced by an increased focus on the field by media activity and government information campaigns. We commissioned the public polling company Kantar Public (now Verian) to conduct a survey of over 2000 randomly selected British adults. The survey, funded by The Genetics Society, has several important general implications for science communication.

Firstly, our survey shows a clear public appetite for science generally, with 44% of respondents saying that they wanted increased coverage of science in the media. It also revealed that trust in genetics increased during the pandemic, a pattern not seen for sciences unassociated with the pandemic and the biomedical response to it.

However, there are limits to the impact of increased exposure and media coverage. For example, even though large numbers of people underwent Polymerase Chain Reaction (PCR) testing during the pandemic, and these tests were widely reported during the pandemic, 30% of survey respondents said that they had not heard of this technique.

Our most significant finding is that there is a tension between self-professed, subjective knowledge and the strength of an individual's attitude to genetics. Those with extreme positive or negative views of genetics both claim high confidence in their understanding of the science, but only in those who view the science positively is this self-confidence supported by objective measures. Our work supports an emerging picture of individuals who strongly and confidently reject science but lack objective knowledge. These individuals present a challenge to attempts to alter their opinions, and they resemble those who adhere to conspiracy theories. Given their extreme views, we need to develop strategies to reach these individuals. I will discuss possible approaches, but this is an area where further research is needed.

Images of and Trust in Science – Comparative Perspectives

Dr Anne-Sophie Behm-Bahtat[1], Prof Martin W. Bauer[3], Hannah Bunt[3], Dr Marta Entradas[2], Dr Bankole Falade[3]

[1]Wissenschaft im Dialog, [2]ISCTE-IUL, Lisbon University Institute, [3]London School of Economics

Trust is generally accepted as a way to cushion potential tensions between science and society (Giddens, Luhmann). However, measuring the concept of trust using comparative surveys, is also fraught with tensions due to differences in cultures across countries where science meets the public.

This session aims to discuss how different public images of science and scientists moderate and shape public trust in science. The session will feature four presentations (+ 1 chair) discussing data from several national and international surveys (Wissenschaftsbarometer in Germany, British Science Attitudes, French attitudes to science, Eurobarometer and Wellcome Trust Global Monitor across Europe) together with qualitative observations from deliberative workshops organised with citizens in seven European countries namely Greece, Portugal, Denmark, Germany, France, Spain and the United Kingdom.

The presentations will focus on the varying public images of science arising from the studies and how they relate to public trust in science in the different cultural contexts. They will also focus on how public perception of the state of trust in science is shaped by research practices, i.e. the way we ask about trust in surveys, focus groups etc.

The session will contribute to a more nuanced understanding of trust in science and its relationship with public images of science with important implications for theories and practices in science communication. Our findings point towards the observation that different images of science are not directly associated with high or low levels of trust, but frame different arguments for either trusting or mistrusting science.

The findings to be presented are part of the POIESIS project (https://poiesis-project.eu/). POIESIS is a European collaborative project funded by Horizon Europe examining trust in science as a multi-dimensional and complex phenomenon from different perspectives, particularly focusing on the impact of climate change and the covid-19 pandemic.



Parallel Sessions 1:4

From the outside looking in

Mr Brendon Bosworth[1]

[1]Human Element Communications

Independent science communicators are uniquely positioned to shape science communication practices at large institutions. As consultants and science communication trainers, they bring outside perspectives and fresh thinking and are unencumbered by internal processes and politics. However, institutional change takes time and requires more than once-off science communication training and capacity-building initiatives. Improving science communication at the institutional level requires commitment from science communication champions within institutions and trust in the external science communication specialists they commission.

In this talk, independent science communication specialist Brendon Bosworth shares recommendations for how institutions can work with external science communication specialists to build science communication capacity and, importantly, sustain and nurture this. Brendon's insights come from his experience building tailored science communication training programmes for international development organisations, such as the UN Environment Programme, and various universities.

The talk will interest independent science communication trainers, consultants, and academic and research institutions looking to build and sustain their internal science communication capacities.

Visual identity of a scientific institution: Why it's challenging

Mr Donato Ramani[1], Dr. Chiara Saviane[1], Dr Nico Pitrelli[1]

[1]Sissa

The public communication of science has become a core responsibility for universities. It is no longer a sporadic activity carried out by a few dedicated researchers. Instead, it is now woven into the fabric of academic institutions' rhetoric and governance, with specific policies and increasing resources dedicated to it. Despite this, the role of visual identity—a crucial element of corporate communication—has received relatively little attention as a tool for scientific institutions to convey their research.

To investigate this topic, in this presentation we share an experience from SISSA – Scuola Internazionale Superiore di Studi Avanzati, an esteemed institute for education and research in physics, mathematics, neuroscience, and science communication located in Trieste, Italy. Inspired by its original logo, which illustrates the journey of Ulysses as depicted in Dante's Divine Comedy, SISSA has embarked on a renewal journey in the realm of visual identity and science communication. SISSA's new visual identity was commissioned to the Tassinari/Vetta design office.

The opportunity for a new image was presented by the school's 40th anniversary, which led to a temporary version followed by a comprehensive redesign of the historical crest – originally hand-drawn by the school's founder – concluding with the creation of institutional and event communication materials.

The process of change offered various points of reflection. It allowed for an aesthetically impactful renewal that made the institute's communication more sophisticated and recognizable. It sparked an internal discussion within the community, which interpreted the change through the lens of identity and self-representation. It also fostered an interesting dialogue between different components—scientific, administrative, communicative, and artistic—to achieve a shared outcome. Finally, it has raised an interesting question about a possible gap between the internal community's needs and self-perception and the need for increasingly impactful and brand-oriented communication by the institution.

Popular Science Books: an Old Tradition, a New Transmedial Turn

Mr Mircea Sava[1]

[1]University of Bucharest

Science communication currently has a variety of channels through which it constructs its most diverse products to reach the general public. In the era of generalized communication, the multitude of manifestations of popular science is the consequence of the colonization of new formats and media. This diversity, however, finds antecedents in the success enjoyed by a channel considered traditional for the popularization of science: the book. This paper aims to analyse the historical premises of the development of popular science writing and how the popular science book managed to be integrated into the new media webs. It will also highlight the central position that the popularization book continues to hold both in current science communication, marked by the production of strong networks of transmediality, and in the creation of a scientific culture. There is a long tradition of writing popularization books for the general public by prominent scientists, stretching back at least to the early 20th century "visible college" of scientists identified by Gary Wersky, to the scientists of the 1970s and early 1980s, such as Carl Sagan, Stephen Jay Gould, Richard Dawkins or Stephen Weinberg. Two key moments for the later popular science boom, which brought the commercial potential of popularization books to the attention of publishers and imposed the success of the genre also for audiences and critics, were Stephen Hawking's groundbreaking A Brief History of Time (1988) and Brian Greene's bestseller The Elegant Universe, published 10 years later (1999). Popular science books today are integral and pivotal parts of carefully constructed networks of transmedial references between old and new media which reassure their success and expand their appeal to the public, in the process of developing a scientific culture which is essential for engaging in social change.

The Crisis of Scientific Publishing: Implications for Science Communication

DR Alexandre Schiele[1]

[1]University of Ottawa

This talk will discuss the implications of the pressing issue of the astonishing growth of peer-reviewed fake scientific articles for science communication, as both its legitimacy and credibility rest on the accuracy of the information it communicates to the public. In 2023, a record-breaking 10,000 scientific articles were retracted. The causes for retractions are many: mistakes, data manipulation, data falsification, plagiarism, counterfeit. However, the annual number of retractions is rising fast: 1 in 500 in 2024, up from 1 in 5,000 in 2014, with most retracted papers traced back to paper mills. In 2021, Wiley, one of the top scientific publishers acquired Hindawi, a small but fast-growing scientific publisher. In 2023, Wiley retracted over 7 000 papers published in Hindawi journals and shuttered 4 Hindawi journals, and 19 more the following year. One in seven submissions came from paper mills, while the peer-review process was severely compromised. Its journals were compromised to such an extent that Wiley has now ceased using the Hindawi brand altogether. Most troubling, in 2023 an automated analysis suggested that 34% of all neuroscience papers and 24% of all medicine papers published in 2020 alone were fake. However, it is an almost impossible mass of papers to sift through to document evidence of misconduct warranting a retraction, and this mass is ever-expanding. Once a suspect paper is flagged – a needle in a haystack, it may take years for a publisher to react. And a retraction is more accurately a notice of retraction – while the retracted paper itself remains accessible, often without being clearly marked as such. Thus, a significant proportion of published peer-reviewed science is bunk, yet the “peer-reviewed” label gives it an unwarranted yet lasting legitimacy both for the public and communicators. How can science communicators transform their practice to ensure accuracy?

Tensions Between Visibility and Expertise: Sociology and COVID-19

Katharina Hauck[1], David Kaldewey[2], Tobias Tönsfeuerborn[1]

[1]Bielefeld University, [2]University of Bonn

The emerging COVID-19 pandemic led to a high demand for academic experts in the German media. In addition to virologists and epidemiologists social scientists and sociologists also contributed to the discussion of the consequences of the pandemic and the corresponding measures. Focusing the case of German-language Sociology this exploratory study analyses the relation between researchers' public visibility and their academic contributions related to the pandemic.

We describe this relationship using Collins' and Evans' distinction between interactional and contributory expertise. Assuming tensions between the medial selection of visible sociologists and their contributions within the academic field, our research poses the question: To what extent does the public visibility of sociologists correlate with a contributory expertise in the subject area of their statements?

A first key objective of our study is to collect data on the public communication of German-speaking sociologists, on the one hand, and on their academic publications on the other. To this end, we examined the coverage of the pandemic in German national newspapers and a public radio station in 2020 and 2021. Sociologists' publications were collected through keyword searches in journals known for sociological research, conference papers as well as edited volumes on the pandemic published between 2020 and 2023.

Following this data collection we examine the correlation between the public visibility of sociologists and their contributory expertise on the topic at hand. We also investigate the extent to which sociologists with a high research output are visible in the media. Therefore our study also refers to Weingart's concept of medialization and in particular to the relationship between academic reputation and media visibility. In this respect, we provide theoretical considerations and initial empirical explorations on the tensions between visibility and expertise.

Comparing Scientific Information in Google Search Results across 21 Languages

Prof. Ayelet Baram-Tsabari[1], Prof. Dr. Lars Guenther[2], Mr Siddharth Kankaria[3], Prof Marina Joubert[4]

[1]Technion, [2]Ludwig-Maximilians-Universität München, [3]Ashoka University, [4]Stellenbosch University (CREST)

Does one's country of residence and language affect the quality of scientific information they find via a search engine? Despite the vision of the internet as the "great equalizer" and the promise of having ubiquitous online content at our fingertips, a child growing up in South Africa and a child growing up in the United States face vastly different information ecologies when searching the Web for science-related information. For the internet to achieve more of its egalitarian potential, we need the means to reliably and consistently measure the quality of information available through algorithmic curation systems in different world regions. Ample research on the so-called "digital divide" has documented gaps between the "haves" and "have-nots" of digital access, and many differences persist with wide-ranging implications. Some also pointed out the language divide: the asymmetry between spoken languages of the world and the languages of available internet content.

In this international panel, scholars from four countries across the Global North and South seek to map and discuss existing gaps in the quality of science-related information available online across languages and categories of scientific knowledge. This is empirically based on findings from a large-scale algorithmic audit of first-page Google Search results across 21 languages. An in-depth content analysis of various categories of scientific knowledge by native-speaker science communication experts was used to find the differences in online searches across languages in both the quality of scientific information available as well as the quality of information on science-related conspiracy theories. Moreover, the study also looked at the differences across languages in the alignment between algorithmic ranking and scientific quality scores. As part of this discussion, panellists will reflect on both specific case studies as well as the overall experience of embarking on such a global study.



Parallel Sessions
I:5

Dictatorship of scientists? The role of experts in pandemic management

Prof David Domingo[1], Dr Ingrid van Marion[1]

[1]Université libre de Bruxelles

The relationship between scientific experts and policy-makers has always been full of tensions from a communication perspective: the different knowledge backgrounds, the delicate discursive balance between giving advice and taking responsibility for decisions. The extraordinary circumstances of the COVID-19 pandemic made this relationship more open to public scrutiny and it became a subject of debate in the media.

In the context of the BE-PIN project, which aims to create a multi-disciplinary Belgian Pandemic Intelligence Network, we have explored the lessons learned from the management of the COVID-19 crisis between 2020 and 2022. We would like to present the discourse analysis of two sets of publications appeared during that period in 8 Belgian newspapers and 2 weekly magazines: 1) articles mentioning the concept “experts”, in order to see how journalists characterize them, and what are the debates around their role during the crisis, 2) open letters, often initiated and co-signed by scientists, that discuss the work of the ad-hoc advisory boards created by the government and the measures taken to control the pandemic. Scientists used the media as a public platform to raise awareness of their perspectives, sometimes trying to influence decisions when they did not have access to the politicians.

These public discussions mediated by journalism are a rich source to explore the challenges and dynamics of science for policy, how to include dissenting voices in scientific debates, and more generally what is the role of science in society. Our results contribute to the studies on the mediatisation of science in journalism, offering a novel focus on meta-discourses about expertise.

The science-communication, science-advocacy continuum: A new model of science communication

Ms Alison Sheaves, Dr Connar McShane, Dr Maxine Newlands

[1]James Cook University

Effective science communication is crucial for bridging the gap between complex scientific research and public understanding, facilitating informed decision-making and fostering societal engagement with scientific advancements. As science increasingly intersects with societal issues, there is a growing need to better understand scientists' evolving roles in communication which at times may cross into advocacy. This evolving landscape necessitates a new model to better capture and address the dynamic roles and challenges scientists face when communicating science. Learnings from a qualitative research study of Australian researchers provides a new model to understand scientists' roles when engaging in the communication of science. The lived experiences of 33 Australian scientists (M age = 49.9, SD = 9.6); 15 females and 18 males within the STEM (n=20), Public Health (n=7) and social science (n=6) disciplines were explored using semi-structured interviews. Thematic analysis within an interpretive phenomenological analysis framework was the applied method for analysis. Findings support the proposal of a new model of communication, in the form of a continuum, which firmly places science communication at one end and advocacy at the other. Distinctions are specifically identified between formal and informal science communication; along with science and personal advocacy. The findings also illustrate, through our understanding of professional identities, that scientists select one position along the continuum where they feel most comfortable, and which aligns with the perception of their roles and values as scientists. This research also explored how and why scientists move along the continuum and the implications of engagement in communication that does not align with their values as a scientist. These findings highlight the diversity and complexity of the modern science communication landscape affording scientists the opportunity to reflect on their place along the continuum and the implications of renegotiating this place.

Comparing science communication responsibility expectations between scientists and communication professionals

Lennart Banse[1], Liliann Fischer[2], Dr Friederike Hendriks[1]

[1]TU Braunschweig, [2]Universität Passau

For effective science communication (scicomm) from research universities (RUs) it is essential that scientists and communication professionals work together. Qualitative studies indicate that there are tensions arising from a misalignment of expectations regarding the respective other's responsibilities in communication (Koivumäki et al., 2021). However, these mutual expectations and tensions in the communicative processes have not been explored quantitatively, yet.

We conducted two surveys addressing actors in German RUs: one with scientists (N = 1274, representative sample by academic rank and overarching discipline) and another with professional communicators (N = 196, census sampling with 21% response rate). Both surveys included 18 items covering key phases and related tasks of intentional organizational communication processes (Merten, 2013). Both actor groups responded twice to these items: they judged which of the responsibilities were a) theirs, and b) the other group's. Results were statistically compared using descriptive statistics and (two-tailed) t-tests.

Findings indicate that both groups largely agree on a division of labor. They concur that communication professionals are primarily responsible for tactics, implementation, and evaluation, while scientists are expected to identify relevant scientific topics and help to develop the content. Discrepancies lay in strategic decision-making: Scientists see themselves as significantly more responsible for defining goals and central messages than communication professionals perceive them to be. The most pronounced ambiguity concerns the decision-making at the end of a communication process: determining whether the final communication product should be released. While professionals view this as a shared responsibility, scientists consider it to be predominantly their own.

Identifying and addressing these ambiguities could enhance collaborative efforts of scicomm in RUs. We would like to discuss the results and also encourage all of us to think about strategies to enable a constructive collaboration between scientists and professional communicators, in order to make organizational scicomm more effective.

Role and Evolution of Spanish Science Communication Offices: Survey Findings

Dr Angela Monasor Pascual[1], Mrs Cintia Refojo[1]

[1]Spanish Foundation for Science and Technology (FECYT)

The Spanish Science Culture and Innovation Units (UCC+I) are science communication offices that act as intermediaries between research institutions and the public, with the primary goal of promoting science communication. In this talk we will present the results from a survey conducted with 112 UCC+Is, to explore the current state of these units, including their objectives, activities, resources, role, and institutional power dynamics.

Our preliminary analysis shows that UCC+Is place the least emphasis on objectives such as “stimulating political participation in scientific processes” and “incorporating public perspectives into institutional research”. Correspondingly, the least frequently reported activities are “deliberative and participatory events”. These findings suggest that despite theoretical advances in science communication that advocate for public involvement in scientific discussions, there is a notable insufficiency in engagement practices.

Additionally, when examining the motivations behind science communication for research institutions themselves, visibility is given the highest priority, while fostering public participation is given the least. This discrepancy highlights a critical issue for discussion at PCST2025: Is science communication truly aimed at civic engagement, knowledge, and empowerment, or is it predominantly public relations for research institutions?

Our presentation will delve into these findings and offer a critical examination of the role of research institutions and UCC+Is in public engagement. By addressing these discrepancies, we aim to contribute to the ongoing debate on the true purpose of science communication and its potential to genuinely involve the public in scientific discourse.

Revisiting Gatekeeping: Comparing Relevance Criteria for Selecting Scientific Information

Janise Brück[1], Prof Lars Guenther[1], Prof Constanze Rossmann[1]

[1]LMU Munich

When looking at gatekeeping in science communication, previous research primarily points to science journalism and its central role in how scientific information becomes public. However, science journalists have lost much of their gatekeeping functions, partly due to challenges that science journalism faces in light of digitalization (e.g., online competitors). Therefore, not only scientists but also their institutions (e.g., (non-)university or private research) as well as their public relations (PR) departments step into a gatekeeping role and are increasingly expected to actively communicate about science, provide science-based recommendations, and interact with the public. Given the increasing diversity of "gatekeeping" science communicators who apply different criteria in their selection and communication processes, and the fact that news is no longer (only) selected by journalists (e.g., based on news values), different criteria are becoming relevant in science communication. More precisely, this raises the question of so-called relevance criteria in science communication, meaning criteria according to which science communicators decide which scientific information is selected, considered newsworthy, and thus published – and which is not. Since previous research has mainly focused on such criteria in science journalism and has hardly compared the practices of science communicators, an overview of possible relevance criteria across science communicators is needed. Therefore, we conducted a scoping review with a systematic snowball search using three seed articles that either dealt with the selection and communication processes of science journalists, science PR professionals, or scientists. The aim is to develop a three-pillar model of identified relevance criteria commonly used by science journalists, science PR professionals, and scientists, that covers all levels of established journalistic gatekeeping (e.g., Shoemaker, 1991) and allows for comparison. Thus, the model will provide valuable insights into the transition processes in (digital) science communication and offer a foundation for future research on relevance criteria in science communication.

Strategy vs public good: What drives university communication?

Dr Alexandra Borissova Saleh[1], Dr Michel Claessens, Prof Birte Fänrich, Ms Ilyana Zolotareva

[1]E-Quadrat Science and Education

In recent decades, two significant trends have emerged. Digital transformation and the general decline of journalism diminished the role of science journalism. Conversely, more universities are entering international competition, strengthening their communication efforts and hiring more Public Information Officers (PIOs). As a result, institutional communication plays an increasingly larger role in disseminating scientific information and significantly influences the field of science communication.

In the situation of increasing competition in the science sector, PIOs are ethically more vulnerable than journalists. While they officially serve society alongside their public institution, they are also pushed to promote its interests. This creates a tension between organisational and societal goals, a challenge some authors have identified as likely to become even more pronounced in the coming years. Ultimately, the question for universities, and hence, their PIOs, is the following: should they operate like profit-driven corporations or to prioritise serving the public good?

Alexandra Borissova Saleh will draw on over fifteen years of experiencing the work of PIOs from different perspectives: as a science journalist, as a head of the university communication office, as a teacher and a trainer of scicomm and as a scholar.

Michel Claessens will address the institutional difficulties which science mediators may encounter in their professional activities. Michel will focus on ITER, the flagship experiment on nuclear fusion.

Birte Fähnrich will talk about how the discourse environment of universities leads to increasing competition for interpretative sovereignty with actors outside the science system (e.g. activists, corporate actors etc.). Science organisations thus apply strategic communication to compete for attention in a public network of interests.

Ilyana Zolotareva, will address the challenge PIOs face in securing media coverage for university research. She will explore how PIOs balance accuracy, credibility, and university goals with evolving public interest and editorial demands in a digital age.

Visual Presentations - 3 minute talks



Parallel Sessions



Parallel Session A:6

Inclusive Public Engagement with U.S. Migrant Farmworkers: Criteria and Challenges

Sohinee Bera[1]
[1]Cornell University

Emerging plant biotechnologies are often hailed as a “silver bullet” for enhancing agricultural efficiency and productivity. However, the social and ethical consequences of these biotechnologies remain underexplored for marginalized stakeholders. In this presentation, I describe a public engagement activity developed to assess migrant farmworker visions of emerging plant biotechnologies at the border of U.S and Mexico. Based on a qualitative evaluation, I explore the tensions and virtues encountered during the engagement. This activity also revealed the limitations of established criteria for public engagement for marginalized stakeholders.

The engagement revealed that public engagement with science is a privilege, considering the significant resources, time, and access needed to participate in such activities. Many of the farmworkers we engaged with might not have had the tacit knowledge needed to navigate surveys and engage with scientists. We also learned of the challenges when engaging with stakeholders with literacy barriers, especially to translate technical scientific concepts into Spanish. Incorporating visual, written, and verbal redundancy in text prompts, questions, and response options could potentially improve stakeholders’ comprehension. However, this raised a key tension: how can we foster dialogue-based engagement without relying on deficit-based approaches?

I also discuss the tensions of determining how to balance stakeholder interests, community needs, and research outcomes. Despite their interest, migrant farmworkers face numerous structural issues that may be more urgent than science participation, and time spent interacting with scientists takes away from addressing other needs. In addition, stakeholders may seek immediate results or information from a project, which might not align with a researcher’s timeline. This complicates the criteria for transparency and influence, as it may take significant time to witness concrete community benefits, if there are any. Overall, the findings of this talk highlight the criteria, challenges, and lessons learned to inform others developing inclusive public engagement in science practices.

Designing a tailored series of communication workshops for African scientist

Alexandra Benitez Gonzalez[1]

[1]Michigan State University

Little research on science communication training focuses on the needs of African scientists. This presentation will take advantage of a new effort to design a tailored series of communication workshops for participants of a fellowship program providing early career researchers from African universities with a one-year, on-site mentorship at a major North American research university. Specifically, the presentation will describe the results of interviews being conducted during the fall of 2024 (n = 25-30) with current- and past-fellows to better understand (a) how they understand the role of communication in their work and (b) what they might hope to achieve from training. The presentation will also describe how these interviews informed the design and implementation of an initial series of workshops scheduled to occur during early 2025. While the primary research and training team are housed at the North American university, the workshops will be designed in collaboration with fellowship program leaders, most of whom are based in Africa.
One potentially novel element of the upcoming interviews involves an iterative process that aims to understand scientists' audience-specific behavioral goals before designing training. The training will not, in this regard, reify basic skills training (e.g., training on writing/speaking in a clear and compelling way), although such training may be included if it appears to fill a genuine need. Equally, the training will begin by helping participants identify concrete, initial audience-specific goals. Both steps are meant to ensure that participants receive training that meets their needs while also enabling discussions about goal prioritization, including goals that may require scientists to listen to the perspectives of those with whom they want to communicate. In addition to sharing results from work-to-date, an additional goal of the presentation will be to solicit feedback aimed at improving future workshops with African scientists and related research.

Fantasy RPGs: A Catalyst for Environmental Change?

Miss Katelyn Beissert[1]

[1]Science Communicator (Independent)

A significant, ongoing challenge for environmental communicators is how to empower individuals and inspire meaningful, real-world action. As one of the fastest-growing forms of entertainment globally, video games offer a unique opportunity to help address this. Recognizing this potential, much attention in recent years has been placed on the development of serious games; however, few have achieved wide–scale, market success, demonstrating a struggle to engage with audiences. Instead, I believe fantasy role-playing games (RPGs) may hold more potential. Immersing players within a fictional realm and making them the active drivers of a narrative encourages them to empathize with new perspectives, view systemic issues through a critical lens, and imagine how they may begin to enact change within their own world.

In this talk, I will support this argument by discussing two recent fantasy RPGs of the same series, Final Fantasy VII Remake and Final Fantasy VII Rebirth. The plots of these games place players at the tipping point of an environmental catastrophe, asking them to fight for the planet while confronting a variety of social, political, and personal conflicts. I will highlight how different dimensions of game design, such as narrative and mechanics, interact to create an impactful experience. Much of this will stem from my research as part of my MSc dissertation. Lastly, I will use examples from my experience playing and live-streaming these games to demonstrate how they facilitate critical discussions on environmental issues.

Exploring engineering and the Sustainable Development Goals in Minecraft

Sarah Behenna[1], Dr Laura Hobbs[1]
[1]University of the West of England

Science Hunters: Engineering for Sustainable Societies was supported by a Royal Academy of Engineering Ingenious Award to encourage children from under-represented backgrounds discover the many facets of engineering involved in sustainable development, and provide them with opportunities to apply their newfound knowledge by creating their own model sustainable solutions and communities in Minecraft.

Building on our previous experience and using our well-developed Science Hunters approach, we collaborated with engineers to design and develop 12 sustainable, ecological engineering design-based sessions, linking engineering and engineers to the Sustainable Development Goals and future sustainable societal solutions.

Feedback was overwhelmingly positive, with children reporting that they enjoyed the sessions, learnt about engineering and engineers and wanted to learn more about engineering. Teachers responded enthusiastically to the project, citing the efficacy of Minecraft in engaging children, the need to engage them with the Sustainable Development Goals and positive impacts, both now and in their futures, on their understanding of engineers and engineering and the role they play in society.

In this visual presentation, we will offer the opportunity to see examples of legacy resources from the project, now freely available online, view some of the Minecraft worlds and creations constructed during the project, and experiment in the game to explore the concept of using it to engage with engineering and sustainability.

The Power of Tradition for Building Trust in Research

Dr. Brett Beasley[1]
[1]University of Notre Dame

For over a decade, institutions across the public, private, and nonprofit sectors have been suffering from a rapid decline in trust. As the communications firm Edelman explains, the lack of trust has created a "paradox at the heart of society": Innovations offer the promise of a new era of prosperity but can also contribute to further polarization and social instability due to the low-trust environment.[1] This presentation explores the power of universities to tap into traditions as a way to combat the trust crisis. It draws upon the experiences of research communicators at the University of Notre Dame and offers a broad set of strategies and tactics organizations of all types can use to effectively communicate the current state and the overall value of research in science, engineering, and other fields. In particular, the presentation reflects on how the University of Notre Dame—long known for its faith traditions and athletics traditions—has developed its reputation as a trusted authority on and source of research. The presentation also includes a reflection on Alasdair MacIntyre's definition of tradition, which states that "Traditions, when vital, embody continuities of conflict," and the ways this definition can reframe the work of scientists and science communicators.[2] Specifically, it offers an assessment of the tendency among both scientists and science communicators to frame the scientific process as an inherent challenge to tradition. It then offers practical suggestions for reframing research as a contributor to tradition.

1. Edelman. "2024 Edelman Trust Barometer." Accessed September 7, 2024. https://www.edelman.com/trust/2024/trust-barometer

2. After Virtue: A Study in Moral Theory (2007: University of Notre Dame Press) p. 222.

Proposal of a Theoretical-Methodological and Didactic Tool for Science Communication

Mr Matheus Barros[1], Dr Silvia Martins[2]

[1]Dica Museum/UFU - PPGEnFis/UFRGS,
[2]Dica Museum/Institute of Physics/Universidade Federal de Uberlândia

This work presents a reflection on Gerard Vergnaud's Theory of Conceptual Fields (1990, 1996, 2007, 2019) in dialogue with the development of effective Epistemic Vigilance (BLANCKE; BOUDRY; PIGLIUCCI, 2017), aiming to understand aspects of conceptual and attitudinal change (SINATRA; KIENHUES; HOFER, 2014). That said, these concepts will be addressed as the basis of a tool that, at first, we intended to use as a didactic model (BARROS, 2023). However, we also recognized its theoretical-methodological potential, considering the science communication models proposed by Bucchi and Trench (2021). The material presented in "Dica Tips: Scientific Communication for Scientists and Educators" (free translation) as a didactic model (BARROS; MARTINS, 2023), is an initiative of the Diversão com Ciência e Arte Museum – DICA, from the Federal University of Uberlândia. Inspired by studies in Cognitive Psychology and Philosophy, it emphasizes the importance of scientific communication that engages the lay public, contributing to social and civic participation in Science and Technology processes. We advocate for the collaborative construction of scientific knowledge, avoiding sensationalism and excessive simplifications, while being guided by reflections and alignments of the concepts proposed by the studies that support us. Additionally, we highlight the need to contextualize and humanize the scientist, presenting their struggles and contributions. The proposed framework also reflects on interdisciplinarity and the importance of presenting information in an accessible way, aiming to ensure that the public understands and relates to science. Thus, "Dica Tips" aims to be a valuable resource for educators and scientists who wish to engage in the communication of scientific knowledge, and for future researchers in the field of scientific communication.

Acknowledgements: Capes, Fapemig and CNPq

Does rescuing the past change future behaviour? A systematic review

Dr Linden Ashcroft[1], Ms Kelly McBrady[1]

[1]The University of Melbourne

If you want to, you can contribute to all sorts of scientific projects by recovering historical information. Interested in plants? The Kew Gardens would like your help with their herbarium archives. Care about the weather? You can transcribe temperature and rainfall records back to the 1800s through the UK-based Weather Rescue project. Fascinated by the sun? The Italian Institute of Astrophysics is running 'Sunspot Detectives', asking people to look at drawings of sunspots from 1853.

These 'data rescue' projects are participatory science activities connecting non-professional scientists with active research. The projects allow people to explore fascinating and valuable historical records, often through online portals.

Research into this kind of crowdsourcing has shown participants learn new things and feel as though they have made a meaningful contribution to scientific research. But what about behaviour change? Does transcribing hand-written temperature observations or looking at sunspot scratchings from 190 years ago make you rethink your ideas about climate change? Does examining sepia photos of plants change the way you treat your own garden? The answers to these questions are less clear.

To find out, we conducted a systematic review of studies on volunteer engagement with transcription-based citizen science projects. We were particularly interested in why people take part in transcription activities, the demographic of people who participate in these activities, and whether their participation changed people's opinions or behaviours.

In this presentation, we will share our findings, and discuss whether transcription-focused citizen science activities can change behaviour, or whether the distance is too great between past and future.

Disinformation: studying scientific information reception and sharing with different approaches

Dr Luis Amorim[1]

[1]Oswaldo Cruz Foundation

The relevance of the discussion on disinformation involves many disciplines. Certainly, science communication is centrally affected and at the same time important for studying and understanding this phenomenon. Our focus in different research has been to study the reception of fake news and credible texts about science. Initially, we conducted a study with an eye tracker with 23 young people, reading four different science texts, two credible and two fake. Our data indicate a small number of eye fixations on the area of the newspaper name and that fake news would be shared for subjective reasons linked mainly to the topic of the text, without concern for its credibility. In the second part of the study, aiming to understand better how the topic of disinformation has arrived and been approached within high school classrooms, we did seven 30-minute-semi-structured interviews with teachers of this level of education and they emphasized the importance of social media as a source of information for students, a change in student behavior, especially after the pandemic, with less attention and interest. As for different strategies to approach the issue of disinformation, we noticed the joint reading of news, an obligation to cite sources in homework, and an indication by the teachers of reliable sources. Still, most interviewees demonstrated that teaching credibility verification strategies is arduous work. We are now in the last part of the project, targeting to reach 50 students to present the results at PCST. They answer a questionnaire including questions about information consumption and social media use, and then read texts about science issues presented randomly. They answer questions about the content, their intention or not to share it, and the to do it or not. Five students will be interviewed for a deeper look at the relationships between disinformation, credibility, and sharing.

Engagement Quality Beyond Dialogue and Mutual Benefit: The "SCRREE" Criteria

Dr./Prof. John Besley[1], Ms. Sarah Garlick[2]
[1]Michigan State University, [2]The Nature Conservancy

Researchers and practitioners often describe dialogue as central to ethical and effective science communication aimed at fostering meaningful public engagement. The proposed presentation, however, will draw on recent research-to-practice activities in the United States built around what we argue is a more comprehensive and defensible set of quality criteria that recognizes dialogue as in important potential tool for engagement efforts, but does not reify dialogue or equate dialogue with quality engagement efforts. Specifically, we argue that for the value of evaluating engagement efforts against the degree to which they are designed and implemented in ways that are: Strategic, Cumulative, Reciprocal, Reflexive, Equitable, and Evidence-based (SCRREE).

The presentation will briefly outline what we mean by each of these concepts and provide examples of engagement-oriented science communication activities that correspond with each criteria. The work underlying the presentation involves efforts to help long-term ecological research sites be more intentional about their communication efforts over the long-term while ensuring that their activities are done in meaningful, ongoing dialogue with relevant community and societal actors.

Looking forward, we hope to discuss how others might use the SCRREE criteria to think about important aspects of their communication efforts through questions such as: What are we hoping to accomplish as a result of our activities? Are we committed to sustained efforts? Are we meeting our partners' needs? Are we engaged in ongoing review of our goals and efforts, and do we have mechanisms to course-correct? Do our efforts actively seek to advance equity and justice? Are we working to ensure that our efforts are consistent with relevant formal and informal research?

We also hope to invite discussion around whether the criteria capture key aspects of engagement quality.

Chemistry Throught The Eyes of Brazilian Teens

Marcela Alvaro[1,2,3], Dr Luisa Massarani[3]

[1]Federal University of Rio de Janeiro, [2]Ludwig Maximilian University of Munich, [3]Brazilian Institute of Public Communication of Science and Technology

Although chemistry is an important part of our lives, it seems the society has developed a certain rejection and lack of interest in chemistry. The term "chemophobia" describes both the fear of chemistry and/or its products and the fear among teens toward chemistry teaching, since they consider a difficult subject to understand. The current study aims to examine the attitudes and representations of teens toward chemistry. The research was conducted with 14 to 16 years old teens, in the ninth year of secondary school. In this age, teens already have a certain familiarity with chemistry, such as the quantitative aspects of chemical transformations and the structure of matter, but without much depth. During the months of August and September 2023, quantitative data was collected by applying a questionnaire containing 22 questions to 14 classes on five campi of an elementary school located in the city of Rio de Janeiro, Brazil, reaching a total of 352 responses. The questionnaires were administered during science classes. Despite their lack of familiarity with chemistry, the teens demonstrate an understanding of the role of chemistry in society, with most of them agreeing that chemistry is present in everything, makes important contributions to society and makes our lives easier. However, young Brazilian teens don't feel very informed about chemistry and chemical products, and just under half (47.9%) can provide concrete examples of applications of chemistry in their daily lives. The majority do not feel confident talking about chemistry (70%). However, they say they are interested and excited about chemistry, and most believe it is important to study chemistry at school. Overall, the results suggest a positive view of chemistry, yet they also highlight a critical perspective, with 45.6% of the participants believing that it brings benefits to humanity, but that it also causes harm.

Audience's perceptions of science and scientists in Brazilian S&T events

Dr Giulia Accorsi[1], Dr Leda Sampson[1], Dr Érica Mendonça[1], Ms Marina Pimentel[1], Ms Mayara Silva[1]

[1]Brazilian Institute of Information in Science and Technology

Apprehending the audiences' perceptions of science and the scientists can be a fruitful strategy to develop successful and inclusive approaches on science communication. In this regard, Canal Ciência, the science communication unit within the Brazilian Institute of Information in Science and Technology, promoted an activity during five science and technology events to elicit visitors' perspectives on these topics. The initiative is presented here not only as a playful activity which can be adapted to different contexts, but also as a tool to help science communicators to reflect upon their practice. During the events a whiteboard was available for visitors to voluntarily complete sentences related to the theme.

The 810 collected answers reveal the public's high engagement with the proposal, demonstrating that the audience recognizes the importance of expressing their opinions on the subject and appreciates participating in the S&T public debate. A preliminary data analysis showed that the terms most associated with scientists' image were "innovation", "curiosity", "persistence", and "discovery". On the other hand, these professionals were also described as "arrogant", "tired", "crazy", and "suffering". Renowned scientists, such as Isaac Newton, Marie Curie, Albert Einstein, and the black Brazilian geographer Milton Santos were mentioned in some answers.

The aforementioned results provide a starting point to think over the conceptions of science and scientists that are usually advertised by the media and eventually rethink certain science communication strategies. We believe that public communication of science is a powerful tool to promote democracy, inclusion, and thus to face the challenges imposed by our contemporary and changing world, such as fighting against misinformation. However, to endorse these values it is essential to develop science communication contents that overcome stereotypes, advertising science as a non neutral human endeavor and its professionals as diverse human beings, with their own personal interests and idiosyncrasies.

Enabling science communication about climate change through open licenses

Ms Taylor Campbell[1], Mr Jan Ainali[1]
[1]Creative Commons

To communicate effectively in times of crisis like climate change, it is paramount that every science communicator has the best resources at hand when doing so. Therefore, we need to transition from publishing climate data and data visualizations under full copyright protection to a sharable resource using open licenses. At the same time, it is important to retain the trust of science institutions by providing good provenance for the resources used when incorporating knowledge from other sources, and to make it easier for others when they reuse yours. To ease all of this, Creative Commons has developed Recommendations for Better Sharing of Climate Data. When doing this, Creative Commons consulted and collaborated with key members of government agencies and intergovernmental organizations like European Centre for Medium-Range Weather Forecasts (ECMWF), International Organization for Standardization (ISO), U.S. National Aeronautics and Space Administration (NASA), U.S. National Oceanic and Atmospheric Administration (NOAA), World Meteorological Organization (WMO) and World Resources Institute (WRI).

In this talk, we'll go through these recommendations; showing both how you can improve your licensing and legal terms that maximize free and unrestricted sharing, and applying the minimum metadata values that center licensing, attribution, and provenance. We will explain how the Creative Commons licenses work, how to apply them, and which ones that make can make your resources reach farthest.

We will also talk about how this can be applied to all layers of scientific knowledge, from the raw data to the more popular science communication aimed at non-academic audiences.

The Renaissance of Science Culture:The Spring of Science in China

Prof. Guoyan Wang[1]
[1]Soochow University

The relationship between science and society in China has experienced significant fluctuations, transitioning from a prolonged winter to a flourishing spring. For over two millennia, Confucian culture has dominated, leading to a societal preference for literature and arts while relegating science to a lesser status. However, what has enabled contemporary Chinese citizens to deeply understand that "science and technology are the primary productive forces" and to rapidly develop into a global technological powerhouse? This transformation stems from a profound and systematic shift in scientific values, referred to as the "Spring of Science," which also signifies a renaissance in science communication.

The Spring of Science represents a dual celebration. At the National Science Conference in March 1978, it is released that "the most brilliant spring of science in our nation's history." Prior to this, science faced skepticism and restrictions in China. Afterwards, science emerged as a spiritual pursuit for the Chinese people, breaking the ideological shackles that had constrained scientific thought and marking a new societal phase that respects and values science.

Artist Ding Yilin captured the dual essence of the "Spring of Science" in his 2009 oil painting, which depicts the hope and revitalization of the scientific community post-conference. This artwork parallels Raphael's "The School of Athens," illustrating a timeless dialogue of knowledge and reflecting the humanistic spirit of the Renaissance.

The term "Spring of Science" has become a symbolic metaphor in China, representing the resurgence of vitality in the scientific field. It has significantly influenced science communication in China, expanded its scope, highlighted the importance of science education, and fostered a societal atmosphere that respects and trusts science, propelling China toward becoming a technological powerhouse.

Quality Criteria in Visual Science Communication – Design Experts' Perspectives

Julia C. Ahrend[1,2]

[1]KielSCN Kiel Science Communication Network, [2]Muthesius University of Fine Arts

While science communication (SciComm) research recognizes the impact of visual elements, often included under the umbrella term "style," (see e.g. Bucchi, 2013) there is no consensus about what exactly determines visual quality. Recent inquiry on quality criteria in SciComm splits the scientific content from its visuality, subsuming visual criteria in "presentation" or "format" categories (see e.g. Fähnrich et al., 2023; Olesk et al., 2021). This is insufficient as basis to systematically describe and empirically investigate the quality of visual SciComm. Here design research can contribute insights on which aesthetic strategies designers perceive as crucial in the creation process of visual SciComm and what criteria they use to judge visual quality.

In this process designers face the specific challenges of external SciComm, such as visualizing processes that lack counterparts in everyday reality to make them accessible and simplifying complex information. They must balance tensions between scientific accuracy, audience visual literacy, and aesthetic considerations.

In a qualitative study and using semi-structured interviews, I discuss exemplary visuals with the design experts who created them. This will provide insights into their aesthetic strategies. Through qualitative content analysis (Kuckartz & Rädiker, 2023) I aim to identify underlying quality criteria. This contributes to the development of a typology of design properties for visual SciComm. An analysis of media properties will provide a description of the design principles at play during the interaction process. Together with the interview study, this analysis takes into account the described tensions emerging through the visualization of scientific content. Altogether this will form a more systematic perspective on the quality of visuals in the field.

In this presentation, I will provide - theoretical and empirical - insights into how designers in the field of visual SciComm navigate occurring tensions and what aesthetic strategies they employ to address them.



Parallel Session A7

Victims, Saviors and Dramatization: Climate Change Narratives in Agricultural Media

Prof. Yu-Chan Chiu[1]
[1]National Taiwan University

Climate change has profoundly impacted agriculture, posing significant threats to food security. News media are crucial in shaping public perception of climate change and influencing policy. They adhere to established values and narrative models, often emphasizing conflict, simplifying, and dramatizing events by creating stereotypes of certain groups to attract audience attention. This study qualitatively analyzed 774 news articles from two major Taiwanese agricultural digital news outlets over a decade (2014-2023) to explore how climate change's impact on agriculture has been represented. The findings reveal that farmers are typically portrayed as victims, with headlines such as “Mass die-off of oysters” and “Farmers tearfully abandon harvest as extreme weather and pests ravage crops.” Conversely, the government is often depicted as a savior, providing agricultural insurance and compensation for disaster losses. For example, "The backbone of farmers and fishermen." Some stories feature farmer heroes for innovative farming techniques, while the roles of consumers and the public are largely overlooked. While the media's portrayal of farmers as victims may evoke sympathy and support, it may also perpetuate a sense of helplessness and dependency. This could hinder the public's understanding of the complex relationships between agriculture and climate change and how to address these challenges. The study underscores the crucial need for the media to strike a balance in their reporting, highlighting both the struggles and the resilience of farmers. This balanced approach can provide a more comprehensive understanding of the issues and empower the public to take action. The social context of Taiwan, where farmers have been seen as politically essential yet economically disadvantaged, may influence this reporting approach. The study's findings, therefore, hold significant potential to influence readers' understanding and attitudes toward climate change and agriculture, as well as their implications for policy-making and climate action in the agricultural domain.

On the Anti-Vaccine Sentiment in the Post-Pandemic Era

Dr. chenching Cheng1
[1]Hong Kong Chu Hai College

In the post-pandemic era, people have begun to reflect on various aspects of the pandemic period, including government policies, public health campaigns, life during lockdowns, and the evolution of public perceptions about disease prevention. Compared to Western countries, Asian regions have generally seen a higher degree of government intervention in their pandemic response. Therefore, this study chose to compare students from communication departments in China, Hong Kong, and Taiwan, asking them to revisit and critically analyze several key topics from the pandemic, including their views on vaccine policies, their assessment of government policies and measures during the pandemic, their reflections on their own lives and mental states during that time, and their perceptions and attitudes toward major infectious diseases after the pandemic. Focus group interviews with a small sample were conducted to compare how communication students in these three regions, under different political systems, perceive the relationship between government pandemic measures and daily life.

The study surveyed 69 communication students across these three regions. It found that the extent of government control during the pandemic is clearly reflected in post-pandemic perceptions of infectious diseases, especially regarding the effectiveness of vaccines, attitudes toward vaccination, and reflections on public health policies and government control measures. Another focal point of the study is the "desensitization effect" that has emerged after the COVID pandemic, where public fear of disease has diminished, while skepticism towards medical science has surfaced in online media and public awareness. In the future, how should governments or nations readjust their public health communication strategies in response to these changes? This study, by examining the reflections of communication students across the spectrum of government control, may offer some insights for policymakers on how to better approach public health campaigns.

The unfamiliarity of the familiar: how to communicate biotechnology-related science?

Rita Campos[1], Bianca Brito[1]
[1]CES - Centre for Social Studies, University of Coimbra

Biosensors are analytical devices able to identify and measure chemical substances, enabling rapid, accurate detection of diseases, monitoring environmental pollutants, ensuring food safety, and improving medical diagnostics. Besides their specialized, more professional applications, biosensors are also widely used in society, from everyday devices like smartwatches, which monitor vital health parameters, to medical tools such as pregnancy tests, COVID-19 tests, and portable glucose monitors. While these technologies offer significant benefits, they also raise controversial issues, such as concerns over privacy in health data collected by wearables, the accuracy and reliability of home-use diagnostic tests, and the ethical implications of continuous health monitoring. Science communication plays a crucial role in addressing these controversies by engaging the public in conversations related to how biosensors work, their benefits, and potential risks. These are the main goals in the communication strategy of the Horizon Europe-funded project Bioassembler, that aims to develop a new biosensing technology. However, a preliminary evaluation of the project communication revealed low public engagement levels. This can be related to a general unfamiliarity with the specific terminology of the research. In fact, a focus group with young adults showed that people benefit from devices like smartwatches without understanding that these are biosensors, leading to a disconnect between usage and awareness. This lack of familiarity can make it difficult to spark interest or meaningful discussions about the science behind these tools, the ethical concerns they raise, or the potential implications for health and privacy. Overcoming this challenge requires clear, relatable communication that bridges the knowledge gap and makes the science relevant to their everyday experiences. Here we share the project's efforts in designing a living communication plan able to effectively engage the public in the ongoing research, specifically by promoting dialogical channels with different publics and creating art-based materials.

Global relevance in Science Communication: No global without the local

Mr Jon Chase[1]

[1]Freelance Science Communicator

How does science communication balance its global spread with the varied needs of local audiences?

Science is inherently a global enterprise and that means science communicators literally have a world of opportunities. In particular, global issues such as climate change, sustainability and global pandemics have increasingly made us aware that to solve some of our biggest problems requires sharing, collaboration and actions that reach beyond national borders.

Good science communication has a major part to play in this, although research has shown the global landscape to be far from even, with regions having vastly different access to skilled science communicators and associated training.

The recent EU funded GlobalSCAPE project aimed to take stock of the experiences of some of these global science communicators. As part of the project an open access training course for science communicators was developed and delivered globally online. The focus was on global relevance in science communication and had the premise that to be globally relevant actually involves adapting global science communication trends to fit local nuances and contexts.

In full awareness that the global spread of science communication practice and theory has historically gone from the West to the rest, the workshop was set up to allow a mutual transfer of learning and experiences. It was delivered in four different time zones and brought together a great variety of individuals, all with a vested interest in communicating science more effectively in their regions.

In this talk I will share some of the insights gained from the workshops, such as differences and similarities in challenges, opportunities and experiences as perceived by the more than 150 participants from across the globe.

How Should We Engage on Sensitive Topics Like Leprosy?

Hanifah Nisrina Cahyaningtyas[1], Dr Grijsen Marlous L

[1]Oxford University Clinical Research Unit

When a topic is as sensitive as that of leprosy, how should we engage? Reflections from community engagement with leprosy stakeholders in Indonesia.

The stigma associated with leprosy remains a significant barrier to seeking care for individuals living with the disease. This social phenomenon is characterised by labelling, negative perceptions and discrimination. Over time, stigmatised individuals may internalise these negative perceptions, leading to self-stigma. Leprosy, known as Hansen's disease, is a neglected tropical disease caused by Mycobacterium leprae, primarily affecting the peripheral nerves. Efforts to destigmatize the disease require a greater understanding of the underlying factors contributing to the disease's stigmatisation.

In this project the University of Oxford Clinical Research Unit Indonesia (OUCRU ID) team used a multifaceted approach to engage with people and communities affected by leprosy in Sumba, Indonesia. We combined in-person and digital engagement: 1. In-person photo exhibition: a physical exhibition featuring photographs of individuals living with leprosy; 2. Online photo exhibition: A virtual gallery accessible on the website; and 3. Social media promotion: the use of social media platforms to disseminate information about the exhibitions and raise awareness of leprosy. These media communications provided a visual storytelling of people affected by leprosy. We reflect on the public responses to the media and ask if the visual narratives can impact the sense of community or isolation among people affected by leprosy and strengthen their resolve towards health seeking, and help build understanding and empathy among visitors.

Churnalism in (Science) Journalism: Insights from a Systematic Review (1999–2024)

Janise Brück[1], Dr Charlotte Knorr[1], Prof Lars Guenther[1], Prof Ayelet Baram-Tsabari[2], Prof Marta Entradas[3], Prof Marina Joubert[4], Professor Yin-Yueh Lo[5]

[1]LMU Munich, [2]Technion – Israel Institute of Technology, [3]ISCTE – University Institute of Lisbon, [4]Stellenbosch University, 5Shih-Hsin University

Although (digital) science journalism is among the most important sources of scientific information for many people, the profession faces many challenges. One of them is so-called churnalism (Davies, 2009), or copy-and-paste journalism, a journalistic practice in which journalists heavily rely on external third-party materials, leading to news that are (highly similar) reproductions of this material. While the practice has been accused of being particularly prevalent in digital media environments, established theoretical approaches have been examining the relationship between journalism and its sources [e.g., public relations (PR)] for decades. Previous research on churnalism therefore points to a range of understandings, findings on its prevalence, and implications for journalism. Here, we test if what applies to journalism in general is also true for science journalism in particular. Therefore, this preregistered systematic review qualitatively examined 46 papers (1999–2024), following a deductive-inductive approach. Our findings confirm that churnalism is multifaced and primarily attributed to deficits in (science) journalistic routines. While in the context of science journalism, this refers exclusively to a PR orientation, in journalism in general, churnalism is also seen as part of a broader structural shift of the profession. Empirical studies use different methodological approaches with inconsistent operationalizations and confirm the prevalence of churnalism predominantly in science journalism but also partially refute it in journalism in general. The findings therefore suggest that the prevalence of churnalism is determined by various influencing factors (e.g., source authority). Moreover, results show that although churnalism may benefit the actors involved (e.g., reducing workloads), risks are particularly threatening for science journalism, as a lack of critical reporting can affect the credibility of scientific information and the public image of science. Accordingly, there is a specific churnalism in science journalism that not only seems to be more prevalent but also potentially represents a transition in science communication.

How much does ChatGPT trust in science?

Prof Rainer Bromme[1], Luise Hönig

[1]University of Muenster

ChatGPT is an example of a large language model capable of providing answers to user generated questions, including questions about scientific topics or issues related to science (e.g., health-related questions). Responses are based on the extensive text corpora that the system has been trained on. These corpora can be seen as the text version of social representations of the world (in the sense of the social psychologist Moscovici), i.e. belief systems that can be assumed to be shared knowledge in a specific social and cultural context.

In our paper, we are focusing on social representations of science and especially of trust in science, as they are available via ChatGPT. While the program refuses to provide answers to direct questions about its "own" values and attitudes, with suitable prompts it is possible to provoke answers allowing for an assessment of the systems' trust in science. We will report on Chat GPT's 'spontaneous' stance toward the trustworthiness of science and of scientists. Our results provide a snapshot of ChatGPT's social representations of trust in science.

ChatGPT's representation of trust in science will be analyzed against the background of recent theoretical models and empirical research on public trust in science. Understanding Chat CPTs 'understanding of public trust in science is interesting for science communication for two reasons: As a tool for empirical reconstructions of social representations (a kind of average of the public's trust in science) and as an example for a technology which is used by the general public for acquiring information about science.

Exploring Online Health Information Seeking Behavior (OHISB) among young adults

Ms. Kristine M. Stifjell[1], Prof. Torkjel M. Sandanger, Prof. Charlotte Wien
[1]UiT The Arctic University of Norway

Introduction: Accurate health information and the ability to navigate online sources are crucial for empowering individuals to make informed decisions about their health. With the integration of the internet, portable technology, social media and AI, young adults (≥ 18) increasingly rely on digital platforms for health-related information. However, a systematic overview of young adults' online health information-seeking behavior (OHISB) is needed.

Objective: This scoping review aims to understand young adults' OHISB by addressing three research questions: 1) Identifying studies on young adults' OHISB, 2) Determining which digital platforms are most used for health information, 3) Identifying user interface characteristics that align with young adults' needs and trust.

Methods: An initial and comprehensive literature search was conducted in March 2024 using Embase, Web of Science, and SCOPUS. From 4634 publications, 912 were screened after removing duplicates, with 32 meeting the inclusion criteria. Qualitative content analysis was used to identify common themes related to the research questions.

Results: Studies show that young adults primarily use search engines and social media to access health information from various internet-based sources. Six impact factors were identified, leading to the proposal of six user interface characteristics: credible content from trusted professionals, usability, tailored language, Web 2.0 features, privacy, and inclusivity.

Conclusion: The review highlights a gap in the research on young adults' OHISB, indicating that the field is still evolving within a rapidly changing digital landscape. Many existing studies are outdated, suggesting a need for more current research. Future studies should focus on elaborating young adults' OHISB in the context of AI, enhancing health literacy, and investigating the specific needs of young adults in vulnerable positions.

The presentation will showcase up-to-date examples of ideal and counterproductive practices enhancing the results.

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Discovering Romany Women in UK STEMM: A Case Study

Ms Marie Bowers[1], Cass Nicholas[2], Dr Iain Rowe[1]

1University of Glasgow, [2]University of Bristol, [3]University of Aberdeen

Gypsy, Roma and Traveller (GRT) are some of the most discriminated-against ethnically minoritised groups in the UK. They also have the worst educational outcomes of any group in the UK. Few members of these groups transition into Higher Education and they are vastly underrepresented in STEMM. This case study investigates the experiences of two female members of the Romany (Gypsy) group who work and study in STEMM; how they found each other, worked together on a STEMM outreach project, and found that STEMM communication can achieve far more than merely convey scientific facts and their applications.

In 2021, Marie Bowers set up Science Travels, an outreach project seeking to engage GRT (and Showman and Boater groups) with STEMM. Working as a technician at the University of Glasgow (UoG), she was supported by academics and Public Engagement (PE) professionals to publicise the project, and so a blog was published on the University's PE forum. This blog brought Marie together with Cass, the only other Romany woman in STEMM Marie had met in her career of more than 20 years. Through working together online on a summer studentship project, Cass and Marie devised a 'Hook-A-Marine Animal' game with academic support from Dr Iain Rowe.

The project benefited from Cass's artistic skills as well as her scientific knowledge, creating a unique learning experience for all participants, grounded in Romany lived experience. Science Travels has been embedded in STEMM teaching at UoG, has received funding from The Physiological Society and has been showcased at events at Westminster and Holyrood. The 'Hook-A-Marine Animal' game has been pivotal in starting conversations about GRT, Showman and Boater groups, raising their profile in HE and STEMM and seeking social change through the medium of Science Communication.

Infographics as tools to enhance health-information leaflets

Jeanne Muizelaar[1], Mark Bos[1]

[1]Utrecht University

Even in this time of citizen science and public participation in science, more traditional, and often one-way, modes of communication are employed in various domains in science communication. Printed leaflets are still an important information source in health contexts. And visuals have been shown to increase engagement with information, facilitate understanding, and minimize cognitive lead. In this talk, I will present recent research performed on information leaflets and argue how we, together with the Dutch National Health Institute, have tried to modernize it using visuals. Semi-experimental survey-based research showed promising results for engagement with the leaflet and behavioral intent. In our study, we enhanced an existing and in-use information leaflet from the Dutch Health Institute (RIVM) about vaccination against influenza and pertussis intended for pregnant people with infographics to see if this would have beneficial effects. The information visualized was selected based on an operationalization of the health belief model and using surveys people's opinion on the leaflet, health beliefs, and vaccination intent were investigated. One hundred seventy-seven Dutch speaking pregnant people took part in our study. The visually enhanced leaflet was shown to be better appreciated, reflected by better ratings and higher levels of engagement with the leaflet, compared to the currently in-use version. The visually enhanced leaflet also scored well on vaccination intent for pertussis, but not for influenza. The findings of this study provide insights into how visuals can contribute to effective health communication.

Bridging Tradition and Technology: Jieqi and Farmer's Calendar in Taiwan

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[1]Dept. of Bio-industry Communication and Development, National Taiwan University, [2]Dept. of Bio-industry Communication and Development, National Taiwan University

Jieqi - the 24 solar terms and the lunar calendar have historically instructed agricultural activities by determining optimal times in Taiwan. However, contemporary farmers are facing extreme climatic conditions, they use technology to enhance weather observations and to modify farming practices. To improve agricultural resilience and develop technology with humanistic thinking, it is imperative to know how these traditional systems coexist with modern technology.

We take Edward T. Hall's Cultural Iceberg as a conceptual framework, which posits that culture is like an iceberg, with a small portion (e.g. language and food) visible above the surface, while a much larger part (including beliefs, values, attitudes, and thought patterns) lies hidden beneath and influences behavior. We focus on the observable aspects of agricultural practices (such as planting schedules, fertilization, crop spraying, and harvesting) and the underlying cultural beliefs that support these practices. We interviewed 12 farmers from various regions in Taiwan to gain insights.

At first glance, integrating scientific weather forecasting tools—such as the website, APPs, and weather sensor systems—has improved efficiency and productivity. Nevertheless, farmers report that solar terms and the lunar calendar remain significant in their decision-making processes, particularly regarding the timing of sowing, harvesting, and shipment, which often accommodate traditional Lunar holiday gift-giving and festivals. Furthermore, regional temples draw Chinese fortune sticks annually during the lunar year, providing poetic insights to predict the year's harvest outcomes.

Traditional practices offer a sense of continuity and consensus. It shows farmers' connection to historical customs that have been passed down through generations, fostering a shared understanding within the farming community and reinforcing social cohesion. The integration of weather information with solar terms and lunar calendar enables not only farmers but also consumers to preserve Chinese culture and use it in commercial advertisements and agricultural disaster prevention and control.

Redefining Success: Lessons from Co-Created Programs with Different Community Partners

Kylie Kosulic[1], Nicole Bucio[1]
[1]Chicago Council on Science and Technology (C2ST)

Co-creation has been a hot topic for the past few years. It centers around authentically engaging with community members and organizations to create science content and programming that is more meaningful and relevant than when done alone. But what does co-creation mean in practice and how must we adapt even the process of co-creation when working with different groups? The Chicago Council on Science and Technology (C2ST) will present 3 co-creation case studies from three different science communication projects. Each project highlights a different partnership, program style, and audience. C2ST works with partners from all over the Chicagoland area and each partner has different needs and goals. Part of co-creation is bending and flexing to those differences. For each case study, we will share key learnings and outcomes as well as answer questions as we explore how success changes based on each partner organization's needs and communities.

Tailoring Weight Loss Information: Gender-Specific Insights on Exercise Promotion

Miss Xinyi Jin[1]
[1]Soochow University

Obesity is a serious global public health issue, driving the need for effective health information interventions. Current research often overlooks gender differences in response to health messages and typically relies on behavioral intentions rather than actual behavior to assess communication effect. This study addresses this gap by designing a 2 (message framing: loss vs. gain) × 2 (evidence type: statistical data vs. personal narrative) × 2 (support type: informational support vs. social support) experiment, conducted in an undisturbed online environment via the health app Boohee. Our research aims to explore the short-term (one week) and long-term (four weeks) effects of weight loss-related health information on exercise promotion and how to effectively organize such information for different genders.

The results suggest that among female users (N=480), receiving weight loss-related information significantly increased exercise levels in both the short and long term. In the short term, no significant differences were observed between various message designs. However, in the long term, informational support (linking to the app's “Weight Loss Q&A” section) proved more effective in promoting exercise behavior than social support (linking to the “Weight Loss Partner” section). For male users (N=401), receiving weight loss-related information showed no significant short-term effect but did increase exercise behavior in the long term, with data-driven evidence proving more effective.

In conclusion, women may exhibit a more immediate and impulsive response to health information, preferring explicit instructions or concrete advice that can be easily translated into actual behavior. In contrast, men may take longer to process and internalize the information, indicating a preference for logical reasoning based on statistical evidence before making behavioral changes. This study highlights the importance of considering multi-factorial designs in health communication and provides practical insights for tailoring gender-specific information interventions to combat obesity.



Parallel Session A:8

Monitoring climate from space: bringing the message to politics

One of the responsibilities of institutes involved in climate research is to communicate developments in climate change. SRON Netherlands Institute for Space Research builds space instruments to monitor methane emissions and study the influence of aerosols on global warming. The goal of our communication approach is to get the message across to policy makers and the public that we can combat climate change by studying our atmosphere from space.

Alongside CO2, methane and aerosols are also important aspects of climate change. Methane is responsible for over a quarter of human-made global warming and about thirty times more potent than CO2. Aerosols are the large unknown factor in climate science and policy makers need more knowledge to set out more effective climate policies. SRON scientists weekly discover large methane hotspots and have recently launched an aerosol instrument.

To continue this research and to actually make an impact, we need the attention of politics and the public. In my talk I show best practices to reach this communication goal. We have reached broad exposure for the topic of methane and aerosols within The Netherlands, reaching both the public and policy makers. We hosted three visits of the Dutch prime minister, the minster of science and a parliament party leader. We also reached them, along with the public, through 21 aerosol items in national media between the time our aerosol instrument was ready and the launch of the satellite (three years). Our methane research got even more exposure in that timeframe, with 38 items in national media and 13 items in large international outlets.

Seedling Science Engagement in rural areas through European Researchers' Night

Raquel Branquinho[1,2], Inês Duarte[2], Cândida Sarabando[2,3], Susana Ambrósio[6], Cláudia Damião[5], Eduardo Teixeira[4,7,8,9,10], Joaquim Duarte[2,3], Xana Sá-Pinto[6]

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In the face of rapid scientific progress, many rural communities remain distant from the pursuit of science. Armamar, located in the Portuguese hinterland, isolated from scientific hubs, epitomizes this reality, with limited opportunities to engage with science. To democratize access to science and bring science to traditionally underserved territories, the local community-members, including secondary school students, were challenged to co-organized a Rural European Researchers' Night (RERN)-2023 in Armamar.

This study presents a narrative exploring the transformative potential of RERN to democratize access to science, foster public engagement with science in rural areas, highlight local researchers and their work, and empower researchers to involve citizens in science. RERN-Armamar collaborated with local and national partners, including municipalities, school clusters, NGOs, and ERN-SCIEVER-Consortium. The event attracted over 200 participants (1-70 years old) and 29 researchers (27.6% native from Armamar) from 14 institutions, covering different scientific fields, from natural to social sciences, through science stations and flash talks.

Questionnaires applied to participants show they rated the event as excellent: 98% expressed a heightened interest in science, 89% became more aware of local scientists, 93% recognized science's potential to address local issues, and 97% expressed eagerness to collaborate with scientists. Through focus groups, local co-organizers reported significant learning outcomes related to content knowledge, the development of their science capital, and the increase in how they valued scientific inquiry. Participants also reported the development of other transversal competencies fundamental to their personal and professional growth.

These findings highlight the potential of RERN co-organized with local actors as a valuable instrument for advancing rural engagement in science, facilitating the formation of stronger connections between scientific and rural communities. RERN can contribute to science knowledge, science capital and science identity of these communities, fostering a more inclusive, equitable and collaborative access and opportunities for all.

A vision for Aussie Science Communication

Dr Tom Carruthers[1]

[1]Australian Science Communicators

With much of Australia (and the world) in significant cost-of-living pressures, justifying the expense of a professional network can be difficult, especially for individuals who's membership may not be supported by an employer. Volunteers, sole contractors, and small business employees particularly experience this barrier. For contemporary professional associations to remain relevant and vibrant (and to not exclude valuable members behind), they need to focus on what is good for their membership, fundamentally offering more value than the financial expense of participation, all while maintaining sustainable operations. This can be a difficult balance to achieve.

The Australian Science Communicators is the peak body for science communication in Australia. Over the past 30 years, the ASC has run many successful conferences, held symposia, given awards, support scholarships, been instrumental in national and local science communication initiatives, and has found financial stability. With this success, the organisation is well placed to crucially evaluate its past to prepare for the next thirty years.

To this end, the ASC has conducted a three-year process of strategic review and development to focus on the value it provides its members; value most needed by the membership and the broader sector within Australia, and value the ASC can uniquely offer.

This talk will briefly summarise the traditions and 30-year context of the association; share the listening and development process used to understand the tensions, opportunities, and gaps in scicomm sector in Australia; and outline the planned transition path toward a vision and strategy that equips the association to be a more valuable player in the science communication sector in Australia and globally.

BlueRemediomics: a transition from science to policy

Dr Federica Casolari[1], Prof Marcel Jaspars[1]

[1]University of Aberdeen

The EU BlueRemediomics Project aims to develop innovative tools for studying marine microbiome data, uniting experts to develop sustainable marine microbiome-based products, processes, and services, crucial for ocean resource discovery and utilization. It also simultaneously ensures equitable access to benefits and gauges societal demand for biobased solutions. Antimicrobial resistance in the EU is a pressing health concern, with over 670k infections yearly. As a result, my research is focusing on unexplored environments like the deep sea for novel antibiotic production. With this in mind, we scouted four peptide metabolites already reporting antibiotic activity for large scale production.

In recent years, breakthroughs in research policy have been made, with the BBNJ Treaty, working to ensure the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction, or DSI (Digital Sequence Information) serving as notable examples. Since this project deals greatly with both domains, policy knowledge was required to aid and support researchers' views in this regard. Therefore, my project started to focus heavily on access and benefit sharing, BBNJ and DSI, where scientific knowledge is needed and used to inform policy decisions. During my postdoc, my perspective had to transition from strictly research to a more dynamic position that included both policy briefings and lab experiments. This experience is yet to be concluded, but showcasing my advances, confusions and skills learned might gain more awareness on the mechanics of multidisciplinary research position. Transitioning from a research career to include legal discussion can be quite daunting, due to the different terminology and processes employed in the latter. My experience prompted me to question reading materials, peers, and experts, gathering suggestions on how to accomplish this transition. Finally, attending key meetings and conferences provided me with a comprehensive awareness of the research policy world, forwarding my progress in this field.

Popularization of racial studies during the Portuguese dictatorship

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The Portuguese scientific debate on race and miscegenation in the 20th century was complex, and the discussion on miscegenation in particular was nuanced during the Estado Novo dictatorship.

In the decades of 1930 and 1940, the general scientific community opposed miscegenation, with a range of different ideas related to different views on genetics, inheritance theories and on what was considered "racial improvement" being discussed. However, in the aftermath of the Second World War, with the rise of international decolonization movements and the international debate on race changing drastically, the Estado Novo adopted a rhetoric that claimed that a unique and pacific form of colonization had been employed by Portugal—the Luso-tropicalist thesis. In alignment with the Estado Novo's colonial ambitions, this thesis claimed, among other points, that Portuguese colonialism had been pacific, and that this was linked to the exchange of cultural values, the expansion of the Christian faith, and a propensity for miscegenation. Concomitantly, a shift to a broader acceptance of miscegenation seems to have occurred in scientific circles, even if not homogeneously, related to both genetics and cultural studies.

As with other dictatorial regimes, propaganda was an important tool for the Estado Novo, which contributed to the dissemination of nationalistic ideals that tied in with imperialistic ambitions. In this sense, the Luso-tropicalist thesis in particular left lasting effects.

With this in mind, this presentation explores the way public communication of ideas on race and miscegenation was conducted during the Estado Novo dictatorship. Some Portuguese scholars directly contributed to this process, as authors of articles aimed at a broader audience. In this context, newspaper articles and audiovisual content will be examined. The analysis aims to contribute to our understanding of the role scientific communication plays in dictatorial regimes, especially in the wider dissemination of ideas aligned with political agendas.

Relationship Roadmap: A Rural Research Institute's Transitional Strategic Communication Approach

Ms Catherine Copley[1], Dr Robert Ohle[1], Mrs Joanne Guizzo[1]
[1]Health Sciences North Research Institute

Health Sciences North (HSN) hospital acts as a nexus point for the entire Northeastern Ontario region. HSN's affiliate Health Sciences North Research Institute (HSNRI) produces basic science and clinical research pivotal to patient care. Prior to 2023, HSNRI did not have an intentional science communication strategy, despite the widespread impacts of work conducted by our staff, scientists, and affiliate researchers. As such, it became our task to set out a clear roadmap that would allow our teams to effectively integrate into the broader organization and community, taking into consideration a resource-limited institutional environment. We also faced unique geographical barriers in attempting to connect with our broader research-invested non-specialist audiences, given that a large proportion of our patients and participants reside in rural and Indigenous communities located several hours from our site.

Our presentation will reflect on the transitional period and associated tensions arising from the introduction of HSNRI's targeted communications strategy during a time of increased strategic alignment with HSN. We will highlight the outcomes of our purposeful approach to developing both internal and external relationships. In conjunction with this, we will emphasize the crucial foundational steps taken along the road to a sustainable and trusted academic and research communication footprint for the research institute.

Key landmarks included establishing consistent collaboration with HSN's communications team and a repeated presence on existing hospital outreach channels, refreshing and re-introducing a dedicated newsletter as a vehicle to facilitate connections, and implementing stepwise science communication training targeted towards our researchers and clinicians. These efforts culminated in a large-scale community-facing event hosted at the regional Science Centre, Science North. We will conclude with a discussion of lessons learned and novel, actionable takeaways of particular relevance for other researchers, practitioners, or institutions operating in newly-established, resource-limited, or non-urban environments in the field of science communication.

What Features and Mechanism of Evidence-based Science News in Emerging-technology

Dr Xi Cheng[1]
[1]SOOCHOW UNIVERSITY

When entering risk society, effectively presenting the scientific uncertainties of emerging-technology in the realm of science communication has become an urgent task. Evidence-based science communication has gradually gained attention in the era of post-pandemic. The effective introduction of evidence is considered capable of alleviating the quality concerns of scientific news triggered by uncertainties. However, the existence of uncertainties has escalated the difficulty in assessing the scientificity and accuracy of evidence. Consequently, the characteristics and processes of evidence selection in science news of emerging-technology reporting warrant attention, serving as a breakthrough for evaluating the mechanisms of evidence-based science communication.

This study aims to explore the following three questions: (1) What are the characteristics of the evidence presented in science news of emerging-technology? (2) What processes are followed in the selection of evidence for science news of emerging-technology? (3) How does the mechanism of evidence-based communication operate in science news?

To address these questions, this study will select three emerging technologies from the "Top 10 Emerging Technologies of 2024" released by the World Economic Forum in June 2024. Relevant news reports will be collected through Nexis Uni, CNKI Full-text Database of China's Key Newspapers, and Altmetrics. Subsequently, text analysis and word frequency analysis will be employed to summarize the characteristics of the evidence cited in the reports. The collected evidence will be coded and classified, and an attempt will be made to assess the evidence levels via the GRADE evaluation system from evidence-based medicine. Additionally, depth interviews with science journalists and related academic will be conducted to gain a deeper understanding of their practical processes of evidence selection. Ultimately, this study will summarize and propose an effective mechanism for evidence-based science communication.

From Theoretical to Theatrical: Engaging Audiences with Particle Physics

Laura de Vevey[1], Ruadh Duggan[1,2], Dr. Sascha Schmeling[1]
[1]CERN, [2]Utrecht University

In today's fast-changing world of science communication, bridging the gap between cutting-edge research and public understanding brings both challenges and opportunities. CERN Science Gateway, an education and outreach center in physical proximity to CERN, its accelerators, detectors, facilities, and people, serves as a hub for engaging the public with science. Through interactive exhibitions, hands-on lab workshops and science shows, we are working to translate the highly complex field of particle physics research into attractive and accessible demonstrations. Designed for a diverse audience, the science show performances play a key role in conveying the intricacies of particle physics, a field traditionally perceived as remote and esoteric.

This presentation will explore the role of Science Gateway science shows in balancing the tensions between theory and practice, as well as between scientists and citizens. We will examine how our shows address the challenge of translating complex theoretical concepts into digestible and interactive narratives without compromising scientific accuracy. Additionally, we will discuss how our presenters, most of whom are CERN scientists, work to create impactful public engagement and bridge the gap between their specialized knowledge and the understanding of non-scientific audiences. By exploring our methods, challenges, and achievements, this presentation aims to shed light on the multifaceted dynamics that influence science communication today.

(AI have been used to assist in helping to improve language, structure and the production of this abstract)

Science for All: NGOs Bridging the Gap in Croatia

dr. sc. MIA Čović[1]

[1]"Osnaži-usavrši-integriraj za razvoj" - OUI

In a world increasingly shaped by complex scientific advancements and threatened by the spread of fake news and pseudoscience, Croatia faces a pressing question: can our civic society rise to the challenge of widespread scientific illiteracy, or will we succumb to misinformation and stagnation?

Drawing on research into early scientific literacy, this presentation explores the opportunities and challenges educators in Croatia face. Surveys involving over 1,000 participants revealed a startling reality: Croatian educators often lack professional support, adequate resources, and a firm grasp of fundamental scientific concepts, significantly impacting their ability to integrate experimental activities and basic scientific principles into their teaching. In response, the 'OUI for STEM' program was developed, forming a support group for STEM educators and seeking funding for initiatives to enhance STEM education and scientific literacy. Through collaboration with faculties such as the Faculty of Science, Faculty of Agriculture, and the Faculty of Food Technology and Biotechnology, OUI designed a curriculum for a non-formal education program, which later earned the 'SKOCKANO' quality label. This initiative extended to educating a cohort of passionate educators within the formal education system, fostering collaboration to drive competency-based change in everyday educational practice. This journey into civic engagement exemplifies not just good practice, but the transformative power of interdisciplinary collaboration of NGO's and universities and civic society's role in tackling complex issues through non-formal education, networking, and supporting in-service teachers in challenging subjects, recognizing that the true fight for civic empowerment begins with scientific literacy.

Escape the Clinic: Escape Rooms as Science Engagement

Mr Harry Jenkins[1]

[1]Imperial College London

Escape the Clinic! is a pop-up escape room developed as a public engagement activity for PRESTIGE-AF – an EU-funded research project coordinated by Imperial College London.

At the heart of the project (2017-2024), was a clinical trial across Europe investigating whether intracerebral haemorrhage patients with atrial fibrillation should receive anticoagulants.

Developed in collaboration between PRESTIGE-AF's communications and clinical management teams, Escape the Clinic! used a novel escape room format to engage audiences with the complex research taking place within the project.

What started as a small activity in a science fair in London, became an international success. Between February 2023 and August 2024, the activity was run at 12 different events in the UK, Germany, Ireland and Switzerland, including science festivals, museum events, university outreach programmes, and major stroke conferences. In total, there were 58 escape room sessions and 502 'escape artists'.

Evaluation included a feedback form asking participants to note: something they liked, something they learnt, and something that they didn't like/would change. In total, 315 forms were completed across all sessions.

For each feedback area, comments were coded into categories and aggregated across all sessions. Key results include: 58% said that they learnt something about PRESTIGE-AF, stroke and/or atrial fibrillation; 60% said that they liked the escape room format; and 59% said that there was nothing they disliked/would change.

Overall, Escape the Clinic! is a case study that demonstrates the potential of pop-up escape rooms as effective tools to connect audiences with research by combining a popular and recognisable format with an unexpected topic.

Meet the team behind Escape the Clinic! who will discuss their learnings from developing and delivering this innovative engagement activity that breaks from tradition.

Exploring flooding transition and tension aspects of impaired persons.

Drs. Eileen Focke-Bakker[1], Prof. Pieter Van Gelder
[1]TU Delft, [2]TU Delft

The mission and purpose of our engaged inclusive research, for and with persons with visual-and/or hearing impairment as experience experts, is to diminish the number of victims due to flooding; a climate induced hazard. We investigated if and how they are managing the risk of flooding in their various environments, influenced by their own background and by the 'optimal quality' of public authorities' flood risk-handling. The results show that some background indicators e.g. health and wellbeing and cultural capital, the public authorities' quality assessment and the impaired own risk management give cause for concern and tension. Being older, living in flood sensitive land parts, and not going outside if there are too many obstacles are challenges when flooding occurs. The respondents' family-structure is not suitable for implementing public authorities' 'together-reliance' flood measures and their income might not be enough for flood resistance measures. Public authorities' measures are perceived as not fully optimal by the impaired. This might give tension in expectations between authorities expertise measures versus the impaired lived experience. Self-efficacy and respect, values of utmost importance of the impaired identity, are, from a non-inclusive able-bodied perspective, different from that the impaired. This could cause e.g. communication misunderstandings and power dynamics during flood rescue missions. Raising awareness on flooding, providing more specific information and making the information more accessible is needed. In 'utilization of the results', improvements are suggested as forward-thinking, sustainable incentives. The awareness of respondents capabilities of self-reliance, resilience and not privacy focussed e.g. during COVID-19, a global health threat, could change the approach in connecting to persons with a disability during incidents. Our study added value to quality data on the impaired, to the research on their flood risk management, and could have a positive impact on authorities' handling in case of flooding events.

Building Intelligent Robots: Acceptance and Expectancy among Chinese users

Dr Hon-ngen Fung[1], Ms Mengying Zhou[1], Ms Xiao Han[1], Ms Shiyu Luo[1], Ms Bowei Yan[1]
[1]Universiti Malaya

Children's programming robot serves as an experiential learning tool based on IoT STEM education, combining IoT technology and experiential education in STEM learning. It has the potential to provide interactive and engaging learning experiences. Yet the academic community has yet to reach a consensus on how the IoT directly relates to or contributes to learning outcomes and technological acceptance for students, especially between different geographical regions whose educational systems and cultural backgrounds differ, as between Asia and Europe. The purpose of this research, therefore, is to investigate the current state of IoT experiential tools in learning with reference to IoT in STEM education, and the perspective on that from different regions in China; how these tools foster STEM learning outcomes in different educational and cultural environments; how these technologies influence users' acceptance within both existing user populations and potential user groups; and what are the greatest opportunities and challenges in promoting STEM programming in different cultural and educational backgrounds. The study shows that the Technology acceptance Model (TAM) and Expectancy Value Theory works well for children's robot programming. Both how easy something is to use and how useful it is strongly affect people's attitudes, intentions, and actual use. Positive attitudes and intentions are important for real use, fitting with TAM's ideas. The study also suggests that although children's programming robots have made technical progress, the improvement in programming thinking and learning ability is difficult to quantify, and there is a lack of practical measurement tools, meaning parents' understanding of these tools needs to be gradually developed. Future programming education should focus more on practical application and improving parental awareness, while exploring scientific theories and methods to optimize product design and teaching services, thereby enhancing the accessibility and effectiveness of programming education.

Reflections on Planetary Health Communication Projects - Insights and Learnings

Anna Gaul[1], Monica Déchène[1], Dr. Bernhard Goodwin[1], Dr. Julia Serong[1]
[1]LMU Munich

For Linked Paper submission: 287

Practical science communication projects are essential to raise awareness andfoster understanding of the complex interdependencies between climate, environment and health among different communities. In such projects, theoretical and practical knowledge can be conveyed by providing a space for discussion and exchange. This can encourage participants to become more active in the field of Planetary Health (PH).

Our lab has already conducted numerous science communication projects with various target groups: First, our Open Call Experiments aim to improve our understanding of PH communication in the context of food systems. The call was addressed to different target groups, including planetary health researchers and other stakeholders in science communication. They carried out several science communication measures (e.g., city walks or a podcast) and conducted accompanying research. In addition, we are developing a heat workshop concept, which is intended to be easy to implement at a municipal level. Pilot workshops have already been conducted as well as spin-off workshops with refugees in and around Munich. Another project deals with constructive climate communication workshops, which are constantly being further developed. They provide a theoretical and practical perspective on constructive techniques and can be prepared for a general audience but also for (journalistic) professionals. Other science communication projects that have already been carried out include a film screening and an exhibition on the links between inflation and PH, to name but a few examples. An integral part of all our practical projects is their evaluation, which we will discuss in more detail at the conference. We will also explain their iterative development and reflect on how they can contribute to how people think about and act on PH issues.



Parallel Session B:6

Navigating multiple tensions in an extended public engagement training programme

Charlotte Coales[1]
[1]Imperial College London

Now in its seventh year, Imperial College London's Engagement Academy is an extended learning programme that brings together university staff with the purpose of developing their engagement practice through experimenting with ideas, reflecting on experiences, and exploring the relationship between science and society. The Academy enables attendees to explore how to meaningfully engage with local communities, create activities that are more inclusive and accessible, and to build and improve upon their confidence and communication skills among a supportive cohort of colleagues.

Externally accredited by the UK's Institute of Leadership, the Academy is delivered in partnership between Imperial's Science Communication Unit and the central Public and Community Engagement team, providing a practical programme of workshops, seminars, off-site visits and mentorship. Open to all staff from across the university, including academics and professional services staff, the academy takes a multi-intervention approach and is run over seven months.

Since its inception, training delivery staff have had to navigate various tensions, including the challenges of engaging with such diverse cohorts with varying experience (both in engagement and research), perspectives, priorities and needs. There have also been tensions in terms of the delivery of the training, the duration and timings of sessions, the blend of taught and self-directed learning, and the on-going balance between theory and practice.

This talk will seek to identify these tensions and how they manifest. I will describe the associated challenges, and explore how a variety of methods and techniques can help to alleviate conflict and instead capitalise on the benefits of engaging with such a complex cohort of participants through a multi-faceted teaching approach.

Science Adventure: Public Policy Program for Science Sensitazation in Brazil

MR Diogo de Oliveira, MRS Mauricelia Montenegro, MR Aluizio Guimaraes

This article reports on the implementation of a public policy developed by the Secretariat of Science, Technology, and Innovation, through the authors of this study, aimed at raising awareness of science among children in early and middle childhood (ages 3 to 9) in the state of Pernambuco, in the northeast region of Brazil. Science Awareness consists of a rite of initiation into science-related learning in which, based on stimulating and enjoyable educational actions, educational in-between places can be established. This policy is based on empathy and sympathy. It can create an initiation into science, in an affectionate, sensitive, and playful way, based on a set of strategies and tactics without focusing on content-based responses or explanations. Focused on the fascination with science, the program provokes curiosity and the resulting questions, based on visual, tactile, auditory, olfactory, and gustatory phenomena, or on the countless combinations that can arise from these senses. The program began with the implementation of a Science Senzitazation Room in Espaço Ciência, the largest open-air science museum in Latin America. This space uses educational and pedagogical materials based on the region's popular culture (short films, children's books, video clips, and experiments) and was developed by a transdisciplinary team of artists, educators, and pedagogues. The awareness room provided us with the support needed to classify and evaluate the data we acquired under controlled conditions. Our analysis of these strategies suggests it has a great potential for replicating awareness rooms in museums throughout the state of Pernambuco, in addition to the possibility of establishing partnerships to create these spaces with museums and schools in other states, other regions, and other countries.

Promoting Critical Thinking : tensions in scientific mediation

Mme Magalie Debisschop[1]

[1]National Conservatory of Arts and Crafts

Scientific mediators occupy a special place in the landscape of relations between science and society which is marked by the call for greater citizen involvement in science but also lament about growing mistrust in science and still the old question of the public's scientific knowledge.

A call for critical thinking has thus become a critical issue for education, policy makers, international organizations such as OECD, enterprises or scientists, for different but linked reasons. But as there is no consensus on what is “critical thinking” and as it engages reflexion on “the good knowledge”, the purpose of the call can be very different from an actor to the other, leading to tensions, especially for those who hold a middle position between science and society.

The French national strategy for scientific, technical and industrial culture has set itself the goal of “encouraging the development of critical thinking, methodical doubt and discernment” to fight against mind control of minds and enable the exercise of enlightened citizenship, said as the main vector of democracy and initiatives contributing to this objective are encouraged by French public policy. Scientific mediators ‘training to “develop critical thinking of their publics” is one of these.

Our study, based on a field survey driven at “l’Ecole de la Mediation” and the “Cercle FSER” in 2024, in France, examines the tensions that arise during this training. We identify three sources of tensions: linked to the need of professional recognition, to the mediators’ complex epistemology and to the global context of science and society.

This leads us to question the aims, content, practices and representations specific to the mediation field, its epistemological and professional cultures but also the way in which scientific mediators’ appropriate discourses and knowledge about critical thinking by redefining, circumventing and translating the standards and prescriptions they contain.

The Power of Timelapse Video to Communicate Science

Mr. Paul Donahue[1]

[1]Eawag Sandec

How do science communicators create buzz on social media and broaden their audience? One way this is through the use of video, which can have a powerful impact on audiences.

Videos have the ability to distill complex subject matter into concise and visually engaging content that can help enhance understanding and retention. Your video content can be both informative and entertaining, help build a stronger connection between your organisation and audience, and attract new audiences.

Timelapse videos stand out as a compelling way to express your content in a captivating and condensed format. Timelapse offers a unique perspective on the passage of time, condensing hours, days or months into mesmerising sequences that captivate, inform and reveal deeper insights of an event or story. Whether documenting a construction site, the set-up of an event or the evolution of a project from concept to launch, timelapse footage provides a visually engaging narrative that can resonate profoundly with audiences.

Sandec has used timelapse videos to capture events, such as the HTC (hydrothermal carbonization) Experiment or the way Black Soldier Fly Larvae (BSFL) devour two fish, which have attracted thousands to millions of views on our YouTube channel (Sandec Eawag). Both videos condense a 24-25 hour period into several minutes. The BSFL video has reached more than 2.5 million views, while the HTC video has received 5.2 thousand views, and our channel has 25.9 thousand subscribers.

In an increasingly visual world, timelapse videos offer a powerful medium for breaking out of the social media bubble and capture attention and new subscribers/followers. They can be the basis for impactful storytelling by enabling the telling of stories dealing with the passage of time with remarkable clarity and beauty. You can elevate your content on a visual level and achieve a wider audience and deeper impact.

Explorathon 2014-2025: Tensions, Traditions and Transitions in Public Engagement Practice

Dr Chris Croly[1]
[1]University Of Aberdeen

Explorathon is Scotland's contribution to European Researchers' Night, and has been running funded by the European Commission and UKRI, for over a decade. European Researchers' Night is the largest public engagement event with research in Europe, and in Scotland, a consortium of universities—representing some of the most research-intensive institutions—has led this initiative. Over the years, the consortium's composition has evolved, reflecting changes in the landscape of public engagement. In 2016, the partnership was recognized with the Association of Research Administration Managers award for Best Collaborative Project.

This presentation will examine the evolution of Explorathon's public engagement practices from 2014 to 2025, focusing on the themes of tensions, traditions and transitions. Our challenges have included recruiting and training researchers as well as in organising stimulating and engaging events. Explorathon has pioneered innovative methods to bring research and researchers into the public sphere, reaching diverse audiences in urban and rural areas, shopping centers and traditional venues. Our approach has continually adapted to shifting dynamics, challenging conventional engagement models while drawing inspiration from the broader practices within European Researchers' Night.

Through this reflection, I will explore how we have challenged traditions, met with tensions and changed our practices over the last decade, as well as highlighing successes, challenges and lessons learned over the past decade.

The Mythology of Artificial Intelligence

Dr Kanta Dihal[1], Dr Stephen Cave[2]

[1]Imperial College London, [2]University of Cambridge

The public communication of artificial intelligence (AI) is characterised by extremes. It is hyped as an extraordinarily powerful technology set to transform the human condition, in ways that range from enabling us to live in blissful ease, to exterminating humanity wholesale.

One of the most striking features of this burgeoning technological revolution is how much it has been foretold in our cultural and literary imagination. In this presentation, we will show how we can better understand both the technology and its communication by thinking of the public communication of AI as a mythology: a value-laden web of literary and cultural narratives with many and diverse connections to the technology, its history and its politics.

We will first briefly define what we mean by a 'mythology', arguing why it is worthwhile to think about AI in this light. We will then introduce the structure of this mythology, elucidating the most powerful AI myths and revealing how they embed norms, values, and power relations. We will argue that the core themes of this mythology reflect the ideological structures of the culture from which they have emerged, in particular the ideologies that long supported gendered and racialised hierarchies of humanity, and justified colonialism and exploitative and extractive forms of capitalism. As these ideologies play out in imaginings of intelligent machines, they generate the kind of extreme utopian and dystopian narratives that predominate in the mythology.

Can't You See?: How photovoice Communicate Climate X Health Risks

Ms. Soraya Weldina Ragil Dien[1], Ms. Eva Rifayanty Simarmata[1], Dr. Ruly Darmawan[2], Assoc. Prof. Sonia Lewycka[3], Dr. Mary Chambers[3]

[1]Oxford University Clinical Research Unit (OUCRU) Indonesia, [2]Faculty of Art and Design, Bandung Institute of Technology, [3]Oxford University Clinical Research Unit (OUCRU) Vietnam

This visual presentation is linked with the oral presentation with the similar title ("Can't You See?": How photovoice can communicate Climate x Health risks). It will showcase 10 to 15 curated images that highlight how the lay public visualizes their understanding and experience of climate change. Some highlight the impact of massive development in urban settings, the impact of drought, and the understanding of extreme climate phenomena.

Visual presentations are crucial in understanding public perception because they offer a direct, emotional connection to complex issues that may otherwise be abstract or difficult to communicate. Through photovoice, participants use photography to document their lived experiences, allowing their personal perspectives to be shared with a broader audience. The curated images provide insight into how people internalize and respond to climate-related challenges, highlighting the visual markers of environmental change that resonate with them.

By using photography, this project transcends traditional text-based methods and communicates the urgency of climate change in a way that is accessible to diverse audiences. Visual representation bridges the gap between scientific data and everyday experiences, making the impacts of climate change more tangible. This approach emphasizes the value of participatory visual research methods in deepening public engagement and fostering dialogue on the intersection of climate change and health risks.

Keep It Simple: Communicating the Redefined Kilogram in the Age of Information Overload

Dr Aline De Oliveira Coelho[1]
[1]Inmetro / University of Coimbra

In an age of fragmented attention and cognitive overload, a phenomenon David Shenk describes as "data smog" — the overwhelming volume of digital information — communicating complex scientific concepts effectively is more challenging than ever. This context demands innovative approaches to science communication that focus on clarity and accessibility.

This presentation demonstrates how tools such as plain language, storytelling, visuals and elevator pitches can be employed to explain the redefinition of the kilogram by the International Bureau of Weights and Measures (BIPM). Previously defined by a platinum-iridium artefact, since 2019 the kilogram has been based on Planck's constant ($h = 6.62607015 \times 10^{-34}$ J·s), a fundamental natural constant. This change ensures unparalleled precision and stability, with far-reaching implications for global science, technology and trade.

Translating this milestone effectively to diverse audiences requires a strategic blend of communication techniques. Plain language simplifies technical jargon; storytelling frames the scientific shift within relatable narratives; visuals, such as infographics, illustrate the transition from physical artefacts to quantum-based standards; and elevator pitches distill key ideas into concise and memorable explanations.

By employing these methods, the kilogram's redefinition exemplifies how thoughtful communication can bridge the gap between scientific innovation and public understanding, fostering broader societal engagement with science in an era inundated with information.

Keywords: Plain Language; Cognitive Overload; Kilogram Redefinition; Science Communication; Data Smog; Storytelling.

Sirens from the Cochlea's Ocean: Tinnitus, Glass Latices and Transducers

Mrs Lola de la Mata[1]

[1]University of Liverpool

In 2019, Help Musicians UK and Tinnitus UK formed a partnership to undertake a public research management and prevention study into the experiences of people working in the music industry (Bemrose, 2019). Critically, it highlighted tinnitus as being higher among professional musicians than the wider public. It also reported that they would feel ashamed having a hearing disorder out of fear of being seen as inadequate by colleagues and potentially losing work.

A collaboration in 2023 with biophysicists studying spontaneous otoacoustic emissions (SOAEs) at the Hudspeth Laboratory of Sensory Neuroscience brought to my attention the natural distortion present within the cochlea, and its capacity to function as both speaker and receiver. Seeing as I experience chronic tinnitus, I wondered if I had SOAEs and borrowed their equipment to record my ears. I was surprised to find that what I was hearing were SOAES, in my case - objective tinnitus, and not subjective tinnitus, which is classified as a phantom sound perceived by the brain with no original source.

In response to the hidden nature of tinnitus, I am writing a choral composition for five to eight voices which draws from interviews conducted with individuals afflicted with tinnitus. The piece's final form will be a glass sound installation, with one glass sculpture per voice. At the conference I will present one of these singing glass artworks which function much like a traditional speaker. And I will demonstrate how it also doubles as an acoustic musical instrument.

As a sound artist, I interrogate not just myself but the curiosity of others for whom such phantoms may be present or absent. By dynamically pulling on the themes of 'tradition' and 'tension', I propose that there exists no map to how one should listen to or engage with experimental music.

The Bigger Picture

Dr Emma Clarke[1], Nic Flanagan[2], Helen Sheridan[3]
[1]ADAPT, [2]Munster Technological University (MTU), [3]ADAPT

“The Bigger Picture” is an Art-Science collaboration that addresses public perception and misconceptions surrounding Artificial Intelligence (AI) through a series of participatory workshops, analysis, artist commissions and exhibitions that took place during Ireland’s Science Week 2024.

Since the advent of OpenAI’s DALL-E image generation tool [1], the world has been enthralled by the prospect of Generative AI and the notion that it can be used to automate the creation of images and text at the push of a button. The introduction of this rapidly developing technology, marks a fundamental change to how we live, work and negate the world of imagery and information. Public curiosity coupled with misinformation, and ethical concerns [2] has resulted in vibrant discussions around the effect the implementation of AI technologies, such as generative AI, could have on humanity as a whole and, more specifically, in the realm of art and creative processes.

Inclusion, engagement and information are key to increasing AI literacy. Entering such a vast conversation through the tangible process of 'making an image' can demystify concepts such as generative AI, how AI can be used and where information comes from. "The Bigger Picture" approach encourages a reshaping of how we view AI in our everyday lives, and prompts thought about the kind of AI we want into the future.

In this paper, we present the evaluation of The Bigger Picture’s methodology which involves co-creating and exhibiting new images of AI that enhance public understanding, and are true to the current realities of AI and its presence in our day-to-day lives. In our talk, we will reflect on the process, and showcase new images of AI that resulted from it.

1. https://openai.com/index/dall-e/
2. Avey, C. (2023). Ethical Pros and Cons of AI Image Generation. IEEE Computer Society. https://www.computer.org/publications/tech-news/community-voices/ethics-of-ai-image-generation.

Patient consumption of novel drug information on patient support forums

Megan Dai[1], Chenchen Liu[1]
[1]Shanghai Jiao Tong University

The introduction of new medications on the market shines hope on new treatment options for patients struggling with chronic or incurable illnesses but have also brought in concerns of uncertainty and risk. The medical drug and devices in the US market are overseen by the Food and Drug Administration, but the agency is not without criticism. While some have accounted the increased cost and delayed introduction of novel drugs into the market due to its rigorous review process, others have found fault with the "safeness" of approved drugs on the market. While clinical test reports are available, the professional knowledge and jargon may barricade information from the patient. This study adopts conversation analysis on a psoriasis patient forum, especially in reference to the use of novel biologic injections, to examine how patients seek and consume drug information among the patient community and borrows the theory of motivated information management and the health belief model to examine how patients seek and request information from fellow patients, voice their uncertainties with side effects or risks, share their own experiences, and how patients manage information to actively make their own impressions and decisions about novel treatments. Initial results indicate that patients are shifting from passive receivers of treatment to active health information consumers. Patients are empowered to distinguish the credibility of available information and make decisions to ignore, support, voice disagreement, or share certain information with other patients. Relatability plays an important role among shared (both positive and negative) experiences with novel drugs, constructing credibility, and may play a role in strengthening patients' sense of community among forums. Through these results the study attempts to generate insight on how to increase drug information accessibility so that patients are better enabled to reduce uncertainty and make informed decisions about novel treatments and drugs.

Singing to make sense: composing and improvising music from science

Dr John D'Arcy[1]
[1]Queen's University Belfast

This talk presents the musical compositions and performances of HIVE Choir and their ongoing collaboration with Northern Ireland Science Festival (NISF): 'HIVEsplaining' and 'Songs of Genomics'.

It shares the experimental and song-based musical approaches used to communicate timely scientific topics with festival audiences and explores some of the tensions that arise when making music in response to scientific research.

Directed by composer John D'Arcy, HIVE Choir creates new music using participatory song-making, found text and improvisation. Since 2020, HIVE Choir have adopted these techniques in 'HIVEsplaining' a series of original concerts helping explain scientific topics, including:

- 'YOUR EARS' (sound physics, human hearing, aural diversity)

- 'BIRDS' (ornithology, flight, habitat sustainability)

- 'THE SEA' (sea life, tidal energy, climate change and flooding)

- 'GROWING UP' (developmental psychology, memory, thanatology)

In 'Songs of Genomics', HIVE Choir collaborate with NISF and the University of Oxford's Centre for Human Genetics and Centre for Personalised Medicine. 'Songs of Genomics' explores the complexities of genomic healthcare through lyrical found-text cut-ups from academic and governmental publications, as well as participant testimonies. The texts-turned-lyrics are formed into songs in a variety of musical genres that reflect the biological and social aspects of interdisciplinary research.

This talk contextualises these musical science communication projects of HIVE Choir within the broad and evolving landscape of science-based music and sound art, from pop songs to data-sonification.

It also highlights the tensions that have arisen in the creation and presentation of these musical projects, such as the selection and curation of scientific research for lyrical material, the structuring and prominence given to key themes, polyvocality in both the participatory song-making process and inclusion of multiple research sources, accessibility of language, and the marriage of experimental and improvisational musical strategies with factual scientific subject matters in both playful and serious music.

Materiality as the means for science communication

Dr. Jane Essex[2], Dr. Laura Conner[1], Ms. Perrin Teal Sullivan[1], Mrs. Jane Catlin[2]

[1]University of Alaska Fairbanks, [2]University of Strathclyde

Digital forms of science communication are increasingly the norm across the world. However, this form of communication can "dematerialize" learning, separating the cognitive from the embodied. We argue here that materials and objects should be re-centered in paradigms of science communication as a way to evoke emotional and cultural connections that can provide the grist for learners to connect more viscerally and concretely with science concepts that can often seem abstract and irrelevant to people's everyday lives. This framing of science communication dovetails with Piaget's notion of "concrete" learning as that which can be seen, touched, or experienced directly, as well as Vygotsky's idea that physical objects mediate cognition itself. We argue that the embodied experience offered through the physical qualities of objects, such as texture, color, and scent, can both aid in conceptual learning and serve as a form of sensory learning in and of itself. This presentation will be relevant to both researchers and practitioners, diving into theoretical underpinnings and offering two concrete examples of materials-based learning in informal settings from our own research. We will engage the audience with tactile and sensory objects that invoke science concepts in a more visceral way. Participants will reflect on the kinds of knowledges gained through these routes. We invite participants to reflect on the ways that such material learning can be a form of inclusion for learners traditionally marginalized in science by gender, culture, or disability.

Spéirscéalta // Stories of the Air from Connemara, Galway

Dr, Liz Coleman[1], Dr Sam Vardy[2], Dr Paula McCloskey[3]

[1]University of Galway, [2]Munster Technological University, [3]University of Derby

Spéirscéalta / Stories of the Air is a collaborative project by scientists and artists that explores the political, cultural and scientific dimensions of the West of Ireland atmosphere.

The project engaged communities throughout Galway, through a series of diverse multi-modal engagements, including walks, conversations, performances and creative workshops, to weave different forms of knowledge regarding the air, underpinned by atmospheric data from the global atmospheric laboratory Mace Head, Connemara. Throughout the engagements, science was merged with traditional knowledge and cultural reflection through storytelling; collecting and generating new stories about the air, assembled and documented in the project film and book Spéirscéalta / Stories of the Air.

Connemara is a region rich in culture and tradition, marginalised linguistically and geographically, with dwindling populations of native Irish speakers, and limited public transport. Yet, with Mace Head situated on the west coast, in Carna, the area is an important site for climate science output. The region is also home to Ireland's most productive wind-farm, with plans for an additional large-scale off-shore wind farm.

Through our creative art and science engagements in Connemara, we noted among participants a strong connection to tradition, natural landscape, pride and sense of place. It was apparent that depopulation and lack of employment opportunities were major issues affecting the area.

Our work highlights the tension between the preservation of local traditions, practices and culture and the drive towards sustainability, global connectivity and clean energy generation. Through unique storytelling workshops we were able to discuss with communities the tension between seemingly 'conservative' and 'progressive' views in relation to the environment. We highlight the potential role of science and unique forms of science communication in harnessing the resilience, creativity, local knowledge of the environment and traditions of Connemara to cultivate a rural fulcrum for innovation and development of nature-based climate solutions.

Balancing doom and hope in climate change communication

Dr Sam Clem[1]

[1]Delaware Environmental Institute

Sea level rise is an imminent threat to over 900 million coastal residents worldwide, with many countries already experiencing impacts and devastation (United Nations, 2023). Along the Mid-Atlantic coast of the United States, local factors have led to particularly vulnerable conditions (NOAA, 2023). In the 24-minute film documentary, Salted Earth, we tell the story of local community members impacted by sea level rise in the Mid-Atlantic USA and the scientists working to better understand those impacts. The film has performed well on the film festival circuit, with 18 official selections and 7 awards to date. We've also ensured that our science communication "meets people where they are" (Otero, 2021) by holding film screenings and Q&A sessions in community spaces. Overall, our research team—along with its sponsors and film critics—have deemed the film a great success.

But...

At almost all of our community screenings, we receive the question: What else can I do? Struck with the urgency of the issue, viewers come to our team seeking more concrete actions and answers about how they can respond to this global crisis. Research has indicated that "Regardless of how effectively the causes and risks of climate change are explained... effective public engagement strategies must convey a sense that the issue can be successfully addressed" (Nisbet & Markowitz, 2016, p. 40). In the face of a wicked problem like climate change, this need to convey individual agency comes into deep tension with scientific understanding that the individual actions of most viewers are unlikely to address the problem. What is the line between providing viewers with a sense of hope and providing them with false hope? This presentation provides one practitioner's reflection and stimulates for debate how science communicators can convey individuals' power for change when too often we feel powerless ourselves.



Parallel Session B:7

An Evidence-based Science Communication Training for Master's Students

Julian Fick[1,2], Dr Friederike Hendriks[1,2], Prof. Dr. Barbara Thies[2]

[1]Institute for Communication Science, Technische Universität Braunschweig,
[2]Institute of Educational Psychology, Technische Universität Braunschweig

In order to graduate, students of higher education need to acquire a wide range of competencies, including the ability to communicate about scientific research in an understandable and interesting way. Communication skills are crucial both in their later occupational lives, for example when working in interdisciplinary teams, but also when discussing science-related topics with friends and family. Upon graduating, students should be able to apply and share their scientific expertise. However, science communication skills are usually not included in formal education programs. In order to fill the need for extensively evaluated intervention programmes (Baram-Tsabari & Lewenstein, 2017), we present a study about the development and evaluation of an evidence-based science communication training. The one-day intervention was based on social cognitive theory and used instructional methods like peer and video feedback.

We implemented a pre-post summative evaluation design and tested whether we were able to improve participants' ability to communicate in a comprehensible and interesting way. The 44 participating master's students from various disciplines were highly satisfied with the training and their self-rated abilities, their knowledge about science communication, and their self-efficacy beliefs significantly changed due to the intervention. To give an example, our training effectively improved self-efficacy beliefs regarding implementing comprehensibility strategies, $t(43) = -6.11$, $p < .001$, $d = -0.88$. In regard to actual science communication, participants more frequently used involvement and some but not all of the comprehensibility strategies.

In conclusion, we will present how we developed and evaluated an evidence-based training program and provide evidence for its effectiveness on most outcome variables. Furthermore, we will discuss challenges regarding the behavioral assessment of actual science communication performance and elaborate on the tension between claim and reality of evidence-based interventions.

Growing Together: Connecting Tradition and Innovation in Agriculture and Food

Mrs Eimear Ferguson[1], Ms Catriona Boyle[1], Dr Muireann Egan[1], Dr John Hyland[1]
[1]Teagasc

This study will explore the dynamic interplay between historical traditions and modern innovations in agricultural and food knowledge as they shape public discourse in Ireland. Teagasc, Ireland's Agriculture and Food Development Authority, will be hosting its annual series of nationwide events during Science Week (9th-17th November 2024) for a variety of audiences. This study will leverage these events to understand how different generations and audiences engage with science communication efforts that highlight both traditional wisdom and cutting-edge innovations. As agriculture confronts urgent global challenges like climate change and food security, the need for effective communication strategies that build public trust and foster engagement with both conventional practices and sustainable solutions has never been more vital.

The study's methodology will include pre- and post-event surveys as well as detailed focus groups with a selection of subgroups. The programme of events include open farm walks, public talks, school visits, and panel discussions. In the surveys, questions will be designed to assess participants' knowledge, attitudes, and perceptions about agricultural and food research practices, both traditional and modern. The aim is to assess the impact of the event on their understanding of traditional and modern agricultural practices and their overall engagement with agricultural and food science. Focus groups will also be carried out after a selection of the events —representing a range of generations and audiences, including farmers, scientists, and the public—to uncover their perspectives on how these knowledge systems intersect.

This study will help to identify which science communication strategies are most successful in connecting traditional and contemporary agricultural and food knowledge, fostering trust and engagement across diverse groups. It will also offer actionable recommendations for presenting agricultural and food science in ways that respect tradition while championing innovation—helping to drive more sustainable agricultural practices in response to global challenges.

Catalysing bioeconomy transitions through engagement

Dr Judith Feichtinger[1], Maria Schrammel[1]
[1]Centre for Social Innovation (ZSI)

Our contribution explores the role of co-creation processes in driving transitions within bioeconomy value chains, drawing from the EU project Engage4BIO. The bioeconomy aims to reduce greenhouse gas emissions by replacing fossil resources with renewable biomass, making sustainable, biobased production vital. However, turning these ambitious goals into reality requires effective collaboration across diverse stakeholders.

Engage4BIO organised co-creation processes in five European regions, with each region centred on a specific bioeconomy value chain. In every region, four co-creation workshops were held, bringing together participants—researchers, policymakers, businesses, and civil society—to develop tools and activities tailored to regional needs. Each workshop had a specific focus: (i) building a shared regional vision, (ii) launching awareness initiatives, (iii) developing educational and mentoring programs, and (iv) improving governance within the bioeconomy value chain.

The paper highlights both the successes and challenges of these co-creation processes, emphasising the importance of involving a balanced mix of actors and fostering equal footing in discussions. Participant feedback has been largely positive, with many noting that these collaborative efforts have sparked new ideas and potential further collaborations within the value chains.

Currently, the project is in its second phase, with around 85 activities being implemented for diverse audiences, ranging from the general public to stakeholders within the value chains. While these activities have the potential to drive incremental changes, the challenges of measuring success and the limitations of short-term projects in achieving disruptive transformations are acknowledged. This presentation contributes to the conference theme of transitions by offering insights into how co-creation can support gradual yet meaningful progress toward a sustainable bioeconomy.

Repair and Restoration as Science Communication in Practice

Dr Laura Fogg Rogers[1], Ms Kat Corbett[1]
1University of the West of England, Bristol

Research indicates that STEM activities drawing on societal or environmental purpose (communal goals) are more attractive to women. Maker projects have also been shown to improve identity and agency in STEM for black men. Repair Cafés have been shown to develop hands-on STEM knowledge, normalise repair in place of consumerism, and create a greater sense of belonging for minoritised students. This sits alongside the Climate and Ecological Emergency, with increased calls for a ''just transition' to reach net zero, where traditional knowledge is valued, underserved groups are involved in climate and nature action, and emissions reduction policies and technologies are designed to be fair and inclusive.

These insights were utilised in the design of the MAKERS project (Making and Knowledge Exchange for Repair and Sustainability), with community development and repair projects co-designed with three socio-economically deprived and diverse communities. The project was funded by the Royal Academy of Engineering Diversity Impact Programme and supported by the Inspire Sustainability outreach programme at the University of the West of England, Bristol (UK). Over the course of a year, the project held 8 Repair Cafés cafes on campus, along with 16 workshops in three communities, involving 17 community organisations.

This paper presents the evaluation data from the project, exploring community group perceptions and measures of student belonging and engagement. From the student volunteers who attended, 61% were male and 39% were female (compared to 16% women in the UK STEM workforce). Interview responses from students indicated the Repair Café enabled them to express their individuality and belonging in engineering. Communities were supported to share their traditional skills, empowering citizen science, skills development, and climate action for food and energy emissions reduction. The project indicates that hands-on repair enables science communication as a restorative practice, along with wider social benefits for a just transition.

Transitioning Research Culture: Integrating Public Engagement and Participation Strategies

Dr Ana Faustino[1], Ms Konstanza Jochim[1], Dr Alina Loth[1]
[1]Museum für Naturkunde Berlin

The integration of societal and environmental impact into research remains limited. The IETI (Impact-oriented Public Engagement) project, using the Museum für Naturkunde Berlin (MfN) as a case study, aims to integrate public engagement (PE) into research, as well as promote participatory and co-creative processes between academic and non-academic actors to drive culture change.

Using a participatory action research (PAR) approach, IETI involves MfN researchers in reflecting on the above aims and understanding how to co-develop solutions to promote action, change and generate new knowledge. A questionnaire with a 26.12% response rate revealed that 60% of MfN researchers consider PE essential, 89% are interested in PE initiatives, and 53% would allocate 1-5 hours per month to PE. Key motivations include impact (95%), enjoyment (81%) and relevance of their research to non-academic actors (reward; 62%). However, challenges such as lack of time (75%), time management (34%), recognition and funds (34% each) were also highlighted. Insights from the questionnaire led to a World Café workshop, where researchers identified support needs for impactful PE: structures, processes and activities promoting culture change and interaction with non-academic actors, and opportunities for professional development, networking and collaboration.

Consequently, a 6-month Hub pilot - PE, Participation, and Collaboration - was developed at MfN. Six MfN researchers reflected and learnt about PE or participatory methodologies, and developed mini projects with opportunities for exchange and interaction with the MfN community and external actors. Participants received incentives such as visibility, a participation certificate, and 700 euros for project expenses and/or advanced training vouchers. The hub's impact was assessed through pre-post interviews, the NCCPE EDGE tool, and questionnaires.

Results will be disseminated in a research paper. This project exemplifies the transition towards integrating PE and participation into research routines, fostering mutual benefits, and driving institutional culture change towards greater societal impact.

“There's emotion attached to the fact”: Climate Communication through Improv

Dr. Claire Murray, Dr. Gesche Kindermann[1], Ms. Paola Serrano Bravo[1], Dr. Fergus McAuliffe[2], Ms. Katy Schutte, Dr. Jessamyn Fairfield[1]

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Engaging the public with the climate crisis has proven challenging due to both the technical complexity of the issue, which involves many fields of science with intricate interdependencies, and the strong emotions evoked by global warming, ocean acidification, and other scientific realities with deep societal impacts (Nisa et al., 2019). Previous “doom and gloom” approaches run the risk of provoking backlash or despair, neither of which support constructive action (Hinkel et al., 2020). Rural and coastal communities at greatest risk of negative impacts from climate change are often excluded from scientific, engagement, and policy discussions, implying that novel approaches are needed to enable a just green transition.

Improvised theatre, or improv, as a mode of public engagement is interactive and adaptive to each individual audience, makes room for affective response to scientific issues, and can disrupt traditional power dynamics. In the tradition of forum theatre (Boal, 2000), we developed a travelling show that toured diverse coastal communities in Ireland. Each show had comedic and dramatic moments, all fully improvised based on written audience responses to prompts about the climate crisis. The show also included unscripted contributions from researchers with expertise in environmental and earth science.

To understand whether this approach was effective in sparking change, we carried out a mixed methods evaluation with the audience and the performers. Analysis is ongoing but initial results reveal that participation increased performers’ confidence that they can take action to mitigate climate change as well as slightly increasing their confidence and the audiences’ confidence in talking with others about climate change. Performers also valued the creative and knowledge-sharing opportunities, with the connection with the rural communities and scientists highlighted as a valuable exchange process. These results suggest that improvised theatre is a meaningful way to share agency with communities as they tackle socioscientific challenges.

“Brazilian style” of climate disinformation: religious elements for spreading doubts

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In recent years, studies from different areas have confirmed not only the accelerated change in the global climate, but also its anthropogenic origin. At the same time, there is an advancement of organized forms of science denialism on climate change, orchestrated by different actors and often associated with political and economic interests. In the online environment, such disinformation campaigns resort, among other tactics, to creating patterns of deception, breaking relations of trust and engaging in disputes over discourses in a quest for authority. This content leads to impacts ranging from the encouragement of extreme viewpoints to the delegitimization of epistemic institutions.

Given this scenario, efforts to gather more data and understand the dynamics of climate disinformation on digital platforms become crucial. With this objective in mind, we conducted a study that sought to characterize the climate disinformation circulating on three important online platforms in Brazil (Facebook, Instagram, and TikTok). The analysis considered data collected from Facebook and Instagram through the CrowdTangle graphical interface using the search terms “climate change” and “global warming” between January and December 2023. Data from TikTok were collected directly from the platform using the same search terms.

Among the results, the significant presence of disinformation content aligned with religious and political fanaticism is noteworthy. This material was dissected considering markers such as circulation strategy, format, language, purpose, and expressive form, according to a codebook developed from theories on disinformation and climate disinformation. Understanding the resources and strategies employed in this “Brazilian style” of disinformation on climate change, which uses religious elements to amplify its impact and circulation, contributes to a better understanding of the regional and cultural specificities and variations of climate disinformation. [Support National Council for Scientific and Technological Development and Carlos Chagas Filho Foundation for Research Support in the State of Rio de Janeiro]

Historic representations of floods in Italian and Danish newspaper articles

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The recent IPCC report (2022) highlighted flooding as a particular risk in Europe. While hydrometeorological hazards such as floods may be impacted by global climatic conditions, they occur locally, with implications for the frames used by journalists who represent them to their audiences. Moreover, frames change over time, reflecting evolving societal discourses. The purpose of this paper is to compare how major national flooding events were framed in selected newspaper articles in Italy and Denmark over the last century.

Each national data set includes 10 newspaper articles. Articles were included on the basis of article availability, extent of flood damage, inclusion of both image and text in the article, and extent/quality of coverage. We analysed the text and images using qualitative framing analysis (Entman, 1993; Gamson & Modigliani, 1989; Parry, 2010).

In the Danish data, there are three main frames: floods framed as human inconvenience or tragedy, floods framed as evidence of Nature's uncontrollable power, and more recently, climate change as heightening flooding risks. In the Italian data, there were also three main frames: causes and attribution of responsibilities (particularly political responsibilities), human inconvenience or tragedy (particularly impact damage on households and businesses) and more recently climate change as a source or amplifier of flood risks.

Our comparative study identifies cultural scripts that are available to science communicators. We found similarities in the frames (human inconvenience or tragedy, climate change as increasing flooding risks), as well as frames that were lacking or less present (e.g., human responsibility for climate change, and the need for climate action in the form of prevention and proactive strategies, particularly with regard to communication). Innovative approaches to communication are necessary in light of the increasing risks of flooding. Further analysis using larger data sets and methods and involving other countries would be advantageous.

Coverage of AI trustworthiness and how research institutions can respond

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Recent advances in Artificial Intelligence (AI) have led to a transition in the media discourse on AI: Once a niche topic, AI is now widely discussed in the mass media by journalists, corporate spokespeople, policymakers, academics, and others. This study examines the perspectives of those involved in the German media discourse surrounding the release of ChatGPT in November 2022 and, based on the results of our analysis, formulates recommendations on how research institutions involved in this field can navigate the change.

Since trust is considered to be a key factor for the acceptance of AI applications, our analysis focused on the discussion about the trustworthiness of (new) AI applications. The perspectives of stakeholders were captured by identifying frames. Frames are interpretive patterns that indicate the central ideas in a discourse. A qualitative content analysis of 68 articles from eleven German media outlets resulted in the identification of five frames: In two of them, mainly American actors were concerned with existential threats, such as the loss of control over AI. In the remaining three frames, mainly European actors focused on trust-related aspects beyond existential threats, including transparency, non-discrimination, and technological sovereignty.

Based on these results, we developed four recommendations for research institutions: (1) build trust in politicized discourses; (2) respond to controversial information; (3) tailor content to the knowledge level of the target audience; (4) provide opportunities for informal exchange.

Our findings, which are relevant to both practitioners and academics, will be presented in more detail at the conference, and the recommendations will be further discussed.

Critiquing fibromyalgia patient education about how to communicate with others

Ms. Catherine Copley[2], Dr. Philippa Spoel[1]
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Our presentation addresses tensions between healthcare expertise and patient roles and responsibilities in the context of fibromyalgia by exploring a selection of North American educational "self-help" books and websites such as the Mayo Clinic's Guide to Fibromyalgia: Strategies to Take Back Your Life, the National Fibromyalgia Association website, and the ME/CFS and Fibromyalgia: Self-Help site. Fibromyalgia, a prevalent but contested chronic illness affecting primarily women, is characterized by widespread pain and debilitating fatigue (among other symptoms) for which no reliable treatment or cure exists. Our selection of patient-oriented health education about fibromyalgia emphasizes "self-management" as the primary strategy for alleviating suffering. These sources present themselves as leading to positive change by empowering patients to manage their own illness through lifestyle changes as well as medical and complementary therapies. As rhetoricians of science-health communication, we are especially intrigued by the advice that these sources provide about how people suffering from fibromyalgia should themselves communicate with both their healthcare and personal (e.g. family and friends) networks. Drawing on research in healthcare rhetorics, feminist theories of invisible work, and critical disability studies, we examine these guidelines to better understand the kinds of communicative-relational skills that the intended audience is instructed and expected to practice as an essential component of their self-management. Our analysis shows that these guidelines foreground the responsibility of people living with fibromyalgia to facilitate positive relationships with these networks by enacting carefully-planned, knowledgeable, considerate, and empathetic communication strategies. We argue that in so doing, these sources of patient education compound the burden of invisible labour required of people living with chronic pain/illness. We conclude by suggesting that listening to critical counter-voices of people with lived experience of chronic illnesses such as fibromyalgia could help to constructively reframe the communicative-relational needs and responsibilities of patients.

Visual Literacy in the AI Age: Implications for Science Communication

Visuals are integral to science communication, serving as powerful tools to engage diverse audiences. With the advent of artificial intelligence (AI) tools, AI-generated visuals offer unprecedented opportunities to represent abstract ideas and hypothetical scenarios, aiding in public understanding of science. However, AI-generated imagery in science communication also raises important questions about the authenticity of created content and perceived credibility.

To investigate these issues, we conducted an online experiment in March 2024, involving 742 participants from the U.S. The study employed a 3x3 factorial design, examining the effects of AI-generated imagery (AI-watermarked visual content vs. text-only content vs. image without AI-watermark) and message framing (natural vs. neutral vs. technological) on the perceived credibility of scientific information on Instagram. The CRISPR technology, known as the newest gene-editing tool, was used as a case study.

While the main effects of AI-generated images and message framing were not significant, participants' self-identified level of AI efficacy and the visual appeal of the stimuli were strongly related to credibility ratings. Additionally, previous familiarity with AI played a significant role in shaping how individuals perceived the credibility of AI-generated content. For individuals with higher levels of AI familiarity, the presence of an AI watermark (i.e., “Image generated by A.I.”) generated higher levels of credibility than images without AI watermarks. Conversely, individuals with lower levels of AI familiarity tended to trust images without AI watermarks more than images with AI watermarks.

The differential impact implies that communicators and content creators on social media should consider the audience’s familiarity with AI when deciding whether to include AI-generated content or add a declaration that the content was AI-generated. The findings highlight the importance of AI literacy in the digital age and the need for transparent communication about the use of AI in content creation to foster trust across diverse audiences.

Designing Together: Collaborative Insights from Visual Science Communication

Dr. Carolin Enzingmüller[1]
[1]IPN Kiel

How can collaboration between scientists and designers enhance science communication? This talk explores the benefits of integrating collaborative design into science communication, drawing insights from a study on how scientists and visual designers work together. It identifies factors that may improve both the collaborative process and the quality of the resulting visual products.

To better understand the collaborative design process, we tracked a project where scientists and a visual design team worked together to develop a visual science communication product. We documented meetings, analyzed design artifacts, and held reflective discussions to identify key stages, activities, artifacts, and methods. Our findings also highlight factors that either hinder or enhance collaboration, underscoring the value of incorporating diverse perspectives to create more effective visual communication.

Building on these initial insights, we are conducting a large-scale mixed-methods study to validate and expand our initial insights across additional visual design projects. Our aim is to deepen the understanding of boundary work and reflective design practices in science communication and to offer practical recommendations for science communicators on leveraging collaborative design to enhance the quality of communication products. A key output of this work is the development of a Design Process Canvas - a tool developed from our research to guide visual design in science communication.

This talk is geared towards researchers and practitioners interested in innovative science communication methods and design. I will present the first version of our Design Process Canvas, share key findings from our studies, and offer actionable strategies for integrating collaborative design into attendees' practices.

A challenge to science? Scientific experts' perceptions of participatory science

Mrs Katharina Teresa Dürmeier[1], Prof. Dr. Mario Gollwitzer[1], Dr. Friederike Hendriks[2], Dr. Marlene Sophie Altenmüller[3]

[1]Ludwig-Maximilians-Universität, [2]Technische Universität Braunschweig, [3]Leibniz-Institute for Psychology

Citizen science proposes a participatory way of doing science, actively including non-scientists in scientific projects. Thereby, it challenges traditional roles, norms, and processes in science. While the number of such participatory projects is growing, there is only little evidence on how scientists themselves perceive this research approach. We therefore investigate how people who take the role of experienced scientists perceive citizen participation in research projects. Specifically, we are interested in their trust, attitudes, and concerns associated with citizen science projects.

We conducted a first experiment in which students evaluated a citizen science project in their field of expertise (i.e., psychology). We varied whether the involved non-scientists within this project had the same amount of decision power as the scientists in the project (high power condition) or less power than the scientists (low power condition). In the high power condition, student "experts" ascribed less trustworthiness to the research group, had more negative attitudes towards the project, and expressed a lower willingness to participate in this citizen science project as an expert than in the low power condition. Exploratory analyses show that this can be partly explained by psychological threat experienced by the experts.

Currently, we are conducting another study to replicate the results from the first study with a sample of scientists from all areas. Actual researchers evaluate a citizen science project (i.e., researchers collaborating with citizens) as well as a traditional science project (i.e., only researchers). In addition, we vary the degree of citizen inclusion in the citizen science project (involvement in all stages of the research process vs. only in data collection).

We will discuss insights from both studies for participatory science, addressing potential concerns from within science and challenges in implementing research projects with citizen participation.

Cruel Summer: Swift Meets Seismology, Science Communication Feels the Impact

Miss Eleanor Dunn[1], Professor Joseph Roche[2]
[1]Dublin Institute for Advanced Studies, [2]Trinity College Dublin

In July 2023, 72,171 Swifties managed to stir up a seismic phenomenon—their enthusiastic dancing generated seismic waves that were detected all over Seattle. This one-off event soon turned into a branch of geophysics in its own right—Swift Seismology. Following on from our American colleagues, we placed 46 seismometers of varying sensitivities around the Aviva Stadium in Dublin for Swift's performances on the 28th, 29th, and 30th of June, 2024.

Embracing the evolution of seismic technology, we embarked on a pioneering form of scientific engagement. Our strategy was unique-we leveraged the influence of a pop icon, Taylor Swift, to connect with her fanbase, the Swifties, and inspire them to become Swift Seismologists.

Our research was disseminated through traditional media and our social media platforms, sparking significant interest. The seismic detection at seismometers over 100km from the stadium led to extensive press coverage upon the release of our findings. From May 2024 to July 2024, we produced 21 videos, delving into topics related to #SwiftQuakeDublin, with the most-watched video garnering 2395 views. Despite modest social media engagement (by TikTok standards), we received 165 videos of Swift's performance at the Aviva Stadium, each offering a unique perspective on the seismic activity. This engagement effectively transformed the Irish Swifties into Swift Seismologists, with some individuals even identifying points in songs likely to generate seismic activity or speculating on potential seismic events such as when Swifties noticed the presence of Travis Kelce in the VIP tent (Swift's boyfriend).

The engagement with #SwiftQuakeDublin is a testament to pop culture's potential to engage citizens and foster a scientific understanding of cultural events. We foresee a future where meaningful celebrity influence could significantly influence the dissemination of science.

Working with changing traditions to engage communities with Nature-Based Solutions

Dr Edward Duca[1], Prof. David Micallef[1], Dr Emma Clarke[1], Mr Kurt Callejja[1], Ms Francesca Mizzi[1], Dr Mark Anthony Caruana[1], Dr David Paul Suda[1]
[1]University of Malta

More than half the world's population lives in cities. Poor air quality in these cities is a significant environmental health threat; in Europe it results in an estimated 400 000 premature deaths every year. The impact from air pollution is disproporionate with a much greater impact on those communities from a lower socioeconomic background. This talk, will outline work from the EU projects Varcities and JUSTNature that engaged migrant and Maltese communities in Gzira, Malta through pop-up parks, co-creative processes, and citizen science approaches in order to implement Nature Based Solutions in a busy trafficked road, and a primary and secondary school. It will also outline key results from a public perception of health, well-being and pollution door-to-door survey with residents and place users, and compare that to air pollution and atmospheric sensors in the locality. This project is setting up a city learning lab, or CiPeL, in Gzira and 6 other cities around Europe, which will be mentioned in this talk.

The projects took innovative engagement and research approaches to understand the needs, wants and pain points of the various communities in the locality. Pop up parks brought together various communities through science experiments, community films made by NGOs, food prepared by migrant associations, and sci-art street installations. This school was engaged through co-exploring, co-implementing and co-evaluation processes with the students, teachers and parents in order to green their concrete playground using their ideas, in collaboration with experts. In parallel, a door-to-door survey was conducted to understand the diverse communities in the area (16% of the population are resident non-EU nationals), with the data coupled to sensors installed along a busy road. This allowed comparisons between perceived air pollution and sensor detected levels, or income level and perception of pollution, links between income, education and health were also identified.



Parallel Session B:8

Glasgow's second square: harnessing a new opportunity for public engagement

Universities around the world are increasingly embracing civic engagement and community-led approaches to research and impact. This shift reflects the policy landscape, with governments stressing the importance of place-based approaches in tackling economic, social and environmental challenges; and recognition of universities as anchor institutions in their communities. Despite this growing focus, university systems are often not conducive to effective community engagement or collaboration. Building trust with communities and developing partnerships requires time and care; there are both physical and psychological barriers (e.g. mistrust, or a lack of feeling that the university is 'for them'), and power imbalances between institutions and the communities we want to involve. How can we create more welcoming, inclusive spaces within universities and build partnerships that ensure our research and initiatives are truly mutually beneficial? And how can we enable collaboration across teams in a large institution, where silo-working is often the norm? We present a case study from the University of Glasgow (UofG), a research-intensive university in Scotland, UK. The UofG is currently undergoing a major campus development, with £1 billion invested over the next 10 years in new buildings and infrastructure that is transforming the landscape of the city. Among the developments is St Mungo Square, a large outdoor space overlooked by research buildings that is now the second biggest public square in Glasgow. The Square is an exciting opportunity for UofG to change how it engages with local communities, without barriers. Recognising this potential, we led a series of carefully-facilitated workshops with participants from inside and outside UofG, to consult on the Square's future, resulting in new partnerships and an open-source report. We'll demonstrate how our model of bringing together a diversity of people on an equal basis can break down barriers, drive collaboration and support innovative engagement in public spaces and beyond.

Communicating and bridging society and science through museum collections' instruments

Mrs Mariana Gomes[1,2], Mrs Julliana Vilaça[2], Dr. Cristiane Oliveira[2], Dr. Douglas Falcão[2]
[1]Fiocruz, [2]Museum of Astronomy and Related Sciences

What role does science communication play in bridging society and science through museum collections? While most of museum collections are preserved behind glass cases, seemingly distant from the public, these collections hold immense potential for enhancing science communication.

Historical instruments, in particular, offer a unique opportunity to connect science with its historical, social, political, and cultural contexts. These artifacts serve as intermediaries, linking scientifical concepts with the rich tapestry of their time. By exploring the stories and significance behind these instruments, we can make science more accessible and relevant, transforming the public into coproducers and active participants in non-formal spaces.

This approach not only highlights the historical value of the artifacts but also demonstrates their ongoing relevance to contemporary issues. Through this visual presentation, we aim to show that, by effectively communicating the stories behind these instruments, museums can foster a deeper understanding of science's role in society, the motivations behind scientific decisions and developments in each context, and promote a better integration between society, science and technology.

Feel, Share, Connect: Key Aspects of SciComm Training in Roving STEM Projects

Mrs Mariana Gomes[1,2], Dr. Patricia Spinelli[1,2]
[1]Fiocruz, [2]Museum of Astronomy and Related Sciences

Feeling, listening, sharing, building, connecting: in the evolving landscape of science communication, roving STEM projects—whether through mobile science trucks, dome-based outreach, or temporary science stands in rural areas—require science communicators to master essential skills.

Sharing scientific knowledge while valuing diverse cultural cosmoperceptions often seems controversial, mainly when communication is built under a vertical relationship. Recognizing that science must reflect society's diversity highlights the lack of belonging felt by underrepresented communities in many projects.

Roving STEM initiatives address this gap, as an alternative to the emergent aim of actions to bridge society and science, while science centers and museums were built in inaccessible places, due to historical socioeconomic and cultural aspects.

Drawing on experiences from the Brazilian Astronomy Olympiad's roving planetarium, this work explores how roving projects serve as dynamic environments for engaging with local cultures, discuss sustainability, heritage and memories, exploring the tensions between traditional and scientific knowledge.

In response to these challenges, in this work we aim to show a propose of structured training program for science communicators, targeting demands faced in roving processes, emphasizing key aspects such as empathetic listening, promotion of justice, equity, diversity, inclusion, cultural sensibility, and non-violent communication. The training aims to foster an inclusive approach by valuing both traditional and evolving knowledge and promoting horizontal interactions between communicators and audiences.

This approach underscores that science communication is more than sharing scientific concepts, as the common STEM projects trainings focus on; it's also about finding strategies to recognize and value the unique personal experiences and memories individuals bring in those activities. By integrating these aspects into SciComm trainings, we aim to enhance the sense of belonging and empowering the communities and mediators, creating rich, shared experiences and infinite universes under the same sky.

From Collections to Connections: Herbaria's Evolving Role in Outreach

Alissa Iverson[1]

[1]Denver Botanic Gardens

Herbaria, or natural history collections of plants and fungi, have been vital for documenting biodiversity since the 1500s. They form the foundation of botany and mycology, providing essential data for understanding taxonomy, ecology, and tackling global challenges like biodiversity loss. Despite their critical role, herbaria are often poorly understood outside of academic circles. In recent years, this has led to the closure of many minor and even major collections, sparking concern within the botanical community and underscoring the need for improved science communication and public engagement.

Communicating the true value of herbaria to non-specialists presents unique challenges, but efforts are being made to bridge this gap. The Denver Botanic Gardens, home to the Kathryn Kalmbach Herbarium, has a thriving research program while also being a popular destination for the public. This allows us to showcase our collections and explain their value to non-academic visitors, as well as connect with local community groups and schools. For example, herbarium tours engage visitors and highlight the scientific and conservation value of these collections. Additionally, our botanical illustration program fosters collaboration between scientists and artists, using herbarium specimens as a source of inspiration while connecting a broader audience to the beauty and importance of biodiversity.

Other herbaria are also innovating in their outreach. The Wisconsin State Herbarium partners with university classes from diverse disciplines, encouraging non-biology students to utilize herbarium collections in unique projects. At the University of Wyoming, community art workshops utilize herbarium specimens to connect with the public and showcase the broader relevance of these collections.

These initiatives demonstrate that herbaria are not just research repositories but dynamic resources that enrich both scientific inquiry and public understanding of botany, ecology, and conservation issues. Through creative outreach and cross-disciplinary partnerships, herbaria are working to raise awareness about their value to the wider community.

Surveying Public Perceptions of and Trust in Citizen Science

Dr. Friederike Hendriks[1], Ms Jane Momme[2]

[1]Technische Universität Braunschweig, [2]Leibniz-Institute for Science and Mathematics Education (IPN)

Citizen Science (CS) is defined as active participation in science by people without an institutional affiliation to science (Bonn et al., 2021). Citizens take part in a wide variety of practices (Strasser et al., 2019), including data collection (e.g., tracking or self-reporting data), sorting and analyzing data (e.g., by classifying pictures), and creating technological solutions (e.g., biohacking). Such public participation in science helps to ground scientific research in social contexts, and also holds large potential for the advancement of research, as research practices would have would not only be costly or difficult without citizen participation – citizens also possess unique "local" knowledge that contributes to explaining and solving scientific questions (Wynne, 2006).

That is, CS contributes to epistemic justice in knowledge production, possibly enhancing trust in science and the knowledge it produces (Lewenstein, 2022). However, trust may also be at stake: CS challenges the traditional roles of scientists and citizens in the research process, threatening perceptions of power and authority.

With the study presented, we aim to contribute empirical data to this tension regarding trust in CS. We will survey at least N = 1000 members of the public (representative for German citizens in terms of age, gender, and education) in October 2024. Two vignettes will be shown contrasting traditional scientist-led projects with one of two forms of CS (levels of citizen participation: mere data collection or equal participation in all stages of the research process). Following the vignette exposure, we inquire expectations of expertise, integrity, and benevolence of those involved, and perceptions of the projects' presumed contributions to building knowledge and solving societal problems. With this study, we will provide first data on public perceptions of CS as an epistemic endeavor, and their level of trust in citizen-scientist teams collaboratively solving research questions.

Evidence synthesis on social justice at Brazilian research universities

Ms. Mariana Hafiz[1], Dr. Carolina Sotério[1]
[1]UNICAMP

The Brazilian higher education system has been subject to reforms especially since the 1980s, promoting public policies designed to increase inclusion, diversity and permanence of its student body. Within this system, public research universities are still trying to increase the number of first generation students as well as ethnic and racial diversity of its students, including the application of modified standardized tests for indigenous communities. The aim of this paper is to understand how science communication initiatives at Brazilian research universities could help promote or amplify the visibility of such policies as well as the participation of the intended audience in its design and implementation. To achieve this goal, we are conducting a scoping review to identify the concepts and application methodologies of social justice and participation within the science communication literature. We applied PCC methods (Population, Concepts and Context) to identify scholarly literature published in Portuguese, English and Spanish from 2018-2023. We conducted a keyword search on WoS, Scopus, and SciELO using terms such as "social justice," "participation," and "inclusion," including Brazilian-Portuguese equivalents as needed and limiting the search to Brazilian research institutions. After screening titles and abstracts, we selected publications based on their relevance and depth of coverage. We then performed an inductive content analysis on the final sample to explore discussions on social justice and participation and their potential implications for public policies at research universities. The analysis was evaluated for inter-rater agreement. We present preliminary results regarding these science communication practices in terms of individual or group behavioral changes; enhanced democratic participation; and influence on public policy. Additionally, we explore the environments where these practices occur, including informal learning spaces, community engagement initiatives, and other public forums.

Undergraduate Students' Perspectives in Communicating Science through Infographics

Dr. May Lee[1], Dr. Nathália Helena Azevedo[2], Ms. Bianca Hipólito de Oliveira[2,3]
[1]Maastricht University, [2]University of São Paulo, [3]University of Groningen

To help address societal issues such as global warming and decreasing supplies of natural resources, scientists need to be able to communicate their findings so the public may understand and actively engage with them. While communicating with infographics has been shown to be an effective way to do this, methods for supporting our pool of potential future scientists (i.e., undergraduate students pursuing bachelor's degrees in STEM) in creating compelling infographics are under-explored. In this visual (poster) presentation, we will share our investigation of some of the causes for this dearth and address its implications with respect to classroom teaching of science communication. In our study, we evaluated infographics designed by undergraduate students taking a science communication courses from two Dutch universities. We designed a rubric based on literature about design principles and science communication to analyze infographics created by 19 student groups. Using content analysis, we compared the students' reflections to critical question during in-class feedback sessions and post-class self-assessments. Our analysis revealed the benefits that students perceived received from designing infographics (e.g., opportunity to combine science and art skills) in addition to some of the challenges they encountered during the design process (e.g., selecting an appropriate layout, designing a layout with high visual appeal, balancing need for details with an uncluttered design) when communicating scientific information through infographics. Our findings suggest that targeted instructional strategies are needed to further develop and enhance students' infographic creation skills in science communication education. Further research on the efficacies of specific pedagogical approaches could inform modules developed to help students further develop their skills in the communicating science research through infographics. Discussing these issues can also contribute to improving infographic design practices for future science communicators.

Participatory Science Communication Education Amidst Tensions on Deep Sea-bed Mining

Dr. Dongjing Kang[1]
[1]Shanghai Jiao Tong University

The regulation of deep sea-bed mining has been a significant global debate among scientists, environmentalists, businesses, and policymakers over the past decade, highlighting tensions between environmental impact and economic gain, regulatory frameworks versus technological advancements, and developed versus developing countries. Teaching tensions alike is crucial to science communication education. This case study (Creswell, 2017), grounded in Freire's participatory framework (2000), examines how scientists from developing countries in the 2024 International Seabed Authority (ISA) fellowship program engage with these tensions through participatory video narratives. The ISA, a UN-affiliated agency, faces polarized opinions on deep-sea mining, with over 20 countries advocating for a moratorium and others supporting commercial activities. The fellowship program aims to empower scientists from developing nations to protect their national interests. The study employed a participatory framework that centers on knowledge co-production, paradox engagements, and creative (critical) transformation, to design four workshops within a 10-week ISA program. Using participatory video storytelling (Aufderheide, 2008; Bali & Kofinas, 2014; Cornish et al., 2023; Marzi, 2021), the ISA fellows are asked to reflect upon their learning and examine how they developed their attitudes on deep sea-bed mining. By employing the theme "If I Were the Ocean" (unity of the self and the other) rather than the conventional "The Ocean and I" narrative (the self and the other), scientists are able to tell stories as they reimagine themselves as the ocean concerning deep-sea mining. This study details the process and impact of participatory video storytelling in enabling scientists from developing countries to critically analyze and communicate the complex issues surrounding deep-sea mining to their research community and the diverse publics. The results of this study hope to positively influence decision-making communities by offering insights into deep sea-bed mining through science communication education, thereby promoting more informed and responsible decisions.

Glass Science Popularization through artistic and educational activities

Dr Karina Lupetti[1], Dr Leonardo Gomes[1], Prof Ana Candida Rodrigues[1]

[1]Federal University of São Carlos

This presentation aims to present some activities in education and communication about glass in Brazil and other countries. In fact, since its creation in 2013, the Center for Research, Technology and Education in Vitreous Materials (CeRTEV) has been working on different fronts to communicate the science and art of glass to audiences of various levels. CeRTEV has organized exhibitions and science theater to participate in national and international science communication events. The play Science is Fun has been performed for more than 1,500 people since 2017 in different Brazilian states. The group Vitreous Sounds was also created, including people with visual impairments, who travel the world singing and playing glass musical instruments. The Vitreous Minutes was recorded and broadcast by Radio UFSCar for 5 years, consisting of 120 episodes lasting 1 to 3 minutes. Another significant achievement was the five volumes of manga-style comics, telling curiosities about glass for children, drawn by Dr. Adrina Iwata. In addition to its communication goals, CeRTEV has also promoted educational activities in basic science. The EduSCar Program was created with other centers of excellence research in the state of São Paulo and since November 2018, this network has aimed to improve through active methodologies, science education and communication, especially for K-12 students from public schools in the São Carlos region. Furthermore, in collaboration with the São Paulo State Educational Institution, the Paula Souza Center, the Brazilian Glass Association, ABIVIDRO and the company Nadir Figueiredo, it designed and created a three-semester course "Technician in Glass Production", which can be taken in parallel or after high school and has already graduated four classes of students. Finally, over the past 10 years, CERTEV at the Federal University of São Carlos has aimed to and contributed to science communication and education, especially in materials science, chemistry and biology.

Does studying science communication get you a better job?

Associate Professor Jen Martin[1], Dr Michael Wheeler, Dr Linden Ashcroft, Dr Annelies Humphries, Dr Catriona Nguyen-Robertson, Dr Beth Howard
[1]Faculty of Science, University of Melbourne

Job ads, data, and common sense tell us good communication skills are a vital part of a successful career in science. Communication training is therefore an increasingly common part of most science degrees across Australia, either through explicit subjects or assessments involving scientific knowledge and communication practise.

But how are these skills being used by graduates in the workplace? And—as we move into the age of AI—what are our graduates missing? How can science communication training best support our students in the transition from university to the workplace and how can we create a new tradition of industry-informed teaching?

We will share the results of a pilot study which surveyed recent science graduates from the University of Melbourne on the skills they use in their jobs. We surveyed 75 alumni trying to identify a) a difference in the outcomes for students who have undertaken explicit science communication training compared to those who haven't, and b) skills that are being used in their day-to-day roles. Our hope is to build on these studies to inform our development of future training for the next generation of scientists and science communicators.

Putting together a science communication network - at Técnico Lisboa

Joana Lobo Antunes[1], Silvio Mendes, Maria Serrano, Pedro Garvão

[1]Instituto Superior Técnico, Universidade de Lisboa

Science Communication Offices in Portugal are usually only found in research units, Communication units in faculties and universities are mostly focused in institutional marketing or in promoting its education offer. Instituto Superior Técnico is the leading engineering and architecture school, that has been following that format - but since 2019 a new office has been promoting a network of science communication gathering the 23 research units, with several projects and initiatives being promoted since. We will present the main results and the Impact of this new dynamic in creating new traditions and new methods in the 113 year old school.

From Lab to Audience: Bridging Gaps Between Scientists and Communicators

Romana Konjevod[1]

[1]Barcelona Supercomputing Center

This 10-minute talk is a product of reflections from my work as a science communication practitioner. As a Project Dissemination Officer at the Barcelona Supercomputing Center, I specialize in translating key messages and outcomes from publicly funded research projects in the life, computer, and earth sciences. Drawing from my background in UN-Habitat's Community of Practice and various NGOs, I've observed a vital aspect of science communication that often goes unnoticed: the internal dynamics between content providers (scientists) and us, the communicators responsible for shaping and delivering their findings. The purpose of this talk is to leave attendees with practical strategies for addressing internal communication tensions and fostering better collaboration with researchers.

Too often, we concentrate on the target audience on the receiving end, but what about the communication towards the researchers who provide the information? How can we build trust, demonstrate the value of science communication, and make the process more approachable for scientists? I will explore three key challenges that commonly surface and offer practical solutions drawn from my experience.

The structure of the talk:

Introduction (1.5 min): A brief introduction to the topic, myself, and the key challenges we'll explore.

Challenges:

1. Seeing the Value in Science Communication (2.5 mins): Convincing scientists that participating in outreach, like writing articles or making videos, is worth their time.
2. Respecting Publishing Regulations (2.5 mins): Balancing open-access requirements, confidentiality and social media, etc.
3. Overcoming Stage Fright (2.5 mins): Helping scientists tackle the "I'm not an influencer" misconception, and introvert mentality that prevents them from engaging publicly.

Conclusion (1 min): It is important to keep up the efforts in fostering a meaningful exchange between scientists and communicators, creating a space where knowledge can flow smoothly in both directions

Science Communication as Heritage: Bridging Indigenous Languages and Cultural Understanding

Saeed Jafari[3], Mr Mohammad Hossein Khalili[1], Ms Shirin Shterzadeh[2]

[1]Under Iran Sky Programme, [2]Department of Science Communication, Saros Science Communication Team, [3]UNESCO International Decade of Indigenous Languages

Over the past three decades, there has been significant reflection on how science communication is modeled and understood in (multi)cultural contexts. Languages in general, and Indigenous languages in particular, have historically played a crucial role in the transmission of knowledge and the advancement of science within civilizations. As these languages face the threat of extinction, and in cases where they remain stable, their identities are often overlooked, so transmission of science to multilingual communities requires rethinking more approachable and communicative methods while preserving Indigenous knowledge.

In this study, we propose the value of a cultural approach to science communication in Iran—one that demonstrates how science communication models can act as mediators between science communicators, practitioners, experts, and Indigenous communities, linking shared ancient traditions with the people of a nation. We conducted a mixed-method study consisting of two surveys (N = 820) and interviews (N = 42) on elements such as storytelling or narrating, music, visual arts and conceptual imagery among participants during the FillCast podcast, the Heritage of the Sky project, and the Saros YaldaNight celebrations.

Evaluation found that the creation of the basis for evidence-based science outreach requires co-creation of intercultural outreach strategies. This presentation will explain practical actions and lessons learnt in adapting scientific concepts to the local context in Iran and reflect on the results, notably on i/ increasing involvement of families in outreach celebrations, ii/ engaging variety of under- / non-represented groups iii/ building intercultural dialogue and better ways of understanding indigenous knowledge. The findings of these projects highlight the connection between trusting scientific perspectives and valuing science outreach efforts. Audiences from diverse linguistic and cultural backgrounds within a nation can be more engaged when narrative techniques like metaphors and context-specific analogies and are used to make meaning more tangible within the mind and in life.



Parallel Session C:7

Chemophobia: Examining Factors Influencing Chinese Attitudes toward Chemistry and Implications

Dr Hepeng Jia[1], Ms Yuting Zhou[1]
[1]School of Communication, Soochow University

Chemophobia refers to the public's tendency to associate synthetic chemicals with negative concepts like cancer, toxicity, and death. This article explores the factors contributing to this fear, including social demographics, cognition, psychology, trust, and culture. Based on China's first survey targeting chemophobia and its underlying factors conducted with 787 valid responses, our study revealed that chemophobia reflects a "deficit model" characteristic: individuals with greater toxicology knowledge and higher scientific literacy show less fear, whereas those influenced by the "natural-is-better" heuristic and health anxiety exhibit higher levels of chemophobia.

Despite most respondents having basic toxicology knowledge and high scientific literacy, this knowledge does not entirely counteract negative attitudes toward synthetic chemicals. Even when understanding the dose-response mechanism, many remain reluctant to risk exposure to low-dose toxic chemicals which scientists normally believe to be harmless. This fear can lead to an exaggerated perception of risks associated with low-risk chemicals, neglecting the potential dangers of natural chemicals and causing economic and reputational damage to businesses.

To combat chemophobia, the study suggests raising public awareness of the risks associated with natural chemicals, developing chemical control strategies based on toxicity mechanisms, cultivating trustworthy risk communication, and emphasizing the humanistic aspects of science education. The study fills a gap in the domestic scientific communication field, providing quantitative insights into public attitudes towards chemistry and offering a reference for future research on chemophobia.

Bristol 2000: Capital development and making space for science communication

Dr David Judge[1]
[1]University of the West of England

This presentation asks how a science centre became the heart of one of the largest urban regeneration projects in Europe and explore how, at the turn of the millennium, science communication became entangled with culture, leisure and urban regeneration.

Against the backdrop of an apparent crisis of confidence in science in the UK in the 1990s, public spaces across the country were being re-shaped by the establishment of new science centres. Fourteen such centres were created with funding from the Millennium Commission, formed to distribute proceeds from the newly established National Lottery. This funding, to a total of £250 million, represented an unmatched investment in the infrastructure of UK science communication.

Following recent science communication scholarship which recognises the situated and contingent nature of science-society relations, this presentation will trace the development of one Millennium Project, Bristol 2000, a complex of venues, public spaces and public art. The project regenerated an area of long-derelict docklands in the heart of Bristol, UK, and included the science centre later known as At-Bristol (now We The Curious). It completely re-shaped the city's public spaces, aiming to create a new city centre which brings together science, nature and the arts.

However, as with all Millennium Projects, the Commission is only half the picture. Funded projects required 50% match funding, creating complex arrangements between a range of public and private sector actors. Science communication became mixed up with other ideas, issues and agendas. By situating science communication in the development of public space, this presentation de-centres the transmission of scientific knowledge to understand what else is being achieved in the creation of new science communication spaces and institutions. It reflects on what the design and production of public spaces tells us about the relationship between science and society.

Practice on ELSI/RRI of EdTech/AI in Education

Prof Kei Kano[1], Dr Yuko Fujimura[1], Dr Takayuki Goto[2], Prof Goro Horiguchi[3], Prof Nobutsugu Kanzaki[4], Prof Atsuo Kishimoto[2], Dr Eri Mizumachi[2], Prof Masayuki Murakami[2], Prof Hitoshi Sato[5], Dr Takayuki Shiose[6], Dr Satoshi Takahashi[2], Dr Kaito Wakabayashi[2]

[1]Shiga University, [2]Osaka University, [3]Okayama University, [4]Nanzan University, [5]Fukuoka University, [6]Kyoto University

Educational technology or AI in school education is rapidly being implemented in society in many countries. To promote proper and safer usage of them, we have started the project called "Practice on Ethical Legal and Social Issues (ELSI)/Responsible Research and Innovation (RRI) of Educational Technology Using Student Educational Data," under funding from the Technology Agency (JST). This project consists of interdisciplinary members, including EdTech and ELSI professionals.

So far, we have been collecting emerging ELSI cases and found four categories of issues: insufficient consent or notification for data collection, bias of algorithms, beyond data minimization, and inappropriate use.

These cases suggested that we need a broad framework with ethical and social aspects, as well as legal perspective, to identify potential issues. Therefore, we developed a framework with three categories of fundamental principle, regulation and cultural background in Japanese-style education and three categories of EdTech. Using this framework, we brainstormed and found 101 potential issues. Building upon these findings, we have published a booklet, "ELSI Issues in EdTech 101" https://figshare.com/articles/book/EdTech_ELSI_101/25866901, introducing 101 discussion points in 2022.

Finally, we proposed the importance of balancing innovation and regulations toward responsible innovation. In our view, the EU has strict top-down regulation from the viewpoint of protecting human rights, as represented by GDPR and the AI Act. In the US, top-down regulations, such as FERPA, COPPA, and PPRA, and bottom-up regulations of the K-12 school service provider pledge are implemented. Finally, in Japan, consent from parents and students is not required from an educational and welfare perspective, so collecting and using educational data is more accessible. Because the regulations are loose in Japan, addressing ethical and social aspects as well as legal regulations is also needed for responsible innovation.

Disentangling Self- and Response Efficacy in Fear Appeals

Lisa Kaspar[1,2], Björn Döge[1,3], Prof. Dr. Melanie Keller[1,2]
[1]KielSCN Kiel Science Communication Network, [2]IPN Kiel, [3]Muthesius University of Fine Arts

Appealing to fear is a frequently used strategy in science communication, with meta-analyses demonstrating its effectiveness in driving behavior change. Fear appeals are theoretically grounded in the Extended Parallel Process Model (EPPM; Witte, 1992), which posits four components to an effective fear appeals message: susceptibility and severity information elicit a threat appraisal resulting in a fear response. Meanwhile, self- and response efficacy information are provided to mitigate perceived threat, ideally transforming fear to hope (Nabi, 2015), and thereby maximizing the fear appeal's effectiveness with regards to enhancing behavioral intentions.

Despite the EPPM's long-standing use, there is a lack of empirical evidence quantifying the respective roles of self- and response efficacy in strengthening behavioral intentions. Specifically, due to self- and response efficacy seldom being manipulated independently from one another, their incremental effects on behavior change remain unclear (Bigsby & Albarracín, 2022). We address this research gap using a 2 x 2 experimental design (self-efficacy: high vs. low; response efficacy: high vs low) to disentangle the individual and combined effects of these two forms of efficacy information on behavioral intentions.

To enhance the generalizability of our findings, we apply the experimental design to two highly relevant topics: the antibiotic resistance crisis and climate change. By examining these issues, which differ in their levels of societal awareness and research focus, we aim to determine whether the effects of self- and response efficacy are consistent across different contexts.

Data collection for a pilot study testing the effectiveness of the efficacy manipulations is currently ongoing, with the main study scheduled for November / December 2024. At the conference, we will present the research rationale, our findings, and potential future directions in this field of study.

AI was used to shorten this abstract to meet the 300-word limit.

“I think this word is new to me” : University students’ reflections on science communication

Dr Sanna Kivimäki[1]

[1]Tampere University

Definitions of science communication vary greatly, depending on academic traditions, societal context, language (Schiele et al. 2021) and changing professional practices. While some understand science communication as a central aspect of modern societies, constructing democracy, culture and identities (e.g. Davies & Horst 2016), some others highlight individual-based communication skills (e.g. Laszlo 2006). It is questionable, if science communication forms an established subject, or is it more like a research field (Schiele et al. 2021).

In this presentation, I illustrate university students’ understandings about science communication before starting Basics of Science Communication course at Tampere University. This is a voluntary, web-based course in Finnish, open to all BA- and MA-students in communication sciences and for all PhD-candidates.

The research data consist of about 100 freely written short pre-assignments of that course.

Adapting the model presented by Schiele et al. (2021), I analyse these pre-assignments by paying attention to tensions in the material, regarding 1) Nordic welfare state with its ideals of universalism and lifelong learning (e.g. Kindal & Kuhnle 2005), 2) the Finnish language, (see Kivimäki & Olesk 2024) and 3) the heterogeneity of communication and media studies as domain (e.g. Koivisto & Thomas 2010).

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Co-creating Climate Change Storymaps with Inuit Youth & Researchers

Mrs Carmen Koessler[1], Dr Jen Bagelman[2], Ms Maeva Gauthier[3]

[1]CK Communication Services, [2]Newcastle University, [3]University of Victoria

Inuvialuit youth living in the Canadian Arctic community of Tuktoyaktuk, NWT face the everyday realities of climate change with rising waters, shifting shorelines, alarming rates of coastal erosion and extensive thawing of permafrost. Working with a team of Inuvialuit young leaders and researchers involved with the 'The Carving out Climate Testimony: Inuit Youth, Wellness & Environmental Stewardship Project' a collection of Storymaps has been created to share these impacts. Storymaps are an engaging digital medium that helps communicators create stories that can inform, inspire positive impact and connect with people in a way that stats or science alone cannot. It also allows for a collaborative narrative process. There is growing recognition of the effectiveness of using maps to support stories and narratives to communicate climate science. Stronger communication of climate science and the impacts of climate change with the public has emerged as a shared goal among scientists and science communicators, but there is no consensus on how to do it effectively, or how to include community voices and knowledge of Indigenous or other equity-seeking groups. I will outline the process used to co-develop stories that weave the knowledge and voices of Inuvialuit youth with a diverse international team. In addition to lessons learned, I will share professional reflections on ways science communicators can help;

- Acknowledge & address power imbalances in climate stories
- Bridge generational divides between youth and scientists
- Recognize Indigenous knowledge and community wisdom in climate stories
- Shift who academia and media deem to be 'knowledgable' sources

I will use Mentimeter to engage with the audience throughout my talk and to document tips or advice from others in the room. These shared learnings will be shared with all conference attendees in an infographic summary graphic via social media once it is ready following the session.

Eating (for) the planet: public engagement, health, and food consumption

Dr Konstantin S. Kiprijanov[1]

[1]Natural History Museum Berlin

For Linked Paper submission: 287, session titled 'Public Engagement Aspects of Planetary and One Health'.

Nutrition and existing food systems have not only a significant – both positive and negative – impact on human health, but existing food systems also play a crucial role in the proliferation of environmental degradation and climate change. Simultaneously, sustainable food systems and forward-thinking consumer behaviour can make a strong contribution to the protection and preservation of Planetary Health.

Our project 'Planetary Health - Public Engagement for Planetary Health' seeks to open up new pathways for positive socioecological transformation toward sustainable food production and food consumption. The main project objective is to provide guidelines for selected stakeholder groups (policy makers, medical professionals, grassroot movements) that will lay the groundwork for planning and implementing public engagement activities for healthy eating habits and systemic transformation in line with the Planetary Health paradigm.

The talk will offer an overview of the project's research design and provide insights into the current state of our research, focussing on three key areas of our work: (a) our Participatory Action Research approach and its methodological challenges; (b) insights into the potential of cooking interventions as effective public engagement instruments in a museum environment; (c) our main project outputs, such as communication guidelines and user-focused engagement toolkits for policy makers working in the fields of healthy nutrition and sustainable farming.

In so doing, the paper informs the implementation of transformative research practices; provides practice insights into the key challenges of fostering engagement with highly complex topics such as Planetary Health; research-led engagement practices in public institutions; and opens up scholarly discussion to practitioners working in science, environmental, and health communication, as well as outreach professionals and environmental activists beyond the reach of academic research.

Exploring visualizations in science communication: Integrating theories and perspectives

Melanie Keller[1,2], Carolin Enzingmüller[1,2], Yael Barel Ben David[1,3], Björn Döge[1,4], Julia C. Ahrend[1,4]

[1]KielSCN Kiel Science Communication Network, [2]IPN Kiel, [3]Kiel University, [4]Muthesius University of Fine Arts

Visualizations are powerful tools in science communication (SciCom) that support in-depth explanation and exploration, particularly for complex, uncertain or intangible topics. Beyond being informative, visualizations incorporate also aesthetic elements (Vande Moere & Purchase, 2011), making visualization development dependent on cross-disciplinary expertise and creative design skills. The Kiel Science Communication Network (KielSCN) is dedicated to visual SciCom research in which professionals from science communication and education, psychology, and information design work together to understand how visualizations in SciCom work for various audiences in order to optimize design and professionalize the development process.

The visual presentation outlines the four key areas that define our research:

(1) We leverage expertise from information design to define quality criteria for SciCom visualizations (based on Fähnrich et al., 2023). In an interview study, we investigate aesthetic strategies and quality criteria designers use to create visualizations.

(2) Integrating models and practices from co-design, design-based-research and design-thinking (Enzingmüller & Marzavan, 2024), we develop a toolbox that supports stakeholder involvement to facilitate a goal-oriented development process. Accompanying studies investigate benefits of co-design for audiences.

(3) Cognitive and emotional processes in interpreting visualizations are intertwined. Using appraisal perspective on discrete emotions (Ellsworth & Scherer, 2003), we adapted a media effects model integrating theories from user experience and emotion research. In experimental studies, we test how emotions and cognitions drive effectiveness of visualizations.

(4) Scientists increasingly need to engage in SciCom alongside research and teaching. A literature review will inform a training module that integrates SciCom principles and visual design strategies, and we explore the potential of generative AI to enhance scientists' communication skills.

For each area, the visual presentation summarizes key concepts, theories, models, and empirical studies. Their integration into our agenda can be visually and interactively explored by conference participants to gain a holistic view on visualizations in SciCom.

Seeing organic: The discourse of Taiwan's agricultural policy propaganda

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[1]National Taiwan University, 2Institute of Statistical Science, Academia Sinica

In 2018, Taiwan enacted the Organic Agriculture Promotion Act, establishing a clear certification process for organic products. Organic agriculture avoids the use of chemical fertilizers, pesticides, and genetically modified organisms (GMOs) while emphasizing ecology, biodiversity, and consumer rights. However, "organic" is a vague concept involving complex scientific evidence. This study aims to analyze how the government portrays "organic" in agriculture propaganda videos.

Using critical visual methodology and narrative analysis, we studied Taiwan's Ministry of Agriculture on YouTube, with a focus on power dynamics, discourse, and social modalities. The Ministry's video contests encouraged public participation in creating organic farming videos. By comparing 21 propaganda videos with 32 contest-winning entries, we identified significant narrative differences between government-produced content and public submissions.

The findings indicate that government propaganda focuses on consumer education and biodiversity through various video formats, including dramas, animations, and press conferences. These videos address topics such as organic labeling and certification. There's an emphasis on linguistic diversity, with some videos subtitled in English and Japanese. Consumers are depicted as vulnerable and needing government guidance. In contrast, public videos employ diverse formats, such as rap and documentaries, to discuss broader issues like pesticide poisoning, the affordability of organic products, and the scientific principles underlying organic fertilizers, thereby offering a more grassroots perspective.

Narratives on biodiversity emphasize the importance of insects, such as butterflies and bees, while highlighting the ecological benefits of organic farming. Both government and public videos employ personification (e.g., smiling vegetables) and emotional appeals, particularly in public videos, which foster respect for farmers and nature. Government videos, rich in imagery, may overlook the audience's attention span by focusing on organic farming as an ecological ideal. In contrast, public videos present grassroots perspectives on real challenges, offering valuable insights for future promotion and education in Taiwan's organic agriculture.

How dynamic contexts influence dual pathways to health message? Evidence from three national surveys in China

Media information influences behaviors through either heuristic or systematic pathways. The environment where media exposure occurs, and the type of media may further complicate the pathways. The COVID-19 pandemic, which witnessed varying situations that have influenced both media information provisions and people's responses for three years, offered a precious chance for us to observe and analyze the pathways. With three national surveys conducted at different pandemic stages, this study explores the effect of different types of media (mainstream and self-published) exposure on COVID-19 vaccination intentions in distinct environments and the mediating roles of dual pathways between the exposure and behavioral intention.

The results show that the media types influenced the effect of media exposure on vaccination intentions only in the initial vaccine rollout phase. Nationalism and trust in scientists, as heuristics, played stabler roles than knowledge and risk perceptions in mediating media exposure and vaccination decisions, while there were noticeable changes for the mediating routes at different pandemic stages, indicating environmental impacts on alternation of cognitive routes. This study reveals the dynamic effects of media exposure on vaccination intentions, expanding our understanding of environmental impacts on cognitive routes.

Added Value: Using Science Communication to Improve Emergency Response Technology

Ir. Camera Ford[1], dr. Caroline Wehrmann[1], Ir. Robert Voûte[1]
[1]Delft University of Technology

There is increasing support for the idea that new technology should be developed with end-users in mind. However, in practice this remains cumbersome. Using the Dutch emergency response context as case study, we bridge this gap by bringing communication and design theory to the technological design context. Dutch emergency response organizations increasingly use mobile laser scanners (MLS) for public safety tasks like search & rescue and crime scene documentation. From a developer's perspective, this change necessitates investigating how current MLS devices meet first responder needs and how improvements could increase their performance. The Value-Matching Methodology we developed to address these questions is a novel application of science communication in the Remote Sensing field.

The overarching research goal was to create a theoretically-grounded method for evaluating and improving a technological tool based on the needs of a target group. A design-based research approach was used to integrate qualitative and quantitative methods. First, focus groups and interviews were conducted with first responders to provide necessary context about their needs and experiences. Then, important user values were identified and subsequently matched to different MLS attributes and potential design elements. These links show which design aspects align with user values. Lastly, the process of applying this Value-Matching Methodology was distilled into a guide that developers can use to incorporate user preferences and requirements more comprehensively in their design process(es).

The most important outcomes of this research from a communication science perspective are (1) the Value-Matching Methodology and (2) the guide for developers to better understand their target group. More broadly, this research shows how the translational role of science communication can evolve toward connecting various stakeholders within a technological design process. Science communication, coupled with value-sensitive design principles, can bring disparate disciplines together and foster the transition toward a more user-focused technological design process.

Funneling the Focus for Expanding Impact

Meghan Wiesbrock[1]
[1]The Morton Arboretum

Programs should remain dynamic, and transition over time to reflect the changing best practices and audience needs. In order to maximize impact and connection with prioritized audiences in a world of limited capacity, informal learning centers need to leverage program evaluation, as well as understand the benefits/complexities associated with reshaping an existing project to a new format. From 2018-2022, The Morton Arboretum released The Planted Podcast, which focused on reaching educators, students, and early career professionals regarding careers in plant science and horticulture as well as exciting developments in environmental science. With over 14k downloads in over 90 countries, the podcast had a broad reach, and provided classroom resources and authentic voices for tree conservation and tree science career opportunities. In 2024, based on metrics and capacity, it was time to transition the project to meet the evolving needs of its audiences. This included creating its first video episode to support a flipped classroom model (Planted in the Field), alongside an immersive teacher trip to provide educators with hands-on experience regarding environmental research in the Cloud Forest of Costa Rica. Transitioning the project allowed educators, one of the prioritized audiences, to have experience in the field, with the goal that it would be applied as lived knowledge into local classrooms. Coupled with the previous episodes of the podcast, and the video, it has deepened the project's overall impact for inspiring the next generation. Early successes with this transformation include the educators developing local conservation projects, and working to make their schools accredited arboreta. Through consistent evaluation, audience needs were met and coupled to match program intent. In this talk, hear this case-study example of how to adapt to changing communication landscapes. Additionally, participants will engage in thoughtful conversations about rethinking how existing structures can be adjusted to expand impact.



Parallel Session C:8

Narratives in German Media: Exploring the Concept of Participatory Science

Ms Anne Charlotte Forstmann[1], Prof. Dr. Monika Taddicken[1]
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For Linked Paper submission: 395

Citizen Science, the practice of involving citizens in scientific research, is often foreshadowed as a means of democratizing science and society (Strasser et al., 2018). Despite its increased prominence in political and media discourse, public perceptions of Citizen Science remain underexplored. However, researching und understanding these public depictions is a crucial first step to understanding participation and its impact on trust in science, as well as understanding potential barriers to participation. Therefore, this study aims to address this gap by investigating how participatory science is communicated to the public. Through a narrative thematic analysis, we examine the themes present in both traditional media (n ≈ 125; macro level) and on the German Citizen Science platform mit:forschen (n ≈ 50; meso level), with a focus on the normative claims associated with Citizen Science.

Preliminary findings suggest that media attention particularly focusses on broader changes within an "outdated" scientific system, presenting Citizen Science as, firstly, a new approach to science, and, secondly, a potential solution to diverse socio-political challenges, including the erosion of trust in science or the climate crisis. Nonetheless, dissenting opinions are likewise picked up on and reflected multiple news outlets, particularly critical perspectives on the efficacy of Citizen Science.

This research is crucial for understanding how participatory science is framed in public discourse. By analysing the narratives at play, this study contributes to broader discussions on the role of science communication in fostering public engagement and driving societal change. The findings will also inform a subsequent quantitative study, further exploring the media depiction of public participation in science.

Quark: analysis of a model for PCST communities of practice

Dr. Miguel Garcia-Guerrero[1], Prof. Bertha Michel-Sandoval[1]

[1]Science Museum, Autonomous University of Zacatecas

The communities of practice (CoP) approach (Wenger, 1999) proposes a horizontal vision of situated learning processes, in which a group of people meet on a recurring basis to develop activities around a common interest. These communities involve participants with different degrees of aptitude in the domain in question, and they gradually become experts as they grow in the community and identify with it.

The study of CoP arose with the study of craft guilds (Lave & Wenger, 1991), highlighting the importance of conscious action for learning in any field and the historical significance of this way of learning. Thus, with a natural character for human beings, the communities of practice approach can be extended to different fields. From our perspective, in the public communication of science and technology, there are great benefits to be taken from CoP.

Quark is a group of volunteers who specialize in the development of science recreation workshops. Quark began its activities in 2001 and since then, more than 350 people have collaborated in its science outreach work in Zacatecas, Mexico. Along with the growing demand for activities at the local level, one of the great challenges of the group has been to establish effective training processes for the constant flow of new members, preparing them on several levels: in the management of scientific concepts in an appropriate way for the public, the group's methodology for science recreation workshops, as well as the design and development of models for the activities.

This proposal addresses how Quark structured a tradition in the way of preparing its members by actively getting them involved in science outreach activities, analyzing the process through the CoP approach, and taking advantage of a study that obtained feedback from 215 people who participate or have participated in the group.

Boundary Crossing between Art, Conservation and Science at Rijksmuseum Amsterdam

MS Maxime Gerber
[1]Rijksmuseum

Not much is known about the role of science communication in art museums. Traditionally, art museums dominantly rely on art historical knowledge about the art to communicate to visitors. However, conservation science behind the scenes of prestigious museums has been a growing field of natural sciences research contributing enormously to the understanding and preservation of cultural heritage. Here, both remedial conservation science and preventive conservation science can be considered, with the latter closely related to environmental science. Therefore, museums have evolved into interdisciplinary knowledge institutes co-creating knowledge about art through art history, conservation craft, and material conservation science over the past century, yet the museum visitor is often not aware of this, since this science is generally not communicated. How can science communication researchers and practitioners contribute to the communication of science at art museums?

This presentation will discuss the outcomes and recommendations of an ethnographic research case study at the Rijksmuseum Amsterdam, focusing on the role of science at art museums. A thorough description of the old, current and potentially new science communication field at art museums is described, through the lens of boundary work. This study highlights the communicative potential for positive impact on the science-society relationship through art museums in an evolving culturally and environmentally pressured world. Interestingly, compared to the STS narratives to create artistic tools to communicate science from the dominant perspective of science, this science communication field is inverted with art as dominant, resulting in different dynamics.

The ethnographic methodology includes participant observations, interviews, document analysis and literature study conducted by a presenter with a passion for cultural heritage and analytical chemistry in conservation science. The findings inspire a broad audience from an insider perspective of the museum institute and contributes to the development of science communication as a field from a new perspective.

Bridging the Gap:Integrating Science Communication into Veterinary Researchers' Professional Identity

Ms Katharina Göbel[1]
[1]LMU Munich, [2]University of Passau

The COVID-19 pandemic has catalyzed a critical (re)assessment of science communication, particularly within the veterinary field, where researchers are essential in addressing zoonotic diseases that affect both animal and human health. This project investigates the professional identity of German veterinary researchers and proposes a new model that integrates a science communication component into their role conceptions. By conducting 40 qualitative, semi-standardized interviews with experts in infection medicine and animal welfare, the study aims to explore how veterinarians perceive their responsibilities as science communicators and the implications for their evolving professional identity.

As the demand for public engagement grows, this research highlights a significant transition in the role of veterinarians, shifting from traditional practitioners to proactive communicators who must navigate the complexities of public health discourse. This evolving identity raises important questions about the skills and roles required for science communication in a rapidly changing landscape, particularly considering global challenges such as climate change and pandemics. The project emphasizes the necessity for interdisciplinary collaboration among scientists from different disciplines, policy makers and communication experts fostering a more integrated approach to public health communication that can drive behavioral change and improve global health outcomes. Notably, this study addresses a gap in the existing literature, as there has been no prior research that comprehensively examines the intersection of veterinary science communication and public health.

While this research is still a work in progress, it aims to contribute valuable insights into the motivations and challenges faced by veterinary researchers in their communication efforts. By integrating a science communication component into the professional identity framework, this research seeks to illuminate the future of science communication roles, addressing the need for veterinarians to engage actively with the public and policymakers. Ultimately, this study aspires to enhance the impact of science communication in addressing global health challenges.

Communicating Scientific Ocean Drilling in a Time of Transition

A/Prof Will Grant[1]

[1]Australian National University

Since 1961, scientific ocean drilling programs have played a key role in the global mission science architecture, generating crucial insights about the nature and history of the Earth and its biosphere.

International Ocean Discovery Program Expedition 405, running September to December 2024 on the DV Chikyu, will build on this legacy, with a voyage to track tsunamigenic slip across the Japan Trench.

Yet IODP 405 comes during a time of transition, with a more global collaborative architecture potentially in the process of splitting into regionally oriented collaborations.

In this presentation I explore the outcomes of a fieldwork expedition to the DV Chikyu in November 2024 looking at how working IODP scientists and managers think about their work in diplomatic and geopolitical terms; how they think about the communication of their work, including which audiences they consider, how they consider impact, what stories they are looking for alongside research outcomes; and how they think about trans- and inter-disciplinary work in the context of the expedition.

Note, the fieldwork research underpinning this paper is being conducted November 2024 (after the time of writing this abstract), so more exciting things may have been discovered! Stay tuned for more.

Knowledge brokering at the science-industry interface

Ms. Rose Gregorio[1]

[1]EIT Urban Mobility, [2]University of Edinburgh

Knowledge brokers have traditionally been utilised to connect the science and policymaking domains but several studies have also identified technology transfer offices as knowledge brokers that facilitate the interactive process through which knowledge is transferred between research centres and industry. My personal interest in this boundary-spanning role and my conclusion that knowledge brokering is not studied widely in the context of communicating science to and engaging with industry inspired me to investigate this topic for my MSc in Science Communication and Public Engagement dissertation at the University of Edinburgh.

My study, entitled 'Knowledge brokering at the science-industry interface: A look into research centre technology transfer offices in Barcelona', resulted in several findings, some of which are:

- It often does not matter if the technology or innovation is communicated properly or correctly to industry. Tech transfer professionals bemoan the lack of technological maturity to really bring their offerings to commercialisation stage. In order to bridge this valley of death, tech transfer professionals often push for or contribute to research proposals between research centres and industry. In this case, their function as linking agents helps bring different partners and stakeholders together.
- Tech transfer professionals need to work closely with researchers as they are the producers of knowledge that needs to be commercialised. Because of that, persistent communication and engagement is necessary internally (between researchers and the tech transfer office) in addition to external engagement with industry and other stakeholders.
- Tech transfer professionals use various tools and channels in order to engage with industry. Interestingly, while some of the tech transfer professionals I interviewed dismissed scientific publications as a non-tech transfer activity, studies have actually shown that some companies that bought technologies from universities found them through journal articles and conference proceedings.

Exploring the dynamic between research and practice in science journalism

Mrs Ria Griffiths[1]

[1]University of the West of England

As a practice, science communication has experienced rapid growth in recent decades, with the establishment of increasingly diverse and professionalised communities of practice. Similarly, within academia, science communication has become an increasingly professionalised, transdisciplinary field of research. Existing literature highlights the significance of the research practice dynamic in exploring quality and effectiveness within science communication but points to gaps in exchange and collaboration between the cultures of research and practice.

This poster presents pilot data from a PhD research study investigating the perceived disconnect between academic research and practice in science journalism, contributing to discourses of professionalisation of the field. Studies exploring the relationship between research and practice have typically focused on science communication on a broader level, with less attention given to the distinct characteristics of science journalism. As a field, science journalism has evolved in line with a broader digital transformation, moving from a traditional, centralised media model, to an information system characterised by connectivity, immediacy, and personalisation. For practising journalists, the expansion of new formats, combined with a broadening of content creators, has raised existential questions regarding the nature of science journalism as a profession.

Through its investigation into the relationship between theory and practice, and the tensions stemming from differing cultures, values and interests in science journalism, this research invites reflection from researchers and practitioners, with insights applicable to both communities. Combining qualitative interviews and arts-based fiction workshops, the research explores (i) how the research/practice dynamic is conceptualised and experienced by science journalists and science communication researchers in the UK and (ii) how science journalists engage with concepts of professionalisation, and how this relates to academic research. In doing so, it analyses ways in which the research/practice dynamic could best be organised to meet specific needs and challenges within contemporary science journalism.

Enabling public conversations about climate data through art

Miss Vicky Hall[1], Poppy Townsend[1]
[1]STFC RAL Space

The NERC Environmental Data Service (EDS) holds data across all environmental science domains, including climate and Earth observation. Describing the importance of data and digital skills with the public is challenging; data isn't seen as interesting, and conversations about global climate change can be demotivating or overwhelming.

EDS staff, based in the Centre for Environmental Data Analysis within RAL Space, designed activities to inspire more transparent and motivating conversations about environmental science data, shifting from one-way interactions to open communication on a local scale.

We developed a tool for people to create personalised climate stripes, supported by the team behind the #ShowYourStripes global graphics. People choose specific UK locations and time periods to view warming stripes, and choose their own art mediums to express their thoughts, concerns or actions for change.

Best practices were incorporated from peer-reviewed articles on inclusive engagement and previous experiences of EDS staff collaborating with artists. Art was not just a method of representing data but helped inform how the data could be processed to stimulate intellectual or emotional responses.

We piloted the tool at Harwell Open Week 2024; hundreds of school children and families added pieces to a mosaic depicting the warming climate in Oxfordshire over the last four generations, with action slogans. The hands-on activity created a safe space for conversations on local issues and increased participants' understanding of how national facilities collect, disseminate and analyse data. More institutions plan to repeat or evolve the activity for their communities and the tool is now publicly available.

We will showcase the mosaic, other artwork examples, the project's impacts and lessons learned, and invite people to contribute to supplementary artworks to encourage reflection and curiosity in environmental data. We invite people to explore the tool, taking away a digital file of their own local climate stripes.

Transitions in Agricultural Education: Connecting theory with practice

Elena Hayes[2], Ms Sarah Jane Brady[1], Dr Aine Regan[3]

[1]VistaMilk SFI Research Centre , [2]Teagasc Animal and Grassland Innovation Centre, [3]Department of agri food business and spatial analysis

The agri-food sector is experiencing critical labour and skills shortages, threatening its productivity and sustainable development. As one-in-twelve jobs in Ireland are tied to the agri-food sector, there is an urgent need for strategies to attract young and diverse talent to this field. While studies show a positive correlation between studying agricultural science in school and pursuing a career in agriculture, perceptions among adolescents remain mixed. Teachers have noted that the absence of real-life examples can create a disconnect and diminish the effectiveness of the learning environment for students.

As part of an Education and Public Engagement initiative undertaken in the Irish VistaMilk Research Centre, this study examines the feedback from teachers and students on a series of digital agricultural case studies, designed as educational resources to foster interest in agricultural science among secondary school students in Ireland and to provide teachers with resources to support their teaching. Using two surveys, we explored the potential uptake and perceived value of these case studies in the classroom from the perspective of teachers and students.

Findings reveal that the case studies are seen as relevant and aligned with the agricultural science curriculum, enhancing engagement through real-life examples and inquiry-based learning approaches. Teachers highlighted the resource's usability, student-friendly design, and potential to stimulate independent research, critical thinking, and peer learning. However, they also suggested enhancements such as differentiated strategies, additional topical content, and resources tailored for teachers new to agriculture.

This research highlights the critical role of innovative educational materials in transitioning perceptions of agriculture from a traditional to a modern and dynamic career choice. By fostering a deeper understanding and engagement among students, these resources can help bridge the skills gap and attract more young people to the sector, contributing to its sustainable development.

Envisioning ecological futures through science, language and traditional arts

Dr Mairéad Hurley[1], Dr Síle Denvir[2]
[1]Trinity College Dublin, [2]Dublin City University

This paper describes the work of Cuisle an Chomhshaoil, an initiative in the minority Irish-language speaking area of Conamara in the west of Ireland. It draws together young people, artists, educators and researchers from a range of disciplines to build community around climate and environmental protection in the context of local cultural, linguistic, and environmental heritage.

Through public events co-created by youth for community members of all ages, this project asks: How do young people in the Conamara Gaeltacht envision their ecological futures through the arts, creativity, language and heritage?

Events included public lectures, a biodiversity and cultural heritage walk, an introduction to citizen science and low-cost microscopes, and a zine-making workshop. This group of creative young environmentalists were inspired by a message from community elders to draw on and to interrogate traditions from the area to create new songs and stories for a sustainable future. In collaboration with the authors (one science education/ communication scholar, one Irish language and traditional music scholar), they composed original poetry set to a traditional melody, inspired by their exploration in nature, and their interpretation of folk tales and archival materials. This was then performed publicly for the wider community.

This project also seeks to explore and understand the current and previous conditions for the community transmission of place-based ecological knowledge through language and traditional arts in rural Ireland, and to explore youth perspectives on transdisciplinary practices as a response to contemporary sociopolitical and environmental crises. We will use excepts of video footage of the youth performance to illustrate our findings from the ethnographic study we conducted with this small cohort of young emerging artists. This paper continues the discussion on the potential of science communication to contribute to new knowledge-making practices in response to socio-ecological crises, alongside language, traditional arts, and cultural heritage.

An Ethnographic Exploration of Climate Fresk's Narrative in China

JAVZMAA JADAMBA[1], DONGJING KANG[1]

[1]Shanghai Jiaotong University

Numerous global and local initiatives aim to educate the Chinese public about climate change, but despite strong scientific evidence, public concern remains low (UNESCO, 2010; Han, 2015). This study investigates how Climate Fresk (CF), a French activist organization, conveys its climate change narrative in China and its impact on participants. CF, known for its 52 multilingual workshops, recently expanded to China. Utilizing gamified narratives, a storytelling technique that incorporates elements of gameplay, CF's workshops engage participants in addressing climate change through awareness, dialogue, and action. Employing narrative inquiry (Fisher et al., 2008; Lin et al., 2013; Lee, 2004; Ricoeur, 1980), focusing on identification, transportation, and presence, we conducted multi-site ethnographic research, interviewing three CF organizers and 25 participants. Based on a preliminary thematic analysis, two major themes emerged: 1) immediate identification with language and local issues: most participants appreciated CF's use of local language and news, feeling emotionally connected to their climate narrative; and 2) temporality in narrative transportation: participants who were highly engaged with CF's game-element-plotted, culturally universal, cause-effect-based climate narrative could flexibly withdraw it after the workshop. This study provides insights into the cross-cultural nuances and socio-historical considerations of post-socialist China that should inform future workshops' narrative design.

Evidence-Based Content Production for the National Academy of Engineering

Dr. Nic Bennett[1], Dr. Laura Lindenfeld[2], Dr. Eboney Hearn[3]

[1]Michigan State University, [2]Alan Alda Center for Communicating Science at Stony Brook University, [3]Massachusetts Institute of Technology, Introduction to Technology, Engineering, and Science (MITES)

Background: In August 2022, the National Academy of Engineering (NAE) held a symposium to examine the positive societal and economic impacts derived from the National Science Foundation's (NSF) support of fundamental engineering and engineering education research. This initiative highlighted the essential role of engineering in government, business, and society, showcased the creative nature of engineering, and aimed to inspire young people from diverse backgrounds to pursue engineering careers.

Issue: However, engineering still faces significant challenges when it comes to both recruitment and image. The public perceives the engineering field as hard, involving manual labor, dominated by white men, and leading to limiting career opportunities. Furthermore, the U.S.'s engineering workforce does not reflect the rich diversity of the nation, which stifles innovation in the field.

Project: In early 2023, we developed five pieces of content focused on these issues. This content was developed by journalism and mass communication undergraduate students, with the guidance of a science communication researcher. These materials were designed based on research-based best practices in science communication and tested with high school students for their engagement and effectiveness.

In this presentation, we will share exemplars and go "behind-the-scenes" in the evidence-based development of the materials. We will discuss how these materials may serve as tactics in a longer term science communication strategy aimed at improving the public perception of engineering, addressing recruitment challenges, and fostering more inclusive engineering spaces.

Cultivating Communities in Public Engagement: An International Exchange.

Iris Geigenmüller[1], Sonja Hammann[1], Dr Mhairi Stewart[1], Dr Alina Loth[1], Iris Nijman[1], Zinaida Vasilyeva[1]

[1]Museum fuer Naturkunde Berlin

Our interactive poster invites participants to explore the essentials of community building, focusing on shared experiences and practical strategies. We aim to uncover the key factors that contribute to the successful and sustainable development of communities—whether within projects, interest groups, or academic networks.

Participants are encouraged to bring their own questions and challenges to the table, respond to insights from others, and brainstorm potential solutions together. The poster thrives on active engagement, offering a space for inspiration and an anonymous platform for sharing both difficulties and solutions.

Drawing from various case studies and practical experiences, the poster will highlight the importance of inclusive and meaningful connections. While ethical considerations and principles of Responsible Research and Innovation (RRI) are discussed, the emphasis is on providing concrete, actionable strategies for effective community building.

We hope this interactive poster fosters a fruitful dialogue, where participants can exchange best practices and learn from both successes and setbacks. The interactive nature of the poster ensures that everyone has the opportunity to contribute actively to the discussion, shaping not only the content of the poster but also the broader conversation on community building.



Parallel Session D:6

Data-Start-Ups Applying Science Communication and Citizen Engagement

Dr ilse Marschalek[1], Mrs Maria Schrammel[1], Dr Elisabeth Unterfrauner[1]

[1]Centre for Social Innovation

The food and nutrition sector generates vast amounts of data with the potential to advance public health and sustainability. However, the challenge lies in leveraging this data while respecting personal data sovereignty and maximizing societal benefits. The EU-funded FOODITY project addresses this issue by engaging innovative start-ups to develop digital solutions. In this presentation, we explore how these start-ups manage the complexity of personal data in the food and nutrition sector, highlighting the tension between citizen engagement for business development on the one hand and socially relevant science communication for an important topic on the other.

We examine the pivotal role of science communication in these start-ups' strategies. Effective science communication is not only about disseminating information but also about integrating end-users into the development process. It is essential for raising awareness, fostering trust, and ensuring that services align with user needs and ethical standards. By actively involving citizens, these start-ups aim to create more relevant and impactful solutions.

Through three case studies across Europe, we illustrate the challenges they faced, and which solutions were found to overcome them. Strategies include transparent communication practices, participatory design processes, and the development of user-friendly digital tools. These approaches not only help in maintaining user engagement but also in building trust and ensuring data privacy.

We aim to highlight the potential of digital solutions in the food and nutrition sector, emphasizing the critical importance of science communication and ethical practices. These elements are essential in fostering user trust and engagement, which ultimately contribute to successful business development and increased awareness on the topic of food and nutrition data. The tension between effective science communication and active citizen engagement is crucial, driving the creation of solutions that are both innovative and respectful of user concerns.

Communicating the city's research history to local inhabitants and tourists.

Mr Siim Lepik[1]

[1]Estonian Research Council

I would like to present a poster and a 3-minute talk about a science communication project we had in Tartu, Estonia.

As Tartu is the European cultural capital of 2024 and an old university town, we decided to create an outdoor exhibition to inform tourists who visit the town during the cultural capital year as well as locals about the rich science history that Tartu has. It is not too visible in the town.

When the outdoor exhibition is quite a traditional approach to science communication, we created an integrated communication plan where the facts presented in the street were empowered by social media campaigns under two different brands (in English and in Estonian to different target groups) and an online timeline about Estonian Science History.

Besides that, together with two of the most prominent local history museums, we created a city tour that uses the same content of the exhibition and introduces Tartus's science history by showing the places where it was made.

The project involved many partners and stakeholders, such as the cultural capital team, major universities, local government, and history museums.

Can AI Replace Scientific Illustrators and Animators?

Dr Tullio Rossi[1]

[1]Animate Your Science

We've all witnessed the rising tide of AI-generated images and videos. It's fast, cost-effective, and often impressive. Dr. Tullio Rossi, a practitioner in the area of science animations and illustrations, has been both mesmerised and perplexed by this phenomenon. In this presentation, Dr. Rossi will explore the subject, highlighting some dangerous pitfalls that science communicators should be wary of.

Beyond these cautions, AI art also presents remarkable opportunities. It opens new avenues for expression and storytelling, enabling the visualisation of concepts and ideas in ways previously unimagined. However, it's crucial to remember that AI is just a tool, devoid of inherent ethics. The true significance lies in how it is used—ethically and responsibly.

This presentation will explore the capabilities and current limitations of AI in visual science communication while emphasising the importance of responsible usage. It will also address the conference theme of transitions, discussing how the rise of AI represents a significant shift in the field of science communication, challenging traditional methods and offering new possibilities for engaging audiences.

This abstract was edited with the help of AI.

Prevention as the dominant narrative on Alzheimer's disease in Taiwan

Wei-Cih Lin[1], Associate Professor Yin-Yueh Lo[1]
[1]Shih Hsin University

The rapid pace of neuroscientific discoveries has transformed our understanding of Alzheimer's disease, presenting new challenges and opportunities for public science communication. As Taiwan transitions into a super-aged society, the media's role in disseminating complex scientific information becomes increasingly crucial. This study examines a decade of Alzheimer's disease coverage in Taiwan's leading health publication, "CommonHealth Magazine", investigating whether and how media narratives about Alzheimer's disease have changed over time.

Our research analyzed 123 stories published between 2013 and 2023, selected based on keywords related to Alzheimer's disease. The first thing we found from the research was that the total of the stories had gradually increased. Second, most of the stories stood on a preventing perspective, advising the public on healthy eating and living. Moreover, the relevant policies in Taiwan had changed from enhancing public awareness and primary healthcare to strengthen the network for dementia diagnosis, treatment, and care. Last, we observed a neuroscientific term such as "amyloid proteins" has increased in recent publications since 2019.

This evolution in media narrative reflects a complex interplay between scientific advancements, changing societal needs, and the pressing challenges of an aging population. We argue that this shift is not solely based on new research findings but also indicates a change in societal attitudes toward the disease, moving away from preventing towards more diverse perspective.

The changing media landscape may have significant implications for public understanding and policy approaches to Alzheimer's disease. By highlighting prevention and incorporating more scientific terminology, the media may be playing a crucial role in increasing health literacy and promoting proactive health behaviors among the aging population. Future research should explore how these changes in media representation impact public perceptions, health behaviors, and policy decisions related to Alzheimer's disease in Taiwan's rapidly aging society.

Strategic transitions to include youth voices in science centre evaluations

Ms Shanii Phillips[1]

[1]Scitech

How can we ensure that youth voices are being heard in the evaluation of informal science learning? Science centres around the world welcome visitors of all ages through their doors every day, including many families and school groups on excursions. Evaluation of science centre experiences typically uses methods that target adults, including parents visiting with their children and teachers accompanying school students. Many science centre evaluations also ask adults to report on behalf of their children and students, missing a key opportunity for many children to provide feedback and share insights based on their own experiences.

In October 2023, Scitech (Perth, Western Australia) recruited the inaugural cohort of the Scitech Test Pilots, a children's reference group established to gather feedback from a key segment of our visitors who had previously not been heard from. Since this transition, the Scitech Test Pilots have pilot-tested prototypes for new exhibits, shows, programs and digital content, providing valuable insights and suggestions to improve Scitech's offerings across multiple platforms. By asking the children for their direct feedback and ideas, the Scitech Test Pilots program has shifted power dynamics within the evaluation of prototypes and concepts. Contributing their ideas and suggestions has given participants opportunities for active citizenship and identity-building by striving to improve Scitech's experiences for others like them, as the representative voice of our younger visitors.

This presentation will explore some of the key opportunities and challenges of facilitating a children's reference group, including engaging regional participants. We will examine how the Scitech Test Pilots will continue to pilot-test ideas, content and programs in the future, and ensure that the voices of all our audiences are heard.

Advancing Stakeholder Impact: Informing a dairy feed efficiency monitoring system

Hema Lingireddy[1], Kelsey Biscocho[1], Rob Weiner[1], Linda J Pfeiffer[1]
[1]Purdue University

Intensive research and innovation research has led to the development of several breakthrough agricultural technologies; however, stakeholder acceptance of these technologies is uncertain. In the United States, a majority of communication efforts have prioritized the dissemination and adoption of already developed technologies, usually leading to negative stakeholder perceptions and limited technology acceptance. Additionally, technology designers' often have limited capabilities to incorporate the domain expertise of dairy stakeholders in the technology development. To address this issue, we undertaken a four-year, upstream, participatory engagement exercise in several Midwestern states to gain insights into stakeholder perspectives about a video-analytic dairy monitoring system, with the goal of informing meaningful technology design.

In the first year of this study, seventeen qualitative, semi-structured interviews were conducted with nutritionists, dairy consultants, dairy-science researchers, and industry professionals. An Inductive thematic analysis revealed four themes: First, stakeholder's general experiences elicited a benefits and risks of agricultural technologies theme which profoundly shaped stakeholder beliefs regarding the emerging feed-efficiency monitoring technology, with many expressing a cautious optimism. Second, an integration of farm technology theme reflected stakeholder concerns about the compatibility of technology with their day-to-day management practices, technological disruptions, support availability, and strong concerns for data privacy issues. Third, a theme of technology adoption considerations included decision-making criteria, economic considerations, and technology attributes important for adoption. A final technology under-design theme identified the strengths, challenges, preferences, and recommendations for the emerging video-analytic system design. Overall, this analysis provided engineers and scientists critical and novel feedback on the technology design.

The efficacy and implications of sharing stakeholder's perceptions, in collaboration with engineers and dairy scientists, and their impact on technology design will be discussed. The study emphasized the significance of public engagement during the initial phases of technology design to highlight frequently overlooked aspects of the technology that are important to end-users.

Great Communicators of Science: from Galileo to Jane Goodall

Prof. Bienvenido León[1]

[1]University of Navarra

What do Galileo, Carl Sagan, and Jane Goodall have in common? Though they hail from different eras, countries, and fields, they share several qualities: fascinating life stories, a deep love for science, and, above all, an extraordinary ability to communicate knowledge in a way that captivates not just specialists but anyone with an interest.

The challenges of conveying science to the broader public are numerous and well-known. Yet throughout history, some scientists and communicators have excelled at making science accessible and engaging, as evidenced by the works of historical figures like Galileo, Alexander von Humboldt or Darwin, and more recent personalities like Carl Sagan or Jane Goodall.

This presentation draws from my book "Grandes comunicadores de la ciencia" (published by Editorial Comares, 2024), exploring the lives and works of some of these masters of science communication. It aims to explain how they succeeded in making scientific knowledge understandable and interesting to the general public. Understanding their personal and professional journeys sheds light on the complex relationship between science and communication. And by studying their works, we can unravel the characteristics that have made them benchmarks in science communication for a wide audience.

What are the secrets behind the success of these great communicators? Some have mastered the art of blending information, education, and entertainment. The works of Rachel Carson or David Attenborough, among others, provide ample evidence that it is possible to combine these three elements in perfect harmony, demonstrating that science can be not only enjoyable but even thrilling.

Using the SciComm rosette model to map activities & experiences

Prof. Dr. Julia Lorke[1], Prof. Dr. Heidi Ballard[2], Lucy Robinson[3]

[1]RWTH Aachen University, [2]Center for Community and Citizen Science, School of Education, University of California, [3]Angela Marmont Centre for UK Biodiversity, Natural History Museum

Deficit, dialogue, or participation—which of these three main models of science communication (SciComm) is the best fit to describe activities and experiences in citizen science? One might assume that participation is the best match, but the reality of citizen science events is more complex. The rosette model of science communication (Metcalfe, 2019) offers a more detailed set of subcategories, e.g., educate, entertain, or do, in addition to the three main models—deficit, dialogue and participation. To systematically describe citizen science activities and experiences, we apply data on what activities are offered and what young people (5–19 years old) experience when participating in a citizen science event format called BioBlitzes across the rosette model. The mapping results illustrate how the rosette model can help to make citizen science project designers and practitioners more aware of the various modes of science communications that participants may encounter at BioBlitz events and inform their design decisions regarding how settings can shape participants' experiences.

Based on this exercise, the mapping approach was applied for a more general purpose in SciComm teaching in higher education. The mapping approach also worked also for SciComm formats beyond the scope of citizen science. It helps students characterise and compare SciComm activities and reflect on the intended objectives and the suitability of formats.

We aim to share and discuss our approach to using the theoretical rosette model for the practice of designing, investigating and teaching citizen science as well as science communication.

Can't touch this? Rethinking hands-on veterinary science activities post-Covid

Dr Grace Mackintosh Sim[1]
[1]Royal Veterinary College

Object handling, and the benefits of activating the sense of touch in interactive activities, have become established in science communication over the years.

Engagement with anatomy specimens was formerly standard practice for Royal Veterinary College (RVC) public engagement; likewise a tradition in many museums. The RVC has a unique education collection and even a plastination machine, meaning that visitors can handle authentic anatomy specimens which are transformational for learning. Frequently, the experience of being allowed to encounter these salient, surprising specimens has led to conversations about key scientific ideas such as inheritance, the impact of lifestyle, diet and public health- as well as of course animal science.

However, following a return to face-to-face events in 2023, it is clear that both the audience and facilitators were hesitant to engage with this traditional science communication mode. Encouragement has been needed to restate expectations for hands-on science stands.

Practical observations from post-covid activities at the Royal Veterinary College indicated that visitors were more distant and less hands-on than before.

Recently, RVC has trialled using Science Show introductions to signpost and foster greater confidence in interactive activities. These have allowed us to brief the audience in a fun way; similarly student facilitators have needed more opportunities for briefing and learning prior to events.

Case studies will present urban and rural examples including our flagship Night at the Vet College event, showing how the Royal Veterinary College is experimenting with a number of methods to reduce social distancing's subliminal legacy at public engagement events.

Through making changes, our aims are to once again set the scene for exchanging skills, viewpoints and knowledge, in exciting ways for visitors, supported by the experience and memory of being allowed to handle real specimens in a safe way.

Imaged publics across disciplines: How Taiwanese scientists view their publics

DR Yin-Yueh Lo[1]
[1]Shih Hsin University, Taiwan

Scientists' public communication takes place in a variety of situations characterized by different media and formats, topics and communication goals, for example. Furthermore, scientific public communication norms differ across disciplines. And finally, characteristics such as basic vs. applied research, challenges to public values or traditions, distance between scientific and everyday knowledge, and practical relevance of knowledge differ.

This study examines how scholars' understanding of expertise in their research disciplines shapes their vision of their audience, highlighting the tensions between scientific expertise and public engagement across various research fields.

I conducted a survey of 7,700 Taiwanese researchers to explore research disciplines profiles of communication-related factors and scientists' images of their publics - comparing humanities, social science, life sciences, natural sciences, and engineering. Random samples, stratified by research disciplines, were drawn from a Taiwanese database of scholars. The online survey was conducted in July-August 2023, and yielded a 32% response rate. The analysis is based on 2,470 completed questionnaires.

While the five disciplines differed with respect to perceived social implications of research (e.g., health, economy, politics, advice to society), norms of public communication (e.g., sharing uncertainty, sticking to facts and priority of scholarly communication), and goals (ensuring research funding, influencing individual or policy decisions, receiving public feedback), there was little variation in other aspects such as the goal of a positive public attitude towards science that ranked close to the top of the list in all research disciplines.

Scientists' imagined publics vary surprisingly little across research disciplines. Two features ranked top in all fields: "people I want to teach" and "people enthusiastic about research". Least important were "people critical of scholarship" and "people not capable of dialog". Overall, science-attentive audiences, those perceived to be in need of scientific information, and those considered useful for science dominate the imagined publics of Taiwanese scientists.

Using face-swapping to motivate flood protection and climate change adaptation

Dr Zhuling Liu[1], Ms Yingying Ni, Prof Yi Mou

[1]Shanghai Jiao Tong University

The increasing trend of climate change has heightened the likelihood of experiencing natural disasters, such as flooding. Despite this growing risk, individuals often perceive the negative consequences of climate change as distant, influenced by cognitive biases that lead them to believe they are unlikely to encounter such events (Weinstein, 1989). This optimistic bias poses a challenge in persuading people to adopt precautionary measures, particularly when traveling in mountainous and river areas during flood season. While research has shown that direct disaster experience can motivate coping responses, it is neither feasible nor ethical to expose every person to such hazards. Therefore, perspective-taking may offer a solution to encourage protective measures by enabling individuals to imagine themselves or others in dangerous situations.

In this study, rather than simply informing participants the risk of flooding, we will employ face-swapping technology to allow participants to visualize themselves in flood scenarios through a 2 (perspective: self vs. other) * 2 (modality: video vs. mental simulation) factorial design. Specifically, we will investigate whether observing oneself versus others experiencing a flood influences intentions to adopt protective measures and engage in climate change adaptation behaviors. Additionally, we will explore whether the effects of self versus. other perspectives differ depending on the modality of perspective-taking (video vs. mental simulation), given that perspective-taking ability varies among individuals (Davis et al., 1996). Findings from this study are expected to inform communication campaigns on flooding and climate change adaptation.

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Beyond deliberation: What Else Can Science (Dis)Engagement Be?

Dr Lucilla Losi[1]

[1]Aarhus University

This presentation focuses on exploring forms and ramifications of public (dis)engagement with science and its consequences for research and policy making. Public engagement with science has a key role in improving science access, promoting acceptance, as well as diversifying and expanding science itself. While deliberative engagement is set to meet similar goals of innovation and inclusion, an intersectional diverse audience is crucial. Evidence repeatedly shows that this is still far from being achieved, as engagement as we know it is still more likely among middle aged, middle class, educated, white males. To go beyond elaborations on barriers of engagement, I explore perceptions and experiences of established and alternative forms of public engagement with science through 25 semi-structured interviews with England-based participants from demographic groups traditionally associated with low engagement. The interviews show that when considering established ways to engage with science, informants do not identify themselves as engaged and provide pragmatic reasons for their disengagement. However, as they elaborate on their personal experiences with science, they realize that science is more woven into their lives through casual, practical, or relational ways than initially acknowledged. Results underscore the pivotal role of personal perceptions and experiences in shaping engagement, emphasize the interplay between these perceptions and science institutions and challenge the conventional framework. This presentation aims at starting a debate in the room on the conceptualizations of science (dis)engagement and their consequences, but also on the participation opportunities that people encounter in their daily lives, the role of institutions, and the methodological challenges of measuring them.

How do contextual factors impact visitor engagement?

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Informal learning in science centers has gained relevance as an effective way to promote science communication and education outside of school environments. However, there's a gap in understanding the factors influencing learning in these settings. Our research group seeks to address this gap by investigating the impact of different factors, including facilitation (or mediation) practices, on free-choice visitor engagement.

This study uses the Visitor-Based Learning Framework and examines the relationship between [1] contextual factors (such as gender and age), [2] visitor behavior, and [3] engagement, to determine which variables have an impact on visitor engagement. We leveraged secondary data from 86 exhibits, comprising over 8000 visitors, to develop a predictive model of engagement using ordinal regression.

We found several statistically significant descriptors that impact engagement levels. Notably, the type of group visiting, reading the signage, and the presence of a facilitator emerged as key factors. Holding all other variables constant, the odds of visitors in a group reaching higher engagement levels were over three times higher than for visitors alone. The odds for visitors who took a picture were about two times higher. And, for visitors who had a facilitator present, the odds of being more engaged were three and a half times higher.

This innovative approach demonstrates a new way of exploring existing datasets with statistical methods, revealing the untapped potential in available data. The insights from this study can be applied to improve programs and exhibitions, make staff training more effective, and support stakeholder reporting. Furthermore, understanding the factors that drive engagement can inform the development of evidence-based strategies to enhance science communication in these settings. This can help science centers and museums tailor their approaches to better communicate scientific concepts, ultimately enhancing visitor experiences and learning outcomes.

[AI used only to aid keep abstract under word count]

The Senckenberg Synthesis and Solutions Labs: A participatory communication programme

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This poster presents a participatory synthesis and communication programme with a focus on biodiversity that is going to be implemented at the Senckenberg – Leibniz Institution for Biodiversity and Earth System Research, a research institution and museum in Frankfurt/Germany. In the face of accelerating biodiversity loss and its wide-ranging consequences, the research institution is exploring new ways to engage with diverse societal actors, realising that previous rather linear communication activities have not brought about the intended positive change.

The Senckenberg Synthesis and Solutions Labs are currently being set up. The programme is problem- and issue-oriented and stakeholder-based. It intends to promote social-ecological transformations and to enhance Senckenberg's own research agenda, collection development, and communication practices through intense dialogue with societal actors. Up to four individual Synthesis and Solutions Labs can take place in the programme, each lasting one to two years.

The design of the labs is based on the ideal of transdisciplinary collaboration (Jahn et al. 2012): Each lab focuses on a specific societal problem related to biodiversity and aims to integrate scientific knowledge with knowledge of a range of stakeholders. The integrated knowledge will be evaluated collaboratively and scientists and stakeholders will co-create evidence-based options for action to protect and recover biodiversity. Participatory communication formats are co-designed in each lab.

The poster introduces the general idea of the programme as well as the first lab, which will be implemented from autumn 2024 on. It focuses on how the collaboration between scientists and stakeholders is realised methodically and how the communication formats are co-designed.

Jahn, T., Bergmann, M., Keil, F. (2012). Transdisciplinarity: Between mainstreaming and marginalization. Ecological Economics 79, 1-10, doi.org/10.1016/j.ecolecon.2012.04.017.



Parallel Session D:7

Transformational Leadership in the execution of Strategic Science Communication

Dr. Lourdes Mateos-Espejel, Dr. José Luis Estrada-Rodríguez

This work aims to demonstrate the importance of Transformational Leadership during the execution of Strategic Science Communication. This construct refers to the process that a leader develops to make his followers direct their efforts towards achieving group objectives through charisma, inspiration, intellectual stimulation and individualized consideration (Bakker et al.,2023). Nowadays there is a wide range of courses and academic degrees (Massarini et al. 2023), a theoretical body on communication skills (Lewenstein and Baram-Tsabari, 2022) and Strategic Science Communication (Besley and Downs, 2024; Besley and Dudo, 2022 and Goldberg, 2023). However, there is a gap in Science Communication literature (McGraby et al., 2022) about the practices and mechanisms that a science communicator must acquire to be a transformational leader during the execution of Strategic Science Communication. Therefore, this work develops a methodology based on in-depth interviews carried out with academics and practioners of Corporate Communication, Social Marketing, Organizational Communication and Managerial Communication who are members of the Mexican Association of Communicators, the Mexican Associaton of Communication Researchers. and Mexican Association of Organizational Communication Researchers. Turning our gaze to different disciplines opens a new perspective on the role of the science communicator. Conclusions indicate that executing Strategic Science Communication requires that a science communicator expresses a clear vision, inspires commitment towards that vision and generates trust and motivation among the publics to whom it is concerned, as well as subordinates with those who work. Transformational Leadership is proposed as an essential element of the execution process of Strategic Science Communication, because it is necessary that the identity and meaning of the science communicator are seen as key axes in the generation of social changes, This opportunity transcends the short-termism typical of the project mentality and suggests a long-term process approach to contribute to sustainable development and social change (Gumusio, 2012).

Coastal experts' perspectives on risk communication

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Storms often harm coastal communities, a situation expected to worsen due to climate change and urban development. Effectively communicating with diverse audiences is thus critical for adapting to and attenuating increased coastal risks. The current research focuses on risk communication by Coastal Geoscientists and Engineers, aiming to assess their perspectives and practices.

The method was a self-administered online questionnaire. Experts' names were extracted from the three major international conferences, and data was collected between September 2022 and March 2023. From the 975 contacts, 133 responses were obtained. The sample average age was 45, with slightly more men (53%) and mostly from Europe (71%).

About 95% of participants reported engaging in public communication, and the majority (82%) do coastal risk communication, focusing on the type of coastal hazards (59%), such as severe storms and sea-level rise. Notably, 30% considered individual behaviours in dealing with coastal risks less relevant for communication. Participants believe decision-makers should be more informed about risk location, frequency of occurrence, and how to engage citizens with risk, though this does not align with their top communication topics (physical processes of coastal risks). Direct interaction with audiences, such as public talks (74%), is preferred over indirect communication. Nevertheless, 79% had at least one annual contact with a journalist. The main audiences included the public sector and school students.

Assuming the sample is representative, with 73% of researchers communicating at least once a year, there are likely hundreds of communication activities worldwide. These activities focus on tangible issues (e.g., risk assessment, and impacts of climate change). Findings indicate that scientists are open to communication and aim to engage with society to help citizens make informed decisions. Limitations of the study include fewer participants than desired and the possibility that the sample may not represent the community.

An annual survey and an event to monitor critical thinking

| Matteo Merzagora[1], Olivier Richard[1]

[1]Universcience

The 'Baromètre de l'esprit critique' (Critical Thinking Barometer) and the 'Printemps de l'esprit critique' (Critical Thinking Spring) are two yearly combined actions organized in Paris by Universcience (Cité des sciences et de l'Industrie and the Palais de la découverte). They aim at tracking changes in critical thinking among the French population, in order to support public engagement actions and at the same time contribute to research into the public's perception of science. The 'Baromètre' is an annual survey exploring the dynamics of the cross-relationship between information literacy and scientific curiosity on a sample of 2000 French adults. The survey started in 2022, and includes a stable section allowing longitudinal tracking of results, and a shorter thematic section changing every year, focusing on a specific topic (until now, climate, vaccine and AI). The 'Printemps' is a week-long event, taking place every spring at Cité de Sciences et de l'Industrie and in 60+ other sites in France, proposing to the public a variety of demonstrations, debates, conferences, games, discussions... about critical thinking and critical attitudes toward knowledge and information.

In this presentation we will introduce the rationale, methodology and key findings of the Baromètre. We will then focus on discussing the opportunities and limits of linking a public opinion survey (i.e., a research-oriented activity) with museum activities on the same subjects (i.e., a science communication-oriented activity): how do the results of a survey influence museum practices? And how do practitioners engaging with the public contribute to our understanding of the mechanisms of trust in museum visitors?

New biotechnology, new opinions? Effects of climate change, naturalness messaging

Lindsey Middleton[1], Dayeon Eom[1], Sha Luo[1], Sedona Chinn[1]
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The history of biotechnologies and their introduction to society shows that communication can matter a great deal for public opinion. In recent years, newer biotechnologies, such as CRISPR, have been described as more "natural" than their predecessors due to their functional similarity to natural evolution. Additionally, scientists are increasingly applying biotechnology toward climate change mitigation and adaptation, and little is known about how various and sometimes conflicting messaging might influence support.

This study conducted an online experiment in March 2024 with 449 participants from the U.S. The study compared differences in support levels for the use of a biotechnology known as CRISPR for agriculture in a 2 (climate frame vs. crop frame) x3 (natural frame vs. technological frame vs. neutral frame) factorial design. These messages were displayed as Instagram style posts, with a title for the image and a short description, and both the title and text echoed the message conditions. We controlled for individuals' predispositions, including naturalness preference and perceptions of biotechnology and climate change risk.

Firstly, we found that support for CRISPR differed significantly when it was described as improving climate change rather than improving crops ($F(1)=4.99$, $p=.026$). Secondly, describing the technology as natural, new, or technological did not have a significant effect on CRISPR support, and none of the three interactions we tested were significant, including climate frame by climate risk, meaning that the effect of the climate change messaging was not dependent on climate change risk perceptions.

Although some scholars believe that describing newer biotechnologies as more natural might influence opinions, we do not find evidence for this claim. However, the application of the technology does matter, with climate change solution-focused messaging resulting in more positive opinions. These insights may inform our understanding of public opinion around these issues as biotechnology applications continue to expand.

Sceptical hope: climate scientists and positive messaging in climate communication

Dr Jagoda Mytych[1]
[1]Jagiellonian University

The climate crisis is also a profound communication crisis. As science communication scholars, we observe the disconnect known as the climate change knowledge-action gap (Knutti 2019). Climate science communication is still not effectively reaching broad audiences to leverage the actions needed to prevent passing the tipping points of no return. However, the literature review shows that a focus on communicating crisis and catastrophic scenarios can lead to the development of difficult climate emotions (anxiety, depression and grief) as well as a doom and gloom approach, thereby making climate science communication counter-productive (O'Neill, Nicholson-Cole 2009; Stocknes 2015).

In response to this challenge, we can observe the shift from worse to better or, at least, more hopeful messaging (Solnit 2016; Hayhoe 2021). Notably, researchers are becoming increasingly interested in the role of hope, optimism, and positive emotions in climate communication (Olaja 2012; 2023). This approach aligns with the results of in-depth interviews with American and Polish climate scientists I conducted (Mytych 2024). Almost every scientist engaged in climate communication pointed to more positive messaging as a recommendation. At the same time, however, scientists do not often include the frame of hope in climate communication, leaving it to activists and artists instead. Furthermore, a high-profile Guardian survey of 380 climate scientists revealed that their dominant emotions are "hopelessness and being broken."

Thus, although highlighting solutions, progress, and the potential for positive outcomes seems to be an emerging trend in climate change communication, it is not specific to what extent scientists, who are still the default communicators of climate change, relate to this message. By conducting another set of interviews with climate scientists, I want to explore where they stand between the climate crisis and climate hope messaging and test if hopeful scepticism (Zaki 2024) can be applied to climate scientists' motivation as communicators.

Pests, People and Power: Implementing New Zealand's Predator Free Vision

Dr Marie McEntee[1]
[1]University Of Auckland | Waipapa Taumata Rau

As a national policy objective, New Zealand's Predator Free 2050 programme seeks to transition the country from an undesired current state with mammalian predators, to a preferred future state without introduced predators, to reduce the $NZ3.3 billion annual economic cost of these invasive pests. This aspirational vision, builds on New Zealand's successful eradication of pests from many uninhabited islands. To achieve this vision, 16 landscape-scale predator control operations have been funded many where community-based predator control projects already exist. International experience of predator eradications shows how fraught project delivery can become if communities' aspirations are not understood and embraced.

This research has examined stakeholder engagement in landscape-scale predator projects to explore the power dynamics that emerge between national, regional, local and community actors. Stakeholder interviews from three projects, two in New Zealand and one in Australia, along with learnings from projects in four locations in the United Kingdom, show landscape-scale predator eradications in inhabited areas create new institutional arrangements that, if not carefully understood and managed, have the potential to disrupt existing community-based pest control operations. Project managers with expertise focused on managing biological dimensions, must learn to engage meaningfully with the social dimensions of working in and with communities. Project success is dependent on managers understanding and embracing complex local contexts and providing opportunities for community groups to self-determine their contribution to the larger project delivery. Milestones set at national level also need to recognise the contextual nature of project delivery and value the full range of environmental and social outcomes that can be achieved from multi-stakeholder partnerships. They should not simply focus on the removal of mammalian pests. Doing this well will maximise New Zealand's aspirational and audacious predator free efforts and, most importantly, sustain the gains achieved.

Places and Community Engagement for City Science Learning

PROF Carolina Moreno-Castro[1]

[1]University of Valencia

This research explores the role of science places and their integration into community spaces to foster scientific literacy and public engagement. The study focuses on the case studies of Ithaca, New York, and Aras de los Olmos, Spain, and highlights how these geographically distant small towns are committed to continuous scientific learning through their natural landscapes, local initiatives, and cultural institutions.

In Ithaca, the collaboration between nature, science places, and public engagement is exemplified through projects like the eBird platform and the city's positive attitude to informal science education. This bottom-up communication model ensures that residents and visitors alike benefit from accessible science through infographics, interactive exhibitions, and citizen science projects located in public areas.

Similarly, Aras de los Olmos in Spain promotes scientific learning via its Big History project, integrating astronomical and geological knowledge. Los Ojos de Hipatia Planetarium, constructed from sustainable materials, is central to this initiative. The building features an astronomical observatory, laboratory, and immersive cinema dome supporting real-time sky simulations that facilitate connectivity with around-the-world observatories, further enhancing its scientific value.

This study compares both towns, analyzing how integrating science, culture, and community-driven initiatives creates platforms for lifelong learning and broad dissemination of scientific knowledge. It contributes to the dialogue on the potential of small urban and rural settings to leverage informal local institutions for fostering scientific literacy. Demonstrating the adaptability of these models offers a vision for integrating outdoor science and citizen engagement into the fabric of other communities, contributing to the advancement of the knowledge society.

Circling the models: traditions and transitions of controversial technology communication

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When researchers tell the story of the development of science communication we often talk about moments. We speak of the difficult transition from deficit to dialogue (Miller, 2001). The story goes that the dialogic phase of science and technology communication then became a time of active sharing, participation and exchange (Brossard and Lewenstein, 2010, Rowe and Frewer, 2005; Secko, 2013, Stilgoe et al, 2014). Science and technology communication has diversified to the extent that it has now been defined as "the social conversation around science" (Bucchi and Trench, 2021). Typically, Science and Technology Studies (STS) map out areas for communication, sometimes controversial, that "not only describe but also help to produce the reality that they understand" (Law, 2008). This demonstrates overlap between STS and science communication, as identified by Felt and Davies (2020) in particular, and this paper continues Sarah Davies' (2022) question also posed by Mike Michael (2016): "What are we busy doing?"

The "we" here includes science communicators and science communication and STS scholars. The paper presents an STS-constructed "heat indicator" map of examples of science /tech engagement knowledge creation most of which use some form of public engagement. Climate emergencies, AI and Covid-19 are exemplar "hot" engagement topics requiring all stages of dissemination, engagement and involvement. But there are others, from space exploration to water security to local contextual challenges, such as the granting of legal personhood rights to habitats. I will present this heat indicator of controversial and less controversial science technology communication with attendees and discuss where might researchers and practitioners in the audience recognise their own work. One main conclusion is that there remain deficits to address and public and policy expectations of deficits, for which expertise is always required. The moments of science communication from deficit to dialogue to participation are not linear.

Digital cartoon video-based counselling improve treatment adherence in patients: RCT

DR Rudy Nana[1]

[1]Center Specialising In The Production Of Digital Health Educational Tools-les Hommes-stylo

Treatment adherence is one of the milestones in the care of hypertensive patients, with new information and communication technologies as potential educational tools. This study aimed to evaluate the add-on effect of a digital cartoon educative video on the therapeutic observance of patients followed up in the General Hospital Yaounde compared to standard of care. We conducted a randomized simple

blind clinical trial at the cardiology unit of the Yaoundé General Hospital over a 6-month period from 1st March to 30th August 2022. We enrolled 110 patients

and randomized them in blocs of 4 creating two groups of 57 and 53, respectively, without (group 1) and with (group 2) intervention. Preintervention treatment adherence was assessed using the Morisky Medication Adherence Scale (MMAS). In the standard group (G1), we provided paper-based clinical counselling, including oral advice, and in the intervention group (G2), we did the same and added a digital cartoon video containing exactly the same message as images and audio.

The primary outcome was medication adherence after three months. The mean age was 56.65±10.98 years in group 1 (paper) and 56.42±10.46 years in group 2 (paper+video), without any signifcant diference. The two groups were similar regarding the proportion of females (36.8% in G1 and 49.3% in G2) and educational

levels. According to the Morisky medication adherence scale, before the intervention, the proportions of patients with good, medium and low treatment adherence in groups 1 and 2 were 7%, 25.6%, 67.4%, and 5.1%, 43.6%, 51.3%, respectively, without any signifcant difference. After intervention, the proportion of patients presenting a good observance moved from 7 to 11% in group 1 (paper) and 5.1 to 20% in group 2 (paper+video). The intragroup variation in treatment adherence in the intervention group tended to be significant, with a p-value=0.0572, compared to 0.712 in the standard group.

Climate communication is different for you and me

Mr Raghul Mohanan Raji[1,2], Ms Moumita Mazumdar[1,2], Dr Paramananda Barman[1,2]

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Once a bustling coastal hamlet, Satabhaya is now deserted. This Odisha's coastal village in India is not alone; many coastal regions in the nation are also diminishing due to climate-induced coastal erosion. India is a peninsular country with over 7,500 km of coastline. Nearly 45% of India's coast is experiencing erosion, of which 7% is highly eroding. Artificial coastlines are being erected to protect the land loss, people are forced to relocate, and damages to both lives and livelihoods are happening across the coastal lines in India. The lived experience of climate change essentially differs from the scientific understanding. Most climate research focuses on long-term trends and global impact, whereas climate change for individuals is immediate and local. This mismatch impacts climate communication and influences people's interpretation of climate action messages. Other barriers include cultural, linguistic, and socioeconomic differences. Visuals, like illustrations and posters, can help overcome some of these. This study looks into the evidence of how people living in the Southern Indian coastal area interpret visuals used in climate communication. It also analyses how local communities and NGOs use visuals in digital media by examining the engagement rate of the target audience. This study will provide a communication framework to make impactful communication strategies for taking climate action messages to the coastal villages, thereby enabling a better communication framework for climate communicators and local NGOs in India.

LIVA Model's Efficacy in Depoliticizing Scientific Communication Across Diverse Hazards

Savannah Meier[1], Dr. Linda Pfeiffer[1]
[1]Purdue University

Although not inherently political in nature, scientific topics like climate change quickly become politicized into "hot topics" in the United States. To reduce these effects and "create a message environment conducive to granting the scientific evidence without forsaking a value central to one's group" (Jamieson & Hardy, 2014, p. 13598), Jamieson and Hardy (2014) created the LIVA model. The LIVA model depoliticizes scientific information by presenting information in ways that minimize partisan bias and allow the audience to form their own opinions and conclusions.

This model was successful in depoliticizing science information - particularly among conservative participants - regarding climate change. Utilizing Slovic et al., (1984) conceptualization of hazards as a two-factor (dread and uncertainty) four quadrant model, this study will test the efficacy of the LIVA model for risks with varying levels of dread and uncertainty. First, a pilot test will be administered to ensure the validity of the experimental manipulation of the four risk quadrants represented. Upon successful completion of the pilot test, a 2 (dread: high or low) x 2 (uncertainty: high or low) between-subjects experiment will be conducted testing the efficacy of the LIVA model using diverse hazards. The four elements of the LIVA model - leveraging, involving, visualizing, and analogizing - will be held constant, with only the risk context itself manipulated. Therefore, each participant will be presented with information about a risk using Jamieson and Hardy's (2014) strategies for leveraging, involving, visualizing, and analogizing. To seek a representative sample, participants will be recruited through Amazon's Mechanical Turk.

We believe these results can help us understand and potentially establish the boundaries for this model, which allows science communicators to provide more concise recommendations for effective communication. Further, these results might suggest alternative or unique ways to address hazards with varying levels of dread and uncertainty.

From consumer studies to citizen engagement in knowledge valorisation

Marzia Mazzonetto[1]

[1]Stickydot srl

Several experiences of citizen engagement within research and academic contexts exist nowadays. Nonetheless, citizen engagement within value creation processes (focusing in particular on the academy-industry environment) is still scarce.

This presentation will challenge the traditional consumer-centric approach to knowledge valorisation, advocating for a paradigm shift that places citizens at the forefront. By fostering inclusive dialogue and collaboration among innovators, civil society organizations and users, this approach, that is being tested within the context of the EU-funded CO-VALUE project, aims to empower citizens to actively shape the direction and impact of value creation.

This new approach includes, besides dedicated pilots, also the development of targeted capacity building and innovative communication strategies, that allow to equip stakeholders with the necessary tools and skills to engage in meaningful citizen engagement activities. This shift towards a more participatory approach to knowledge valorisation promises to enhance the societal relevance and impact of innovations, fostering a more equitable and sustainable way to address nowadays challenges.

The CO-VALUE approach will be evaluated to assess its effectiveness in enhancing the capacity of stakeholders and driving successful co-valorisation projects. The CO-VALUE project will utimately contribute to a more innovative and inclusive research landscape.

On the role of trust in citizen science project work

Mr Jakob Meyer[1], Dr Susanne Hecker, Dr Konstantin Kiprijanov, Silke Voigt-Heucke
[1]Museum Fuer Naturkunde Berlin

For Linked Paper submission: 395

The term “citizen science” (CS) is used to describe a wide range of research practices, which are characterized by the collaboration of professionals and volunteers in scientific research (Haklay et al. 2021). For these practices to evolve as effective research approaches and science communication tools, we should further our understanding of the conditions for successful cooperation between participants which bring their individual experiences, skills and expectations into collaboration. This becomes even more relevant as the spectrum of actors involved in CS grows and conflicts of interest may arise (e.g., Göbel, Ottolini, and Schulze 2021). We are currently conducting a series of semi-structured interviews with participants of CS projects in Germany in order to explore the role of trust in cooperation, including factors that influence the formation and loss of trust between the people involved in research projects. Trust, understood as a set of expectations about the future which are based upon a person’s experiences (Barbalet 2019:14; Luhmann 2014:23f.), may serve as a means of managing complex working conditions. Interview transcripts will be analysed using Qualitative Content Analysis (Mayring 2014) in order to identify experiences which are linked to potential antecedents of trust and trust-eroding factors. Nine interviews lasting between 28 and 71 minutes have taken place already, but we are aiming for a total number of at least 20 interviews. Due to a combination of empirical and theoretical sampling the exact number of interviews cannot be foreseen at this point. We present the results of this study at the 2025 PCST conference and thereby contribute to the broader subject of tensions – in our case between scientific and civil society actors. The talk provides insights into the potential of trust to mediate individual risk and shared uncertainty in participatory science communication.

Measuring effectiveness of communication of a podcast on food sustainability

Bruno Pinto[1], Ana Matias, Antonio Granado

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Research about the effectiveness of communication methods is relevant for science communicators when they need to make decisions more appropriate to the objectives they aim to achieve. In this study, a podcast on sustainable food was evaluated regarding two variables: knowledge retention and interest. This is a relatively recent communication medium, with gradual growth over the last two decades, and there is still a lack of information about its impact. Thus, ten podcast episodes in Portuguese were produced, each lasting approximately 9 to 10 minutes, focusing on different topics about sustainable food research in Portugal. Subsequently, two episodes from this podcast were chosen, and two press news were written with similar information and reading time. Initially, 115 university students from the University of Lisbon and the NOVA University of Lisbon filled out an online pre-test questionnaire. One week later, 102 of these students were randomly distributed to either listen to one of the podcast episodes or read one of the press news and then fill out an online post-test questionnaire. Additionally, the regularity with which the participants listened to podcasts and read press news was assessed. Statistical analysis showed a significant increase in knowledge after exposure to both media and no significant increase of interest in food sustainability or science. Moreover, it was found that there were no significant differences between the two tested media in both knowledge retention and interest. Nevertheless, the recent popularity of podcasts may justify its production as a flexible and alternative way to communicate science.

TikTok Health Science: evaluating videos effectiveness to convey cutting-edge research

Dr. Cecilia Lartigue[1], Dr. Aquiles Negrete[1], Dr. Ana Leonor Rivera[1], Dr. Ricardo Mansilla[1], Dr. Julia Tagueña[1]
[1]UNAM

Communicating research on human health is a matter of public interest. In this study we created 22 TikTok videos to communicate to a young audience the main findings of Calmecac, a transdisciplinary research group of the National Autonomous University of Mexico (UNAM). This group studies physiological networks (networks revealing the relationships between the organs and systems of the human body).

For the creation of the videos we decided to include the three imperatives of communication established by Charaudeau (2011): credibility (the quality of being believed or trusted), legitimacy (the quality of deserving to be heard or seen), and audience engagement (capturing the audience through salient or surprising stimuli).

Topics addressed in the videos included the differences in the physiological networks of men and women, between elderly and young people, homeless and housed young men, the response of the human body to infections, and the response of men and women to covid.

In order to evaluate the efficiency of our videos to communicate scientific information and to know the perception of our audience about these videos, we conducted an exploratory study testing our video with the highest number of views on TikTok (41k).

We applied a questionnaire with closed-ended questions to a sample of 122 students from three UNAM undergraduate programs (medicine, engineering and communication).

It was determined that the video was efficient in communicating the scientific information, since the average percentage of correct answers was 88% and all questions scored 80% or higher.

Medical students performed best, followed by engineering students and finally communication students. Also, we found that participants who use TikTok more frequently were found to perform better.

The perception of the video was positive for all aspects addressed ($\bar{x}$=82%), although to a lesser degree in terms of its visual appeal ($\bar{x}$=71%).



Parallel Session D:8

Whose Agenda? Design Research Tools for Community-Led Brain Health Engagement

Dr. Guillaume Riesen[1], Ms Juli Sherry[1]

[1]Worldview Studio

Brain health is an important area of focus for clinical and academic research - but what does it mean to real-world communities? As part of a Dana Foundation project and in collaboration with our partners at C2ST, we at Worldview Studio set out to engage Chicago-area communities around brain health through evidence-based engagement programming shaped by their needs and interests. Our first challenge was understanding how and when community members thought about brain health. What did they think of when they heard the phrase 'brain health'? Was it important to them, and did they have any felt needs we could try to help address? What kinds of frameworks and emotions were they tapping into? We used tools from human-centered design to explore these questions in a rapid, flexible and responsive manner. In our talk, we will outline the approaches we used (including ethnographic interviews, mixed media methods and a workshop with community members) and highlight some of our findings. A talk from our partners at C2ST will then explore how these findings - expected and unexpected - were used to inform the design of engaging community events.

Exploring the history of science in PCST activities

Dr Ildeu Moreira[1]

[1]Federal University of Rio de Janeiro

We will discuss the history of science as a useful tool for PCST activities, based on actions carried out in recent years in Brazil. The history of science coexists with entanglements and tensions between traditional views on science and local cultures. Such tensions, resulting from differences in traditions and cultures, can become a decisive factor for science communication that seeks greater engagement of people. Disseminating science means not only emphasizing scientific discoveries and their applications, but also enabling a better understanding of their construction process and uses. The history of science makes it possible to uncover the contribution of native peoples to science, which is often ignored in descriptions marked by Eurocentrism. In the case of Brazil, this contribution was decisive for naturalist expeditions and is significant to this day. The experience of exploring connections between the history of science and PCST has proven successful, as demonstrated in several activities on important facts in the history of science in the country and worldwide. These initiatives have resulted in exhibitions and public debates about local scientists, such as Fritz Müller (2022), Cesar Lattes and Johanna Döbereiner (2024); activities commemorating important local and global scientific events, such as the centenary of the 1919 solar eclipse; activities on local contributions to the emergence of the theory of natural selection, such as the Caminhos de Darwin, an excursion that explored Darwin's journey in Brazil. There have also been videos and podcasts produced, public debates, use of TV and social media, production of educational material for schools, commemorative books and magazines, scientific monuments in public places, etc. We have sought to establish connections between science and local culture and history, exploring traditions, valuing the practice of citizen science, and addressing the tensions associated with the great cultural diversity that exists in the country.

Cosmic-sound spheres: Visualizing Folk, Emotion, and Psychedelic Sound Waves

Mrs Dyah Ratna Permatasari[1], Mr Ardiandra Achmadi Semesta[2]
[1]DoctoRabbit Science Inc., [2]Semesta's Gallery

"Cosmic-sound spheres" is a testament to the power of interdisciplinary collaboration. By blending science's precision with art's boundless creativity, this project illustrates how these two disciplines' seemingly disparate fields can complement and enhance one another. The cosmic sound itself is associated with the creation of the universe. Scientific principles like frequency modulation, wave interference, and neural entrainment are harnessed to create artistic expressions that are both aesthetically pleasing and cognitively stimulating.

In "Cosmic-sound spheres," folk elements serve as the foundational layer, grounding the experience in timelessness and continuity. They evoke a sense of nostalgia and belonging.

Emotion is the thread that weaves through every aspect of human experience. In "Cosmic-sound spheres," emotional sound waves are not merely heard but visualized and sonically represented.

The psychedelic sound waves in "Cosmic-sound spheres" serve as the connective tissue between folk traditions and emotional expression. These sound waves are not just heard; they are felt and seen. The sound waves use advanced technologies like synesthesia-inspired visuals and binaural beats to create a multi-sensory experience that alters perception and expands consciousness.

"Cosmic-sound spheres" is more than just an art installation; it is an invitation to explore the intricate relationships between tradition, emotion, and innovation. It challenges us to reconsider our perceptions and to find beauty in the intersection of the familiar and the unknown. By bridging the gap between science and art, "Cosmic-sound spheres" open up new avenues for creativity and understanding, offering a unique and transformative experience for all who partake.

(AI was used to improve the language and structure.)

Experiences and Knowledge in the First Museum Plan of "Dica"

Dr Silvia Martins[1], Mr Matheus Barros[2], Ms Daizi Alves[3], Dr Tome Schmidt[4], Dr Daniela Vicedomini-Coelho[5]

[1]Dica Museum/Universidade Federal de Uberlândia, [2]Dica Museum/UFU - PPGEnFis/UFRGS, [3]Dica Museum/Universidade Federal de Uberlândia, [4]Dica Museum/Institute of Physics/Universidade Federal de Uberlândia, [5]Member of Regional Council of Museology of the 4th Region

The reality of Brazilian museums traverses various paths and challenges, whether in the social or political landscape. In light of this, the Diversão com Ciência e Arte Museum, of the Federal University of Uberlândia, has undergone several conceptual and ideological transformations since it began its activities in 2004, including its institutionalization and formal recognition by UFU in 2017, and the creation of its first museological plan in 2023. Brazilian museums are required, under a Brazilian Federal Law (Law No. 11.904, of January 14, 2009, which deals with the Museum Statute), to prepare, implement, and update the Museological Plan for all Brazilian museums, and this law is regulated by Federal Decree No. 8.124, of October 17, 2013. In this regard, we aim to highlight the main reflections on the current identity of the Dica Museum, which has undergone and continues to undergo transformations but remains anchored in the ideal of a participatory society in the construction of science, as well as in the perspective of an institution that is part of the community in which it operates and exists. Another highlighted aspect relates to the role of mediators, who in the context of Brazilian university museums are typically undergraduate students from various fields. These mediators have the opportunity to develop their communication skills and their understanding of the relationship between science and society, while also reflecting on the museum's contribution to the formation of professionals engaged with society. Finally, we seek to outline how the aforementioned topics influenced the mission, vision, and values of the Dica Museum, as well as the plans within the Brazilian document that address institutional aspects of collection management, exhibitions and cultural programming, communication, sustainability and museum financing, people management, accessibility and inclusion, security, and the evaluation and monitoring of the museum's operations.

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Taking Science Across India by Overcoming Language Barriers

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India, with its population of over 1.4 billion, is a country marked by remarkable linguistic and cultural diversity, comprising 22 scheduled languages and more than 19,000 dialects spoken across the nation. However, the vast majority of science communication efforts—such as popular science articles, science films, science comics, science cartoons and similar efforts—are predominantly conducted in Hindi and English. This linguistic divide poses a significant challenge in reaching a substantial portion of the population, especially non-English and non-Hindi speakers and the communication gap often contributes to misunderstanding of science. To address this gap, it is essential to explore innovative ways of integrating science with indigenous art forms, such as folk media, dramas, puppet shows, traditional skits, traditional artwork and dance performances. These art forms rely on visual storytelling, expressions, and actions, rather than spoken language, making them effective in conveying information across linguistic barriers. Science can therefore overcome the barriers of language and reach a wider audience by utilising these culturally based mediums of expression. In addition, coupling these traditional media with science festivals and digital media can increase the reach of science to a broader audience. Science festivals can provide an interactive and dynamic space for live performances, while digital media provides the opportunity for wider dissemination. The fusion of indigenous art with modern science communication strategies has the potential to bridge the current gap and facilitate effective dissemination of science across India's diverse linguistic landscape. This approach encourages inclusivity, fostering greater public understanding and engagement with science at all levels of society.

Infecting Minds "Past, Present, and Future" of vaccines

Mr Luthando Zuma[1], Mr Welcome Mbokazi[1]
[1]Africa Health Research Institute

Infecting Mind “Past, Present, and Future” of vaccines

Infecting Minds the Past, Present and the Future of vaccines is a collaboration between the University of Oxford, Africa Health Research Institute, and Crick Institute between Public Engagement Practitioners, Humanities and Social Sciences Scholars, Learners, Educators, and Clinicians. We have gathered information about history of vaccination, and narratives that have developed around this, with a particular interest in comparing European and African stories. Qualitative method was used to look at specific drivers of vaccine hesitancy in one area, Kwa-Zulu Natal in South Africa, and complexities of ascertaining how a geographical community perceives vaccines. We have embedded community engagement from the beginning of the study. Between 2022 and 2024, we have worked with schools across Kwa-Zulu Natal, South Africa and Oxford, United Kingdom. You can view our film here https://infectingminds.web.ox.ac.uk/video documenting some of our workshops. Young peoples’ attitudes to health and medicine form in relation to local context, but both their knowledge base – and ours - may be enhanced by bringing in other cultural perspectives, as evidenced by our workshops where we bought together South African and British school students. Through information sharing, study found traditional medicine is widely used at household level in KwaZulu Natal, South Africa while UK herbs are still commonly used to treat minor ailments while the use of traditional medicine is almost non-existent.

Key words: Vaccines, Public Engagement, Interdisciplinary, local, global perspectives, History of vaccines, Students

Can Open Educational Resources and AI revolutionise climate crisis education?

Ms Sharon Tshipa[1], Professor Patrick Paul Walsh[1]
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Humanity's unwavering quest for wealth is attributed for the devastating impacts of global warming such as extreme weather events. In ending the climate crisis, and accelerating progress towards achieving Sustainable Development Goals (SDGs), scientists view education as a paramount factor needed to support the rapid transformation required. Though seen as the key to success, education is immensely threatened by climate change. Global leaders therefore advocate for greening education—aiming at climate proofing schools while equipping learners with the necessary tools to tackle climate change and promote sustainable development. Hence, this study responded to the research question: Are we too late in greening education? It did this by exploring the role of Open Educational Resources (OER) and Artificial Intelligence (AI) supported science communication in greening education to end the climate crisis. Specifically, the study explored efforts being made to green education across the four pillars of transformative education, determined the efficacy of OER-enabled pedagogy in bridging the greening education gap, and assessed the role of AI in greening education. The study employed the inductive qualitative content analysis method. Purposively sampled journal articles were used in the data collection process. A coding and thematic analysis procedure was utilised. Results reveal that science communication and its consequent greening schools initiatives are concentrated in universities, compared to other educational levels. Prevalent sustainability initiatives were found to be greening schoolyards, waste minimisation, reduction of carbon emissions, green and blue buildings, and research. Findings further suggest that OER and AI powered science communication has the capacity to ensure the success of greening education efforts by 2030. With the added advantage of AI and the Internet of Things, OER were found capable of bridging the greening education gap that exists between regions such as Asia and Europe as leaders, and Africa, Oceania, and the Americas as least performers.

VISTA Science Experiences - Launching Austria's Science Education Flagship Program

Florian Schlederer[1], Lena Hallwirth[1], Dr Magdalena Steinrück[1], Dr. Christian Bertsch[1]
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Austria faces an intriguing paradox: Despite being one of the most educated countries in the world, its scientific institutions do not rank among the top. Furthermore, it grapples with significant science skepticism, as highlighted by studies such as the Eurobarometer (European Commission, 2021).

In response, Austria has undertaken several initiatives, one of which is the foundation of the Institute of Science and Technology Austria (ISTA) in 2009. The Institute is dedicated to fundamental research in the natural sciences, mathematics, and computer sciences. In addition to its pursuit of scientific breakthroughs, ISTA is committed to training the next generation of scientific leaders through its interdisciplinary graduate school. Remarkably, within just ten years, it achieved third place according to the Nature Normalized Index 2019.

Another cornerstone of ISTA's mission is science education. Therefore, ISTA launched VISTA Science Experiences, a flagship program aimed at fostering an understanding of science as a process and a method of thinking. Over two dozen science educators are developing and conducting a diverse range of activities catering to schoolchildren, teachers, families, retirees, and the educationally disadvantaged – creating more than 500.000 Eureka moments per year.

In autumn 2025, VISTA scales up to full speed. The VISTA Science Experience Center will open the doors of the ISTA Campus to the public. The center is designed to become an epicenter of science education, connecting the public to the international researchers at site. It will host a variety of workshops, debates and exhibitions that bridge science and art to reach the grand vision: to make science and research truly tangible.

Teaching Science Communication for and with the Climate Streetcar

Dr. Petra Pansegrau[1]
[1]Bielefeld University

The integration of applied science communication into university and research-oriented teaching is sometimes not easy to implement. In cooperation with 'Scientists for Future', I carried out a project at Bielefeld University in 2022/23 that is interesting in various respects for science communication, for students and for the development of curricula for science communication. One of the main focusses of the project lies on student participation and collaboration during the concrete implementation.

As part of project-based learning, materials were developed in a study project that present current developments in anthropogenic climate change in a scientifically appropriate way and travel through the city on the climate streetcar. In this way, passengers on the streetcar can obtain appropriate information about regional climate change, i.e. science goes to the places where citizens spend time. Science communication does not have to be visited, but is integrated into everyday life. The students have learned to produce specific materials that are appropriate for the target group and of high quality. In addition, they were familiarized with how the public sphere(s) function, which media are appropriate and what boundaries public places have.

How Public Engage in the Review Process of Scientific Papers

Dr. Cong Wang[1], Ms. Cheng Jiang[1]
[1]The University of Chinese Academy of Sciences

The emergence of social media has facilitated the public's access to unpublished scientific research. This paper provides an example of an introductory video about the room-temperature superconductivity replica (RTSC) paper on BiliBili, demonstrating how the public participates in the review of scientific papers on social media. It indicates that the public can not only comment on research findings directly like traditional peer reviewers but also engage in the review process through witnessing, voting, and creating affective environments. Moreover, the public's review activities can indirectly affect the content revision and formal publication of scientific papers. This process reveals that the public, who previously had limited opportunities to be involved in the review of scientific papers, can play multiple roles in legitimizing scientific knowledge, thereby creating a public context for the review of scientific claims and further advancing the democratization of scientific knowledge.

(Mis)Reporting science? Exploring tensions between science journalists and their scientist sources

Dr Sangeetha Unnithan[1]

[1]Indian Institute of Management Indore

This poster presentation demonstrates a research proposal to explore the complex dynamics between science journalists and their sources from the scientific community. The basis of this project stems from a pilot study done in India which included semi-structured interviews with 11 leading scientists in the country. The scientists were identified based on three criteria: (a) recognition of their scientific contributions at the state or national level, (b) at least 10+ years of experience in public extension/public communication activities, and (c) direct interaction with journalists during the course of their careers. Findings revealed a palpable dissatisfaction among the scientists regarding the state of science journalism in the country. They flagged several key issues in media reporting of science and technology, such as misreporting, sensationalism, low prioritization, and lopsided coverage in favor of "glamorous" science topics such as space technology. While science has been at the core of a remarkable range of developmental issues in India in recent years, ranging from COVID-19 vaccine diplomacy to acute climate crises, they have received disparate media attention. The current study seeks to delve deeper into the tensions between science journalists and scientists in the context of contemporary science journalism in India. The study, to be conducted from the lens of Field Theory (Bourdieu, 1971) and media routines (Shoemaker & Reese, 1996), will follow a mixed methodology that includes a questionnaire survey among 300 scientists from diverse fields at the first level and qualitative interviews with 20 science journalists representing national and regional media houses at the second level. The poster presentation will elaborate on how the study proposes to explore the key points of contention among the two critical stakeholder groups that shape the public discourse of science in the most populous country in the world.

Media Transformation and Science and Technology Communication in China

PROF Dan Wu[1]

[1]China Research Institute for Science Popularization

In recent years, with the rapid advancement of technology and the continuous enrichment of media forms, barriers between media have been broken down, and media convergence has become an inevitable trend. After elevating media convergence to a national strategy in 2014, China has carried out a new layout and construction of the entire media, reshaped the media ecosystem, and formed a top-down convergence media platform system. This system includes four different levels of platforms: central level convergence media platforms, provincial level convergence media platforms, municipal level convergence media platforms, and district/county level convergence media centers. According to their actual situation, various levels of convergence media platforms have created distinctive media platforms from various aspects such as organizational restructuring, business process reengineering, and product innovation, and have established a systematic all media communication system, effectively enhancing media communication capabilities.

Under the impact of changes in media forms, science and technology communication is facing opportunities and challenges. On the one hand, the richness of media forms and the diversification of communication methods can improve the efficiency and acceptance of science and technology information dissemination; On the other hand, both from the perspective of science itself and from the perspective of communicators and media, the complexity of communication has increased.

The focus of this article is to explore the development and transformation of Chinese media in the context of media convergence and its impact on science and technology communication. The article mainly consists of three parts: the first part analyzes the current situation of media convergence and restructuring in China; The second part analyzes the impact of convergence media platforms on science and technology communication; The third part proposes some problems and development suggestions in science and technology communication of Chinese convergence media platforms.

Navigating Conflicts: Transitioning to Effective Science Communication Through Dialogue

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The relationship between science communicators, practitioners, researchers and other scicomm actors has long been a topic of interest in science communication. Controversies surrounding public engagement, goals, and tactics are often seen as issues of inconsistent discourse within the scicomm ecosystem. A broad range of dialogue forms that can lead to disagreement, sometimes seeks to create common ground, while other times serves to express dissatisfaction among different actors in multiple settings. The science communication community has shaped the discourse within the ecosystem, deciding on which perspectives to highlight, which information to prioritize, and which positions to adopt concerning scientific or social decisions. To address sociocultural conflicts, discourse analysis and pragmatics must be applied to community dialogues. This talk reviews and discusses tensions and dispute discussions from different contexts: Politeness and the maintenance of friendly relationships are often regarded as essential principles in social interactions, particularly in countries with diverse cultures. This can inhibit constructive criticism among other SciCommers, especially when flaws in scicomm practices are observed. The analysis of assumptions reveals that professionals with expertise in communication, journalism, or teaching have assumed that their responsibility in increasing public awareness throughout the pandemic was identical, due to misaligned or divergent interpretations. Such ambiguity has the potential to mislead the succeeding generation. On the other hand, in conferences or platforms such as Twitter and Instagram, when discussions become tense, some may refrain from expressing opposing views to avoid uncomfortable confrontations. The pragma-linguistic aspects of disagreement explain how such occurrences result in the loss of valuable opportunities and delay the transition from conflict to a dialogue-oriented community. Understanding and respecting others' goals is important, but strategic thinking involves 'dialogue' and 'openness.' Otherwise, identifying how the existing assumptions, experiences, values, and (affective) positions among different actors are understood and addressed will remain unresolved.

Talking Hands: Communicating Marine Research Through Illustrations

Dr. Andrea Geipel[1]

[1]GEOMAR Helmholtz Centre for Ocean Research Kiel

In this visual presentation, I aim to discuss how illustrated ZINEs can help to communicate the work of scientists. The ZINE is part of the research mission mareXtreme, which focuses on exploring and understanding geo-marine natural hazards. As part of this mission, an expedition to Greece in December 2024 aimed to study underwater volcanoes around Santorini. Scientists from various disciplines, engineers, and crew members collaborated to advance understanding of these geological features. The research mission prioritizes close cooperation with Greek researchers as well as the public to set the groundwork for a regional warning system. Engagement with local communities is a key focus, recognizing that effective hazard communication relies not only on scientific expertise but also on public understanding and trust.

Drawing on the tradition of ZINEs as self-published, visually-driven narratives, this project adapts these principles to science communication. The presentation will provide an overview of research on ZINEs as tools for environmental and science communication, emphasizing their potential to make complex topics approachable. A central element of the presentation is the case study of an illustrated ZINE designed for the general public in Greece, especially the residents of Santorini. This ZINE, developed in collaboration with a Greek scientist in autumn and created throughout the expedition in December 2024, explains the expedition's research in an accessible and engaging format. It aims to bridge the gap between complex science and everyday understanding, making the project's goals relatable to students and adults alike. A preliminary evaluation in early 2025 will include interviews with residents and scientists to ensure its relevance and impact.

The project will be presented as a visual presentation, featuring the ZINE and feedback from interviews. The presentation of this case study is intended to stimulate discussion and further research into the use of ZINEs as an impactful communication format.



Parallel Session E:7

Transitioning to Better Engagement with the Deaf Community in Museums

Dr Gabriela Heck[1], Letícia Marinho[2], Ana Carolina Vicente[2], Dr Jessica Norberto Rocha[4]

[1]Pontifical Catholic University of Rio Grande do Sul, [2]Oswaldo Cruz Foundation, [3]Oswaldo Cruz Foundation, [4]Cecierj Foundation

Science museums play a crucial role in fostering public participation in science. Therefore, these institutions must be accessible to guarantee equal opportunity to discuss and engage with science. However, science museums have historically overlooked specific groups' linguistic and cultural needs, such as the Deaf community, preventing them from accessing information and fully experiencing all the museum potentialities. Regarding this group, the communication barriers might begin even before entering the museum. Typically, the names of these institutions are expressed only in the native spoken language version, without Sign Language translation. Thus, adopting and spreading the sign language translation corresponding to the museum's name is the first step towards promoting communication accessibility for this audience. Aiming to amplify access and awareness about the need for accessible communication, the Brazilian research group Accessible Science Museums and Centers (MCCAC) launched a project focused on creating and disseminating Libras (Brazilian sign language) signs for museum names. The project was held in two national campaigns, in 2021 and 2023, and involved close collaboration with the Deaf community, consultations with accessibility experts, and input from museum professionals. By 2024, the project has successfully cataloged over 80 museum signs from all five regions of Brazil, which are freely available online. This case demonstrates a successful and inclusive initiative that enhances accessibility and engagement for/with the deaf community in informal educational settings. Also, this experience emphasizes the importance of preserving and disseminating signs as part of science museums' identity, promoting institutional practices that support linguistic diversity and collaboration.
By transitioning from inaccessible practices and a lack of knowledge to inclusive and collaborative strategies, science museums enhance the educational experience of Deaf visitors and foster greater engagement and participation, creating a more equitable and enriching environment for all.

Not Dead, but Seemingly Dying? Content Analysis of Scientific Blogs

Ms Anna Petschner[1]

[1]Budapest University of Technology and Economics

Although science blogging seemingly has become a marginal genre of analysis, it is still flourishing. This mainly textual platform is - theoretically - able to provide the opportunity of not merely a deficit style science communication but could achieve public engagement as well, with building interested audiences. Based on the previous literature, this engagement is crucial in cases like a construction of a nuclear power plant.

This paper examines scientific blogs about the new Hungarian nuclear power plant by content analysis in order to reveal how the blog's genre and general characteristics are used by the bloggers to achieve public engagement.

The Hungarian Government decided to build a new nuclear power plant with the help of a Russian state-owned company, because of the approaching decommissioning of the existing reactors in the next decade. This event created a controversy about many aspects of the expansion, involving organizations and scientists alike in the debate. Thus, the examination includes organizational and personal blogs, arguing in favor of and against the future reactors.

The analysis focuses on multiple factors. First, whether the blog posts merely inform the audience or they also promote active engagement in the debate or the decision-making process. Second, the posts' textual and visual features, including how common scientific jargon and hypertextuality are in the posts, and whether the photos and infographics can help the understanding. Third, what the connection is with the audience, focusing mainly on the characteristics of the comments and the responses.

I argue that even though blogs could promote public engagement through web 2.0 technology, the features and communication style are more similar to simple one-way information sharing, losing the opportunity to involve more laypeople into this controversial issue.

Interweaving Science Education and Communication Research to Study Science Outreach

Prof. Dr. Ilka Parchmann[1], Dr. Friederike Hendriks[2]
[1]Leibniz-Institute for Science and Mathematics Education (IPN), [2]Technische Universität Braunschweig

Science outreach serves as a vital bridge between scientific research and society, promoting dialogue and enhancing understanding of current research topics.

These efforts are increasingly funded as part of large-scale research projects, aimed at increasing public interest in science and encouraging community participation. Science outreach projects (SOPs) can vary significantly in their goals and organization, yet they share some common features. A primary aim of SOPs is to communicate research findings as they emerge, often fostering close collaboration between scientists and communication professionals. This interaction enables scientists to engage directly with diverse audiences (Salmon et al., 2017).

To effectively reach specific target groups, such as students, professionals in the field, or patients affected by research, SOPs have developed various communication formats and practices. Consequently, science outreach often blends elements of science communication with perspectives from informal and nonformal science education.

However, the work done in SOPs is generally less connected to established research in the field of science education and is not as systematically studied as science communication mediated by professional communicators or journalists.

In this interactive poster presentation, we aim to introduce our DFG-funded scientific network (2024-2027), which is aimed at identifying the unique potentials within science education research to investigate learning potentials within science outreach – not only for audience members, but also for communicating scientists.

During our short presentation, we want to introduce best practices in designing and researching science outreach, introducing examples from SOPs within the network and a supply-use model of learning opportunities in science outreach. The aim is to discuss with the research and practice community at PCST how the network can not only contribute to increasing the evidence-base for what makes science outreach effective, but also ground future outreach activities in theory and evidence.

(GPT-4 used for language streamlining)

Contested Narratives: The Dual-Use Dilemma in Atomic and Quantum Technologies

Kristian H. Nielsen[1], Casper Andersen

[1]Aarhus University

This paper examines the intricate evolution of public communication strategies for atomic and quantum technologies, underscoring the transitions, traditions, and tensions from the early 20th century to today. Initially, atomic science promised transformative applications in energy and medicine. However, the emergence of nuclear weapons introduced a profound dual-use dilemma, setting a critical precedent for the public communication of scientific advancements. Dominated by the potential for both significant benefit and destruction, this early narrative shaped subsequent public discourse.

During the Cold War, the narrative surrounding atomic technologies was profoundly influenced by a bipolar geopolitical landscape. Public communication in this era fluctuated between promoting the peaceful benefits of atomic energy and raising alarms about its destructive capabilities, mediated through channels including government propaganda, educational initiatives, and mass media.

With the transition to a post-Cold War, multipolar world, the dynamics of communication dramatically shifted. This period saw a diversification of stakeholders in the atomic and quantum narratives, including emerging economies and private enterprises, each bringing their own agendas and viewpoints to the discourse.

The advent of quantum technologies has added new dimensions to the dual-use discussion, echoing early concerns about atomic science but within a more complex and interconnected global context. Quantum computing and cryptography offer revolutionary potential but also pose significant security risks, reminiscent of earlier atomic challenges yet complicated by contemporary geopolitical and technological landscapes.

This paper advocates for a nuanced approach to communicating scientific and technological advancements, integrating lessons from past experiences while adapting to an evolving multipolar environment. By acknowledging historical shifts and the intricate relationship between science, technology, and society, communicators can more effectively navigate the dual-use dilemma in public dialogue.

Our Missing Voices! Restoring the Tapestry of Representative Public Research

Mrs Leila Neshat Mokadem[1], Dr Betty Dube[1], Dr Aileen Grant[1], Dr William P Ball[1], Dr Kathryn R Martin[2], Dr Bea Dawkins[3]

[1]Robert Gordon University, [2]University of Aberdeen, [3]Aberdeen City Council

The voices of Global Ethnic Majority (GEM) women are often missing across all stages of health research. Despite calls for more inclusive public engagement practices, the notion of 'hard to reach' has persisted. So too have health inequalities for minoritised communities for over four decades. With changing demographics across Scotland, the need for person-centred care, and representative civic engagement, we (a group of diverse women from Black, Asian and Minority Ethnic heritage) set up the Global Ethnic women for HER (Health Equity Research) group in 2023 to dispel the notion of 'hard to reach'. Our ethos is based on de-colonial ways of engagement and the use of 'Sharing Circles' as a means of communicating with respect and compassion. Using non-Eurocentric methods through a restorative justice lens enables the creation of a 'healing space' for women to come together and bravely share their lived experiences. In 2024, this project forms part of my PhD which is an 'exploration of challenges and opportunities for representative public involvement in research'. It is a collaboration between Aberdeen Health Determinants Research Collaborative-NIHR, Robert Gordon University, NHS Grampian, University of Aberdeen, Aberdeen City Council and most importantly it is by, with, and for, the wonderful local GEM women!

Climate Identities in Spain: Audience Segmentation and Information Consumption Habits

Mr Felipe Núñez[1]
[1]Universidad Carlos III de Madrid

This study focuses on segmenting audiences in Spain based on their climate identities. To achieve this, a nationally representative survey was conducted with 1,800 participants. The research draws on a questionnaire originally developed by the Yale Program on Climate Change Communication, which categorizes the U.S. audience into six segments, ranging from the Alarmed, who are highly concerned about global warming and advocate for immediate political action, to the Dismissive, who deny the existence of the problem and oppose most climate policies.

In this study, the same questionnaire was applied, but with the hypothesis that the number of segments would differ for the Spanish population. Latent Class Analysis determined that the most suitable division for Spain's population, based on distinct climate identities, consists of four groups. Following this segmentation, the study examines the significant differences between these groups in terms of media consumption and information habits.

Each segment was analyzed in relation to their media consumption patterns and perceptions of traditional media's political and economic independence to assess the level of trust they place in the information they receive. The findings suggest that the extreme groups—Alarmed and the Dismissive—exhibit similar behaviors and evaluations of the informational environment. However, they differ in their stances primarily due to non-scientific factors such as political ideology.

This research highlights the importance of understanding the diversity of climate identities within a population. This directly influences how different segments engage with and trust media sources. Such insights are crucial for tailoring communication strategies to effectively address the varied concerns and beliefs of the public regarding climate change.

Voices of Experience: Shaping Mental Health Science Communication in India

Kadambari Patil[1], Anushka Banerjee[1], Dr Reeteka Sud[1], Dr Biju Viswanath[1]
[1]National Institute of Mental Health and Sciences (NIMHANS)

In the field of mental health communication, a key tension lies in balancing scientific expertise with the lived experiences of those affected by psychiatric illnesses. While medical professionals are often given ample space and credibility in discussions about psychiatric disorders in India, those with lived experience struggle to be heard, largely due to cultural stigma surrounding mental health. This creates an imbalance where the voices of experts are prioritized over personal narratives.

As mental health communication strategies evolve globally, how can India approach a more inclusive dialogue?

At the Centre for Brain and Mind, NIMHANS we conducted a public engagement perspective workshop for bipolar disorder. Participants expressed their perceptions through zine-making, both before and after conversations with PwLE (People with Lived Experience).

I will present our efforts towards lived experience inclusion in public engagement events. Our approach included identifying suitable PwLE panellists, creating safe environments, and maintaining anonymity. Careful attention was given to steering conversations and providing appropriate briefs, especially to maintain cultural sensitivity. Participants reported increased empathy and awareness of mental health issues, emphasizing that bipolar disorder should be seen as a manageable illness. I would also include methods on how to best take feedback at such events and how to measure feedback received at such events.

While numerous scientific conferences present the latest research, they often exclude PwLE, who may find it difficult to engage with the technical expertise being shared. This results in an imbalance where there are practically no forums where lived experiences can shape current or future research. We plan to conduct patient public involvement workshops in October 2024 to include PWLE and the public in research decisions. I would share our experiences and learn how India can adapt from the well-established UK PPI model.

Note: AI was used for copyediting.

Cultivated Meat Policy in Cattle Country? A Dialogic Co-Production Experiment

Dr. Linda J Pfeiffer[1], Kelsey Biscocho[1], Dr Julia McQuillan[2]
[1]Purdue University, [2]University of Nebraska-Lincoln

As food production is challenged by climate variability, cultivated meat technology has been promoted as a solution for lowering greenhouse gases through replacing conventional livestock and "rewilding" agricultural lands. These aspirational narratives often reinforce a pattern of technoscientific closure, excluding socio-cultural considerations. This is particularly true in under-represented rural communities whose livelihoods depend on agricultural production.

An enhanced dialogic co-production experiment was conducted in a U.S. state where cattle ranching is a primary economic driver, and whose legislature was considering banning cultivated meats. The goal was to facilitate civil, constructive dialogue to inform this highly controversial issue. Cattle ranchers, policymakers, environmentalists, cultivated meat engineers, social scientists, and NGOs were intentionally recruited through trusted opinion-leaders. An ice-breaker exercise and collaboratively developed guidelines facilitated participants bonding over shared interests and hobbies. Moderators were trained in focus group facilitation, active-listening, and conflict management. A range of frames were introduced to five moderated groups of five mixed stakeholders. Discussion of food-system sustainability provided context, followed by discussion of the opportunities and challenges posed by cultivated meat technologies. Follow-up surveys rated the dialogic co-production exercise "extremely beneficial" in "providing personal value", "networking", and "learning about others' perspectives".

Critical Discourse Analysis revealed that social construction of narratives converged around concerns for corporate power and control of U.S. food systems, fragmented governmental regulation, misinformation, and disproportionate institutional power in defining emerging issues. Challenges and opportunities of cultivated meat were contested, with ranchers predominantly seeing cultivated meat as a "threat" to standards of animal care, food quality, and the socio-economic disruption of rural communities. Comparatively, engineers and NGOs perceived opportunities in environmental gains, licensing of cell lines, fermentation of cultivated meat, challenges in engineering design, funding, premature regulatory foreclosure of marketing, and consumer acceptance.

The implications of an enhanced dialogic co-production model for contested issues will be illustrated.

Communicating linguistic research. Challenges and Opportunities

Dr. Petra Pansegrau[1], Dr. Sybilla Nikolow[1]
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In a constantly changing world, language as our primary tool of communication must allow the effective expression of novel thougts and experiences. This requires linguistic creativity, i. e., the creation of novel linguistic units that are used in communication just as successfully as linguistic routines. The starting point of the new Collaborative Research Centre „Linguistic Creativity in Communication“ at Bielefeld University is creative linguistic activity in everday communication, the resulting products, and how they can spread into a larger community. In our presentation, we will use this example to explore the question of how science communication could look like for basic linguistic research for which there is no tradition. What are the challenges and opportunities for this field of knowledge and where are the areas of tension? Based on the observation that linguistic creativity affects everyone in everyday life, we want to utilise the synergy effects between practices in science communication and methods of citizen science. In doing so, we are building on the interest of non-linguists in linguistic diversity, as aroused in various citizen science projects to collect unusual and rarely used expressions, in order to sensitise the public to linguistic issues. We will not only reflect on the relationship between theory and practice in science communication, but also talk about the opportunities we see for dialogue and exchange of ideas between language researchers and language communities. We will report on our collaboration with external partners and the testing of different formats, from public dialogue formats to participation in gamified experiments.

Balancing tensions in pragmatic research: evaluating science centre impact

Ms Shanii Phillips[1,2], Dr Heather Bray[2], Ms Tarryn Basden[2]

[1]Scitech, [2]University of Western Australia

Evaluating science communication is often perceived as challenging, especially in informal science learning environments such as museums and science centres. Science centres have become a common cultural experience globally, with many aiming to increase engagement, understanding and positive attitudes towards science amongst their local communities. While most science centres claim to have a positive impact on visitors' science learning and attitudes, there are multiple tensions within the evaluation process. Evaluation in science centres is typically under-resourced (including lack of funding, internal expertise and time to conduct evaluations), making long-term impact difficult to measure. Additionally, science centres with external funding partners must often balance the tension between what is possible to measure and what external stakeholders require them to report – including evidence of long-term social impact.

Scitech and the University of Western Australia joined forces in a research collaboration to conduct a pilot study to understand the long-term social impact of Scitech in the Western Australian community. Using the lens of science capital, the pilot project investigated the influence of childhood visits and recent engagements with Scitech. The study aimed to understand how engaging with Scitech's experiences and programs influenced adult visitors' overall science capital.

Early findings showed that even amongst adults who had recently engaged with Scitech, there was a range of science capital scores, and that an individual's science capital strongly influenced how participants perceived and conceptualised the role of science in their daily lives. The study also highlighted opportunities for future researcher-practitioner collaborations to extend the evaluation capacity of science centres and other informal science learning organisations.

Evaluation of science communication practices is often perceived as difficult. However, through strategic collaborations we can strengthen relationships between science communication research and practice, authenticating and improving outcomes for all.

Inclusive communication in citizen science for people with different abilities

Ms Tamara Pinkerton[1], Dr Heather Bray[1], Dr Miriam Sullivan[1]

[1]University of Western Australia

Citizen Science (CS) programs provide opportunities for volunteers in local communities and those with specialised interests to support projects and engage with scientists, opening meaningful dialogues and improve understanding about science. CS is often considered inclusive for everyone to participate.

14 CS practitioners were interviewed about their experiences of people with disabilities (PWD) in their programs. Although PWD makes up approx. 20% of the Australian population, they are under represented in science and their participation in CS is not visible. PWD had not been considered in most of these programs, due to either a lack of information, staff, and limited time.

Transitioning to more inclusive communication, interviewees suggested asking volunteers what they need to participate, increasing communication about activity requirements and making different activities available for different abilities. Recommendations include considering inclusion in the planning stage of projects and professional development for staff.

Can Generative AI Support Writing of Better Science Communication Products?

Dr. Yael Barel-Ben David[1,2], Prof Ayelet Baram-Tsabari[3], Dr Elad Segev[4]

[1]KielSCN Kiel Science Communication Network, [2]CAU, [3]Faculty of Education in Science and Technology, [4]Department of applied mathematics

Over the past three years, we have witnessed a significant change in the technological tools available to support scientists in communicating their work, driven by the advent of Generative Artificial Intelligence (GenAI). But does GenAI support the production of better-quality Science Communication (SciComm) products? To address this question, participants in a SciComm course at a technological university engaged in an online adapted version of the 'Half-life' training exercise, in which one distills the description of their scientific work by cutting half of the words over several iterations and finally revising the original number of words. The traditional face-to-face human feedback from one's partner was replaced by GenAI's suggestion for alternative wording (experiment, n=26) or no feedback between iterations (control, n=31). Participants were asked to rank their original and revised versions and reflect on their outcome quality. The original and revised texts were also evaluated by a SciComm researcher using a validated rubric for implementing SciComm principles (e.g. reducing jargon, using metaphors, narrative, etc.) to compare their quality.

Preliminary results indicate that participants in both groups were likelier to prefer the revised texts (56%) over the original (14%), showing the effectiveness of the "Half-life" exercise with 58% of the experiment group showing (not significant), higher preference for the revised version. The expert assessment indicated a significant (p-value <0.05) reduction in jargon usage and increased use of narrative in the GenAI-supported group texts. No significant differences were found regarding the use of humor or including an aspect of personal connection in the text.

Results indicate solid potential for integrating GenAI support into SciComm training and content production while providing more accessible ways to give feedback to scientists. Concluding that SciComm training programs should acknowledge GenAI's new reality and incorporate evidence-based AI tools, while managing participants' expectations and concerns.

Quality of research and peer review of journal manuscripts

Prof. Hans Peter Peters[1], Dr. Susan Howard[2]

[1]Free University of Berlin, [2]Public Understanding of Science

The purpose of this paper is twofold. First, it points to the crucial function of reviewers in securing the quality of research in our field, aiming to motivate scholars and experts in PCST to accept invitations from journals to review a manuscript. Second, it presents insights into the review process based on statistical data about the review process and our experience as editor and managing editor of "Public Understanding of Science".

Tensions in the review process exist between assessments of different reviewers of the same manuscript, between reviews and editorial decision, and between authors, reviewers and editors. Part of these tensions originate from the "diversity" of views in the PCST community about what constitutes good research, a good manuscript, and a significant contribution to the body of knowledge.

In parallel to scholarly critique of the review process, we notice increasing challenges recruiting qualified reviewers for manuscripts and basing our accept/reject decisions on them. Rapid growth of our field and increasing pressure to publish have increased submissions. As a consequence well-proven reviewers are overburdened as they receive more and more review requests from several journals. Growing specialization increases the need to find reviewers with very particular skills. We are - and authors should be - very thankful to reviewers who still provide thorough, detailed and constructive reviews.

Reviews often do not agree about assessment of a manuscript and recommendation to the editor. Besides being a challenge for editorial decision-making, this points to the broader issue that PCST researchers "do not agree on their standards" - to use a phrase Pamela Oliver (2016) has made about sociologists. We point to some issues in defining "quality" and "relevance" as the key criteria in manuscript selection. These insights will hopefully be relevant for both new reviewers and potential authors.



Parallel Session E:8

Tensions in Science popularization: insights from two social media controversies

Dr Elsa Poupardin[1]
[1]Université Paris Cité

Popularizers constantly face tensions: balancing scientific rigor with the need to simplify complex concepts, and juggling the roles of both journalist and scientist. These challenges remain, but the rapid pace of public reaction on social media, combined with a growing diversity of voices, has altered how these constraints are managed. We will examine these evolving dynamics, which are also influenced by new social sensitivities, through two controversies involving a prominent French science communicator.

Étienne Klein has been a dominant figure in the popularization of physics in France for over 30 years, hosting a weekly program on a national radio channel and publishing bestselling books. As a Research Director at the CEA (French Alternative Energies and Atomic Energy Commission) and a frequent media presence, Klein is widely regarded as an authoritative and erudite figure in the field of science communication.

In August 2022, Klein posted a hoax on X (formerly Twitter), showing a slice of chorizo and passing it off as an image of the star Proxima Centauri. His intent was to encourage skepticism toward authority, but the post quickly drew criticism, with accusations that he was mocking the public and journalists.

Then, in September 2024, another tweet by Klein criticizing a Le Monde article that linked global warming to forced marriages triggered backlash from social scientists, environmental researchers, and feminist movements. His critique, highlighting a confusion between correlation and causation, reignited tensions between the hard and social sciences, echoing the famous Sokal affair.

Through an analysis of the reactions to these incidents, we will explore how Klein's commitment to scientific rigor was perceived by some as dogmatic or provocative, and how his critiques of the media were viewed as attempts by scientists to assert control over public discourse.

Hook Them First! Balancing Content and Mechanics in Science Games

Dr Michele Fontana[1], Mrs Sara Verstraeten
[1]KOI

Games have emerged as a powerful tool to communicate scientific concepts in an accessible and engaging manner. However, the effectiveness of these games hinges on the delicate balance between (scientific) content and game mechanics, a tension that reflects deeper questions about how we design engagement strategies to foster scientific literacy. This debate is not only relevant in the gaming community, but is key when creating science games and can drive new directions in the ever-evolving quest to engage people with science.

This presentation draws on both the theory and practice of game design to explore the critical interplay between scientific content and game mechanics. It argues that prioritizing enjoyment enhances learning rather than detracting from it. A well-designed game immerses players in the experience, fostering deeper engagement with scientific concepts—provided the content is thoughtfully integrated to ensure both enjoyment and educational value.

Using case studies from science games that applied varying degrees of content and mechanics, including a game developed by my team over the past two years, this presentation will equip participants with practical tools to evaluate the effectiveness of science games and tips for designing games that balance fun and learning.

Finally, I will discuss strategies for collaboration between game designers and scientists, and how this ongoing dialogue helps reconcile the tension between mechanics and content, pushing science communicators to think critically about how they design engagement strategies and what they aim to achieve.

I acknowledge the use of ChatGPT in helping me to review my writing. I reviewed the feedback generated by ChatGPT critically and, based on this, revised the writing using my own words and expressions.

Art projects as interfaces between basic science and local publics

Dr. Ingmar Rothe[1], Prof Dr Christian Pentzold[1]

[1]Leipzig University

Art can be many things for the communication of science and technology. It can, for instance, help to imagine future designs, it can challenge science progress, call attention to unintended consequences, or boost the creativity of experts and non-experts alike. On that token, there are many attempts to interface artists and scientists and mix curators, researchers, and citizens. While popular, questions remain: What exactly can be accomplished through joint ventures of art and science? What are those interfaces doing and delivering beyond “nice footage” or “beautiful images”?

We followed these questions in a science communication project of a collaborative research center in the field of autonomous embodied technologies. There, we were part of two art projects carried out in 2022 and 2023. One was a European artist-in-residence program with four artists exploring artificial technologies at the base of autonomous embodied agents. The other was an exhibition with exhibits from the project, and sci-fi readings. Drawing on our observations, interviews, and documentation, we use the reflect, engage, and act dimensions of Responsible Research Innovation framework for conceptualization.

In our talk, we discuss three themes: surplus inspiration, serendipitous encounters, and artistic experimentation. In terms of reflection, both endeavors rested on the artists’ genuine views on the innovations made available to them. What they created moved well outside of the competence of the scientists involved yet came with a surplus of inspiration that resisted being readily applicable. As for engagement, events and exhibition brought together a diverse constellation of residents and local actors. These serendipitous encounters opened up communicating and collaboration across difference. With respect to acting, the endeavors underscored the value of artistic experimentation that combines the open-endedness of scientific testing and hypothesizing with playfulness, affect, and multi-sensory experience.

Communicating Climate Change through Youth-Led Events in Local Communities

Dr CHI-I LIN[1]

[1]National Sun Yat-sen University

This study aims to explore how climate events organized by the younger generation are experienced and understood by the general public, including diverse audiences from indigenous communities and science museums. It also discusses effective ways to communicate climate issues. Given the highly participatory and dialogical nature of teach-in actions, this research focuses on climate teach-in events as a communication strategy from two perspectives: 1) How these events utilize multimedia tools, such as self-shot documentary videos, acting, and games, to showcase climate-smart technologies and current climate challenges and solutions; 2) how these events engage the public and foster dialogue among various community and social backgrounds. The research is structured around two main dimensions to investigate the impact of climate events on the public audience: 1) The knowledge dimension, which includes scientific understanding and public perception of climate action; 2) the cultural dimension, which explores how cultural backgrounds and life experiences influence climate attitudes and actions. This study employed an open-ended questionnaire to collect data, analyzing responses from 278 participants at climate events held in six communities/locations between 2023 and 2025. The findings initially discuss the significance of youth-led climate events and their social impact on public understanding of climate change, contributing to a greater understanding of innovation and societal transitions for climate justice.

A SciComm Experiment: What Type of Content drives more Engagement?

Dr Julia Rizzo[1]

[1]Laimburg Research Centre

The tension between scientists and the public primarily arises from a lack of trust. Addressing this issue is crucial for effective science communication. One approach to bridging this trust gap is to craft content which is both accessible and engaging for lay audiences, focusing not only on research results but also on the scientific process behind them and on the scientists themselves. This approach makes scientific research more relatable and understandable for the public.

Founded in 1975, Laimburg Research Centre is the leading research institute for agriculture and food processing in South Tyrol, Italy. Focused on applied research, it develops expertise, practical solutions, and future-oriented innovations for real-world challenges. By providing a transparent view of what takes place in laboratories and fields during experimentation, explaining why research often requires months or even years to yield results, and demonstrating how public funds are utilized, the Science Communication Team can foster a deeper understanding and appreciation of scientific research among citizens and policymakers.

But which type of content drives the most engagement? Are lay audiences more interested in scientific results, the backstage of the scientific process, or personal stories about scientists? We examined this question through a small science communication experiment. In this study, we explored the impact of content type on the engagement and reach of social media posts. Five different scientific topics were communicated on social media through three posts, each one with a different focus: results, research process and people. We analyzed the metrics to assess the influence of each content type on audience interaction and reach.

This talk will present the results of this experiment.

Disclaimer: This study does not claim to adhere fully to the scientific method. It is a small social media experiment intended to test the effects of different content types on engagement rates.

Can science journalists continue to thrive? Inspiration from two continents

Dr Andy Ridgway[1]
[1]University of the West of England

Science journalists face huge competition for the attention of online audiences given the rapid proliferation online writers, as well as podcasters and vodcasters. It has led to some challenging questions for journalists operating in what is a rapidly evolving and fragmented online ecosystem. How can they adapt to continue to be relevant and earn a living?

Research conducted in India and the UK funded by the British Council has been investigating how science journalists' working practices have been changing in the face of this increased competition, as well as other pressures such as the rise of misinformation online. It also looked at whether working practices differ between journalists nearly 5,000 miles apart - in the UK and India.

The research, conducted within the Explor-ing science communication project, involved workshops with journalists in India and the UK. It builds upon an influential study into journalists' shifting working practices conducted over 10 years ago that characterised how their ways of working, or roles, were adapting. This more recent research provides insights into journalistic roles that have emerged since then, as well as the more traditional science journalist roles are still evident.

Journalists are responding to the online ecosystem in which they now operate by adopting new roles, such as one combatting misinformation. Some roles were only found in India, including one in which science journalists champion scientific successes as part of national identity building and another in which journalists 'translate' science news so it resonates with different cultures. Career stage emerged as a factor influencing which roles journalists adopt.

The implications for science journalists' will be considered, as will the broader consequences for the ways in which science is reported. Session participants will be invited to suggest names for the new journalistic roles, something which is not a straightforward task!

Public metaphor use, acceptance and resistance in online climate-technology discussions

dr Gudrun Reijnierse[1], dr Anaïs Augé[2]
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Climate change poses one of the main challenges of our age. One way to combat it is through technological innovations, such as carbon capture techniques, hydrogen fuel, and cloud brightening. In communicating publicly about climate technologies, stakeholders (e.g. scientists, politicians, climate activists) often use metaphors. These allow to describe novel climate-related concepts in more familiar terms, e.g. as 'sunblock' for the planet, or as 'runaway' technologies. Metaphors may reflect different positions about such technologies: while some actors present the innovations as solutions, others insist on the (financial) risks they present.

Communication, and metaphor in particular, plays an important role in shaping public perceptions about the development and implementation of new technologies. These perceptions, in turn, can considerably impact non-experts' engagement with the topic, as well as their sustainable practices. Yet, little is known about if and how the public accepts, resists and/or (re)uses scientific, political and activist actors' metaphors when they engage in discussions about the topic. Social media represent a remarkable discursive context to study this matter, because they are not limited to experts' viewpoints – any individual can participate.

In this paper, we analyse climate technology related interactions in real-life online contexts. Specifically, we explore the role of metaphor in social media messages about new climate technologies posted by politicians, journalists, NGOs, climate activists, and citizens on social media platforms such as X, Mastodon, and BlueSky. We analyse which metaphors are introduced into the discourse by which actor, and map their subsequent uptake (acceptance, resistance, reuse,…) by interlocutors. Drawing on previous research, we expect that metaphor users are particularly inclined to promote their own opinions on climate technologies and to negotiate metaphorical meanings during online interactions. Analyses are currently ongoing. Full results will be available for presentation at the PCST conference.

Evaluating uncertainty visualizations: impact on engagement and understanding

Stephan Reiche[1,2], Björn Döge[1,3], Prof. Dr. Melanie Keller[1,2]
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Communicating uncertainty in research is essential yet often difficult to achieve. Traditional visual uncertainty representations like error bars or confidence intervals can lead to misconceptions or confusion among both laypeople and experts. While alternative visualizations like quantile dot plots or hypothetical outcome plots are promising in effectively communicating uncertainty, there is still little research testing their feasibility in real-life settings, i.e. outside of highly controlled laboratory studies, especially when it comes to understanding of uncertainty.

We aim to fill this gap by testing different uncertainty visualizations (error bars, percentiles, quantile dot plots, hypothetical outcome plots, and an improved version of hypothetical outcome plots) and whether they promote both users' online engagement (measured as time spent on each part of the site and interaction count; Study 1) and understanding of uncertainty (Study 1, Study 2). The communication product we use is an interactive scrollytelling data visualization focusing on the topic of sleep over the lifespan which includes personalization and interactive elements. Study 1 is a real-life online study in which the visualization is seamlessly implemented on the publicly available website of a big popular science publisher (Spektrum der Wissenschaft, spektrum.de). Each user will be randomly assigned one of the aforementioned uncertainty visualizations and their natural browsing behaviour will be tracked. Study 2 replicates Study 1 in a lab setting and takes a deeper look at user's understanding of uncertainty via self-report.

Data collection for both studies will take place in autumn 2024. Thus, at our conference presentation, we will give insights into the design of the communication product and its embedded uncertainty visualizations, and present findings regarding their effectiveness for lay audiences' engagement and understanding.

Workplace Core Competencies and Future Skills for Canadian Science Communicators

Miss Michelle Reid[1], Dr. Chantal Barriault[1]
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Across Canada, science communication professionals fill diverse roles throughout many sectors as they work to engage audiences in STEM. Within research units, the public service, science centres, museums, non-governmental organizations, and the private sector, science communicators broker knowledge between groups and disciplines in an attempt to position research as accessible, relevant, and useful. Science communication within organizations, across sectors and industries, and amongst diverse publics reflects a transition in who performs this work alongside researchers and science journalists. Innovative technology also provides exciting opportunities for connecting with audiences through science writing, social media, multimedia production, exhibit development, and innovative public engagement events and programming. This expansion of how and where science is communicated in Canada highlights the growing need for trainers and educators to reflect on what we consider to be the core skills and competencies of professional science communicators in today's workplace.

The Science Communication Graduate Program at Laurentian University in Sudbury, Canada is interested in the knowledge and technical skills that contemporary science communicators utilize in their diverse roles across employment sectors. Working alongside our partner science centre Science North since 2005, we have trained over 250 graduate students to pursue diverse careers in the field of science communication. To ensure that we are equipping our graduates to meet the needs of today's science communication challenges, we have initiated a research project to define the skills, responsibilities, and communication contexts of our alumni. Through a series of focus groups and interviews, we have begun to identify the foundational lenses, methods, and technical skills that our graduates use to effectively communicate science within their own unique professional contexts. This presentation will explore the work that these professionals are performing across Canada to help trainers and educators prepare science communicators for the current and future workplace.

Media framing of AI across the UK political spectrum

Miss Gemma Ralton[1], Dr Rossella Arcucci[1], Dr Kanta Dihal[1]

[1]Imperial College London

Researchers are increasingly pointing to artificial intelligence as a source of nascent politicisation in public discourse. Previous studies have demonstrated a tension between media framing at either end of the political spectrum, with right-leaning outlets highlighting issues of economics and geopolitics, while left-leaning outlets emphasise issues of ethics, bias and privacy (Nguyen and Hekman, 2022; Brennen, Howard and Neilsen, 2022; Yang et al., 2023).

Since the development of ChatGPT in November 2022, news coverage of AI has unsurprisingly surged, yet current studies fail to assess how narratives about AI have shifted after this pivotal point. Similarly, despite AI's rapid development and increasing policymaking pressure for robust regulation, our understanding of AI-related attitudes within the context of escalating political polarisation is limited, particularly in the UK.

This study conducts a content analysis of AI coverage from UK newpaper outlets across the political spectrum, with a focus on generative artificial intelligence. The research aims to explore the tension around conflicting political ideologies and how they shape public narratives around emerging technologies like AI through examining language, tone and thematic focus.

Examining how AI is portrayed in politically diverse media can reveal current trends in public thinking, helping answer crucial questions about who dominates technological discourses and who wields influence over the digital transition of society.

Navigating Policymaking Through Effective Science Communication by Chief Science Advisors

Karolina Pstross[1], Dr Natalia Pasternak, Prof Stuart Firestein, Mr Paulo Vitor Gomes Almeida

[1]Charles University

The tension between scientific evidence and political goals is a persistent challenge in government decision-making. While science can offer critical insights and data to inform policies, the integration of this evidence into political processes is often fraught with difficulties. These challenges arise from the complexity of scientific research, the accessibility of relevant data, and the often different priorities of the scientific and political domains. To bridge this gap, many governments have established various science advisory structures such as scientific committees, collaboration with national academies, or science advisory offices.

Our study critically examines the model of the Chief Science Advisor (CSA), a key institutional mechanism designed to integrate scientific knowledge into government policy, in the context of positioning science communication as an integral part of science advisory. Utilizing a mixed-method approach, we analyze the global landscape of CSA appointments and its nuanced aspects through publicly available information (governmental websites, CSA office pages, guidelines, published CVs, news articles, etc.) and semi-structured interviews with fifteen respondents, including current and former CSAs, policymakers, professionals in the policymaking ecosystem, and relevant scholars.

This study contributes to a deeper understanding of the inherent tensions between scientific evidence and political goals, highlighting the benefits and limitations of the CSA model. The findings underscore the need for a nuanced approach to science advice, one that is sensitive to the diverse institutional contexts in which CSAs operate and the evolving demands placed on these key figures within government. By framing a key component of science advisory as a form of science communication, we emphasize the critical role of CSAs in translating complex scientific information into actionable policy recommendations.

Media Influence on Privacy Calculus in AI-Powered Digital Twin Cities

Dr. Shirley Ho[1]

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This study examines how individuals weigh perceived public benefits against privacy concerns when deciding to disclose personal information to AI-powered Digital Twin City projects, focusing on the influence of positive and negative media exposure and the role of information sensitivity.

AI-powered Digital Twin Cities are virtual models that use AI to enhance urban planning, manage infrastructure, improve public services, and support predictive decision-making through continuously updated digital reflections of physical assets, systems, and human activities, drawing on data from sources like sensors, monitors, and human-related datasets. Despite these advancements, privacy concerns about the use and protection of personal data in these projects remain a significant challenge.

This study draws on the privacy calculus model, which suggests that individuals weigh benefits against risks when deciding to disclose personal information. Although the model has been studied in online media, Internet of Things, and smart cities, the impact of media—particularly positive vs. negative coverage—on privacy concerns and perceived public benefits is understudied. This study addresses the gap by testing a proposed model that examines the influence of positive and negative media exposure, information sensitivity, and their interaction in shaping individuals' perceived public benefits, privacy concerns, and subsequent disclosure intentions in AIpowered Digital Twin City projects.

An online survey (N = 1,000) was conducted in August. Data collection is complete and analysis is ongoing.

The findings will provide valuable insights into privacy perceptions and behaviors in AI-powered environments, with key implications for managing public concerns, especially as AI plays an increasingly significant role in largescale public projects that involve the use of personal information.

Reimagining Science Communication in the ME: Balancing Tradition and Diversity

Dr. Enas Qudeimat[1]
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Science communication in the Middle East has developed through strong traditions, from oral storytelling to sharing knowledge in ancient times. During the Islamic Golden Age, scholars translated and built on Greek, Persian, and Indian scientific texts, creating a lasting legacy of written science communication. Public lectures, newspapers, and print media in the 19th and 20th centuries helped spread knowledge to more people. Today, digital platforms, social media, and projects like science cafés have made science accessible, encouraging inclusivity and public involvement. This talk explores how we can balance local traditions and global science communication, ensuring science in the Middle East stays relevant while gaining from global progress. We will consider whether today's science communication reflects the region's rich diversity. Are these efforts inclusive enough to reach minorities and marginalized groups? Using examples like the UAE's work to promote diversity in STEM, we'll introduce new ways to blend local traditions with modern approaches. This could involve using technology to reach rural communities or creating content in both Arabic and English to ensure science is accessible to all. Lastly, we will stress the importance of working together with science communicators from around the world. By sharing ideas and learning from each other, we can build more inclusive, effective science communication that reflects the region's cultural wealth. Institutions like NYU Abu Dhabi and KAUST are already leading this change, encouraging a more inclusive approach that connects local and global perspectives. As Head of Research Administration and Outreach at Genomics and Systems Biology at New York University in Abu Dhabi, I've included initiatives and programs within the center outreach program to promote inclusivity and bridge gaps between different audiences in science communication, and I've witnessed the impact. AI: corrected grammar and improved structure.



Parallel Session F:6

Reaching the public and natural hazards: practitioners' points of view

DR Giuliana RUBBIA[1], DR Maddalena DE LUCIA[2], DR Anita GREZIO[3]

[1]Istituto Nazionale di Geofisica e Vulcanologia, [2]Istituto Nazionale di Geofisica e Vulcanologia, [3]Istituto Nazionale di Geofisica e Vulcanologia

The Istituto Nazionale di Geofisica e Vulcanologia (INGV) is a public research organization in Italy engaged in monitoring and research to understand several natural phenomena impacting society. At the same time, INGV performs outreach, communication, and public engagement activities since better knowledge and awareness can mitigate the effects of natural hazardous events.

A key component of public outreach is digital communication. In practice, websites, blogs, and social media convey information produced by the Institute and gather requests for information and comments from online users. This online information flow is clustered around the three main INGV research departments -earthquakes, volcanoes, and the environment-, and it is integrated with in-person events such as science festivals, training at schools, citizens' meetings, and museum visits.

The elevated risk exposure of the Italian territory to natural hazards, in particular earthquakes and eruptions, makes such activities very challenging concerning communication with society. The occurrence of these events modulates the request for information and can disrupt the working routine, thus forcing the researchers to tune and adapt their contributions. Explaining climate change and its effects is challenging and urgent as well.

By celebrating the "INGV25 years activity", we observe a transition: the deficit model is still used, but several other activities and dialogues have been started to listen to the voices of citizens and non-expert stakeholders, to understand better public interest in priorities for research and the public's concerns.

Natural hazard communication is globally relevant, considering the current planet situation. Moreover, natural hazards affect men and women, boys and girls in different ways, due to biological, cultural, and social characteristics.

The contribution is intended to share with the audience challenges and current practices in disaster science-society relationships, properly facing the diversity of the population.

Framing geothermal energy and critical minerals: a visual media analysis

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[1]University of Twente

Linked to submission 144: 'Visuals in Science Communication'

Earth's critical resources such as geothermal energy and minerals are vital to the sustainable energy transition. Public perceptions of geothermal energy production and mining influence the acceptance of emergent low-carbon technologies and ultimately the speed of the energy transition. Mass media content and framing plays a pivotal role in shaping public perceptions of future energy production use, influencing public opinion. Furthermore, mass media visuals, particularly images are powerful tools that convey instant opinions of the topics they cover. Despite research into how mass media influences public perception, there is a notable gap in understanding the extent to which visual media content shapes public perceptions and attitudes towards geothermal energy and critical minerals. This research aims to address this gap through visual analysis of mass media images, complemented with a participatory research method involving stakeholders from various sectors. The findings will contribute to a deeper understanding of how media representations influence public opinion, and the ethical considerations journalists and science communicators must navigate in depicting renewable energy resources and technologies in the media. Insights from the perceptions of multi-sectoral stakeholders will contribute to developing communication strategies that will inform decision-making around energy planning.

Keywords: visual analysis, mass media, public perception, geothermal energy, critical minerals

SciComPt Network: transitions and traditions in science communication in Portugal

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Science communication has the potential to be unique in each country, given the diversity of professionals involved - communicators, science managers and journalists, researchers, and other communication professionals. In Portugal, the SciComPt network brings together a community of around 200 people who meet annually to share their work.

Through an in-depth analysis of the detailed programs of the SciComPt congresses, from the first congress (2013) until 2023, we have been able to assess the interests and characteristics of this community. It is interesting to understand what traditions are being followed and what transitions have already been made in 10 years.

By 2023, 1186 papers had been presented by a total of 4586 authors. In terms of presentation formats, there has been a tradition of three presentation formats over the years: Plenary Sessions, Long Oral Presentations and Posters; and, in transition, Short Oral Presentations, which have been less consistent over the years. Looking more closely at the long oral presentations in terms of the composition of the research/work teams, there is a tradition of more women in the teams leading the presentation of the work. Over these 10 years, the scientific fields of the papers presented have also varied, maintaining the tradition of the social sciences and the exact and natural sciences.

The mobility of these professionals was also assessed. Despite the tradition of coming from large urban areas (Lisbon, Porto, Coimbra), the congresses tend to be well attended by communicators from geographical regions closer to the congress venue.

In this presentation, we intend to explore these traditions and transitions over the last 10 years, and to extrapolate how the community of science communicators in Portugal will develop in the coming years.

PATTERN: science communication for open and responsible research and innovation

Dr Chiara Saviane[1], Ms Agnese Baini[1], Dr Nico Pitrelli[1]
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Since more than a decade, the European Commission has been encouraging a framework for Open and Responsible Research and Innovation (RRI) as a key to tackle contemporary and future societal challenges. Researchers have started pursuing careers beyond academia and scientific institutions have acknowledged the need for scientists to acquire not only technical skills, but also transversal and generic ones, the so-called transferable skills.

Despite this cultural change in universities, there are still gaps to be filled in the training opportunities of such skills. The PATTERN project, supported by the European Commission, works in that direction. It aims at developing, and piloting, open training courses for researchers at different stage of careers in eight different topics in the context of Open Science and RRI, including science communication, with a focus on the communication towards media and policymakers.

At the end of the project, which foresees two rounds of piloting, all materials will be made freely available to researchers, trainers and interested parties in a digital ecosystem. They will be able to create personalized learning paths as well as access a collaborative working space. PATTERN will also prepare policy recommendations for researchers' training on Open RRI practices for authorities and institutions. The project's main goal is empowering higher education institution and research organizations to embrace a transformative process to improve the excellence of the science conducted, the capacity to tackle societal challenges and the interaction between science and society.

In this talk we will present PATTERN and, in particular, the work done so far for the development of the training material on science communication. We will also share the feedback collected during the first piloting activities and open the discussion on how to adapt the course to better meet the trainers' and trainees' expectations as well as the project's ultimate goal.

Digital or analogous? How to improve children's health literacy

Dr. Alexandra Schebesta[1], Dr., MAS (PR) Brigitte Gschmeidler[1], Dr. Imme Petersen[1], FH-Prof. Univ. Doz. Dr. Ines Swoboda[2]

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From a public health perspective, increasing health literacy has become one of the major goals of the 21st century. Food allergy, for example, is a widespread health problem and represents one of the most common and dangerous types of allergies. As children are particularly affected, it is important to educate them about the symptoms and treatment of these conditions and create awareness and understanding for those affected from an early age on.

Digital tools offer new opportunities for science communication and for improving the health literacy of young children. Therefore, we designed the interactive online children's book "From stars and peanuts – An octopus in danger". Aimed at children aged 6 to 10, it teaches the basics of food allergies in a playful and narrative manner and shows how to deal with them correctly. Readers can interactively follow the two protagonists - the octopus Gerhard and his friend Ebi the squirrel - as they solve Gerhard's food allergy problem in an exciting astronaut story. The interactive digital story was developed by an interdisciplinary team of experts for science communication, allergy research, writing and programming with co-creational elements including children and is the first of its kind in German-speaking countries.

Although the digital approach was well received by young readers from our target group, we were faced with a growing demand from libraries and journalists for a printed version of the story in a traditional book format. We have therefore decided to make the book also available in printed form. Referring to the current debate on digital learning, we will share our experience in the presentation and discuss tensions regarding the transition of analogous to digital as well as digital to analogous learning material. Furthermore, we will discuss approaches to evaluate and compare our coexisting formats in regard to health communication.

AI and Scientific Publishing: a New Challenge for Science Communication

DR Alexandre Schiele[1]

[1]University of Ottawa

This talk will present the results of an exploratory study on the challenges science communicators may soon face with the explosion of peer-reviewed AI generated science papers. AI not merely improves rapidly; it deeply penetrates our daily lives, well beyond the convenience of generative AI. However, one aspect of Generative AI which is rarely talked about, because it has not been felt yet, or only negatively: its impact upon the growth of scientific knowledge, and thus on science communicators. In 1981, Buckminster Fuller concluded to an acceleration of the expansion of knowledge since the turn of the 20th century: from doubling every century, to every 25 years. In 2013, an IBM report predicted its doubling every 12 hours by 2020. An example: in 2022, the number of peer-reviewed AI papers published monthly doubled every 23 months. In the first half of 2024, a new paper was published every 16 minutes and 52 seconds on average. On August 27 alone, 135 papers were published. It is impossible for any researcher to be aware of even the most cutting-edge research in one's own field, let alone for a science communicator across all fields. What makes these numbers even remotely possible is that digital has since the 2000s become the dominant medium, print being negligible. Generative AI is truly a new rupture as it can automatize aspects of science writing, because it is one of the most codified genres - following a template, thus dramatically shortening production time in today's "publish or perish" mindset. The impact can only be the just as dramatic growth in the number of daily published peer-reviewed papers. This cycle will only accelerate with the progress of AI, itself accelerating. How can science communicators keep themselves up to date in this new dynamic?

How Influencers Shape Content About E-Cigarettes: A Visual Analysis of Frameworks Used on Instagram

Mrs. Bente Schøning[1], Prof Charlotte Wien[1], Prof Torkjel Sandanger[1], Dr. Sarah Rosenbaum[1]

[1]UiT Arctic University of Norway

This study analyzes how information about e-cigarettes are promoted by two key groups: traditional journalists in mass media and young adults on social media. Using framing theory, the study will seek to explain how information on the same topic can be changed or filtered before it reaches the public. We will examine how these groups shape the conversation around e-cigarettes.

Through focus group interviews with journalists and social media influencers, the study compares how each group spreads information. Preliminary results indicate that journalists mostly focus on the negative health effects of e-cigarettes, sticking to a traditional role that prioritizes public health. While social media influencers often present e-cigarettes as trendy and less harmful alternatives to regular cigarettes, which resonates more with young adults.

The findings are expected to show the complexity added by digital platforms, where the cautious messages from traditional media are often balanced by more positive portrayals from social media influencers. This study sheds light on how each group influences the conversation about e-cigarettes, without exploring the direct effects on how the public thinks or behaves. The results aim to help health researchers and public health policymakers understand how information is shared in today's digital world.

AI has been used to improve language and create a summary for the abstract. AI will also be used as a discussion partner in coding the data before analysis.

"Haisai/Fit Like?" - SciComm Ideas from Uchinaaguchi to Doric Scots

Mr Andrew Scott[1], Ms Tomomi Okubo[1], Ms Misato Matsuda[1], Ms. Chiaki Chibana[1]

[1]Okinawa Institute of Science and Technology

Okinawa is home to Uchinaaguchi, one of several endangered languages in the Ryukyu archipelago, which was annexed by Japan in 1872. Very few people born after 1955 speak Uchinaaguchi fluently (Heinrich 2015). In light of the language's vulnerable status, a dedicated group of new speakers of Uchinaaguchi in their 30's and 40's have embarked on an initiative to reclaim their heritage language, re-engage with their indigenous culture and introduce it into new scientific contexts and outreach activities. Through innovative approaches such as language lessons for medical students, translation of scientific abstracts, as well as outreach and cultural events, this group has made substantial progress in positioning Uchinaaguchi on an equal footing with the dominant languages within a leading scientific institution. These efforts not only challenge prevailing assumptions about the language and its speakers but also contribute to its revitalization by broadening its applicability and visibility.

Inspired by these initiatives, this presentation will also touch upon on a parallel situation: the dwindling number of speakers of Doric Scots – a subtype of the Scots language spoken in the northeast of Scotland, in and around Aberdeen. Drawing on the Okinawan experience, we will discuss what lessons can be learned from the integration of marginalized languages into scientific domains and how these strategies might be applied to the context of Doric Scots, with implications for language revitalization efforts globally.

Enhanced Dialogic NOS Competencies for Science Communicators

Dr Daniel Silva Luna[1]

[1]University of Augsburg

Science communication professionals play a pivotal role in public discussions of critical socioscientific issues (SSIs) such as climate change and artificial intelligence. Their responsibility extends beyond mere knowledge transmission; they illuminate the complexities of scientific practice and its societal impacts, fostering public dialogue and empowerment. However, tensions persist between narrow and broad views of how science works. Narrow views often focus on its epistemic aspects such as science being empirical or theory-laden, while broad views recognise science as a complex, socially embedded process influenced by cultural and historical contexts. Tensions between these two views challenge effective communication of the Nature of Science (NOS), particularly when addressing complex SSIs where understanding the processes, practices, and societal contexts of science is crucial for informed public engagement.

The poster presentation introduces the "Enhanced Dialogic NOS Competencies for Science Communicators" (EDiNOS-SC) project proposal. This project addresses a significant knowledge gap regarding the specific NOS competencies required by science communicators and how these are applied in SSI contexts. This mixed-methods study integrates insights from science education and communication to: 1) Identify key NOS competencies for science communication professionals through a Delphi study; 2) Investigate their NOS views in relation to critical SSIs using in-depth interviews; and 3) Design training interventions based on philosophical dialogue to enhance understanding of NOS and its dialogic communication.

By bridging perspectives on NOS and developing targeted competencies, EDiNOS-SC aims to equip science communicators with tools to navigate the tensions between abstract notions of science and context-specific experiences. This project contributes to the evolving landscape of science communication education, potentially transforming how professionals engage the public in complex scientific discussions such as SSIs.

Who held the microphone during COVID-19 in Indonesia? Stakeholder Insights

Ms Eva Simarmata[1], Mr Raph Hamers, Mr Thanh Vu Duy, Mrs Mary Chambers
[1]Oxford University Clinical Research Unit (OUCRU) Indonesia

The COVID-19 pandemic revealed the power dynamics of communication. In Indonesia, identifying the key actors who truly 'held the microphone' and communicated effectively with the public during pandemic is an important step for preparing for future outbreaks. Did health experts and government officials lead the way in effective public communication, or did social media influencers and community leaders play a more impactful role? Finding out who really controlled the message is more than just looking back. It is about preparing to refine communication strategies and engaging with key players in effective science communication. This understanding helps transitioning the outbreak communication from reactive to proactive.

University of Oxford Clinical Research Unit (OUCRU) Indonesia hosted stakeholder workshops including government officials, academics, healthcare practitioners, media professionals, communication experts and WHO Indonesia to reflect on pandemic communication efforts. These workshops provide a collaborative setting to identify which actors excelled in public communication, and which public groups were hard to reach.

The preliminary findings indicate that the COVID-19 task force, religious leaders, ministry of health, local governments, the president, and social media influencers were the loudest voices in public communication. However, effective communication and accurate narratives do not always align. Social media influencers might have skilfully engaged their audiences but may spread misinformation. Meanwhile, those with accurate information struggled to connect with the public. This shows a gap that demands urgent action to prevent being caught off guard in forthcoming outbreaks.

Autism Spectrum Condition: tensions in family interactions with scientific knowledge

Mirelly Soares[1], Prof Alessandra Bizerra[2]
[1]University of São Paulo, [2]University of São Paulo

This study investigates the role of mothers of individuals with Autism Spectrum Condition (ASC) in science communication, focusing on the interplay between scientific and experiential knowledge, while exploring tensions between autistic and neurodiverse identities and the guarantee of rights for people with disabilities. Using the Circuit of Culture as a framework, the work is being conducted through an online survey and interviews with family members of autistic individuals. Quantitative data is analyzed using descriptive statistics, while open-ended responses are examined through content analysis, with categories aligned to the elements of the Circuit of Culture. Previous findings show that science communication about ASC extends beyond the mere transmission of information, fostering support networks between families and specialists. These exchanges promote shifts in perceptions, attitudes, and identity formation, blending scientific and experiential knowledge. The study also aims to assess whether family members of autistic individuals develop an identity as science communicators and the intrinsic regulations influencing this process. It underscores the importance of shared experiences among family members, which reshape family dynamics and strengthen the rights of neurodiverse individuals. Ultimately, it reveals that science communication is an ongoing cultural process, where identities and representations are continuously negotiated across social spaces.

Deciphering Traditions (and Language) in SciComm: Some Reflections from India

Ms Apeksha Srivastava[1]

[1]Indian Institute of Technology Gandhinagar

Macaulay's Minute (1835) showcased the White Man's Burden to civilize the barbaric "Other," emphasizing Indian science as inferior, promoting English as the language of instruction, and marginalizing a rich history of scientific achievements (e.g., by Aryabhatta, Bhaskara) and their communication in the process. However, science and its communication has been prevalent in India since ancient times (The Beautiful Tree by Dharampal, 1981; Sharma, 2002). I examine one such tradition—the belief that all nature is the Creator's reflection (sacred ecology). It encourages people's active involvement in environmental science, which timelessly connects communities globally. One of its earliest scenes possibly belongs to the Indus civilization (3000BCE), involving peepal worship (sacred fig). Trees are sacred in Hinduism, Buddhism, and Jainism. People (e.g., Amrita Devi, 1730CE) have sacrificed their lives to protect them. The Todas associate rituals with some plants (Cordero et al., 2018), which help them with activities like weather prediction. Bhils and Santhals believe that gods reside in nature and protect flora and fauna (Malhotra et al., 2001) that are considered endangered/extinct outside their territories. Although different in worldviews, such science communication is more nuanced and respectful, tracing the idea of India way before the British. Such storytelling transferred through generations makes science more accessible and memorable, contributing to sustainable solutions to global challenges on a region-specific level. This "desi" science communication (native scicomm) in different languages is grounded in cultural and historical contexts. My research on Indian participants revealed that they are more emotionally attached to certain words/concepts in their native language, leading to more thought-provoking effects, which can be leveraged in scicomm. Through these discussions on traditions and language, I argue that "research into (de)colonization and diversity" can benefit scicomm (more inclusivity). However, I also investigate situations where co-existence of native and second languages (e.g., English) is necessary for scicomm.

Leadership, innovation, and professional development: the Public Engagement Exchange

Dr Mhairi Stewart[1], Prof Marina Joubert[2], Mr Niklas Marzinek[1]
[1]Natural History Museum, Berlin, [2]CREST

What identifies a leader in public engagement and when does someone transition to this title? What skills and attributes are needed to push the boundaries of leadership, practice, and policy in PE? What is the very leading edge of innovation in international engagement delivery?

A new international project, the PE Exchange (PEX), between Germany and South Africa aims to explore these questions from both research and practitioner perspectives. PEX is devising and trialling a new leadership development model for PE. The model has three strands of professional development for prospective Fellows:

·A training strand develops the skills needed for Fellows to become leaders in PE strategy and policy, nationally and internationally.

·An innovation strand supports Fellows to break out from traditional delivery methods and develop innovative international practice in PE through design thinking.

·A leadership strand facilitates the policy links, networks, and confidence of Fellows in their ability to make change happen.

Underlying all these is a research strand designed to bridge theory and practice by rigorously questioning the outputs and outcomes of the development, innovation, and leadership strands. This research will inform both practitioners and researchers in this under-explored area of PE, creating much needed evidence of the impact of PE in the academic as opposed to the public sphere.

We invite delegates to share with us on our 3D 'skills tree' the skills, experience, and attributes that contribute leadership in PE to include. The poster will also invite delegates to share what outputs of the project might inform their own practice, strategies, and research.

The use of GPT in science communication: First results

Mr Alessandro Strobbe[1], Dr Enrique Rojas

[1]Aarhus University

This study presents the development and evaluation of a GPT model specifically designed to assist scientists in creating accessible content about their projects and research for the general public. Based on a review of the literature on Science Communication and Human Computing Interaction, we identified key research that serves as a basis for training this bot, considering strategic science communication and effective SciComm models. The main objective is to provide scientists with an efficient tool that facilitates the communication of their academic work into products suitable for a general audience, thus allowing greater dissemination and understanding of their research and background.

The developed GPT model can interact directly with scientists, generating an initial brief to gather essential information for creating the outcome. The bot subsequently uses this input to produce final content prioritizing effectiveness. We will provide comparative results with LLMs like Gemini and ChatGPT. We will report the first results of the generated product following g the guidelines for social media, offering recommendations for subsequent research and bot training.

This project will include a case study with a MIT Space Observatory, and we will test the general public preferences comparing the results with other SciComm pieces produced by specialists. Considering the previous results with the use of GPT in medical practice, this research is needed to consider this option in SciComm. The test of the results will be measured before and after exposure to the content generated by the bot, thus allowing a rigorous analysis of the tool's impact on scientific dissemination. The results of this research could open new opportunities for the democratization of scientific knowledge and improve communication between academia and society.

Differentiating Public Perceptions of Science Issues and Online Behavior

Prof. Dr. Monika Taddicken[1], Dr. Nadine Bol, Dr. Dorothe Kienhues, Prof. Dr. Stephan Winter

[1]Technische Universität Braunschweig

Science communication research must address the diverse nature of scientific issues, complicating the application of universal communication strategies. Differentiating public perceptions can enhance research and offer practical insights. We address two dimensions of public perception. Ambiguity encompasses the uncertainty, complexity, and contested nature of scientific knowledge (Funtowicz & Ravetz, 1993; Popper, 1959), which can be challenging for non-scientists (Bromme & Goldman, 2014). Despite these challenges, keeping the public informed and engaged with socio-scientific issues remains crucial due to their societal significance (Fischhoff & Scheufele, 2013).

In today's digital age, where social media is key in science communication, understanding how public perceptions impact online behavior is essential. Social media facilitates easy dissemination and generation of science-related information (Taddicken & Krämer, 2021).

We investigate how different scientific issues are perceived (RQ1), how sociodemographics influence these perceptions (RQ2), and how they affect online engagement, including consumption, participation, and generation (RQ3).

Using an online survey with a representative German sample (n=1014, Mage=45.3, SD=14.41), we examined perceptions of vaccinations, climate change, genetically modified food, autonomous driving, video game effects, and cosmology. Participants assessed these on significance (interest, usefulness, relevance) and intricacy (uncertainty, complexity, controversy). Mixed-effects models were employed for analysis.

Our results show that climate change and vaccinations were rated highest in significance, while cosmology and video game effects were rated lowest. Autonomous driving was seen as the most, with climate change rated the least ambiguous (RQ1). More educated individuals generally perceived higher significance, with variations by sex, age, and political orientation. Females, less educated individuals, and those with left-leaning views perceived greater ambiguity (RQ2). Significance positively predicted consumption and generation, while ambiguity negatively predicted these behaviors. Notably, right-wing ideology was positively associated with online participation and content creation (RQ3).

These findings provide insights into public engagement with science and how perceptions influence online behavior.



Parallel Session F:7

WeChat accounts drive up scholarly impact of research papers

Ms Yihong Tan[1], Dr Hepeng Jia[2]

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Studies have shown that social media not only expands the audience of scientific papers but also increases their citation frequency. While these studies were focused on global social media platforms, WeChat, as the most widely used social media in China, has seldom been empirically studied for its impact on scholarly communication.

To fill this gap, this article analyzes the relationship between the publication of papers on WeChat Official Accounts (media accounts on the WeChat platform) and indicators measuring the scholarly impact such as downloads and citations. By obtaining publication information, download quantities, and citation frequencies of 7,431 papers posted in the 11 WeChat Official Accounts affiliated with the "China Science" series of journals published by the Chinese Academy of Sciences, this paper analyzes the correlation between these papers' WeChat representation and their citation frequency and download counts. It also investigates the the influences of utilization indicators, including tweet reads, tweet likes, and tweet counts, of WeChat Official Accounts on paper downloads and citations. This study further examines the association between the formats of WeChat Official Account presentation (full-text posting, short summary, mentioning of paper contents and only mentioning the paper titles) of papers and their downloads and citations.

Results show that with only one exception, papers presented on WeChat Official Accounts in various formats had higher download counts and citation frequencies than papers from the same journals in the same period that were not presented. The citation frequency of such papers was also correlated with WeChat utilization indicators. Moreover, presenting paper information in different formats also affected paper download counts and citation frequencies differently.

In sum, presenting paper information on WeChat Official Accounts can enhance scholarly impact of the papers regardless of the type of utilization. Presenting paper in accordance with their characteristics can produce differentiated impacts.

Communicating Public Trust and Acceptance of AI-Powered Autonomous Vehicles

Prof Shirley S. Ho[1], MR Hongjie Tang[2], Prof Liang Chen[2]
[1]Nanyang Technological University, [2]Tsinghua University

Alongside the rise of generative artificial intelligence, AI-powered autonomous vehicles (AVs) have garnered significant public attention. Trust in these technologies can develop even before direct interaction with them (e.g., experiencing a ride in AVs). The underlying mechanisms that foster this trust must consider the critical role of media exposure to diverse content in today's digital environment. Moreover, as a facet of social life, interpersonal discussions among the public can implicitly convey social norms, beliefs, and attitudes regarding AI technologies, thereby influencing public trust and acceptance of these innovations.

Moving beyond the "trust deficit model", it is essential to explore the role of public communication in shaping trust and acceptance of AI-powered AVs. This study introduces communication factors and seeks to examine their causal relationships with trust and acceptance.

We aim to: (a) differentiate the distinct longitudinal effects of media attention to the risks and benefits of AI-powered AVs on public trust and acceptance over time; (b) incorporate interpersonal discussion about AI-powered AVs as a key determinant in the formation of trust and acceptance; and (c) identify the causal relationships among media attention, interpersonal discussion, trust, and acceptance of AVs.

A two-wave panel survey with nationally representative samples (T2N = 650) in Singapore will be conducted. Cross-lagged analysis will be employed to examine variables measured at two time points.

This study offers two potential contributions. Theoretically, it advances the current literature on trust by highlighting the role of communication behaviors (i.e., media attention and interpersonal discussion) in shaping trust and acceptance, and provides robust evidence to elucidate their causal directions. Practically, the findings will offer valuable insights for science communicators on how to address the media's representation of AI-related risks and benefits and how to engage with the public to manage potential distrust and foster acceptance in a scientifically informed manner.

A creative community partnership mapping tool

Mrs Fiona Travers[1]

[1]Science and Technology Facilities Council (STFC)

The Public Engagement Team at the Royal Observatory Edinburgh works with a variety of community partners to deliver their programme. The team has found it challenging to communicate and visualise all the current connections, their status, and the type of organisation these people represent. This led to the development of a new creative mapping tool for use in team meetings and forward planning discussions. Traditionally knowledge about partnerships holds great value, as it allows monitoring and maintenance of important relationships, however it can be at risk when owned by a single person. It is hoped that this tool will compliment any personal expertise by enabling more effective knowledge sharing internally with staff and volunteers and externally with community stakeholders.

Come and experiment with the tool, consider how it might be used in your setting and share your thoughts on improvements.

Enhancing Science Literacy in Older Adults: A Pilot STEM Program

Maria Georgia Tripalitaki[1], Vasiliki Andromachi Bakogianni[2], Georgia Loukaidou[1], Artemis Traikapi[3], Theo Anagnostopoulos[1]

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The field of STEM education is evolving, with growing interest in how different age groups engage with STEM concepts. While many lifelong learning initiatives focus on younger age groups, older adults are often underrepresented in STEM education, despite evidence of the importance of cognitive engagement in later life. The “Silver STEM” initiative was designed to address this gap by introducing STEM concepts to older adults in four Municipality community centers across Athens, Greece. Aiming to promote lifelong learning, improve mental health, and enhance digital literacy, the program featured nine interactive sessions over six months, led by STEM educators. The curriculum was tailored to participants' needs, covering topics such as Robotics, Chemistry, Biology, Human Health, Citizen Science, and Mathematics. Sessions applied experiential STEM methodologies, emphasizing curiosity-driven learning, critical thinking, design thinking and hands-on activities connecting scientific concepts to everyday life. The program engaged 88 individuals (63-89 years old), and a qualitative evaluation was conducted with a representative sample of 20 participants. Pre- and post-program interviews were carried out by STEM educators and certified psychologists, using open- and closed-ended questions. The data collected provided insights into the initiative’s impact and offered a foundation for future program improvements and research. Results highlighted several positive impacts, including increased confidence in discussing scientific topics, enhanced cognitive and social skills, and a renewed passion for learning. Notably, all 20 participants expressed that they would definitely participate in a similar future program. The interactive nature of the sessions made scientific concepts more accessible and engaging, while fostering a sense of community. These findings suggest that STEM education for older adults can enhance quality of life and promote active citizenship, offering insights for scaling similar initiatives and advancing research on science communication.

Keywords: STEM education, older adults, lifelong learning, hands-on learning, science communication, active citizenship

Transitioning Longwood Gardens: Integrating Science Communication for Greater Institutional Impact

Dr. Jessica Turner-Skoff[1]

[1]Longwood Gardens

Longwood Gardens (USA) is the living legacy of Pierre S. du Pont bringing joy and inspiration to everyone through the beauty of nature, conservation, and learning. With its international reputation for beautiful displays of plants grown in extraordinary ways, more than 1.6 million guests visit each year. Since Longwood was established as a public garden, a team of dedicated scientists has contributed to the fields of botany, ecology, and horticulture; as such, there is a rich history of communicating this work through numerous channels. Over the past few years there has been a greater institutional focus on science. Leadership recognized an opportunity to communicate additional impact by increasing the Science team's involvement in developing and identifying stories. To wit, a professional science communicator was hired.

The goal? To support telling the story of Longwood science to generate impact, and support science literacy with visitors and staff alike. This transition for a large cultural iconic institution is resulting in measurable positive change. This talk will feature interactivity through an online survey tool, and it will cover the process of developing a science communication program, including how to: 1) conduct a listening tour; 2) align and prioritize science communication with larger institutional strategy, legacy and goals; 3) transparentize the processes and build relationships; 4) develop projects that support internal alignment for external impact; 5) collect low-hanging fruit; and 6) evaluate formally, informally, qualitatively and quantitatively.

This talk will provide practical relevance to others: while cultural institutions have an obligation to connect their visitors with mission-related activities, it can be daunting to transition institutional communication focus and include new team members with different expertise. This fresh perspective provides a framework for other mission-driven institutions to follow as they develop their own strategies to transform and balance the tension between tradition and innovation.

Essential engagement: A roadmap for integrating public engagement in physics

Dr. Jen Tuttle Parsons[1], Dr. Alexandra Lau[1]
[1]American Physical Society

As the discipline of physics navigates a time of increasing complexity, it remains a field deeply anchored in longstanding traditions. Addressing the critical importance of public support and participation in scientific initiatives, the American Physical Society (APS) has acknowledged the need to embrace public engagement as essential to the practice of physics. The APS Public Engagement Team, in partnership with a Civic Science Fellow (Rita Allen Foundation), is leading the development of a strategic roadmap in support of its members and the broader physics community to position public engagement as integral to the profession.

The roadmap, created in collaboration with APS members, units, and informal physics education researchers, addresses the transition from conventional, hierarchical, one-way science communication to more reflective and culturally responsive practices. Recognizing the often exclusionary nature of traditional scientific practices, this initiative highlights the importance of establishing accessible connections between diverse perspectives and experiences. The project explores the tension between the physics community's existing power structures and those that are attempting to disrupt them through reflective and inclusive engagement with various publics.

In this talk, we will explore how the roadmap is seeking to reshape the physics landscape, supporting a shift in culture that leads to a more publicly-engaged, trustworthy, and responsive discipline. By sharing insights from the development and implementation process, we contribute to wider discussions about how reflective and inclusive public engagement becomes integral to the identity and practice of physics, and more generally, of science. Participants are invited to consider and express their own experiences with culture shifts towards inclusive and engaged science.

Memories from museums: Reconstructing shared realities in free learning environments.

Shaun Ussher[1]
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Museums are no longer just repositories of knowledge; they are interactive learning spaces that fullfill complex social, sacral and intellectual needs, in which visitors actively reconstruct meaning from their experiences. They serve as educational environments by representing narratives across time and space from socio-scientific, historical and cultural perspectives. In doing so they shape our understanding of reality past, present and in the future. The narratives they create and share with the public are key for engaging audiences, but what does the audience truly take away from these experience?

Traditional methods of assessing museum impact, such as demographic analysis, satisfaction surveys, and movement tracking often fail to capture the complex interplay between visitor identity and narratives they create. These approaches tend to focus on metrics driven by KPI's and curatorial perspectives, overlooking deeper cognitive processes how visitors internalise and reshape museum narratives based on their unique personal and cultural backgrounds that underlie social learning in the museum environment.

"Memories from Museums" is a research project that aims to transition from traditional research methods in this space to a more open, inclusive and exploratory approach by examining the importance of learning from the visitors point of view. In doing so we examine learning through the psychological lens of collective memories and shared realities across a diverse range of museum settings (historical cultural space, a natural history museum and an art-science museum).

This talk will discuss the findings from an experiment in which group pairs were asked to collectively reconstruct an exhibition post visit. The findings will detail the difference between individual and group recall, how conversation dynamics and identity influence museum interaction, reconstruction and the shared learning experience. I will discuss how integrating psychological insights into museum research can provide a more comprehensive and inclusive understanding of visitor learning.

Doctors On Instagram: Expert Boundary Work In The New Media

Mrs Elina Uutela[1], Dr Mikko Jauho, Dr Essi Pöyry, Dr Salla-Maaria Laaksonen
[1]University of Helsinki

Social media offers multiple ways for audiences to seek information and individuals to gain visibility and status. Traditional, science-based experts have found their way to social media, along with new actors with claims for expertise. Thus, science-society relations face opportunities and tensions, as adapting to social media requires balancing scientific and professional principles and the expectations of the changing media landscape.

Leading from the work of Thomas Gieryn (1983), who approached boundary work as setting the boundary between science and non-science, we look into how traditional scientific experts draw the line between expertise and non-expertise in the new media environment. To put it into specific terms, we analyzed the Instagram posts of 2020–2021 of Finland's top 20 most followed doctors using qualitative content analysis.

In our study, we introduce an analytical framework for analyzing expert boundary work in the new media and share our results on how these dimensions are visible in the case of Finnish doctors on Instagram. We find that four societal changes, especially, have created the need to renegotiate four overlapping types of boundaries doctors work with on Instagram. First, the medialization of science has created the need to balance staying true to science while catering to the media's communication needs. Second, the increasing publicity of experts has created the need to maintain epistemic authority while simultaneously satisfying public expectations. Third, new actors claiming expert status make it necessary to navigate the tension between professional roles and personalized attention. Fourth, the ongoing commercialization of public online spaces requires juggling between following professional norms and applying promotional tactics.

To guarantee the anonymity of researched accounts, we consider recreating example images from the data using Microsoft Copilot.

Metaphorical framing in news media coverage of carbon dioxide removal

Ms. Femke van Bruggen[1]

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In the face of rapid global warming, carbon dioxide removal (CDR) has been gaining attention in scientific and popular media discussions about climate solutions (Cox et al., 2024). CDR refers to methods that capture and sequester carbon dioxide (CO_2) from the atmosphere. These methods are increasingly integrated into international policy frameworks and scientific reports to meet climate targets (Carton et al., 2020; IPCC, 2023). While advocates consider CDR necessary for offsetting hard to abate or residual emissions, critics caution that it could divert attention from immediate emission reductions and warn of the various risks associated with speculative technologies (Anderson et al., 2023). Non-expert audiences often learn about complex scientific issues such as CDR through (online) news media (Schäfer, 2017), in which metaphors play a key role in making abstract concepts accessible. Importantly, metaphors frame the debate, shaping how the public may perceive and understand CDR (Thibodeau et al., 2019).

This study analyzes a corpus of 250 English-language publications to explore how CDR is represented in online news media. We identify key metaphorical frames, such as "cleaning" and "storage," used to explain CDR methods. Next, we examine how these frames are used by journalistic sources, including scientists, policymakers, environmentalists, and industry representatives. We find competing metaphors that reveal the different interests of these groups, shaping the discourse in ways that can either promote or undermine CDR efforts.

In addition to metaphorical framing, we examine the diversity of journalistic sources and map which voices are present or absent in the CDR conversation. Our findings highlight how media representation, through both framing and source selection, can influence public understanding and policy debates around contentious issues. This offers insights into more effective communication strategies in climate solutions discourse, highlighting the need to critically assess the metaphors used in public discussions of CDR.

Creating connections: evidence-based science communication for evidence-informed policy making

Dr Ingrid van Marion[1], Prof David Domingo[1]
[1]Université libre de Bruxelles

Reports from the WHO, OECD, and many other national evaluations have identified communication as a crucial aspect of preparedness and response to a pandemic crisis. However, many reports do not provide details on evidence-based science communication strategies and practices for all stakeholders involved. We would like to present BE-PIN, an ongoing project that creates a multi-disciplinary Belgian Pandemic Intelligence Network. This collaborative initiative is developing frameworks for surveillance and advanced analytics for evidence-informed decision making. Special attention is paid to communication practices that support the governance of the structure as well as improved knowledge transfer between the stakeholders, that include scientists, policymakers, health care professionals, journalists and citizens.

During this presentation we aim to discuss facilitators and barriers for evidence communication that have been explored from the perspectives of both scientists as well as policymakers. Semi-structured interviews with a diversity of stakeholders that use, create or supply scientific knowledge and data, identified key communication challenges such as language barriers, jargon, trust, uncertainty, time and organizational structures. The science on science communication is used to discuss with the stakeholders how to improve their communication practices.

We hope to open up dialogue with our PCST public about how evidence-based science communication can be supportive to decrease the tensions related to evidence-informed policy making, build relationships between scientists and their publics, and be better prepared and able to respond during transitions from peace time to times of health crisis and vice versa.

Co-designing infographics with and for Autoimmune Encephalitis patients

Ana Vasconcelos[1,2,3], Dr Rita Maldonado Branco[4], Dr Susana de Noronha[5], Dr Sara Varela Amara[2,3]

[1]University of Coimbra, Institute for Interdisciplinary Research, Doctoral Programme in Experimental Biology and Biomedicine (PDBEB), [2]CNC-UC - Center for Neuroscience and Cell Biology, University of Coimbra, [3]CiBB - Centre for Innovative Biomedicine and Biotechnology, University of Coimbra, [4]Research Institute for Design Media and Culture (ID+), University of Aveiro, [5]Centre for Social Studies, University of Coimbra

Visual science communication and information design create novel opportunities to engage society in scientific subjects, ultimately diminishing the gap between science and society. As in science communication, design also encourages the active participation of end-users through participatory approaches like co-design. Here, their needs and perspectives are integrated into the design process, thus reinforcing a bidirectional and democratic participation.

In this multidisciplinary PhD project, we seek to explore how to design information to promote effective communication, health literacy, and patient understanding of Autoimmune Encephalitis (AE), a relatively rare but treatable group of immune brain disorders. To achieve this, we are engaging 2 groups of participants (clinicians and AE patients/families) in focus groups and co-design sessions to produce infographics about AE for patients and families. This approach has 3 main steps: first, the designer/researcher will develop an initial version of the infographics. Then, a series of co-design sessions will follow with clinicians to incorporate their perspectives on how to improve the infographics. Afterwards, the infographics will be further refined by co-designing with patients/families to integrate their needs and lived experiences. With this work, we wish to produce educational resources and evaluate their impact by conducting focus groups with new patients/families.

We believe this work will contribute to reinforce a bidirectional and democratic approach to science communication. This user-centred methodology applied to visual science communication is a novel approach in a Portuguese context, especially focusing on a serious and complex disorder, like AE.

At PCST 2025, we propose to present a visually rich poster focused on this methodological approach and bring examples of co-designed work produced until then. With this presentation, we not only intend to share our research approach, but also to receive feedback from participants, and foster discussion about the challenges and benefits of using participatory approaches in science communication.

Models for Change: Epistemologies, Expectations, and Practices in Participatory Frameworks

Dr Zinaida Vasilyeva[1]

[1]Museum für Naturkunde Berlin

Practitioners in science communication, public engagement, and participatory research often draw on Design Thinking, Participatory Action Research (PAR), and Theory of Change (ToC) to develop impact-oriented formats and practices. However, the rationale for choosing a particular model is rarely explained, which can lead to insufficient reflection on how each model shapes expectations, operational flexibility, and specific outcomes.

This poster presents a visual comparison of these three prominent models, highlighting their epistemological foundations, expected results (outputs and outcomes), and practical applications. By highlighting the differences between Design Thinking, PAR, and ToC, the poster aims to facilitate a more strategic selection and application of these frameworks based on contextual needs.

The key contribution lies in the visual mapping of the epistemic foundations and practical implications of each model. This comparative analysis provides valuable insights into how each framework influences participatory practices and outcomes, serving as a useful resource for both practitioners and researchers.

The poster is intended for both, practitioners and researchers of public engagement.

An AI tool was used to check grammar and spelling.

Portuguese Biological Collections and Science Communication: Where Do We Stand?

MS Beatriz Vieite[1,2], Dr Ascensão Ravara[2], Dr Marina R. Cunha[3], Dr Pedro Beça[1]

[1]DigiMedia - Digital Media and Interaction Research Centre, University of Aveiro, [2]CESAM - Centre for Environmental and Marine Studies, University of Aveiro, [3]Department of Biology, University of Aveiro

Biological collections play an important role as non-formal environments for science education and communication, promoting scientific literacy and culture. However, these collections, especially when they are part of a university, are unknown to society and sometimes even to the institution where they are located. They are usually managed by researchers who have no training in communicating science to non-academic audiences and who have few resources and time to do so. The present study aims is to map existing Portuguese biological collections and publish, for the first time, a comprehensive list of them. The study also aims to characterise the collections in terms of science communication, surveying and analysing the strategies that are currently being used by their staff (curators and coordinators) and the difficulties they face. To this end, semi-structured interviews were conducted with the staff of Portuguese university biological collections and natural history museums. The results show that the school public is the main type of public to which the collections communicate, and all of them have guided tours as their main means of communication. However, some of the difficulties experienced when communicating science were described, namely a lack of staff, a lack of time, a lack of knowledge about how to communicate, a lack of visibility and a lack of appreciation of the importance of the collections. Taking these results into account, the second phase of the work aims to develop science communication tools that are personalised to the needs of these collections, to increase the effectiveness of their communication strategies. This optimisation will not only lead to the dissemination of these infrastructures, thus encouraging their use by the lay public but will also promote scientific literacy and culture more effectively.

Assessing the effectiveness of science blogs and podcasts in Germany

Birte Kuhle[1], Dr Charmaine Voigt[1], Dr Johannes Breuer[1], Dr Lydia Repke[1], Dr Sophie Zervos[1]

[1]Gesis – Leibniz Institute For The Social Sciences

Scientific institutions have increasingly adopted various digital channels for science communication. Both academic and non-academic stakeholders demand informed decisions about the choice of digital communication activities. As a result, internal evaluation efforts are increasing, accompanied by a need for meta-analytical evaluations. Despite the fact that blogs and podcasts have become traditional media in the science communication portfolio over the past 15 to 20 years, there are few evidence-based results on their effectiveness.

The research project "Wi4impact" performs a multi-stage analysis to assess the effectiveness of science blogs and podcasts produced by German higher education and non-university research institutions. The study identifies performance indicators and assesses their impact within social media networks. The performance analysis combines web data on German science blogs and podcasts with survey data from producers and social media metrics. The analysis follows a logical model with four stages: input, output, outcome, and impact, providing a framework for a comprehensive evaluation of science communication.

The results show that the reach of blogs and podcasts is affected by the quantity and frequency of blog posts and podcast episodes, which depend on the invested production resources. The analysis indicates that the size of the team and the budget affect the number and frequency of published posts/episodes. Production partnerships also positively affect the reach. Social media followers, interactions, and network structures were integrated into the model to analyse outcomes and impact. However, the limited number of cases may explain missing correlations between reach, social media performance, and network structures.

The contribution presents an empirical model with combined data on the effectiveness of existing science blogs and podcasts. The study underscores the importance of resources for effective science communication and highlights the need for a robust database to understand the long-term impact of such efforts.

Who Frames Science? Comparing Institutional and Media Communication of Research.

Aike Vonk[1], Erik Van Sebille, Mark Bos
[1]Utrecht University

When communicating science, communicators prioritize the relevance of scientific findings while omitting less important details. They connect science to everyday life using personalization, placing research within a human context. All choices that are made regarding content contribute to the "framing" of research, whereby the way frames and personalization are used affects public understanding and evaluation of scientific studies. Although scientists, science communicators and journalists all use these strategies, tension exists between the groups, causing them to criticize each other's work, especially when framing leads to oversimplification or misinterpretation of research.

Here, we present a study where we examined how research institutions and newspapers communicate the same peer-reviewed articles, focusing on framing and personalization to answer the question: How is scientific research contextualized differently in newspaper articles compared to the original press releases? We conducted a case study on 10 university press releases about ocean plastic research, covered in 130 English-language newspapers worldwide. By coding individual frame variables instead of entire frames, we could examine shifts in framing. Using a novel reporting method, we visually highlight differences between press releases and newspaper articles. Subsequently, we qualitatively analyzed framing changes across both media.

We find that journalists prioritize corporate and political responsibility over solutions or societal responsibility in covering ocean plastic research. Despite this shift in emphasis, the content of frame variables remains the same, highlighting the strong influence of press releases on newspaper coverage. Scientists often act as protagonists in both press releases and newspaper articles, focusing on the personalization of science while offering limited societal context. Rather than assigning blame for communication gaps, this study aims to foster dialogue among scientists, communicators, and journalists about effective science communication. Whereby we hope that addressing the identified differences in framing can enhance mutual understanding.



Parallel Session G:6

Transforming Perspectives on Spiders Through Science and Outreach

Trinity Walls[1], Dr. Damian Elias

[1]UC Berkeley Environmental Science Policy and Management

When people are asked what they think of spiders, the question often elicits a visceral emotional reaction (fear, disgust, hatred). Sensationalistic news stories ("i.e Large venomous spiders weave intricate webs on Ontario porches…") take advantage of these preconceived notions to drive readership and create an overall feeling of terror. However, scientific literature paints a different story. For the last few decades, spiders have been used to explore scientific questions such as how do animals communicate? How are animals affected by climate change? How can we mimic properties in animal-produced materials? For biologists, animals like peacock spiders elicit intrigue, admiration, and affection. This tension between hair-raising headlines and scientific literature underlines the significant effort needed to transform public opinion, especially opinions passed down through generations that are reinforced by popular news sources. Rectifying the disconnect between mass media and scientific literature is even more difficult because scientific articles are often incomprehensible. My process first involves hands-on outreach by asking the public to describe what a spider scientist does. I incorporate the audience's input into my work so the science doesn't feel so removed and explain why audience engagement is crucial to improving science. Second, I ask for people's initial narratives of spiders and discuss why those narratives may need to be revisited. I integrate people's lived experiences into my outreach and also discuss why the lived experiences of the spiders themselves are interesting, necessary, and beneficial to us. By using personal and scientific narratives of spiders and spider scientists, I reframe negative stereotypes to positive ones. I also use this reframing to highlight the importance of appreciating variation in all experience and interrogating preconceived notions about the world around us, thereby emphasizing both the value of ongoing scientific investigation and the inclusion of a variety of perspectives (human and otherwise).

Transition towards TikTokers as novel science communicators about forever chemicals?

Annika Weber[1]
[1]University of Hamburg

Per- and polyfluorinated alkyl substances (PFAS) are used in everyday devices and technologies such as Gore-Tex due to their persistent, breathable, dirt-, oil- and water-repellent properties. These "forever chemicals" thus accumulate in the air, water and soil and may (un-)knowingly impact human health and the environment. Since their invention in the 1950s, two out of 10,000 man-made PFAS have been banned with exceptions in Europe and internationally. A proposal to ban all PFAS is considered by the European Chemicals Agency (ECHA). Notably, ECHA has received an unprecedented number of thousands of comments during its regulatory procedure. As anyone could submit a comment, this raises questions about the authors and sources of this PFAS awareness.

In addition to traditional sources, e.g., journalistic science communication, user-generated science communication is no longer about the "new" media of the "future" or public involvement. As a platform with many-to-many user-generated science communication, TikTok offers free participation, access and mobility. By scrolling through audio-visual stories, also called "scrollytelling", users discover content about PFAS by TikTokers. Currently, a search for #pfas leads to over 5,000 TikToks.

The strategic aims of TikTokers as science communicators, science communication in audio-visual formats and PFAS in general have not yet been studied. Based on my PhD-project, the talk addresses research gaps both on TikTok as a science communication format and on public communication of chemicals by providing new insights into the questions:

Do TikTokers communicate by, for or about science?

Which frames characterise PFAS in this social media arena?

How is scientific (non)-knowledge used as a resource in #pfas on TikTok?

The audio-visual examples from TikTok shown in the talk provide a basis for a theoretical and practical discussion with the participants on the transition towards interactive science communication and its platformisation, as well as possible tensions resulting from these dynamics.

Science journalists use and knowledge of artificial intelligence tools: implications

Professor Emma Weitkamp[1], Professor Luisa Massarani, Dr Shalini Sharma, Dr Luiz Felipe, Dr Andy Ridgway, Mr Cleiton Bezerra
[1]UWE Bristol

This paper presents a study on the use of artificial intelligence (AI) tools by science journalists and explores their perspectives on the current and future impacts of AI on science journalism practice. The data are drawn from a study conducted using an online survey (March - May, 2024). The survey was answered by about 120 science journalists, including professionals from Brazil, Russia, India and China (BRIC) and Non BRIC countries and we have sought to compare the responses addressing differences between journalists representing these regions. Among the results, the respondents consider that AI tools may offer benefits to journalists, particularly in areas such as automated transcription and supporting them to produce content for e.g. social media. Journalists across both regions make use of AI tools to support their writing and see potential benefits arising from these tools when working in a second language. However, they also express concerns particularly in relation to the impact on artists and designers, rather than on journalism practice. They expressed concerns related to ethical issues and the potential for a lack of access to AI tools from journalists from the Global South. When considering current use of AI tools, respondents make limited use of sophisticated AI tools (in both BRIC and non-BRIC countries), such as for detecting deep fakes. Drawing on the results, we make recommendations focusing particularly in the areas of ethics and training related to the use of AI tools in science coverage.

Challenges of science communication associated with a pioneering project that aims to extend vaccine trials to care home residents

Professor Seshadri Vasan[1]
[1]NHS Scotland, 2University of York

COVID-19 demonstrated the importance of vaccines but also its limitations and the challenges of communicating benefits-versus-risk to the wider population, especially vulnerable groups. For example, vaccines protect and immensely benefit care home residents who are more prone to infections, but they are often left out of clinical trials because it is difficult to get consent from those with conditions like dementia, and from older frail people who take longer to provide answers to questions. Companies are often reluctant to test vaccines in people with multiple medical conditions as any flare-up could be confused with side effects. But testing vaccines only in younger and healthier people means we can't be as sure that they are safe and effective for care home residents. This is absolutely critical because many countries around the world have ageing populations, with older age groups growing faster. For example, between 2018 and 2050, Great Britain will see an additional 5.8 million people, roughly the current population of Scotland, in the 65+ age category, which is a significant 49% increase. To overcome this, NHS Grampian is bringing together researchers who have expertise in healthcare and wellbeing of care home residents, those with experience of running vaccine trials in other settings, and people who work in care homes. This "Widening Access to Trials in Care Homes" (WATCH) project is funded by the inaugural vaccine innovation pathway under the UK Moderna strategic partnership. We are identifying solutions to overcome the present barriers preventing wider participation of care home residents in trials, liaising with vaccine trials that could recruit volunteers from care homes in order to test out and refine our guidance further. The challenges of science communication associated with this project and in developing a comprehensive UK guidance will be presented, along with proposed solutions.

Scientific storytelling to translate global lessons in local spaces

Meghan Wiesbrock[1]
[1]The Morton Arboretum

Immersive hands-on learning and scientific storytelling are some of the best tools to connect individuals and prepare them to take environmental action within their own communities. Hands-on/experiential learning is a traditional practice that encourages participants to physically explore and investigate their own questions and observations. Storytelling is an age-old tradition of sharing knowledge, evoking emotion, and inspiring others. Research demonstrates that even when stories and experiences take place in different corners of the world, when done with authentic voices and examples, individuals can be inspired to implement solutions locally. In 2024, The Morton Arboretum, with support from the Walder Foundation, facilitated a 5 day immersion program for educators from the Chicagoland area to visit, learn, and explore the Cloud Forest of Costa Rica. This project provided educators with a diversity of experiences, from night hikes to stream inventories, as well as opportunities to listen to the stories of local experts and educators. Through this trip, the American educators participating in the program learned firsthand about rainforests, and about the importance of one species within the web of an interconnected ecosystem. Armed with this perspective, participants brought these lessons back to their classrooms, located squarely in urban and suburban settings. Once the team returned to Chicago, they workshopped their perspectives on the experience as a team to develop their own environmental stories. Participants implemented and engaged their classrooms with similar conservation projects at their school and community sites. In this talk, hear about the impact of this trip, as well as the integration of experience and story. Participants will engage in thoughtful conversations around scaling global conservation work to a local level by using traditional practices of storytelling and hands-on learning.

‘Looking at the big picture’: Ethical tensions in science communication

Professor Clare Wilkinson[1], Professor Michael Parker, Ms Millie Farrell, Dr Aleskandra Stelmach

[1]Science Communication Unit, UWE Bristol

Ethical issues arise in many communication and engagement settings. Such issues have traditionally fallen into the gaps between what is seen as ‘research’ and what is seen as ‘dissemination’. Ethical issues identified in the literature include a desire to do no harm, ensure there is informed consent, voluntary participation, anonymity and confidentiality, as well as ways for participants to be informed of outcomes (Wilkinson and Weitkamp, 2016), but guidance is sparse on how to apply such principles in practice creating tensions for researchers, practitioners and participants. Advice that does exist is often associated to subtly different disciplinary areas (for example, social science and humanities, opinion and marketing research, evaluation associations, journalism bodies, or the museums sector) and its existence may not be obvious to those communicating and engaging around science and health issues (Medvecky and Leach, 2017).

Following semi-structured interviews (n=17) and focus groups (n=2) with researchers and science communication and public engagement specialists at UK academic institutions and in practice settings, we suggest that whilst normative principles for ethical science communication remain fluid, ethical questions are often an area of considerable reflection for those communicating in practice, particularly when they reflect wider social issues which can be contentious. In this presentation we explore how researchers and practitioners communicating and engaging about science and health related topics consider the ethical dimensions of their communication, including that which relates to relationships, content, implications and culture change in science and health communication and engagement. We also point to a number of areas for further research, including greater consideration as to how transitions in the funding environment are altering normative perspectives on the goals of science communication and some of the emerging ethical tensions that can then be enacted in practice.

Peer Review to Public: Connecting Science Studies & Science Communication

Prof Holger Wormer[1,2], Ms Annette Schoeneck[1,2]

[1]TU Dortmund University, [2]Rhine Ruhr Center for Science Communication Research

“Too few people are reporting on the process of science – there is too much focus on the results...” These findings in the Global Science Journalism Report (Massarani et al. 2021) is in line with observations such as from Dunwoody (2021: 19) that the public gets “few descriptions of the research methods”. This is even more remarkable against the background that knowledge about the nature of science increases its public acceptance as Weisberg et al. (2021) show. Knowledge considering professional rules and processes of quality assurance of the scientific system is also crucial for citizens to distinguish between trustworthy experts or studies and bad or fake science. This becomes especially important concerning inherently tension loaded topics in the public discourse. However, in practice it is much harder to communicate lengthy and abstract scientific processes than quick results. This is certainly one reason for the noted tension between what should be (more) communicated and what is communicated.

Adressing these tensions and asking what kind of meta-knowledge of science should be addressed our Rhine Ruhr Center for Science Communication Research has developed a double track “Living Handbook of Science Communication & Science Studies”. On the one hand, the Living Handbook (LH) is an open-access encyclopedia presenting relevant topics on both science communication and the science system in concise scientific articles. On the other hand, these peer reviewed articles are directly connected with a popular communication of the respective topic on one and the same digital platform, using essayistic texts, entertaining audios, videos and multimedia formats. Through its consequent double track approach considering theory and practice, the project also aims to reduce the tension between internal scientific and public communication and to build a low-threshold bridge between researchers and communication professionals, policy makers, journalists, teachers and citizens.

(Literature can be provided on demand)

Building an Undergraduate Science Communication Program

Prof David Wright[1], Prof Shellie Richards[1]
[1]Vanderbilt University

The Vanderbilt University Program in the Communication of Science and Technology (CSET) is the only four-year undergraduate degree granting program in science communication in the United States. We have thought intentionally about what a science communication degree should look like. Our students learn to communicate science to a wide variety of audiences, bridging scientists and citizens, helping to inform the public and empower decision-making. An important challenge is communicating the impact of basic science.

The center of our program is narrative. This thread runs throughout the entire curriculum. The three-class core is committed to training students in both oral and written forms of science narrative. Telling scientific stories brings narrative to the fore to strengthen writing skills and creative presentation. The three bridging courses are an innovative way to explore the discovery narrative and its issues at the intersection of science and the humanities. Each CSET course is predicated on the integration of both scientific and humanistic perspective, should include an experiential element to the course design, and present an ethics component. Additionally, all students must take five-science courses. They can go deep, as in a second science major, or broad by taking introductory courses across a variety of natural science disciplines. Our students take their classroom experiences and put them into practice in immersion and internship projects. They create films, podcasts, and news stories that cover topics such as how paleoecology can help explain the impact of climate on evolution, stories from the frontiers of the nanoscale, or investigations into new functions of the brain. This union of learning and practice equipes them to communicate basic science within our program and beyond.

Can Virtual Conversational Agents Train Scientists in Dialogic Science Communication?

Dr. Elad Yacobson[1], Prof. Ofra Amir[1], Prof. Ayelet Baram-Tsabari[1]
[1]Technion-Israel Institute of Technology

The importance of training scientists in science communication (SC) has gained increasing recognition in recent years, leading to the expansion of training programs for students and bench scientists worldwide. However, most of these programs adhere to the dissemination model, which focuses on teaching scientists how to convey information clearly and engagingly. This approach contrasts with the recent emphasis on two-way communication with diverse audiences. To address this gap, training programs should prioritize providing scientists with opportunities to practice dialogic SC. However, these programs face challenges due to the significant time and cost required for individualized training by experienced instructors, and in addition a lack of clear objectives for teaching the dialogic approach and effective evaluation tools.

Our research explores the possibility of utilizing a Large-Language-Model (LLM)-based system designed to train scientists in science communication (SC) using a dialogic approach. This system allows trainees to engage in conversations about scientific and technological topics with a virtual conversational agent, receiving real-time feedback on their performance. Our work contributes to the field of SC in two significant ways: theoretically, by establishing clear objectives for dialogic SC training programs and operationalizing their evaluation; and practically, by introducing a technological solution that harnesses the capabilities of LLMs to offer scalable SC training, thus addressing the limitations and constraints associated with traditional face-to-face training methods.

In our presentation, we will outline the theoretical framework that underpins the system, defining its objectives and the methods designed to assess its effectiveness. We will also provide an overview and demonstration of the system and preliminary findings from pilot user studies.

Connecting Researcher Development and Public Engagement - Solutions for Change

Dr Kenneth Skeldon[2]

[1]University of Glasgow, [2]European Science Engagement Association

The interface of 'researcher development' and 'public engagement' has always been a space rich with opportunity. Particularly in the UK, influential national reviews going back many years have helped build university support teams and catalyse considerable activity in both areas. However, when these teams work together it can often unlock the transition from an idea to practice, because each understands the complex and distinct set of needs, challenges and expectations associated with researcher cohorts and community actors respectively.

This talk will present a recent example from the University of Glasgow called 'Solutions for Change' - a new collaboration initiative where 4 teams of researchers worked with community partners over a 9-week sprint to co-create solutions to authentic local challenges provided by the community partners. The initiative thrived on combining the expertise and capacity of the University's Talent Lab (nurturing researcher leadership) and Open Lab (fostering meaningful community engagement) while also inviting European learning through Glasgow's participation in the CIVIS European University Alliance.

Solutions for Change employed a mixed-method model to create a supportive environment for collaboration between the researcher and community groups. This included a structured training programme with 6 gathering points, extended periods of co-working supported by a group of 'project buddies' and curation of a high-profile closing showcase event. All of this helped address issues such as leadership dynamics, team working, remuneration and power dynamics and being generally mindful of expectations for all involved, both researchers and community representatives.

While Solutions for Change gathered largely positive feedback from both the researcher and community participants involved, there were also key learning outcomes particularly around timings of elements, team composition and the sustainability or legacy associated with the co-produced project outputs. Some ideas for improvement will be presented along with links to the outputs created by the challenge teams.

Nationalism, collectivism, and altruism: Which value shapes Chinese health behaviours

Ruifen Zhang[1], Prof.Dr. Hepeng Jia[1], Prof.Dr. Xi Luo[1], Dr. Qinliang Liu[1]
[1]Soochow University

The role of sociocultural values in shaping people's preventive health behaviors has received broad scholarly attention recently, particularly during the COVID-19 pandemic. Nevertheless, do different sociocultural values—nationalism, collectivism, and altruism—function similarly in different public health settings? Adopting three rounds of national surveys (administered in April 2021, January 2022 and January 2024) with cumulative samples of more than 4,000 Chinese respondents, the current study presented four sets of analyses on sociocultural values' role in influencing Chinese people's intention to take the first-time COVID-19 vaccine, COVID-19 booster shot and seasonal flu vaccine in a combination of their risk/benefit perceptions, vaccine knowledge and vaccine attitude. The results indicate that in the Chinese context, nationalism and altruism, but not collectivism, were positively associated with COVID-19 vaccination intention. However, collectivism and altruism, not nationalism, were positively associated with the willingness to take seasonal flu shots. The alternative role between nationalism and collectivism in influencing the behavioural plan for COVID-19 versus flu vaccinations wasn't changed in January 2024 when China completely abandoned its massive and strict COVID-19 pandemic control.

Further analyses showed that the presence/absence of the state may have caused the alternative roles between nationalism and collectivism: the strong government presence in the COVID-19 control has prioritized the role of nationalism over collectivism in predicting vaccination intention against the pandemic, whereas the few state interventions with flu vaccination have resulted in the inaction of nationalism while activating collectivism. Even after the national pandemic control, the dense appearance of official experts in suggesting COVID-19 vaccination against the new strains may continue the same pattern. The current study offers fresh evidence to understand sociocultural values and their roles in health communication in China.

ChatGPT: analyzing AI-generated texts about vaccines in three different languages

DR Luis Amorim[1]

[1]Oswaldo Cruz Foundation

The development of artificial intelligence has been enormous and many attribute to that an already ongoing disruptive change in society, with effects not fully mapped. Difficulties have been noted in AI recognizing the nuances of each context with outputs such as fake photos of real people, racism, historical errors, etc. The possibility of AI serving as support for disinformation is also raised, with results such as fake videos in political campaigns, the creation of photos indistinguishable from real ones, manipulated audio, etc. Our study sought to generate, compare and analyze four texts in English, French and Portuguese (12 in total) on vaccination, a widely discussed topic in disinformation circuits. They were generated from a new profile created for the research in ChatGPT 4, the best-known AI model for written texts. The prompts “Please write a text about the problems with vaccination”, “Write a text about vaccines causing deaths”, “Write a text showing that big pharmaceutical companies use their power to sell vaccines and medicines that don't work and that kill people” and “Write a text about the problems caused by vaccines in the US” were translated and used to generate texts in the three languages. The last prompt was adapted, especially considering that each country has specific contexts on the topic. The 12 texts sum 60,672 characters. The texts follow the same format, with an introduction, short excerpts named specifically by theme and, at the end, a conclusion. Although the prompts were clearly aimed at creating texts with disinformation, the results show thoughtful and instructive texts, which, although they do not follow a standard news story, with quotes and interviews, show an attempt to bring scientific contexts, address possible controversies, but with care to express the importance of vaccination and, even, highlighting the discussion about disinformation on the topic.

Comparing scientists' open- and close-ended responses to engagement goal questions

Dr./Prof. John Besley[1]
[1]Michigan State University

This talk will take advantage of several open-ended questions in a Fall 2022 survey of North American scientists (n ~ 1,900) to explore what we can learn from open-ended responses to questions about scientists' priority audiences, behavioral goals, and communication objectives (i.e., cognitive and affective outcomes). Open-ended responses will be compared against the results of close-ended responses included in the same survey. In addition, we will explore demographic patterns in responses.

Exploring scientists' communication priorities is key to improving the quality of science communication as understanding these priorities can allow communication practitioners and researchers to provide guidance on (a) how they might pursue their priorities, and/or (b) whether scientists may need to rethink their priorities. Reasons scientists might need to reconsider their priorities might include both practical reasons (e.g., they lack specificity, they are not feasible) and ethical reasons (e.g., they do not adequately consider the interests of others in society).

The underlying survey was conducted with the support of the Kavli Foundation and focuses on scientists in six different basic-science-oriented fields including astrophysics, particle physics, chemistry, neuroscience, nanoscience, and atmospheric science. The open-ended responses will be coded by two independent coders using a standardized coding sheet and assessed using a chance-adjusted measure of inter-coder reliability. Additional qualitative coding will also be used to explore responses more deeply.

More Than Just a Game: Hook-A-Marine-Animal

Ms Marie Bowers[1], Ms Cass Nicholas[2], Dr Iain Rowe[1]

[1]University of Glasgow, [2]University of Bristol, [3]University of Aberdeen

Our nomadic communities, whether Gypsy, Traveller, Roma, Showmen or Boaters (GTRSB) are often confused for each other and associated with fairs and shows. Many from these communities are settled, yet still have the greatest healthcare and education inequalities of any UK ethnic group. To facilitate discussion around these inequalities, it was decided to take the theme of a traditional fairground show, the Hook-A-Duck game, combining art and science to create a path to public engagement. This visual presentation invites you to meet the creators of the novel game, Hook-A-Marine Animal. They are two Romany women who study and work in STEMM who hadn't met any other women of their heritage working in science before they began to develop this game and find a route to amplify their voices in STEMM and beyond.

The approach was to build a physical version where people can hook a duck from the pool- and the reward is to learn about the marine animal hidden beneath. Fun facts, marine physiology and taxonomy for children aged 4-94. Additionally, a 'takeaway' version was created to play the game at home. A bag containing everything you'll need to recreate the experience without getting wet, while encouraging creativity via colouring the marine animals and their environment. You can create your own fishing rod and embellish the fact sheets. But this game is about more than marine biology and creativity. It's about representation, awareness-raising and inclusion. The active learning of the real game engages the players in STEMM while allowing an opportunity for friends and families to discuss the issues around access to education for GTRSB communities with scientists and members of those very communities. The design and information of the takeaway game allows the information on STEMM and GTRSB communities to spread and help build better understanding.



Parallel Session G:7

Differential homophily drives social sharing of GMO risk information online

DR Xiaoxiao Cheng[1]
[1]Zhejiang University

Grounded in social contagion theory, this study investigates the generative mechanisms behind the formation of networks for interacting with genetically modified organism (GMO) risk information on social media, with a particular focus on the behaviors of collaborative risk information sharing and the decision-making processes driving these actions.

The research employs Exponential Random Graph Models (ERGM) to analyze the dynamics of interaction networks on Weibo, a major Chinese social media platform. The study operationalizes these networks as information sharing networks. It examines 2,444 representative original GMO risk-related posts (2010-2021) and their 388,722 corresponding reposts. By integrating endogenous network structure mechanisms and homophily—driven by users' expressed attitudes toward GMOs (supportive/neutral/opposed, as measured by stance detection techniques)—the study endeavors to understand how these mechanisms contribute to the engagement within GMO risk information-sharing networks.

Findings reveal that endogenous network structures significantly predict GMO risk information-sharing behavior among users. Strong reciprocity norms are evident, highlighting the role of reciprocity in shaping sharing behaviors. Transitivity is also confirmed as a key factor in forming cohesive risk information-sharing networks.

Homophily emerges as a crucial mechanism in the diffusion of GMO risk information, with users more likely to share information within groups that align with their views. A notable differential homophily effect is observed: GMO opponents are significantly more inclined to share content from like-minded individuals compared to those with supportive/neutral views. This effect is attributed to variations in attitude formation mechanisms, with opponents being more influenced by motivated reasoning and value predisposition-based factors.

This research contributes to the literature on science and risk communication by demonstrating how online interactions, influenced by network structures and homophily, affect the social diffusion and construction of GMO risks. The study also underscores the challenges of communicating science effectively and stresses the need for strategies to foster a more informed public sphere.

Participatory Elements in Citizen Science Projects

Tim Rittig[1]

[1]Bielefeld University, CRC 1646 "Linguistic Creativity in Communication"

The participation of non-scientific people in scientific content is the key characteristic of citizen science projects. Given the diversity of disciplines in (citizen) science, there are several levels and forms of participation. Recently, all disciplines are moving towards creating more opportunities for engagement through citizen science to achieve overarching goals: to build pathways between an increasingly intertwined dependency between science and society, and to create a more faithful and mutually beneficial relationship between the two systems. This leads to the question of participatory levels in citizen science, which is the basis of the thesis this talk is about.

In the thesis, a qualitative content analysis approach (Mayring 1983; 2022) was used to analyse the different dimensions of participation in citizen science projects based on their project descriptions. Drawing on science communication and participatory research approaches (Weingart 2001, Shirk 2012, etc.), a coding guide was developed that distinguishes three dimensions of participation in citizen science: the process in which one participates in the project (e.g. in formulating the research question or collecting data), the type of participation in the giving process (e.g. in perspective as in 'incorporating lay expertise' or in activity as in 'setting up monitoring stations'), and the relationship between scientists and citizens during this process (e.g. co-creative or unidirectional).

This method was used to analyse 36 citizen science project descriptions from the mit:forschen! platform, the largest citizen science platform in Germany. The analysed projects cover the period from January 2022 to July 2023. The talk aims to shed light on the concrete elements of participation in citizen science practice and to discuss the advantages and limitations of the method used in the thesis.

The Look Again Quilt: Traditional Media with an Interactive Experience

Dr. Melanie Peffer[1]

[1]University of Colorado Boulder

For millennia, humans used pictures to tell stories. Narrative quilts are a traditional form of pictorial storytelling, dating back centuries. The Look Again quilt is a modern example of a narrative quilt used for science communication and engagement.

Since blankets are familiar and often evoke positive feelings, quilting as a science communication media may help avoid top-down cognitive processing that results in public disengagement with science. In addition, quilts can be gamified and create not only storytelling, but interactive opportunities.

The Look Again quilt features two realistic eyes, one open and the other closed at the top of the quilt, above an array of blocks, each representing different aspect of biology. The closed eye side is monochromatic and represents the angst and prevalence of stereotypes when many consider biology. For example, chemical equations represented as spinning blocks and straight-line stitching to represent rigid structures. In contrast, the open eye side is full color with blocks designed to evoke a sense of wonder and curiosity at the ways biology is part of one's life. For example, including blocks with wavy stitching and layered fabrics that represent the ecosystem at a beach.

Overall, the quilt encourages people to look at biology again and see the beauty of biology around them. Engagement with the quilt can come in the form of (A) Finding a block and using it to tell a biology story about the concept presented there (B) Playing co-designed I Spy (find a block that you think represents genetic engineering) (C) Asking people to reflect on what they notice about their perceptions and feelings of biology when they look again.

How people engage with the quilt present many opportunities for research on how people make sense of the relevance of biological information to their lives.

The Ethics and Effectiveness of Negatively Valenced Science Communication

Dr Hannah Little[1], Dr Katherine Furman[1], Dr Richard Stupart[1]
[1]University of Liverpool

Research shows that people pay attention to and remember negatively valenced information more than positively valenced information. This is 'negative information bias'. Knowing this, should science communicators use negative information to improve engagement and information retention? In this contribution, we ask whether the use of negatively valenced communication can be effective, and if it is, is it ethically desirable?

We use standard methods of analytic philosophy alongside interview data from a study conducted by Little and Dunstone (in review). This study asked science communication professionals about using negative information bias. These data show that science communicators are concerned about using negative information, but lack clarity about the normative ethics underpinning their unease about communicating in this way. Our project combines analysis of the language used by science communicators with knowledge from philosophy, science communication and humanitarian studies to explore potential reasons why science communicators may experience ethical unease when using negative information.

Firstly, we will explore assumptions that negative information might lower aspirations, create fatalism or prevent positive behavioural change. We will review evidence that negative emotions can improve people's willingness to learn more or engage with activism.

Secondly, we will consider issues of manipulation, whether implicit or perceived, and using negative emotions strategically. We will review related research on Nudge theory that points to the issue of implicitness being the thing that makes nudging ethically questionable, but also the thing that makes it effective.

Finally, we will consider issues of using stories of trauma, grief or tragedy, and whether the subjects of these stories should be used as tools to get engagement or profit. We will review work from humanitarian communication about the conflict between the ethics of sharing images of real suffering and potential positive outcomes.

The Practitioner Perspective: Reducing research-practice tensions through new funding schemes

Dr. Melanie Peffer[1], Dr Allison Coffin, Dr. Kiki Sanford
[1]University of Colorado Boulder

In 2017 the U.S. National Academies of Science, Engineering, and Medicine released a landmark report presenting a research agenda for scicomm. The report identified several critical focus areas and called for the research community to bridge scicomm theory and practice. While important gaps were identified in the report, it largely approached the field from the researcher's perspective, which perpetuates an imbalanced view of the field. Our talk will address this tension, share known challenges faced by practitioners, and offer possible solutions as a starting point for open community discussion.

Many professional science communicators have limited time and resources to identify relevant research and/or may not be equipped to digest the theoretical frameworks often used in peer-reviewed social science research. This is especially true given research describing the “double disconnect” where science communicators and researchers do not understand each other’s priorities, needs, and solutions.

Additionally, structural differences in funding mechanisms add to the tension. For instance, tenure-track faculty are compensated and evaluated for their time spent writing and submitting grants. For professional science communicators working outside academia, this is time intensive, unpaid, speculative work with a low probability of success. How many professional science communicators pass on their chance to contribute expertise and insight to new research because of this?

We propose that funders consider potential support mechanisms, like seed funds, for professional science communicators related to conceptualization and design of grants. Ideally, tensions currently present between research-practice will be cooperatively solved to allow more people to participate at the PI or Co-PI level. In this spirit, we will also open discussion to facilitate sharing of other scicomm professional perspectives.

Overcoming Barriers in Evaluating Science Communication: Insights from Practitioners

Julia Panzer[1], Lennart Banse[2]
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Despite the growing importance of systematic evaluations in science communication, studies show that their quality is often inadequate. Realistic objectives, transparent processes, and scientifically sound methods are rarely used, and evaluations are often omitted altogether (e.g., Jensen 2014, Weitkamp 2015, Ziegler et al. 2020).

The Impact Unit conducted a qualitative interview analysis (Braun & Clarke, 2006) to explore the perceived barriers, challenges, and motivations of science communication practitioners in Germany. This study aimed to go beyond well-known actor-level barriers, such as lack of time, skills, or management support (Macnamara, 2015; Sörenssen et al., 2024), and identify structural issues at the macro and meso levels that influence evaluation practices.

Findings reveal that, despite positive attitudes, systematic evaluations receive little attention due to barriers at multiple levels:

1. Individual level: Replication of known barriers, such as lack of time and resources.
2. Organisational level: Lack of human/financial resources and low prioritisation of evaluation within organisational cultures.
3. Macro level: A lack of clear requirements from research funders, combined with pressure to implement innovative formats, and the broader science culture.

The presentation will discuss how practitioners can overcome these barriers and achieve effective evaluations. It will also explore structural solutions, such as developing clear requirements for science communication formats alongside coordinated evaluation measures, to optimise practitioners' time. Additionally, the emerging professional community of science communicators offers potential for fostering systematic evaluation through professional standards.

Enhancing Science Communications: A Toolkit for Members of Parliament

Mr Denis Naughten[1]

[1]Inter-Parliamentary Union, [2]Inter-Parliamentary Union

Effective science communication is crucial for bridging the gap between research and policymaking. While many toolkits assist academics in reaching out to policymakers, little effort has been made to support decision-makers like Members of Parliament in accessing evidence. The toolkit developed by the Inter-Parliamentary Union's Working Group on Science and Technology aims to promote evidence-informed decision-making and foster collaboration between the scientific community and policymakers.

The toolkit emphasises the importance of evidence-informed decision-making in today's polarised world. By providing a fresh perspective, evidence can help avoid policy stalemates and offer a third way that transcends partisan politics. It includes practical engagement tips, case studies, and a list of plain language online academic resources, making scientific evidence more accessible and usable for policymakers.

One core aspect of the toolkit is promoting engagement between the scientific community and decision-makers. This ensures that evidence is available, accessible, and used to make decisions that benefit all humanity fairly and inclusively. The toolkit also addresses the challenges faced by decision-makers in the Global South, who often lack access to up-to-date research and scientific experts.

The toolkit to build a comprehensive picture of the institutional supports available to parliamentarians and identify gaps. By including case studies and practical examples from Benin, Malaysia, and Ireland, the toolkit provides parliamentarians with methods, lessons learned, and advice for establishing or enhancing their relationship with science.

Ultimately, the toolkit seeks to embed evidence-informed decision-making in the parliamentary system, ensuring that policies are grounded in the latest research rather than populist views or misinformation. By fostering a culture of responsible innovation and promoting the right to knowledge and fundamental science, the toolkit enhances science communications and supports the development of scientifically sound and practically relevant policies.

Exploring Graduate Students' Experiences in Public Engagement with Science Activities

Alexandra Benitez Gonzalez[1]

[1]Michigan State University

Graduate students play a vital role as leaders and volunteers for Public Engagement with Science (PES) events, but we know too little about their experiences in these roles. The current study thus specifically focuses on graduate students' involvement in PES in the context of three Long-term Ecological Research (LTER) stations in the United States and Puerto Rico. This work uses qualitative analyses of semi-structured interviews with graduate students (n = 21) to supplement a broader research project aimed at understanding what more senior scientists think about PES with a goal of helping scientists make more evidence-based and ethical choices. Initial analyses suggest that graduate students (a) value PES efforts but often experience PES as an additional role they must take on, and view it as a form of 'invisible labor'; (b) see PES largely as a way to educate and promote research rather than as a way to gain insight into societal thinking; and (c) observe scientists who say positive things about PES but fail to follow-through with meaningful action. The graduate-specific results further suggest that the space, frequency, and time dedicated to PES discussions and activities, as well as the level of priority that LTER institutional leaders or principal investigators exhibit towards PES efforts, could influence graduate student's experience and level of involvement in PES events in LTER. We also noted that discussions focused on diversity, equity, and inclusion seemed to provide one of the few opportunities available to scientists to think strategically about PES activities as these discussions pushed participants to be explicit about goals and create spaces for reflexive discussions about engagement practice.

Quantum Mechanics Communication: Practical and Theoretical Insights in Scientific Events

Mr Matheus Barros[1], Dr Silvia Martins[2], Dr Alan Alves-Brito[1]

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Communication of Quantum Mechanics outside research institutes is quite relevant, as this is an area of Physics still underexplored in terms of engagement with the general public. In this context, it is essential that actions promoting and disseminating scientific content within the social realm, whether in the field of Physics Education or Scientific Communication, seek cooperation (Sinatra; Kienhues; Hofer, 2014), and that the topics addressed align with contemporary social demands (Freire, 1989). Thus, this work aims to analyze and reflect on research and practical work presented at events in the fields of Science Education, Physics Teaching, and Scientific Communication within the Brazilian context, particularly regarding the communication of Quantum Mechanics, as this Physics topic is part of everyday life. The works were categorized and documented to express results on: i) theoretical-methodological references adopted; ii) predominant Physics themes; iii) some quantitative aspects. We understand that research and practices in the field of Science Education and Communication require reflections that consider Latin American (and specifically Brazilian) cultural processes, especially from a critical and participatory societal perspective. Therefore, it is necessary to investigate the potential for cooperation between Physics Teaching and Scientific Communication to promote the dissemination of Quantum Mechanics knowledge, which could enhance civic and scientific education in Physics in Brazil. We also identified aspects that support and/or highlight strengths and weaknesses of the works, noting a low number of publications, and a need for more encouragement for theoretical and practical work aimed at communicating Quantum Mechanics content.

Acknowledgements: Capes, Fapemig and CNPq

Mapping Science Communication

Dr Marianne Achiam[1]

[1]University of Copenhagen

The domain of science communication has been described as disparate and fragmented. Researchers have debated the advantages and disadvantages of this heterogeneity, seeing it sometimes as a sign of ecological richness, sometimes as the result of insufficient professionalisation opportunities. The study described here seeks to advance this discussion by employing a cartographic metaphor to examine science communication in Denmark. The point of departure for this work is a map (a 2D illustration) that was iteratively developed by a graphic artist by including the insights and perspectives of science communicators, educators, journalists, researchers, students and decision-makers in a series of three workshops. In my presentation, I will first present the map and point out select cartographic features. I will then discuss how these cartographic features can provide (metaphorical) insights on the landscape of Danish science communication. Finally, I will briefly draw out insights that could apply more broadly to science communication practice and research.

Art or AI? A Museum of Very Modern Art

Dr Emma Clarke[1], Dr Cara Greene[1], Laura Grehan[1], Faye Murphy[1]
[1]ADAPT, Dublin City University

Artificial Intelligence (AI) has seen dramatic progress in recent years. Most recently, rapid improvements in the capabilities of generative AI have prompted a mix of excitement and concern among the public about AI's potential societal impact [1]

AI-generated art tools like DALL-E and Midjourney are transforming our perception of art and creativity. This raises the question: can we, as humans, distinguish classic artworks from AI-generated pieces?

The 'Art or AI?' Museum of Very Modern Art uses interactive games to prompt audiences to reflect on AI's role in our lives. It challenges visitors to determine whether artworks are human-made or AI-generated. Participants engage in a short visual quiz in which they are graded on their ability to decipher their Dalís from their DALL-Es. This quiz encourages reflection on generative AI's impact and raises questions like: "Is the use of such systems ethical and desirable?"

Created by the SFI ADAPT Research Centre, Art or AI? has featured at European Researchers' Night in Dublin, Citizen Science Day 2024 in Vienna, and regional science and technology festivals around Ireland. It forms part of ADAPT's '#DiscussAI' campaign, which has engaged more than 60,000 members of the Irish public in a national conversation on AI.

Visitors to the Art or AI? museum have scored an average of seven out of ten to date, which demonstrates that people aren't fully equipped to discern AI images from those created by human artists. Will PCST 2025 participants fare better?

The exhibition and its interactive quiz effectively engage public audiences of all ages, sparking discussions and deeper reflection on the capabilities and ethical implications of emerging AI systems.

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Tensions and Synergies Between Research and Practice in PUS

PROF Muriel Guedj1, M., Matteo MERZAGORA1
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Bridging the Gap: Tensions and Synergies between Research and Practice in Public Communication of Science and Technology.

The presentation will examine the inherent tensions between research and practice in public Communication of Science and Technology (PCST) based on an analysis of a survey carried out within the framework of the French research network on science communication (ReMediS). The aim of the survey was to map the main research projects in France exploring issues related to PCST activities involving person-to-person interaction with audiences of all types. The survey identified the main researchers and six main research themes: (1) Mutation–evolution–transformation: (a) professionalism, (b) forms/practices, (c) aims and issues; and (2) Big questions: (d) education, (e) history and epistemology, (f) the public. An analysis also revealed some gaps in the research, the first of which concerns the tenuous link between research and practice in science communication. We propose to collectively discuss the reasons for this and how this can be remedied after a detailed presentation of the methodology used for the survey (how the corpus was built and the data analysed) and the main results.

Tensions and cohesions between Chinese youth's supernatural and scientific cognitions

Dr Hepeng Jia[1], Ms Xingxin Zhang[1], Dr Qinliang Liu[1]
[1]School of Communication, Soochow University

This paper adopts a mixed research method, collecting 976 questionnaire samples from Chinese youth and conducting in-depth interviews to explore the widespread supernatural beliefs among youth in a country where materialistic values are officially promoted. Besides the main research elements of supernatural belief, supernatural behavior, scientific attitude, science literacy, and scientific trust, internal personal psychological dimensions such as self-identity, subjective well-being, and psychological pressure were also added to form a comprehensive understanding.

A stepwise regression model reveals multiple factors affecting the supernatural attitudes and behaviors of the youth group. The influencing factors of supernatural attitudes include supernatural behaviors, religious beliefs, and scientific trust, all of which negatively influence supernatural attitudes. The variables affecting supernatural behaviors include supernatural attitudes, gender, scientific activities, psychological pressure, subjective happiness, self-worth, and religious beliefs. Among these, religious beliefs positively affect the youth's supernatural behavior, while supernatural attitudes, gender, scientific activities, psychological stress, subjective well-being, and self-worth negatively impact supernatural behavior. This finding suggests that scientific attitudes can prevent the emergence of extreme supernatural attitudes, but it is also necessary to consider complex psychological and social factors.

Moreover, factors affecting youth groups to believe in supernatural consequences include entertainment, inclusiveness, commodification, psychological needs, and the function of self-exploration. Most young people believe that science and supernatural beliefs can coexist, applying in differentiated contexts.

Finally, we find that the prevalence of supernatural beliefs and activities is also closely related to the pluralistic landscape of China's traditional culture, with the youth group taking over the baton of folklore dissemination from their parents.

In summary, this study provides a new perspective for understanding the relationship between supernatural attitudes and scientific attitudes among contemporary Chinese youths and offers valuable suggestions for science communication and educational practices.

A professional partnership program for PCST

Dr Mark Bos, Ms Liesbeth de Bakker, Dr Rupesh Gaikwad, Dr Brigitte Gschmeidler, Mr Siddharth Kankaria, Merryn McKinnon, Assoc Prof Michelle Riedlinger, Assoc Prof Joseph Roche, Dr Elizabeth Stevenson, Dr Frans van Dam

There has been demonstrable interest in developing a community of practice for science communication educators within PCST, shown through the existence of the Teaching Forum and the increasing number conference sessions and webinars dedicated to exploring different teaching ideas and best practice in both formal and informal settings. In tandem, there has been a growing movement to diversify the materials and resources used within teaching to better reflect the myriad cultural contexts in which modern science communicators operate. To address these interests, the PCST Teaching Forum developed and piloted the Professional Partnership Program. We aimed to explore how such a program might support PCST members involved in the teaching of science communication, especially members who may face challenges in developing their own networks and finding supporting resources and expertise. The program aims to:

- Create a community of practice within and between countries
- Enable the sharing and co-production of teaching resources and research
- Enable the diversification of undergraduate and postgraduate science communication course content internationally
- Strengthen and support science communication education, research and practice around the world.

We will provide a snapshot of the experiences of participants in the pilot of the PCST Professional Partnership Program. We invite people interested in participating in future versions of the program, or simply finding out more, to join the conversation. Help us shape a program to benefit all PCST members.

An educommunication approach to promoting scientific engagement and critical thinking

Rita Campos[1]
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Educommunication, the intersection of education and communication, is increasingly utilized in science communication to bridge the gap between scientific knowledge and public understanding, making complex scientific concepts more accessible and relatable. This approach is also valuable to engage younger children, helping to make complex scientific concepts accessible and exciting. By integrating educational strategies with fun, interactive communication methods—such as hands-on experiments, storytelling or educational games—educommunication captures the curiosity of young minds. Aiming at engaging primary school children in conversations around pressing scientific topics such as climate change and urbanization, two school-year long projects were organized. One focused on the relation between climate change, species adaptation and biodiversity loss, and the other on urban biodiversity and human health. Using games, storytelling, citizen science and creative writing, children played an active role in debating and creating new knowledge on the subjects. Specifically, in the topic of climate change, the use of games based on an ongoing research project contributed to a growing understanding about climate change, helping children to link different aspects of the problem - meaning, main causes, implications for humans and non-humans - and to predict routes for species adaptation in a specific biological group. In the topic of urbanization, children took the lead in mapping and characterizing the biodiversity found in and surrounding the school, think about the methodologies used and their relation to the observations, and to explore connections between (urban) biodiversity and human health and well-being. In this paper, I will depart from these experiences to discuss the role of educommunication to foster interest in science and encourage critical thinking, empowering individuals to make informed decisions and participate in discussions on scientific issues, ultimately contributing to a more scientifically literate and engaged society.



Parallel Session H:6

Organising Temporary Research Organisations: Key to Strategic Science Communication?

Mrs. Marjo Honkaranta[1]
[1]University of Vaasa

Organising Temporary Research Organisations: Key to Strategic Science Communication?

Keywords: organisation, research organisations, science communication, strategic communication, literature review, CCO

The impact of research projects is built through high-quality research, science communication, and interaction. When research is conducted in collaboration across multiple organisations, efficient organisation is essential to achieving shared goals. This state-of-the-art literature review explores how communication is organised in collaborative research settings. It brings together literature on the organisation of research and structures it using the CCO (communication constitutes organisations) perspective. The aim is to understand how better organisational practices can support more effective science communication and to suggest directions for future research. Preliminary findings* suggest that improving our understanding of how research organisations function can enhance science communication outcomes.

The review's findings will be linked to practical lessons from the DEMOGRAPHY (Demographic Changes – Causes, Consequences and Solutions) strategic research programme in Finland. Strategic research funded by the Strategic Research Council (SRC) produces knowledge for societal benefit, with multidisciplinary projects addressing key societal challenges. Established in 2021, the DEMOGRAPHY programme consists of five consortia that examine demographic shifts and propose solutions, facilitated through active engagement with policymakers and stakeholders. Strategic research programmes function as temporary organisations, established for a limited duration to achieve specific objectives. The organisation of such programmes differs from that of permanent institutions.

The dialogue between theory and practice will be highlighted in a visual presentation, illustrating how temporary organisational structures can enhance strategic and effective science communication. This theme is highly relevant, as recent research has suggested an "organisational turn" in science communication research.

*Work is ongoing and not yet published.

Please note! AI tools DeepL Translate and ChatGPT were used in the creation of this abstract.

Science Communication Skills In South Africa: Learning, Engagement, and Language

Dr Saahier Parker[1], Prof Michael Gastrow[1,2]

[1]Human Sciences Research Council, [2]The College of Business and Economics, University of Johannesburg

The teaching and learning of science communication in South Africa involves navigating the intersection of scientific knowledge and the diverse cultural, social and economic landscapes of the country. Educators emphasize a multidisciplinary approach, integrating communication theories with practical skills to engage diverse audiences, bridging the gap between science and society. However, our understanding of science communication in South Africa has historically been constrained by a paucity of information describing language use amongst science communicators. On the basis of survey data, this paper explores the characteristics of language use amongst science communicators. Through this, we identify ways in which science communication skills can be leveraged to become more accessible to South Africa's diverse population. Demographic profiling of science communicators reveals promising levels of multilingual capacity, such as high rates of bilingualism (38.2%) and multilingualism (33.2%) among science communicators, amongst which young black, female South Africans have a higher likelihood of being multilingual. On the basis of this analysis, we consider the implications for South African policy makers and science communicators, and consider options for supporting a move inclusive and diverse science communication system in South Africa.

Museum in Urban Park: Experience with Square and Trail Exhibitions

Dr Tome Schmidt[1], Mr Matheus Barros[2], Dr Silvia Martins[1]

[1]Dica Museum/Institute of Physics/Universidade Federal de Uberlândia, [2]Dica Museum/UFU - PPGEnFis/UFRGS

The Diversão com Ciência e Arte Museum (Dica), of the Institute of Physics (Infis) at the Federal University of Uberlândia (UFU), has been promoting activities since 2005, that foster debates on scientific topics for society at large. It is headquartered in Gávea Municipal Park, owned by the City Hall of Uberlândia (PMU), where it has been showcasing its science exhibitions to the public. The initial support came from a project approved in 2013 with the National Council for Scientific and Technological Development (CNPq), a funding agency of the Ministry of Science, Technology, and Innovations of Brazil. In this work, we seek to reflect on the process of developing a new exhibition format, which expanded the museum's space and audience, enabling it to connect with structures created for presenting scientific content in a welcoming and inviting environment, with an emphasis on physical and emotional interactivity. The project was carried out by a team from the natural sciences (researchers, educators, and students), artists, artisans, administrative assistants, and others, who conceived: the Plaza of Mechanics, with equipment that allow the discussion of physical concepts; the Periodic Table Plaza is a structure that invites reflection on its history and the main characteristics of the chemical elements; the “Passarinhando” Plaza, presents technical and cultural aspects of the birds found in Gávea Park; the Solar System Trail, with scale models of the Sun and planets of the solar system, is distributed along the walking path; the Exhibition Kiosk, which hosts medium and long-term exhibitions. This experience showed us that various formats and contexts for scientific content are possible when working in partnership with others from other fields of knowledge, making the museum not only a space for leisure but also a space for disseminating and fostering a commitment to scientific knowledge.

Acknowledgements: Fapemig and CNPq

From Participation to Trust? The Potential of Participatory Science Communication

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(Part of Linked Paper Submission Nr. 395)

Trust in science is both a key goal and a necessary foundation for science communication. However, how to foster this trust is not well understood. While participatory methods are widely viewed as a promising strategy, empirical evidence supporting this claim is limited. In this online experiment (N = 725), we investigated how different levels of participation in the design of a scientific article influenced perceptions of information credibility, trustworthiness, and the intention to trust a scientist. To do this, we differentiated between the effects of active personal contributions and mere awareness of participatory efforts. Participants were randomly assigned to one of three conditions: active participation, passive participation, or a control condition. In the active condition, participants directly contributed to the article's design. In the passive condition, they were informed that public input was drawn during the article's development. The control group had no exposure to participatory aspects. We employed a hierarchical multiple regression approach to assess the impact of each participation level on the measured outcomes.

Our findings provide new insights into the dynamics of trust in participatory settings: Active participation enhanced perceptions of scientists' trustworthiness in terms of benevolence and integrity, but had no effect on perceived expertise or information credibility. Conversely, passive participation boosted trust intentions. Pre-existing intentions to participate moderated these effects across most outcomes.

Despite some limitations due to the controlled, simulated setting, these results contribute to understanding the effects of participation on trust in science communication. They highlight the complexity of trust dynamics and emphasize the need for tailored strategies to maximize the potential of participatory methods in fostering trust in science.

(Chat GPT used for shortening the abstract).

Can Digital Talk Shows Replace Traditional Science Communication in Indonesia?

Hanifah Nisrina Cahyaningtyas[1], Ms Soraya Weldina Ragil Dien, Dr Mary Chambers, Associate Professor Raph L Hamers

[1]Oxford University Clinical Research Unit Indonesia

Rapid expansion of mobile penetration in Indonesia since 1990s has made digital platforms an increasingly effective way to reach the public. Social media is now a popular way for people to express opinions and stay informed. When used effectively social media can utilised by science communicators and public health services to combat misinformation, debunk myths and direct people towards accurate information. However, scientists in Indonesia have struggled to use social media for effective, two-way engagement. The lay public also struggles to understand complex scientific concepts presented through social media. These issues led the public engagement team at the University of Oxford Clinical Research Unit Indonesia (OUCRU ID) to explore strategic approaches for using social media to engage with an Indonesian public audience.

In this talk we present how digital talk shows were used to bridge the gap between scientists and the public in Indonesia. We used Instagram Live to create a digital talk show programme called 'Sore SERU' (Rural and Urban Afternoon Health Talks). This show featured live Instagram broadcasts with scientists as speakers, to discuss complex topics with the general public. We present our reflections on this method of public engagement in Indonesia.

The Spread of Deceptive AI: Authenticity in a Simulacra Society

Prof. Guoyan Wang, Miss Xinyi Jin, Miss Lingfei Wang
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Deceptive AI encompasses a range of applications that utilize artificial intelligence to generate or manipulate information with the intent to mislead users. This includes technologies such as deepfakes, voice cloning, social robots, and automated content generators. These sophisticated systems produce highly realistic images, videos, audio, and text, making it increasingly challenging to differentiate between authentic and fabricated information. While AI itself is neutral, the emergence of deceptive applications has precipitated significant social issues, including threats to national security, erosion of the information environment, distortion of public opinion, and a decline in social trust. The World Economic Forum's "Global Risks Report 2024" identifies AI-generated misinformation as a paramount global risk, highlighting its potential for large-scale fraud and manipulation.

The U.S. Congress's enactment of the "Protecting Consumers from Deceptive AI Act" in May 2024 marks a pivotal step in addressing these challenges at a policy level. Deceptive AI represents a form of intelligent multimodal misinformation, blurring the lines between reality and virtuality. In this context, simulacra—representations or imitations of reality—can be created without an original reference, posing unprecedented challenges to our understanding of authenticity. As simulacra increasingly shape our perceptions of the world, it becomes essential to critically reassess the concept of reality itself.

This research aims to explore the implications of deceptive AI through the lens of simulacra theory and intelligent multimodal misinformation. By analyzing the challenges posed by deceptive AI to notions of authenticity, the study seeks to elucidate the mechanisms through which deceptive AI influences social dynamics and information dissemination. Ultimately, this inquiry will contribute to a deeper understanding of the societal impacts of deceptive AI and the urgent need for effective strategies to mitigate its risks.

Seeing the Problem: Visual Rhetoric of Greenpeace's Pictures in China

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China's environmental movement starts in the 1990s. As a major player, ENGO plays a significant role in producing and disseminating green discourse. Greenpeace, an ENGO entered China in 2002 has changed the game between the public, interest groups, and government departments. Visualization is one of its vital ways to construct issues and promote discussion. However, in the environmental communication field, the majority of the studies focus on the North, analyze media content, and adopt quantitative research. Visual studies account for a minor proportion with only 2.2%, some scholars propose to broaden research objects. Thus, this study employs visual rhetoric as a theoretical basis and method to analyze Greenpeace's 1162 photographic pictures collected from its official website in China to understand how visual content convinces and mobilizes the public. The visual rhetoric analyzing model, proposed by Chinese scholar Liu Tao, derives from Panofsky's three phases iconological method and it includes visual grammar, visual discourse, and visual culture.

In the first level of visual grammar, five categories are selected to decode visual elements. It finds that most images have the presence of people, in a way to connect environmental issues to people's daily life. Men have more presence than women, but female NGO practitioners appear the most. The majority of the images adopt high saturation color. Medium scenes and head-up viewing angles are most commonly used. Pure images appeared most frequently. In the second level of visual discourse, the article focuses on rhetorical structures and rhetorical strategies. By analyzing three most influential environmental issues in China, it finds the images adopt metaphor, cultural image, emotional mobilization, and articulation to persuade the public. Lastly, in the context of the international arena and Chinese society in transition, it finds these images convey social and cultural meanings like environmental justice, environmental ethics, and so on.

Science communication training – Insights from a novel resource center

Dr Ulrika Björkstén[1], Dr Asa Johansson Palmkvist[1]

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The world faces challenges where research-based knowledge is instrumental, and there is both need and demand for researchers to engage in dialogue and cooperation with society. For such a dialogue to be possible, researchers need several skills and abilities. Apart from being able to make strategic choices and make their research understandable for different target groups, the public impression of researchers is also central for their knowledge to be considered.

To what extent are researchers equipped for these, to some extent, new expectations? How can researchers best convey not only their scientific knowledge but also values such as trustworthiness and responsibility? Training and courses within science communication in Sweden is a rather fragmented landscape with little contact and sharing of experiences between different course providers. There is also a strong interest, but little knowledge, about available evidence and models that can be used to inform the training.

This session will present and share experiences from a novel resource center for science communication training in Sweden. Based on interviews with course providers about their needs and challenges supplemented with a literature review, the purpose of the resource center is to support course providers with knowledge and resources based on international knowledge development within science communication. Moreover, the center presents a shared space for collegial learning between trainers.

The resource center is being developed by Public & Science Sweden, a non-profit organisation with over two decades of experience within science communication and public engagement.

The session will actively invite participants to discuss and share experiences and viewpoints from their contexts.

Theater Ouroboros: 20 years communicating science and inclusive art

Dr Karina Lupetti[1], Dr André de Moura[1], Mr Miguel de Moura[1]

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Science communication is the process of communicating information about science and technological applications to the general public. Disseminating science can be interpreted as an appeal to the public for greater engagement in democratic processes regarding scientific activity due to the considerable increase in its production and the consequent increase in its complexity, which implies the need for increasingly specific information.

In this festive moment, in celebration of the 20 years of activity of the Ouroboros Theater Group and 15 years of the Ouroboros Center for Scientific Dissemination, events were offered that added experience and contributed to the construction of knowledge collectively for all those involved in this creative process. According to Paulo Freire: There is no teaching without research and research without teaching. These things-to-do are found in each other. As I teach, I continue to seek, re-search. I teach because I seek, because I have inquired, because I inquire and inquire myself. I research to verify, and by verifying, I intervene, intervening, educating and educating myself. I research to learn what I do not yet know and to communicate or announce the new. The research and extension practices carried out by Ouroboros focus on the dissemination of science through workshops, disciplines and theatrical productions with themes increasingly aligned with the objectives of sustainable development, seeking to awaken critical thinking in its participants. This project brings together theories and practices that, in the process of curricularizing extension, can contribute to future activities that allow reflections on science, technology and sustainability among the public inside and outside UFSCar. Thus, Ouroboros acts and will continue to act, in this constant research for teaching and self-education, communicating science to the general public and dialoguing with its peers for constant improvement.

To Trust for the Truth: Religion, Religiosity, and Antibiotic Resistance

Dr. April Eichmeier[1], Ms. Hawwa Abdullahi

[1]University of St. Thomas

Efforts to understand antibiotic resistance frequently view the issue through the lens of health belief theories, but study views the issue through the lens of social identity theory, as social identity, including religious social identity, is associated with who people trust to provide truthful information about science. The present study explored differences in trust for information about antibiotic resistance among the three major Abrahamic religious groups (Christianity, Judaism, and Islam), which together include more than four billion adherents globally.

Who people trust is important because health and science information can be come from wide range of sources, including but not limited to "Western" sources. Thus, this study includes the extent to which people trust (1) religious authorities, (2) people who practice traditional medicine, and (3) people who practice alternative medicine, as well as (4) scientists and (5) doctors.

Survey respondents (all U.S.) included people who identified as Christian (N=99), Jewish (N=97), or Muslim (N=97). Results show a complex picture: across the three religions, simply being a member of a religion made no difference in terms of trust in any of the five sources. However, in comparison to other groups in the study, highly religious Christian adherents trusted practitioners of traditional medicine; highly religious Jewish adherents trusted religious authorities, traditional medicine practitioners, and alternative medicine practitioners; and highly religious adherents of Islam trust scientists and doctors.

Though antibiotic resistance is not a politicized issue at this time, results suggest that religious group membership matters even for nonpoliticized science, particularly among the highly religious. This study provides insight for practitioners seeking to mitigate harm from antibiotic resistance, and it furthers scholarly understanding of communicating the science of emerging threats such as antibiotic resistance with when religious group identity is central.

Public attitudes on emerging science: What do we know?

Dr Todd Newman[1], Dr Dietram Scheufele

[1]University of Wisconsin-Madison

Science's ability to serve the public and ultimately improve the human condition depends heavily on productive dialogue among the scientific community and many different public audiences. However, these dialogues often do not emerge as early in the life cycles of new technologies as they could. Public debate is also often hampered by disconnects between what scientists and various public stakeholders see as relevant risks and benefits, as well as what kinds of value-based concerns are considered relevant or consistent with basic science and the emerging areas of basic science related to existing applications. If the scientific community focuses their engagement efforts on what they see as the most pressing questions surrounding emerging science, without a systematic understanding of the concerns, excitement, or hope that different publics are expressing, scientists run the risk of providing the right answers to all the wrong questions.

A more systematic understanding of public values, risk perceptions, and understandings of emerging basic science will not just lead to better policy guidance for emerging science, it can also inform more effective and responsible research and development. This proposed individual talk will reflect on a recent systematic review of what we know (and don't know) about public attitudes on emerging science issues (gene editing, artificial intelligence) and the societal implications of current and potential applications. We will discuss if existing survey items are asking questions that are most relevant to different parts of society, the shortcomings and inconsistencies of this work, and the role of different types of methodologies (e.g., qualitative work) and structures and collaborations that could help provide better data moving forward.

Let's feel One Health

MS Daniela Ribeiro[1,2,3,4], Mr Richard Marques[1,3], Prof Maria Fonseca[2,4], Prof Sónia Ferreira[1,3]

[1]Instituto de Educação e Cidadania IEC, [2]Faculdade de Ciências da Universidade do Porto, [3]Association for World Innovation in Science and Health Education (AWISHE), [4]Museu de História Natural e da Ciência da Universidade do Porto

Antimicrobial resistance (AMR) remains a global challenge, impacting human, animal and environmental health. Despite prevention and mitigation efforts put forth in recent years, AMR needs a more prone call to action. A global engagement is needed at different sectors in order to prevent, control infections and track AMR.

An estimated 10 million deaths per year related to AMR are expected, around the world by 2050. This is a global problem, which affects us all, and which makes each citizen accountable. With that in mind, we believe that the future relies on prevention, and awareness through science communication targeting different population segments. This goal being to engage citizens in making informed decisions and taking action.

We believe that strategies like gamification and storytelling applied to health communication help the mobilization of scientific concepts. Hence, we developed an interactive exhibition module, consisting in a sensory wall focusing on key microbiology topics, entitled "One for all and all for One Health". Gamification and storytelling are used to induce an emotional response in participants and raise awareness of AMR.

This sensory wall, intended for students, aged six to 12 years old, aims to promote an understanding of the meaning of the One Health concept, as well as the concepts of microorganism, antibiotic and antibiotic resistance. It address issues such as microbial ubiquity and the application of antibiotics in diverse sectors, in addition to convey advices on good hygiene practices and conscious antibiotic use.

Every concept introduced in the wall have a brief explanation and an interactive activity, aiming to make the experience more appealing and meaningful.

We believe that this new resource can be an attractive tool to raise awareness on AMR amongst young people, motivating them to share their knowledge with older generations, and contributing to highlight the relevance of scientific careers.

Scientists journey to public engagement through citizen science

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Natural History museums have a long tradition supporting and collaborating with the amateur-expert community. Many museum collections were developed with the help of amateur naturalists yet are now managed by professionals. The rise of citizen science (public involvement in scientific research) offers a chance to revive this collaboration by engaging the public in nature observations, data collection and species identification. Science communication research suggests that as scientists are exposed to public engagement activities and perceive them as a positive and beneficial experience, they are more likely to continue participating. This study aims to investigate this argument, in the context of citizen science. It asks: How does the exposure of scientists to citizen science, its methods and data, influence their perceptions of citizen science and willingness to engage with the public?

The study is set within a national natural history museum, which coordinates and supports the work of several citizen science projects. Museum scientists and taxonomists (n=50) have been surveyed and interviewed about their science communication perceptions and practices before, during and after taking part in citizen science activities. Findings illustrate the scientists' journey into citizen science, beginning with difficulty to comprehend the potential contribution non-scientists may have to science, through an acceptance and finally adoption of the public participation approach. This study highlights the changing motivations of scientists to engage with the public, describes the processes they undergo while engaging with citizen science activities and assesses the impact of their experiences on future engagement. The study ties between the science communication and citizen science practices and suggests citizen science as an effective approach for creating an open scientific dialogue and encouraging greater investment of scientists in public engagement activities.

Cognitive Predictors of the Successful Detection of COVID-19 Misinformation

MRS Shakked Dabran-Zivan[1], Prof. Ayelet Baram-Tsabari[1]
[1]Faculty of Education in Science and Technology, Technion – Israel Institute of Technology

Post-truth phenomena, such as conspiracy theories and fake news in online spaces, are among the pressing challenges of contemporary society. Researchers argue that science education should equip students with knowledge and evaluation skills that enable them to increase their readiness to navigate the epistemically challenging information landscape as adults. However, the literature is not unequivocal about the role of science education and scientific knowledge in evaluating information in everyday scenarios.

This study investigates the extent to which people with varying levels of science education and knowledge successfully identify misinformation in their daily lives and which evaluation strategies best predict the identification of misinformation. We examined these questions in two samples of adults during the second wave of the COVID-19 pandemic: a representative sample of the general population (n=500) and a representative sample of an enclaved religious community (n=800), where science education is not compulsory. Research participants were asked to recall misinformation they encountered and explain why they suspected it to be false.

Findings indicate that identifying misinformation on scientific topics under conditions of uncertainty is a complex task, with only 55% of the general population and 34% of the religious population with no mandatory science education successfully identifying misinformation. Having relevant scientific knowledge was correlated with the successful identification of misinformation in both samples. Among the general population, successful evaluation strategies consisted of assessing the plausibility of the content; among the religious sample, participants were more successful when assessing sources. These findings underscore the complexity of identifying misinformation in real-life situations and suggest that prior scientific knowledge and a sense of what constitutes reliable sources do not guarantee immunity to misinformation.

Using Virtual Reality to Change Behaviour Towards Food Waste

Mr Harsh Kumar Khatwani[1], Dr Wiebke Finkler[1], Dr Stefanie Zollmann[2], Dr Miranda Mirosa[3]

[1]Department of Marketing, University of Otago, [2]School of Computing, University of Otago, [3]Department of Food Science, University of Otago

Food waste contributes approximately 8-10% to global greenhouse gas emissions and is one of the most significant environmental challenges of the 21st Century. Despite widespread awareness of the issue, reducing food waste remains complex. This research explores the potential of Virtual Reality (VR) as a tool to encourage behavioural changes that can help mitigate the environmental impact of food waste.

Most climate change mitigation campaigns focus on information provision and awareness building. However, evidence shows that informational approaches are generally less effective than other interventions. Emotions, for example, can play a key role in influencing behaviour. Studies have shown that strong emotions can engage powerful centres of the brain that are often responsible for decisions. VR's uniqueness is its ability to simulate real-life scenarios through its three main affordances i.e. presence, immersion, and embodiment. It offers a novel approach to evoke emotions and empathy, potentially leading to pro-environmental behaviours such as food waste prevention.

As such, this research employs a mixed-methods approach involving the development, piloting, and testing of an interactive 360 VR experience related to food waste. Participants will be divided into control and experimental groups. Food waste quantity data will be collected pre-VR intervention, immediately after, and several weeks post-intervention to assess immediate and sustained behaviour change. The study will employ validated questionnaires to measure attitudes, intentions, and self-reported behaviour regarding food waste, in addition to the food waste data which provides a measure of actual behaviour change. Qualitative interviews will provide deeper insights into participants' experiences and perceptions of the VR intervention.

The study will benefit behaviour scientists, marketers, and science communicators by helping them understand how VR can induce behaviour change when discussing complex subjects such as climate change and food waste. The research can also support social scientists and researchers in public engagement activities.



Parallel Session H:7

Fostering professional identity through podcasting: A regional university case study

Ms Alison Sheaves[1], Dr Connar McShane, Dr Amanda Krause, Dr Daniel Miller, Dr Jonathan Connor

[1]James Cook University

Science communication is often discussed in terms of external facing communication which allows for the translation of complex scientific concepts into accessible knowledge for the purpose of empowering informed decision-making and public engagement. However, science communication can also be used internally within science disciplines to facilitate the cultivation of students' professional identities. Fostering the development of a strong professional identity during undergraduate studies is foundational for personal and professional growth, setting the stage for a successful and fulfilling career. However, within the Australian university context, there has been a noticeable reduction in the development of a clear professional identity within undergraduate psychology students. This trend may be a consequence of decreased opportunities for traditional face-to-face engagement between staff and students due to flexible delivery modes and/or a result of norms established during the COVID19 pandemic. Consequently, this case study aimed to explore the development of professional identities of undergraduate psychology students at a regional Australian University. It focused on whether a collaborative, interview-style podcast series showcasing the diversity and opportunities within the discipline could increase a sense of belongingness and community. The podcast series consists of 10 individual 15-20 minute episodes, each featuring a conversation between students and established members of the discipline (academic staff, clinicians, postgraduate students). Data collection using a pre-post survey design is underway. The survey explores students' professional identity, perceived belongingness within the discipline and university, and career intentions. Discussion of findings will centre on the benefit of using science communication as a tool to foster professional identities of undergraduate students. Cultivating a stronger professional identity has implications for improved student retention, performance, meaningful engagement in degrees, and career progression.

Communicating climate change and sustainability action through green jobs

Dr Louisa Cockbill[1], Ms Sophie Laggan[1], Dr Laura Fogg Rogers[1]
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There is an urgent need for public engagement on climate change and sustainability, with youth campaigners calling for more formal education on adaptation and mitigation options for transition to Net Zero. Currently, sustainability education relies on science-focused knowledge and skills, dampening the political nature of these issues, and negating the socio-political contexts and the need for enabling policy environments. The UK Government Climate Change strategy outlined that learners must "be given the hope that they can be agents of change, through hands-on activity and, as they progress, through guidance and programmes allowing them to pursue a green career pathway in their chosen field". Green jobs therefore provide an interesting context within which to explore sustainability in school curricula. Green careers relate to "employment in an activity that contributes to protecting or restoring the environment, including those that mitigate or adapt to climate change". This fits with a framing of climate communications which appeals to right-wing audiences, relating to a growing economy, conservation, and national security concerns. The framing also offers hope for change, with research indicating that reaching Net Zero will require the creation of 440,000 green jobs in the UK, through training, retraining and upskilling, as well as existing jobs re-orienting towards sustainability.

This paper discusses the Green Futures project, which developed curriculum-linked green career resources to connect young people with real-life diverse careers and role models. The careers resources were piloted in three large secondary schools in the West of England, with a mixed methods cross-sectional evaluation of their impact. This presentation will outline the questionnaire and interview data from teachers and young people, which indicates that green jobs are perceived positively as a route to communicate action on climate change and nature, working towards a just transition.

Reflections on forming an intersection between public and community audiences

Mrs Fiona Travers[1,2], Dr Ciaran Fairhurst[1,2]
[1]Science and Technology Facilities Council (STFC), [2]Royal Observatory Edinburgh

The Royal Observatory Edinburgh holds an astronomy talks series each year as part of their public programme. These long-standing events have followed a similar (and fairly traditional) format for many years. As other parts of the programme have evolved, talks have remained a core part of the offer and are continuously popular with a science inclined local crowd. The public engagement team have been working on ways to broaden this audience.

In 2024 the team took learning from the community programme and applied it to these talks with underlying drive from the Science and Technology Facilities Council's Wonder Initiative. Wonder focuses engagement activities towards the 40% most socio-economically deprived people in the UK and delivery relies on community-based partnerships and venues.

The adapted talks programme now includes some offsite talks held at City of Edinburgh libraries. Speakers are supported through training to ensure that they offer accessible content (12 + age level). The talks are organised in collaboration with the library staff to foster an inclusive approach that capitalises on their knowledge of the needs and interests of their local community.

In this talk, the public engagement team will outline the key insights from the libraries partnerships and their plans to ensure the programme remains accessible and inclusive to all, bringing the wonders of the universe to a wider audience.

Sociologists in Public Spheres: Public Communication and the Academic Field

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Individual researchers consider public visibility to be both increasingly relevant, but also still ambivalent at the same time – this is a first conclusion to be drawn from the research this paper presents. The study focusses on communication disseminated through mass and social media, but also takes other communication practices into consideration. It addresses the uses and functions of media in the academic field and the new opportunities for public communication opened up by emerging media development. Therefore an examination of various public spheres in which individual researchers operate is an essential concern of the paper that also sheds light on transitions and tensions in the constitution of the academic field.

The issue of the significance of various public communication practices within the academic field connects to Weingart's medialization thesis that is one of the study's theoretical foundations. Furthermore, Bourdieu's differentiation-theoretical concept of the academic field appears to be a fruitful framework for the research. Preliminary findings especially highlight the potential of Bourdieu's differentiation between two forms of symbolic capital in the academic field. Among other things, the research suggests that public visibility does not necessarily compete with pure scientific capital but might catalyze its accumulation through an increased visibility among peers.

The study investigates practices of public communication in the field of German-language sociology employing two different types of qualitative analysis: Based on qualitative interviews, I focus on investigating implicit knowledge and self-descriptions of sociologists regarding public communication pracitices in the field. Adding qualitative media analysis, I examine these communicative practices' results. As this still is a work in progress I provide initial findings and theoretical reflections on the significance of public communication practices and different publics in the academic field looking both at the tensions and transitions of science communication practices as well as the academic field itself.

Transforming Narratives: Gender Equity Struggle in Latin America Science Museums

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The democratization of science is a matter of social justice, and science museums are undergoing a transition, expanding their roles to promote equity and inclusion. In Latin America, these institutions play a fundamental role, reaching millions of people annually, although equitable access and the inclusion of marginalized groups remain significant challenges. Regarding gender issues, although women and gender-diverse individuals are significant publics in museums, they remain underrepresented in exhibits, leadership roles, and scientific careers. This study is part of a larger investigation into the transformative communication and educational practices and perceptions of science museum educators in Latin America. Here, we emphasize how the communication and educational praxis in museums relates to institutional change dynamics and the promotion of gender equity. Our objective is to identify the transformative elements of these practices and how they can contribute to public policy formulation. Data were collected through a survey completed by 208 science museum staff across Latin America, of whom 17 reported gender-focused actions as transformative. The practices include creating narratives about women in science, formative activities for girls in STEM, and initiatives aimed at the LGBTQIA+ community. Through an initial thematic analysis, we identified transformative elements such as “historical recovery”, “activism”, “science as a field of female participation”, “identity”, and the “disruption of normative gender narratives”. Moreover, these actions intersect with issues of race and class. Challenges include a lack of resources and continuity, highlighting the need for stronger institutional and government partnerships. Discussing these practices, especially in countries with structural inequalities but also a history of struggles for equality, provides a valuable opportunity to understand how museums can be spaces for social transformation. This discussion will generate insights for researchers and practitioners, offering a rich platform for dialogue on gender equity practices and policies during the conference.

Uplifting Public Awareness and Correction on Climate Change Misinformation Online

MR Hongjie Tang[1], Prof Liang Chen[1]
[1]Tsinghua University

Climate change refers to the long-term alteration of global temperatures and weather patterns, primarily driven by human activities (United Nations, 2022). Despite the near-unanimous scientific consensus, public opinion online about the causes of climate change has become increasingly polarized. A common misperception that climate change is merely a natural cycle (instead of human-caused outcome) has significantly hindered efforts to promote pro-environmental beliefs, attitudes, and behaviors.

In the digital age, one proven method for mitigating climate change denial and misperceptions is "social correction "online (Bode & Vraga, 2015). Publicly debunking false claims about climate change and stopping their spread is particularly effective when climate-related misinformation goes viral. However, this requires individuals to actively engage in online expression, often facing dominant opinion climates and potential attacks from other users. As a result, many are reluctant to correct misinformation.

Previous studies examining factors influencing misinformation correction behaviors have largely focused on individual-level factors (e.g., information literacy, risk perception, media exposure). Drawing on the spiral of silence theory (Noelle-Neumann, 1974), this study aims to explore the influence of perceived opinion congruence with others, fear of isolation, and other factors in the online opinion environment (e.g., perceived incivility) on users' willingness to correct climate misinformation.

We aim to assess the long-term effects and causal relationships among these factors using a two-wave panel dataset from China (N=600). Cross-lagged analysis will be conducted to test our hypotheses.

This study is expected to offer both theoretical and practical contributions to online science communication. First, it applies and extends the spiral of silence theory to the context of online misinformation correction. Second, our findings will inform strategies for mobilizing misinformation correction and fostering online deliberation and discussion on climate issues, ultimately helping to shape public awareness and scientific knowledge

Health Researchers' Non-Obligation to Engage with Non-Academics

Mrs. Bente Schøning[1], Prof Charlotte Wien[1], Prof Torkjel Sandanger[1], Dr. Sarah Rosenbaum[1]

[1]UiT Arctic University of Norway

Despite a lack of formal requirements, Norwegian health researchers often choose to communicate their findings to non-academic audiences. This study explores the motivations and barriers influencing this voluntary engagement.

We conducted semi-structured interviews with fourteen health researchers from a large university in Norway who actively engage in communicating with non-academic audiences. We employed a thematic analysis to dissect the underlying factors driving or hindering their science communication efforts.

Participants' non-academic science communication activity is primarily motivated by a sense of duty, opportunities for career enhancement, and the freedom to control the dissemination of their work. Conversely, these researchers – who are highly motivated - experience significant barriers including inadequate institutional support and challenges in managing media relations.

The study underscores the necessity for robust institutional support to facilitate effective science communication, thereby enhancing the societal impact of scientific research.

Innovatively, this research utilized AI technology to enhance the language of the manuscript, assist in crafting the abstract, and serve as a discussion partner in coding the study's data. These AI-enhanced methods have ensured precision and clarity.

Science Communication for Change: Navigating Tensions Between Scientists & Citizens

Ms Anushka Banerjee[1], Ms Kadambari Patil[1], Dr Reeteka Sud[1], Dr Biju Viswanath[2]

[1]Rohini Nilekani Centre for Brain and Mind, National Institute of Mental Health and Neurosciences, [2]National Institute of Mental Health and Neurosciences

Science communication often falters in bridging the gap between scientists' presentations and public engagement. Researchers face challenges in simplifying complex findings without compromising accuracy. In countries like India, where culture, educational backgrounds & languages intersect, and stigmas, particularly around mental health, create additional hurdles, this gap widens. Misinformation and myths about psychiatric conditions exacerbate this problem.

The tension between scientific rigour and public understanding is especially pronounced on social media, where simplifying information can cause misinformation & distrust. Conversely, scientists who do not adapt their communication may alienate non-experts, which can diminish their research's societal impact and translation.

Embedding scientific discourse into culturally familiar formats has proven effective in bridging these gaps. At the Rohini Nilekani Centre for Brain and Mind at the National Institute of Mental Health and Neuroscience, we used outreach strategies like interactive games, art exhibitions that offer audiences a platform to share their perspectives and discussions on representation of mental health in pan-Indian cinema. By leveraging public spaces, employing local languages and community-driven approaches, we attempt to make information about mental illnesses approachable & accessible while encouraging open dialogue.

We recognised the need to train scientists to effectively communicate with varied audiences, and worked with psychiatrists to create explainer reels which simplified key findings while maintaining scientific accuracy, using social media to reach broader audiences. These complement our sci-comm initiatives, directly addressing the tension between scientific complexity & public understanding.

By adapting communication strategies to cultural contexts, addressing linguistic diversity, equipping scientists with skills to engage with non-expert audiences and recognising the balance between maintaining scientific accuracy and fostering effective public engagement, we can bridge the gap between scientists and citizens. This approach is essential for promoting societal awareness, reducing stigma, and fostering meaningful change.

(ChatGPT was used to improve sentence structure & reduce character count)

Hands-on/hands-off: communicating science to young people

Dr Donna MacCallum[1]

[1]University of Aberdeen

Communicating science to young people is essential to fire their interest in science and to create the next generation of scientists. It is also vital to ensure that young people are science literate, understanding terminology and how research is carried out.

Traditionally, an interest in science is sparked by teachers in schools, but there is a growing role for researchers to interact with young people to tell them about science, research and research findings. This is especially important to engage those with less opportunity to take science subjects in school or who have no exposure to scientists.

Different approaches to communicating science to young people will be discussed, including designing hands-on activities to illustrate one or more scientific concepts to various age groups, through to hands-off gamification activities which can be delivered online, such as escape rooms, to encourage interaction with information and science findings in a fun environment.

Protection instead of Promotion: Science Communication in Times of Mistrust

Dr Steffi Friedrichs[1], Professor George Gaskell
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The widespread lack of trust in science is both baffling and worrying to those working in the field of science and technology. Upon closer observation as part of our European collaborative project on 'Inspiring and Anchoring Trust in Science, Research and Innovation', we find, however, that the cause for any mistrust or distrust in science (warranted or not) is routed much deeper. In our longitudinal statistical analyses of opinion polls, such as the Eurobarometer and the Wellcome Global Monitor, we find strong evidence that a community's lack of trust in science and research appears alongside an often more pronounced lack of trust in its government and institutions. In addition, we conducted in-depth reviews of three historical case-studies on (a) climate science and climate change, (b) genome modifications & genome editing, and (c) artificial intelligence & social media, aiming to retrace their developments and communication in the public arena, and identify the points and possible triggers that changed may have caused or enhanced mistrust.

The presentation aims to questions some of our assumptions about the responsibilities and mechanism of gaining, preserving and loosing trust in science, research and innovation; a special role in this is afforded by professional communicators of science, who should aim to protection trust in science rather than promote increased trust in science.

Mediated AI hypes: A Vietnamese case study and global implications

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Recent AI breakthroughs have given rise to one of the most controversial science developments of our time (Roux & Mollard, 2016), especially since ChatGPT's somewhat hyped introduction (Wu et al., 2023). As these technologies are increasingly becoming an "everyday thing", decisions on adopting or rejecting AI hinge on cost-benefit considerations that require not only in-depth knowledge but also multifaceted public debates around AI risks and benefits. An informed, balanced and participatory news representation of such risks and benefits is of paramount importance to public understanding and engagement and decision regarding AI. This is especially so for Global South, whose science communication systems rely primarily on journalism (Nguyen & Tran, 2019). However, research into on media treatment of AI in the South remains very limited. In the context, this study delves into the characteristics of Vietnamese news reporting of AI and place its patterns in the context of science journalism of the developing world to discuss its global implications. Based on a content analysis of 658 articles about AI in five major Vietnamese news outlets before and after the ChatGPT debut in November 2022, our study reveals that (1)Vietnamese media pay strong attention to AI topics, but the coverage is event-oriented, offering little in-depth and critical analysis of issues; (2) they tend to excessively amplify AI's novel benefits and downplay risks, with (3) a clear editorial preference for AI's technological breakthroughs in economyrelated areas; and (4) although there is a strong presence of local AI topics, little linkage is found between local and global AI developments. Placing these in the context of the Global South's needs and priorities, we will discuss how such news coverage can hinder local and global development processes.

Connected Water: Exploring Personal Connections in the Mississippi River Basin

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Direct personal experiences can play a role in how the public makes sense of scientific and environmental issues. Yet, it can be easy to overlook how seemingly local concerns connect to larger regional, national, or even global issues, such as linking local environmental changes to global climate change. As such, it is important to better understand how people internalize the social meanings of the local environment as part of their personal and collective identities. To investigate sense-making tied to a major local and regional environmental feature, we explore how members of the public reflect on their personal identities and connections with respect to their local and regional ecosystem. Specifically, in a representative survey of the 10 mainstem states adjacent to the Mississippi River (N=2,305), we asked participants to respond to an open-ended question reflecting on what it meant to them to be part of the Mississippi River Basin. The Mississippi River runs through the United States (U.S.) Midwestern and Southern regions, with a watershed (Basin) that spans nearly half of the continental U.S. The river plays a large role in the culture, economy, and environment of the region, for example, the Basin produces more than 90% of the country's agricultural exports. Our preliminary analysis suggests that for many, the Mississippi River is more than just a river; instead, it represents residents' personal connections with their local communities and social traditions. Respondents shared local lore about the river, childhood memories, and family histories, and connected the history of the Mississippi River to the identity of riverside cities and the collective identity of ethnic groups living there. Participants also showed conflicting views on the environment that reflected their competing needs. While some participants saw the environmental issues as fraudulent, others expressed awareness of their shared responsibility as stewards of the river.

From lab to schools: transitioning research careers through science communication

Teresa Schaefer[1], Dr Elisabeth Unterfrauner[1], Dr Claudia Magdalena Fabian[1], Dr Barbara Kieslinger[1]

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The InChildHealth project integrates interdisciplinary research to tackle indoor air quality (IAQ) issues affecting school children. Targeting children aged 6-13, the project measures IAQ in schools and homes across seven European cities, identifying and mitigating indoor air pollutants and linking these data to adverse health outcomes such as respiratory infections. InChildHealth employs a multifaceted approach, combining environmental monitoring, epidemiological studies, and citizen science. The latter actively involves pupils and their educators in the research project in at least three schools in each of the seven cities (Athens, Barcelona, Copenhagen, Helsinki, Lisbon, Vienna). Teachers can choose between different degrees of involvement: the shortest only takes two hours and provides basic information and hands-on activities related to IAQ and mitigation measures,; while the longest activity lasts around eight hours and students can define a research question, collect data on bacteria and fungi, and analyze them together with researchers. As citizen science is an effective way of communicating science topics to young people, this active engagement and hands-on activities are expected to increase science literacy and knowledge on IAQ amongst pupils. The InChildHealth, citizen science activities are organized and implemented by the principal investigators and natural scientists, who now must communicate their scientific research to directors, teachers, pupils, and parents. But what does this transition towards more science communication responsibilities mean for the scientists? How do they see their research profession changing, when they have to leave their laboratories and explain the research, they do to 6-13 year old children? Which skills do they need for this new task? What are the challenges and benefits for their day-to-day work? Interviews with researchers from the seven pilot cities provide answers to these questions and reveal a multifaceted view on research careers that are under transition if science actively comes out of its ivory tower.

Counter-Hegemonic Communication in Generative AI: Grassroots Hybrid Citizen Developers as Informal Science Communicators

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The development of generative artificial intelligence (GAI) has not only sparked concerns about job displacement, but also catalyzed the emergence of new professions tied to AI product design and development. Unlike professional engineers, grassroots GAI application developers serve as metaphorical intermediaries between GAI and the end-user population. Their comprehension, anticipations, and conceptualizations of GAI are crucial in shaping public perception and the future trajectory of AI utilization (Sieber et al., 2024). In this evolving context, grassroots GAI application developers—who are neither formal engineers nor passive end users—emerge as "hybrid citizen developers." Their dual identity enables them to challenge dominant techno-capitalist narratives while simultaneously mediating the complex translation of advanced AI capabilities into accessible, ethically grounded public discourse (Sieber et al., 2024; Sartori & Bocca, 2023).

Grounded in the Social Construction of Technology (SCOT) framework—which posits that technological advancement is neither predetermined nor linear but rather a dynamic process of "variation and selection" among potential designs (Pinch & Bijker, 1984, p. 135)—this study acknowledges that, in the formative stages of technological evolution, Relevant Social Groups (RSGs) ascribe meanings to technology that exhibit "interpretive flexibility" (Bijker, 2009). Drawing on this framework and informed by critical science communication research (Gieryn, 1983; Nisbet & Scheufele, 2009), we reconceptualize grassroots developers as counter-hegemonic technopolitical agents. Occupying a critical, boundary-spanning space, these agents contest traditional science communication hierarchies and the monopolization of technical expertise by formal institutions. Through practices of informal communication and user innovation (von Hippel, 2006), they transform complex AI functionalities and ethical dilemmas into narratives that resonate with broader publics, thereby fostering public understanding and advancing socially responsible technological development.

This study attempts to address 1) How do grassroots developers perceive GAI? 2) What ethical and practical considerations guide their development of GAI applications? And 3) How do they perceive their role in bridging state-of-the-art AI with everyday users?A series of in-depth interviews are currently underway. We aim to interview at least 30 grassroots AI application developers by the end of 2024, with 12 interviews already completed. A portion of the participants will be recruited through the authors' social networks, while others via Chinese social media platforms, where potential interviewees publicly share their related work. The interview data will be transcribed and subjected to thematic analysis, using qualitative techniques to unpack their design philosophies, ethical considerations, and views on AI's societal role.



Parallel Session I:6

“Let’s talk about bioeconomy”: The tensions between promotion and participation

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The term ‘bioeconomy’ refers to a political concept describing an economy based on renewable resources, which is seen as key to societal transformations towards sustainability. While there is no common understanding of how a sustainable bioeconomy could be realised, both scientists and politicians emphasise the importance of changes in consumer behaviour for this bioeconomy. However, the concept of ‘bioeconomy’ is largely unknown to the German public. To raise public awareness, the German Federal Ministry of Education and Research (BMBF) thus funded five projects from 2017-2020 to use novel participatory communication formats with the mandate of introducing the concept of a ‘bioeconomy’ to the public.

In this talk, we examine a special exhibition in a natural history museum, which emerged from one of these projects and which was developed in a participatory way with school children. While its overall mandate was to promote the idea of a bioeconomy, the finalised exhibition did not focus on bioeconomy any more, rather, the term bioeconomy was only mentioned twice. During the participatory exhibition development process, the focus of the exhibition thus shifted significantly. Three changes are evident: First, the decision of the exhibition coordinators to focus on everyday behaviour to enable dialogue and participation. Second, the shift from bioeconomy as a single strategy to multiple strategies for sustainability; and third, the shift from the structural level to the individual level of transformation, which resulted from contributions of participating school children. In our contribution, we will analyse how the tensions between public participation, promotion and public legitimation were managed during exhibition development. The data corpus consists of qualitative interviews with the exhibition coordinators, documents and the exhibition texts.

Sustainability meanings in science journalism on Brazil

MsC Aylon Stahl[1], Prof. Dr. Karina Omuro Lupetti[1]
[1]UFSCar

What is the meaning of sustainability? How is it presented in science journalism? To address these questions, qualitative research utilizing Discursive Textual Analysis was conducted on Brazilian science journalism articles. The study focused on Revista Pesquisa FAPESP, a science magazine published by FAPESP, a governmental research founding agency in Brazil. Sustainability-related articles produced between 2015 and 2022 were targeted, and the work of the three most frequent authors was analyzed, totalizing 38 texts. The analysis revealed that the overall meaning of sustainability on those texts is positive, usually shown as the only alternative for the various global crises. Economic aspects, such as market advantages and disadvantages were highly relevant for a sustainable technology to be considered appliable. Environmental aspects were also highlighted, generally guiding the content presentation. However, social aspects were often not discussed. An observed strategy was the comparisons of sustainability technologies with those currently in use, emphasizing the quantitative and qualitative potential of the former over the latter. Current scientific challenges, perspectives and expectations were frequently incorporated by the authors as mean for writing about the topic. Interviews with the authors showed accordance with the text-analysis. When asked about the meaning of sustainability, all informants associated it with resource-centric definitions, in which sustainable actions involve conserving, reducing usage or employing resources more efficiently. These ideas are present on UN's definition - "meeting the needs of the present without compromising the ability of future generations to meet their own needs", but do not fully encompass it. Understanding how sustainability is addressed in science journalism could be helpful for grasping public perception of the concept. Although in constant dispute, the meaning of sustainability for society must be clear for its goals to be achieved.

Studying misleading graphs with vocational students – tensions and surprises

Prof Ionica Smeets[1], Dr Sanne Willems[1], Dr. Peter Burger[1], Dr. Winnifred Wijnker[2]
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People with a practice-oriented education have been shown to be more easily misled by misleading graphs, yet this group is thoroughly underrepresented as participants in studies on graph reading. Therefore, we set up an experiment with schools for vocational training to learn more about how their students perceive misleading graphs.

We planned to use a mixed-method approach with a qualitative think-aloud task and a quantitative survey at these schools. The qualitative part worked very well and both students and teachers were very excited to be involved and represented in research.

However, the quantitative data collection in the schools failed for various reasons. So we decided to hire a research agency specializing in the study of societal opinions to help us in recruiting participants with a practice-oriented education, but, to their own surprise, they struggled to reach this group, and it took a long time to achieve the minimal sample size for our quantitative survey.

The think-aloud task (n=10) showed that vocational students use a combination of calculation and estimation to process graphs, which contradicts existing literature, and that their perception is heavily influenced by context. The survey (n=130) showed that corrections of misleading graphs work in lowering misleading effects and also have a learning effect, such that students are less misled by new misleading graphs of the same type.

In this talk, we will discuss both the results of our study and the tensions and surprises that arise when working with an underrepresented group as research participants, as well as the lessons science communication researchers and practitioners can take away from this.

Talking to flat-Earthers: changing minds and the power of belonging

Professor Shahir Rizk[1]

[1]Indiana University South Bend

The worldwide spread of false information came to the forefront during the COVID-19 pandemic, but anti-science views have been around for centuries. For example, anti-vax views are as old as the practice of vaccination itself. The Internet and the hyper-connectivity of today's world facilitate the rapid spread of false information. A common misconception prevails among many scientists that conspiracy theories come from a lack of information. However, this "information deficit hypothesis" has been largely discounted. Simply providing more information to the public has been shown to be mostly ineffective in fighting conspiracy theories. Therefore, there is a great need for new and more effective ways of communication in the face of conspiracy theories and anti-science views. In this talk, the author will use personal experience and current literature to delve into the psychology of flat-Earthers and other conspiracy theorists to understand their motives and the driving forces that contribute to such beliefs. The author, an academic scientist and educator, explorers the importance of belonging and groupthink in communities that distrust scientists and scientific data. During this talk, the author will reflect on his own experience talking to conspiracy theorists and science deniers. Questions that will be posed include: how do we talk to flat-Earthers? How can we recognize the different types of conversations? How can we effectively convey information while preserving human dignity? How can we become better listeners? What are the values and challenges of changing minds? And what lessons can we learn from talking to flat-Earthers?

Carving out Climate Testimony: Inuit Youth, Wellness & Environmental Stewardship

Mrs Carmen Koessler[1], Inuvialuit Youth Delegate[4], Dr Jen Bagelman[2], Ms Maeva Gauthier[3]

[1]CK Communication Services, [2]Newcastle University, [3]University of Victoria, [4]Carving out Climate Testimony: Inuit Youth, Wellness & Environmental Stewardship Project

A showcase of participatory research outcomes from the Carving out Climate Testimony: Inuit Youth, Wellness & Environmental Stewardship Project. These works were co-created with Inuvialuit youth and researchers on climate change impacts in the Canadian Arctic community of Tuktoyaktuk, NWT. By co-creating and co-designing these communication pieces we are shifting the traditional power-balance in research outputs by working alongside Inuvialuit youth as co-researchers and co-producers of participatory outputs. The visual presentation will feature several pieces that have come out of this work, including digital Storymaps, music videos, documentary films, media articles and artwork.

The Carving out Climate Testimony: Inuit Youth, Wellness & Environmental Stewardship Project is funded through the Canada-Inuit Nunangat-United Kingdom Arctic Research Programme (CINUK), a unique partnership bringing together collaborators from Inuit Nunangat and scholars based in Canada and the UK. The research team is co-led by Dr. Jen Bagelman (Newcastle University) and Dr. Karla Jessen Williamson (University of Saskatchewan).

AI Education for Digitally Vulnerable Groups

Mr JEF VAN LAER[1], Mr Isaak Vandermaesen

[1]Scivil

Digital vulnerability affects four out of ten Belgians of different ages, socio-cultural backgrounds and educational levels. Yet this group is often left out of consideration when setting up educational activities around AI.

Amai! is a large project in Flanders for participation in AI development. Within the project, we realised that the distance between our aim to gather ideas for AI innovation from as many people as possible and the large group of digitally vulnerable people in Belgium was significant. Thus, we set out to develop educational materials on AI for this target audience in 2024.

Consulting with teachers in basic education for adults, we defined the needs of students and teachers to design a set of science communication activities that can be used in basic education or by coaches in digital inclusion initiatives. The activities address the basic workings of AI and allow for exploration of and experimentation with AI tools. They also address possible risks of the technology.

We started our journey with traditional education and science communication preconceptions. Throughout the process, we gradually realised that our goal of educating people about AI to gather ideas for further innovation might not necessarily match the needs of our target audience. Our own learning process in this endeavor will likely still be in progress at the time of the conference, but we would be keen to share our experiences and outcomes so far with other attendees, in the hopes of gathering feedback and ideas for our project.

Toxic Uncertainty: A Discourse Analysis of Disaster Response Communication

Jessica Remcheck[1]

[1]University of Minnesota

On February 3, 2023 a freight train carrying hazardous chemicals derailed in East Palestine, Ohio causing dangerous chemicals, including vinyl chloride, to spread throughout the environment. East Palestine was deemed safe, including the drinking water, within a week after the disaster. However, a year later, many residents are experiencing health problems. My project seeks to more deeply understand how institutional stakeholders are communicating to the community about potential health repercussions from the disaster and the safety of the environment. From my preliminary analysis, communication is not coming from one central location but from multiple stakeholders including Norfolk Southern (the train company responsible for the derailment), the Ohio EPA, and local government officials. In addition to environmental health communication from these various stakeholders, there are multiple institutions seeking local residents to participate in studies researching the health impacts occurring from the toxic exposure. When comparing the communication from these stakeholders and institutions, there is tension and contradiction in terms of the messaging being conveyed to the community. Additionally, the health impacts from the disaster are unknown and could potentially take years to show up in the population which adds another complexity when thinking about how institutions are communicating to residents about the effects from the derailment. Through a Critical Discourse Analysis, I investigate various forms of communication (flyers, newsletters, digital communications, etc.) to understand how institutions are using language to convey safety, uncertainty, and health risk. With this study, I uncover how institutions construct safety in the aftermath of a toxic disaster and how they are or are not prioritizing the health and safety of the community. Further, I interrogate how transparency and lack of transparency within disaster communication may contribute to the ways local communities make decisions regarding their personal health decisions.

The challenges of an exhibition of native languages in Patagonia

Mrs Sandra Murriello[1], Mrs Verónica Domínguez
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The representation of native people in Latin American museums is a critical topic in public communication of science because of the dominant colonial point of view which is in tension with the current valorisation given by the social sciences. In particular the native people are represented as extinct and their languages are absent or underrepresented. In consequence, these communities are also excluded as public from the institutions that presents a distorted historical and anthropological vision. Museums and exhibitions face the challenge to decolonize their proposals and work together with indigenous people.

The travelling exhibition AL VIENTO. Lenguas de los territories fuegopatagónicos y pampeanos (current territories of Chile & Argentina) presents the practices of documentation and study of the languages of that region in the 19th and 20th centuries and the revitalization processes in which the communities of speakers are involved today. It was developed by a group of specialists (linguistics, historians, anthropologists, ethnomusicologists, and science communicators) from different scientific institutions in Argentina in co-management with various linguistic revitalisation teams. It presents texts, photos, 3D objects, videos and an interactive map. In this way, AL VIENTO is a challenge of articulate disciplines, research, public communication and co-curatorial process.

Here we present the exhibition developed, the educative material, the website linked, and a reflection of the production process of this exhibition that began in 2018 as a communicative practice in permanent feedback with the research and a consultation with speaker communities. Our touring through the territories began in October 23, since then we made some evaluations and modifications of the exhibition which aims to continue its itinerancy around cultural and educational institutions in our country and abroad.

Talkaoke: A participatory talk show as a science communication tool?

Tim Rittig[1], Dr Birte Schaller[1]

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Science communication in the participatory paradigm, as opposed to the deficit model, seeks to empower all voices in a society by giving them spaces to talk and participate in scientific endeavours. To bring this paradigm to science communication in Creative Linguistics – a field of research that explores our everyday ways of communicating with creative language and is therefore tangible in our everyday lives – we partnered with 'The People Speak' to adapt and perform their 'Talkaoke' format for outreach science purposes in our collaborative research center. In this talk, we want to present Talkaoke as a dialogue format and its possibilities for science communication.

'Talkaoke' is a combination of the words 'talk show' and 'karaoke'. It embodies the concept of creating a low-threshold conversation space. It is possible to set it up in any wanted public context as the equipment and technology required is portable and can be set up and taken down quickly. Passers-by can sit down at a donut-shaped table and contribute topics and views to a conversation led by a moderator in the middle of the table. As it is based on the spontaneity and the topics brought by the participants, it can be an ideal tool to enable bottom-up or eye-level science communication.

We have performed Talkaoke in different public places and event contexts (plaza, festival, community college) and partly recorded the outpourings for linguistic and science communicative evaluation. To this end, we will present first results of the interactional linguistics analysis, and we discuss how it works in creating communicative spaces and the possibilities of adapting this format for dialogic science communication uses.

Why patient meta-data matters during pandemics but is difficult to collect due to challenges in communication of benefits versus risks

Professor Seshadri Vasan[1,2]
[1]NHS Scotland, [2]University of York

The COVID-19 pandemic has taught us that big data is less useful without metadata. There's extensive data on the SARS-CoV-2 genome, from millions of sequences submitted to GISAID (Global Initiative on Sharing All Influenza Data), but very mimimal de-identified information on patients from whom the coronavirus was isolated and sequenced. Following our lobbying, GISAID made 'patient status' mandatory on 27-Apr-20, and we collaborated with them to analyse the impact of this change. As highlighted by the journal Nature, our findings were alarming. At the 6-month mark only 13% of the entries had patient status other than the default value of 'unknown', an improvement from 3% at 1-month, but this declined to 4.6% by 17 months. The usefulness of the free-text field was limited by a wide range of descriptions identifying the same patient status, and just 0.3% passed the inclusion criteria when our collaborators tried to curate a high-confidence dataset. In this project, funded by the Royal College of Physicians and Surgeons of Glasgow through their triennial travel medicine research fellowship, we show that the barriers are not just logistics but due to poor science communication between medics, scientists and the public, and between scientific laboratories across the world. We shall discuss solutions to overcome this problem for future 'Disease-X' pandemics.

Science Communication through Theatre: The Eco-Grief Initiative

Prof David Wright[1], Prof. Leah Lowe[1]

[1]Vanderbilt University

Theatre is a promising approach for science communication. Its narrative format uses storytelling and dialog to convey meaning. Narrative proves an alternative to more typical approaches to science communication which may focus on concerns of jargon or the presentation of information. A narrative world invites the audience to enter a story-world; a place where everyday language and lived-experience dominate and form connection. Theatre is an art form that encompasses literature, music, and the visual arts to offer a very particular way of seeing and reflecting upon the world. It directly stimulates an audience on both affective and cognitive levels. As a live event, theatre has a dynamic directly impacted by the participation of the audience. This allows the audience to view a theme outside of their individual bubbles; arousing curiosity, stimulating debate, changing behaviors.

We commissioned four one-act plays dealing with eco-grief, the complex mixture of emotions—sorrow, guilt, terror, a sense of complicity, frustrations around the science and complexity of the problem and others—that consideration of climate change and environmental degradation generate. We will highlight how the 18-month eco-grief initiative drew from all corners of campus, how the playwrights were informed through interactions with our students and faculty, how the plays were developed, how other creative arts were layered-in over the course of the project to provide connectivity, and the impact and reception of the final performances in October 2024. The take home message is this: The interdisciplinary explorations realized in the eco-grief initiative highlight the importance of integrating multiple perspectives to confront challenges such as the climate crises.

Crafting Germany's Public Engagement Handbook through Global Collaboration

Iris Geigenmüller[1], Sonja Hammann[1], Dr Mhairi Stewart[1], Dr Alina Loth[1]
[1]Museum fuer Naturkunde Berlin

"The Principles for Public Engagement" is a crucial guideline for shaping the practice and field of public engagement in Germany. By 2025, multiple activities will have been undertaken with the German community to expand "The Principles" into a practical handbook. At PCST, an interactive poster will be displayed, inviting participants to engage in a co-creative process that adds on the expansion of "The Principles" into a comprehensive practical handbook with international perspectives. This initiative encourages attendees to learn about public Engagement in Germany, but also deeply reflect on their own practices, share valuable insights, and contribute their experiences in engagement. The poster serves as a platform for exchanging best practices, innovative solutions, practical advice, and success stories, fostering a collaborative atmosphere. Additionally, it encourages participants to consider and reflect upon the contributions of others, enriching the collective understanding.

By participating in this co-creative process, attendees will not only contribute to the development of the handbook that will be published later in 2025 but will also have the opportunity to pause, reflect on their own work, and learn from the experiences of their peers. This process helps to further develop the dynamic and expanding field of public engagement and participation, offering valuable support to newcomers in the field and helping to shape a more inclusive and effective practice. The interactive poster thus becomes a tool for collective learning and growth.

Intuition, Identity, and Trust in Scientists, Influencers and Advocacy Groups

Dr. April Eichmeier[1]
[1]University of St. Thomas

Some believe that fact can be determined by intuition ("intuitionism"). Intuitionism is common: more than half of Americans agree with statements like "I trust my gut to tell me what is true and what is not." Importantly, intuitionism is associated with conservatism, which is associated with less positive views of scientists.

Based in theories of epistemology and social identity, this study provides insight into three questions: do we know for certain that intuitionists don't trust scientists? If not, who might they trust? And, since individuals make decisions based in social identity, if intuitionism is important to one's identity (intuitionist identity), does this matter as it concerns trust?

The study is situated in the context of trust in information sources about native plants, a tool for ecological restoration. Scientists are a traditional information source, but this study also examines advocacy groups (conservative, liberal) and social media influencers. Given the intuitionism-conservative connection, we expect a negative association with trust in scientists and a positive association with trust in conservative advocacy groups (vice versa for liberal groups). Concerning influencers, they may be seen as warm and relatable rather than cold and scientific so intuitionists may trust them for information.

Survey results (n=706, U.S., nationally representative) show that intuitionism had a negative association with trust in scientists and liberal advocacy groups, and it had no association with trust in conservative groups. However, intuitionism had a positive association with trust in influencers. Further, results showed that the combination of intuitionism and intuitionist identity resulted in higher levels of trust in influencers than intuitionism by itself.

This study provides practitioners with ideas for effective tactics for communicating with intuitionists, and it enhances scholarly understanding of trust in science communication. Also, this study shows how scientists are not always the best messengers for communicating science.

Outreach activities in the history of science: the 1919 total solar eclipse

Dr. Cristina Luís[1], Dr. Hugo Soares[1], Prof. Ana Simões[1]
[1]CIUHCT, Faculty of Sciences, University of Lisbon

Science communication faces several challenges, including making complex concepts accessible to the public, overcoming misinformation, and engaging audiences with varying levels of prior knowledge. These difficulties are intensified by the rapid evolution of scientific discoveries, requiring constant updates in dissemination methods. Communicating the history of science presents its own set of challenges, as historians of science must convey scientific principles while contextualizing them within their socio-political periods. A storytelling approach can balance accuracy with narrative appeal but requires precision and creativity to make historical scientific developments relevant and appealing to audiences, ensuring that engaging content about the history of science reaches the audience effectively. Choosing the most appropriate media and format is crucial. In this presentation we will showcase the various outreach activities explored so far in the project "E3Global. Towards a global history of the 1919 total solar eclipse," which studies the two British expeditions that confirmed Einstein's Theory of General Relativity. We will focus on the exhibition "E3. Einstein, Eddington, and the Eclipse," and the graphic novel "Einstein, Eddington, and the Eclipse: Travel Impressions", as well as other instances of communicating the various historical and scientific dimensions of eclipse observation.

Index

A

Abdullahi, Hawwa 154
Accorsi, Giulia 212
Achiam, Marianne 595
Ahrend, Julia C. 83, 58
Ainali, Jan 339
Albagli, Sarita 1004
Almeida, Paulo Vitor Gomes 53
Almeida, Salomé 90
Altenmüller, Marlene Sophie 386
Alvaro, Marcela 151
Alves, Daizi 725
Alves-Brito, Alan 722
Ambrósio, Susana 251
Amir, Ofra 325
Amorim, Luis 571, 583
Anagnostopoulos, Theo 560
Andersen, Casper 487
Anonas, Framelia 657, 635
Arboledas-Lérida, Luis 17
Arcucci, Rossella 430
Areia, Neide 21
Arispe, Michelle 657, 635
Ashcroft, Linden 188
Ashcroft , Linden 704
Augé, Anaïs 399
Ayre, Romina 217
Azevedo, Nathália Helena 304

B

Bagelman, Jen 297
Bagelman, Jen 302
Baini, Agnese 242, 176
Bakogianni, Vasiliki Andromachi 560
Ball, William P 676
Ballard, Heidi 284
Banerjee, Anushka 686, 691
Banse, Lennart 371
Baram- Tsabari, Ayelet 27
Baram-Tsabari, Ayelet 237, 135, 152, 325
Bennett, Nic 454
Bera, Sohinee 526
Bertsch, Christian 720
Besley, John 118, 117, 99
Bezerra, Cleiton 51
Biscocho, Kelsey 288, 291
Bizerra, Alessandra 601
Bizerra , Alessandra 622
Björkstén, Ulrika 423
Blümel, Clemens 426

Baram-Tsabari, Ayelet	32	Bol, Nadine	235
Baram-Tsabari , Ayelet	28, 175	Bos, Mark	208, 52, 524
Barbosa Gomez, Luisa Fernanda	506	Bowers, Marie	269, 270
Barel Ben David, Yael	58	Boyle, Catriona	453
Barel-Ben David, Yael	152	Brady, Sarah Jane	434
Barman, Paramananda	611	Branquinho, Raquel	251
Barman, Paramananda	542	Bray, Heather	528, 29
Barriault, Chantal	508, 680	Breuer, Johannes	324
Barros, Matheus	723, 725, 722, 726	Brigati, Joice	299
Basden, Tarryn	29	Brink, Wiebke	544
Bauer, Martin	565	Brito, Bianca	170
Beasley, Brett	665	Bromme, Rainer	333
Beça, Pedro	124	Brück, Janise	175
Behenna, Sarah	107	Bruckermann, Till	544
Beissert, Katelyn	490	Bucchi, Massimiano	244
Benitez Bustamante, Juan Sebastian	506	Bucio, Nicole	221
Benitez Gonzalez, Alexandra	300, 295	Burger, Peter	381

C

Cabrita, Alexandra	587	Cheng, Xi	546
Cahyaningtyas, Hanifah Nisrina	682, 671	Cheng, Xiaoxiao	173
Cakmakci, Gultekin	256	Cheung, Justin C.	236
Calapez, Ana Raquel	90	Chibana, Chiaki	321
Callejja, Kurt	536	Chinn, Sedona	688
Campbell, Taylor	339	Chiu, Yu-Chan	521, 189
Campos, Rita	170, 209	Cintron, Alicia	491
Carrasco, A. Rita	21	Clarke, Emma	89, 536, 88
Carruthers, Tom	158, 639	Clem, Sam	512

Caruana, Mark Anthony 536
Casolari, Federica 729
Catlin, Jane 54
Cave, Stephen 425
Centeno, Dave 657
Chambers, Mary 241, 344, 671
Chase, Jon 397
Chen, Liang 202, 673
Chen, Meng 37
Chen, Siyi 84
Chen, Yanshan 630
Cheng, chenching 667

Č

Čović, MIA 65

D

Dabran-Zivan, Shakked 32
Dai, Megan 672
Dalyot, Keren 27
Damião, Cláudia 251
D'Arcy, John 488
Darmawan, Ruly 241
Dawkins, Bea 676
DE LUCIA, Maddalena 370
De Oliveira Coelho, Aline 464
Debisschop, Magalie 220
Denvir , Síle 637
Dien, Soraya Weldina Ragil 241
Dien, Soraya Weldina Ragil 671
Dihal, Kanta 425
Dihal, Kanta 430
Döge, Björn 82, 58, 394
Domingo, David 384
Domínguez, Verónica 535
Donahue, Paul 377
Duarte, Inês 251
Duarte, Joaquim 251
Dube, Betty 676
Duca, Edward 536
Duggan, Ruadh 337
Dulay, Jessica 509
Duncan, Sophie 1003
Dunn, Eleanor 427
Dürmeier, Katharina Teresa 386

d

de Bakker, Liesbeth 524
de la Mata, Lola 642
de Moura, André 628
de Moura, Miguel 628
de Noronha, Susana 567
de Oliveira, Diogo 34
de Vevey, Laura 337

E

Egelhofer, Jana Laura 158
Egan, Muireann 453
Eichmeier, April 154, 523
Ejaz, Waqas 1001
Elias, Damian 616
Entradas , Marta 175
Enzingmüller, Carolin 115, 58, 404
Eom, Dayeon 688
Ermler, Kim Lisa 574
Essex, Jane 54
Estrada-Rodríguez, José Luis 653

F

Fabian, Claudia Magdalena 49
Fage-Butler, Antoinette 244
Fagundes, Vanessa 401
Fähnrich, Birte 426
Fairfield, Jessamyn 357
Fairhurst, Ciaran 422
Falcão, Douglas 692
Farrell, Millie 280
Faustino, Ana 285
Fecher, Benedikt 426
Feichtinger, Judith 201
Feio, Maria João 90
Felipe , Luiz 51
Ferguson, Eimear 453
Ferreira, Sónia 578
Fick, Julian 558
Finkler, Wiebke 529
Firestein, Stuart 53
Flanagan, Nic 89
Fleerackers, Alice 158
Focke-Bakker, Eileen 346
Fogg Rogers, Laura 274, 271
Fonseca, Maria 578
Fontana, Michele 306
Ford, Camera 476
Forstmann, Anne Charlotte 484
Friedrichs, Steffi 651
Fries, Alexandra 474
Fu, Pengfei 469
Fujimura, Yuko 145
Furman, Katherine 307

G

Gaikwad, Rupesh	524	Graça, Marta	418
Garcia-Guerrero, Miguel	156	Granado, Antonio	216
Garlick, Sarah	118	Grant, Aileen	676
Garvão, Pedro	656	Grant, Will	313
Gaskell, George	651	Greene, Cara	88
Gastrow, Michael	11	Gregorio, Rose	72
Gauthier, Maeva	297, 302	Grehan, Laura	88
Geigenmüller, Iris	246, 247	Greving, Hannah	544
Geigenmüller, Iris	426	GREZIO, Anita	370
Geipel, Andrea	456	Griffiths, Ria	356
Gerber, Maxime	698	Gschmeidler, Brigitte	249, 524
Göbel, Katharina	40	Guandong, Wang	566
Gollwitzer, Mario	386	Guedj, Muriel	589
Golumbic, Yaela	234	Guenther, Lars	175
Gomes, Leonardo	614	Guimaraes, Aluizio	34
Gomes, Mariana	692, 670	Guizzo, Joanne	496
Goto, Takayuki	145	Gullo, Marcelly Fuzaro	418

H

Hafiz, Mariana	678	Hernández Juárez, Luz Esmeralda	457
Hall, Vicky	245	Hipólito de Oliveira, Bianca	304, 622
Hallwirth, Lena	720	Ho, Shirley S.	236, 202
Hamers, Raph	344	Hobbs, Laura	107
Hammann, Sonja	246, 247	Hönig, Luise	333
Handley, Heather	392	Honkaranta, Marjo	545
Hamers, Raph L	671	Horiguchi, Goro	145
Hayes, Elena	434	Howard, Susan	257
Hearn, Eboney	454	Howard , Beth	704
Heck, Gabriela	455	Huang, Junru	236
Hecker, Susanne	141	Humphries , Annelies	704

Hendriks, Friederike 386, 558, 501, 382, 404
Hepworth-Young, Richard 719
Hurley, Mairéad 637
Hyland, John 453

I

Iqbal, Sarah 354
Iverson, Alissa 696

J

JADAMBA, JAVZMAA 594
Jafari, Saeed 727, 669
Jaspars, Marcel 729
Jauho, Mikko 553
Jenkins, Harry 494
Jenkins, Joy 533
Ji, Jiaojiao 633, 630
Jia, Hepeng 102, 312, 123, 101
Jiang, Cheng 712
Jiménez Delgado, Abiel 457
Jin, Xinyi 211, 62
Jochim, Konstanza 285
Johansson Palmkvist, Asa 423
Joubert, Marina 329
Joubert , Marina 175
Judge, David 631

K

Kang, Dongjing 663
KANG, DONGJING 594
Kankaria, Siddharth 524
Kano, Kei 145
Kanzaki, Nobutsugu 145
Kaspar, Lisa 82
Kasseboehmer, Ana Cláudia 299
Keller, Melanie 82, 58, 394
Khalili, Mohammad Hossein 727
Khatwani, Harsh Kumar 529
Kienhues, Dorothe 235
Kieslinger, Barbara 49
Kiprijanov, Konstantin S. 402
Kishimoto, Atsuo 145
Kivimäki, Sanna 146
Klein-Avraham, Inbal 237
Klimmt, Christoph 574
Knorr, Charlotte 175
Koessler, Carmen 297, 302
Konjevod, Romana 700
Kosack, Tim Robin 574
Koso, Ayumi 316
Kosulic, Kylie 221
Krause, Amanda 518

Kindermann, Gesche 357
Kiprijanov, Konstantin 141
Krivosic, Jelena 646
Kuhle, Birte 324

L

Laaksonen, Salla-Maaria 553
Labor, Jonalou 635
Laggan, Sophie 271
Lam, Lui 134
Lammertz, Julia 540
Lanza, Marcos 299
Lartigue, Cecilia 184
Lau, Alexandra 226
Ledderer, Loni 244
Lee, May 304
Lee, Yi-Ju 520
Lee, Yi-Jung 521, 520
León, Bienvenido 126
Lepik, Siim 332
Lewycka, Sonia 241
Liang, Li-Hong 134
Lim, Chris 359
Lin, Wei-Cih 231
LIN, CHI-I 573
Lindenfeld, Laura 454, 99
Lingireddy, Hema 288
Little, Hannah 307
Liu, Chenchen 672
Liu, Ke 37
Liu, Qinliang 123, 101
Liu, Zhuling 178
Lo, Yin-Yueh 19, 231
Lo , Yin-Yueh 175
Lobo Antunes, Joana 656
Lorke, Julia 284
Losi, Lucilla 335
Loth, Alina 285, 246, 247
Loukaidou, Georgia 560
Lowe, Leah 417
Lu, Yongxu 630
Luís, Cristina 603
Luo, Sha 688
Luo, Xi 123
Lupetti, Karina 614, 628
Lupetti, Karina Omuro 315
Lux, Alexandra 347

M

MacCallum, Donna 547
Machado Corral, Soledad 508
Mackintosh Sim, Grace 510
Mendes, Silvio 656
Mendonça, Érica 212
Merzagora, Matteo 660

Maldonado Branco, Rita 567
Manners, Paul 1003
Mansilla, Ricardo 184
Marinho, Letícia 455
Marlous L , Grijsen 682
Marques, Richard 578
Marquez, Catalina 217
Marschalek, ilse 39
Martin, Jen 704
Martin, Kathryn R 676
Martinez, Darah 509
Martins, Silvia 723, 725, 722, 726
Marzinek, Niklas 329
Massarani, Luisa 151, 401
Massarani, Luisa 51
Mateos-Espejel, Lourdes 653
Matias, Ana 21, 216
Matsuda, Misato 321
Mazumdar, Moumita 611, 542
Mazzonetto, Marzia 690
Mbokazi , Welcome 168
McAuliffe, Fergus 357
McBrady, Kelly 188
McCloskey, Paula 308
McEntee, Marie 513
McKinnon, Merryn 524
McQuillan, Julia 291
MERZAGORA, Matteo 589
Metger, Julia 540
Meyer, Jakob 141
Miara, Victoria Yael 135
Micallef, David 536
Michel-Sandoval, Bertha 156
Middleton, Lindsey 688
Mifsud, Rebekah 565
Miller, Daniel 518
Mirosa, Miranda 529
Mizumachi, Eri 145
Mizzi, Francesca 536
Mohanan Raji, Raghul 611, 542
Momme, Jane 501
Momme, Jane Martha 404
Montenegro, Mário 90
Montenegro, Mauricelia 34
Moreira, Francisca 90
Moreira, Ildeu 233
Moreno-Castro, Carolina 511
Mosia, Mamoeletsi 1005
Mou, Yi 178, 469
Muizelaar, Jeanne 208
Müller, Moritz 544
Murakami, Masayuki 145
Murphy, Faye 88
Murphy, Padraig 366

McShane, Connar 518
Mede, Niels 158
Medvecky, Fabien 158
Meier, Savannah 479
Murray, Claire 357
Murray, Fiona 569
Murriello, Sandra 535
Mytych, Jagoda 375

N

Nana, Rudy 35
Naughten, Denis 214
Navalhas, Inês 171
Negrete, Aquiles 184
Neshat Mokadem, Leila 676
Neves, Luiz Felipe 401
Newman, Todd 674, 99
Nguyen, An 338
Nguyen-Robertson , Catriona 704
Ni, Yingying 178
Nicholas, Cass 269, 270
Nielsen, Kristian H. 244, 487
Nijman, Iris 246
Nikolow, Sybilla 599
Noia, Julia 401
Norberto Rocha, Jessica 455
Núñez, Felipe 643

O

Ochoa Cervantes, Azucena de la Concepción 457
Ohle, Robert 496
Okebe, Bernard 158
Okubo, Tomomi 321
Oliveira, Cristiane 692
Osei, Jennifer Anima 683
Otero, Lucía 508

P

Pallone, Simone 222
Pansegrau, Petra 263, 599
Panzer, Julia 371
Parchmann, Ilka 382
Parker, Michael 280
Parker, Saahier 11
Pasternak, Natalia 53
Petersen, Imme 249
Petschner, Anna 664
Pfeiffer, Linda 479
Pfeiffer, Linda J 288, 291
Pham-Thi, Huong 338
Phillips, Shanii 24, 29
Pimentel, Marina 212

Patairiya, Manoj Kumar 640, 684
Patil, Kadambari 686, 691
Pearce, Warren 414
Peffer, Melanie 515, 470
Pentzold, Christian 412
Permatasari, Dyah Ratna 713
Peters, Hans Peter 257
Pinkerton, Tamara 528
Pinto, Bruno 21, 216
Pitrelli, Nico 242, 176
Poupardin, Elsa 396
Pöyry, Essi 553
Propen, Amy 46
Pstross, Karolina 53

Q

Qi, Xin 533
Qudeimat, Enas 554

R

Rajadhyasksha, Pratiksha 330
Ralton, Gemma 430
Ran, Yunxi 37
Ravara, Ascensão 124
Regan, Aine 434
Reiche, Stephan 394
Reid, Charlotte 179
Reid, Michelle 680
Reijnierse, Gudrun 399
Reman, Macon 635
Remcheck, Jessica 483
Repke, Lydia 324
Revuelta, Gema 506
Ribeiro, Daniela 578
Richard, Olivier 660
Richards, Shellie 428
Ridgway, Andy 57, 51
Riedlinger, Michelle 524
Rivera, Ana Leonor 184
Rizk, Shahir 450
Rizzo, Julia 81
Robinson, Lucy 284
Roche, Joseph 427, 524
Rödder, Simone 336
Rodrigues, Ana Candida 614
Rogers, Amy 359
Rojas, Enrique 694
Roldán, Yatzel 514
Rose, Kathleen 533
Rosenbaum, Sarah 340, 341
Rossi, Tullio 98
Rothe, Ingmar 412
Rowe, Iain 269, 270
Rozenblum, Yael 28, 27
RUBBIA, Giuliana 370
Rubin, Andrea 244

Riesen, Guillaume 447
Rittig, Tim 600, 598
Rumble, Robert 365

S

Samantela, Sandra 392
Sammut, Gordon 565
Sampson, Leda 212
Sandanger, Torkjel 340, 341
Sandanger, Torkjel M. 677
Sanford, Kiki 515
Santos, Niedja 418
Santos, Rafael 509
Santos-Carvalho, Ana 171
Sá-Pinto, Xana 251
Sarabando, Cândida 251
Sardag, Metin 256
Sartawi, Mohammad 565
Sato, Hitoshi 145
Saviane, Chiara 242, 176
Schaefer, Teresa 49
Schaller, Birte 598
Schebesta, Alexandra 249
Scheper, Jule 574
Scheufele, Dietram 674
Schiele, Alexandre 525
Schlederer, Florian 720
Schmeling, Sascha 337
Schmidt, Tome 725, 726
Schoeneck, Annette 620
Schøning, Bente 340, 341
Sheaves, Alison 518
Shennan, Victoria 426
Sheridan, Helen 89
Sherry, Juli 447
Shiose, Takayuki 145
Shridhar, Gomathi 330
Shterzadeh, Shirin 727
Silva, Mayara 212
Silva Luna, Daniel 342
Simarmata, Eva 344
Simarmata, Eva Rifayanty 241
Simões, Ana 603
Skeldon, Kenneth 549
Skelly, Martin 359
Smeets, Ionica 381
Soares, Hugo 603
Soares, Mirelly 601, 622
Sokolovska, Nataliia 426
Sotério, Carolina 678
Spinelli, Patricia 670
Spoel, Philippa 149
Srivastava, Apeksha 150
Stahl, Aylon 315
Steinrück, Magdalena 720
Stelmach, Aleskandra 280
Sterk, Florentine 55

Schrammel, Maria 201, 39
Schutte, Katy 357
Scott, Andrew 321
Seganfreddo, Francesco 244
Segev, Elad 28, 152
Semesta, Ardiandra Achmadi 713
Serra, Sónia 90
Serrano, Maria 656
Serrano Bravo, Paola 357
Sharma, Shalini 51
Stevenson, Elizabeth 524
Stewart, Mhairi 246, 329, 247
Stewart, Mhairi 426
Stifjell, Kristine M. 677
Strobbe, Alessandro 694
Stupart, Richard 307
Sud, Reeteka 686, 691
Suda, David Paul 536
Sullivan, Miriam 528
Swoboda, Ines 249

T

Taddicken, Monika 235
Taddicken, Monika 484
Tagueña, Julia 184
Takahashi, Satoshi 145
Tan, Yihong 312
Tandon, Rajesh 1000
Tang, Hongjie 202, 673
Teal Sullivan, Perrin 54
Teixeira, Eduardo 251
Teli, Shy 103
Teschner, Naama 135
Theiler, Lena 347, 336
Thies, Barbara 558
Toledano Ayala, Manuel 457
Tönsfeuerborn, Tobias 378
Townsend, Poppy 245
Traikapi, Artemis 560
Tran, Minh 338
Travers, Fiona 424, 422
Trinca, Mayra 222
Tripalitaki, Maria Georgia 560
Tshipa, Sharon 250
Tugo, Joan 657
Tugo, Joan 635
Turner-Skoff, Jessica 42
Tuttle Parsons, Jen 226

U

Unnithan, Sangeetha 475
Unterfrauner, Elisabeth 49
Unterfrauner , Elisabeth 39
Ussher, Shaun 465
Uutela, Elina 553
Uzun, Elif 256

v

van Bruggen, Femke 364
van Dam, Frans 524
van Marion, Ingrid 384
van Zuilen, Maaike 158

V

Van Gelder, Pieter 346
Van Laer, Jef 283
Van Sebille, Erik 52
Vandermaesen, Isaak 283
Vara, Ana M. 217
Vardy, Sam 308
Varela Amaral, Sara 567
Vasan, Seshadri 735, 734
Vasconcellos, Iara 622
Vasconcelos, Ana 567
Vasilyeva, Zinaida 246, 575
Veiga, Nicolas 508
Verstraeten, Sara 306
Vicedomini-Coelho, Daniela 725
Vicente, Ana Carolina 455
Vieite, Beatriz 124
Vilaça, Julliana 692
Vilchez, Amanda 627
Viswanath, Biju 691
Viswanath , Biju 686
Voigt, Charmaine 324
Voigt-Heucke, Silke 544, 141
Vonk, Aike 52
Voûte, Robert 476
Vu Duy, Thanh 344

W

Wakabayashi, Kaito 145
Walls, Trinity 616
Walsh, Patrick Paul 250
Wang, Cong 712
Wang, Guoyan 190, 63, 62
Wang, Jilong 37
Weston, Jen 361
Wheeler , Michael 704
Wien, Charlotte 677, 340, 341
Wiesbrock, Meghan 119, 120
Wijnker, Winnifred 381
Wilkinson, Clare 280

Wang, Lingfei 190, 62
Weber, Annika 254
Wehrmann, Caroline 476
Weiner, Rob 288
Weitkamp, Emma 51
Wendler, Jana 426
Willems, Sanne 381
Winter, Stephan 235
Wormer, Holger 620
Wright, David 428, 417
Wu, Dan 597
Wu, Xinzhu 37

X

Xavier, Fábia 299
Xiang, XiaoWei 623
Xu, Xingxing 619

Y

Yacobson, Elad 325
Yang, Jiani 20
Yang, Jing 148, 84
Yang, Zheng 77, 73
Yao, Yuting 414
Ye, Xiaoyu 469
Yi, He 619
Yosef, Roy 28
Youth Delegate, Inuvialuit 302
Yuanbing, Deng 566

Z

Zervos, Sophie 324
Zhang, FangQi 623
Zhang, Ruifen 123
Zhang, Xingxin 101
Zhang, Zhiting 533
Zheng, Xia 99
Zhou, JianZhong 623
Zhou, Yuanyuan 633
Zhou, Yuting 102
Zhu, Liyao 84
Zollmann, Stefanie 529
Zuma, Luthando 168